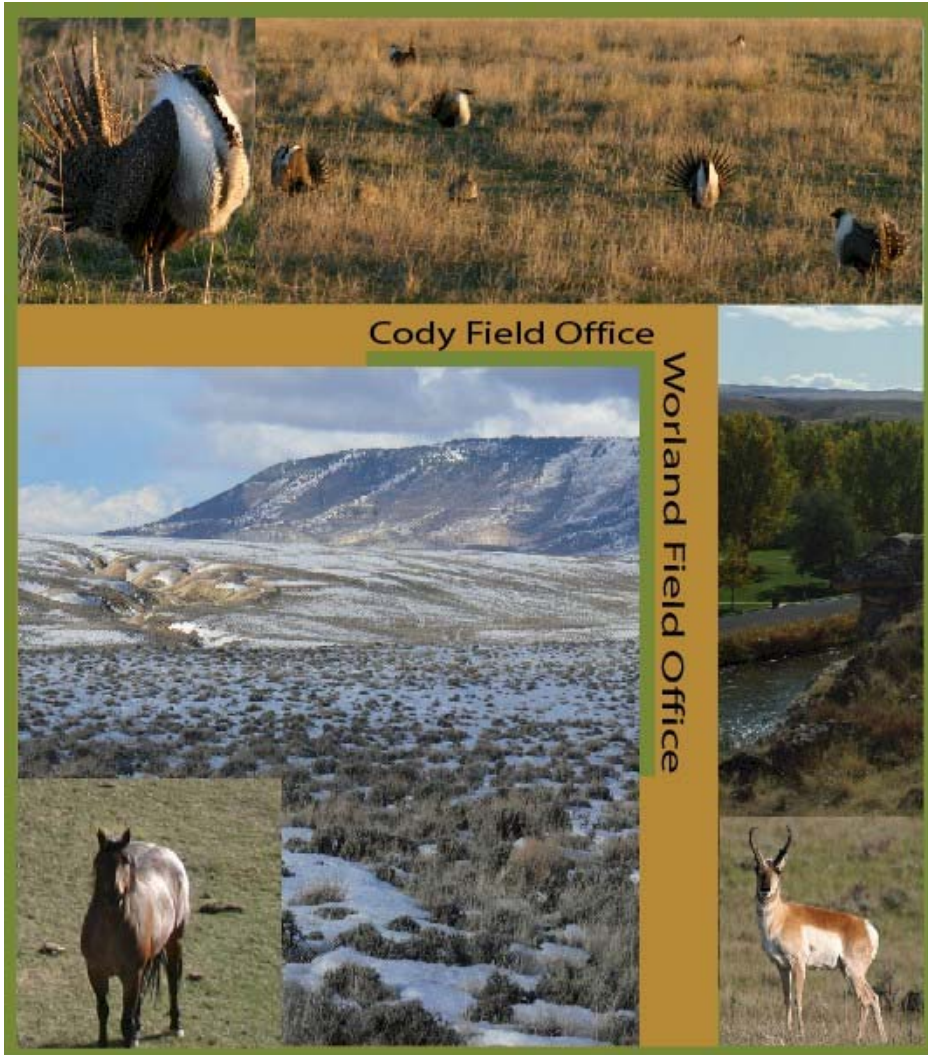


Bighorn Basin Resource Management Plan Revision Project

Proposed Resource Management Plan and Final Environmental Impact Statement



Wyoming - Cody & Worland Field Offices

Volume 4 of 4 Appendices

May 2015



The BLM's multiple-use mission is to sustain the health and productivity of public lands for the use and enjoyment of present and future generations.

The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

Bighorn Basin Resource Management Plan Revision Project

Proposed Resource Management Plan and Final Environmental Impact Statement

Volume 4 of 4 Appendices

**U.S. Department of the Interior
Bureau of Land Management
Cody Field Office, Wyoming**

and

**U.S. Department of the Interior
Bureau of Land Management
Worland Field Office, Wyoming**

May 2015

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

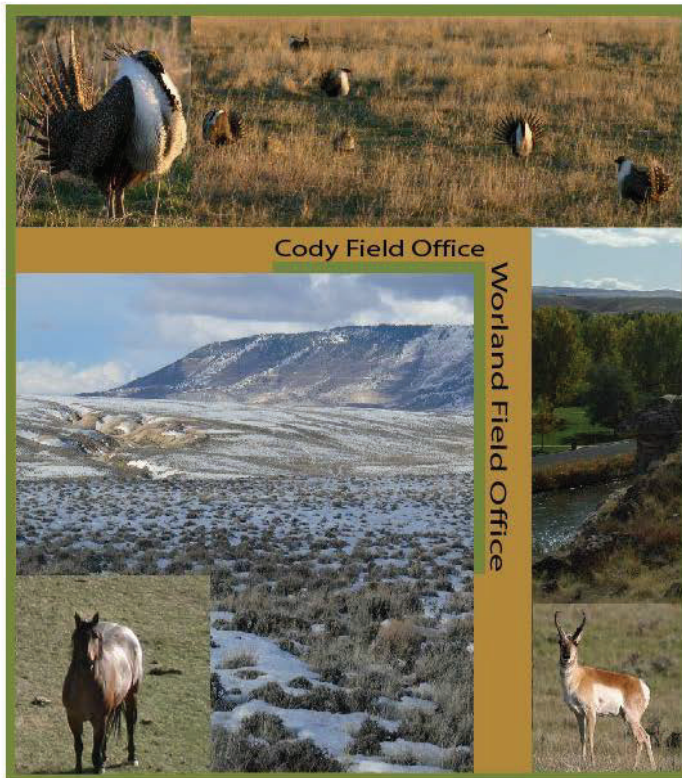
Bighorn Basin Resource Management Plan Revision Project

Appendix A

Comment Analysis

APPENDIX A
COMMENT ANALYSIS

**Comment Analysis Report
for the
Bighorn Basin Resource Management Plan
Revision Project**



BLM

Wyoming - Cody & Worland Field Offices



May 2015

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**Comment Analysis Report
for the
Bighorn Basin Resource Management Plan
Revision Project**

**U.S. Department of the Interior
Bureau of Land Management, Wyoming**

**Cody Field Office
Worland Field Office**

May 2015

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Attachment B: Draft Resource Management Plan and Draft Environmental Impact Statement Individual Comments and Index to Summary Comments and Summary Responses

Attachment C: Supplement to the Draft Resource Management Plan and Draft Environmental Impact Statement Commenter Response Index

Attachment D: Supplement to the Draft Resource Management Plan and Draft Environmental Impact Statement Individual Comments and Index to Summary Comments and Summary Responses

Attachment E: Complete comments documents

ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern	VRI	Visual Resource Inventory
AMP	Allotment Management Plan	VRM	Visual Resource Management
APLIC	Avian Power Line Interaction Committee	WAFWA	Western Association of Fish and Wildlife Agencies
AUM	Animal Unit Month	WDEQ	Wyoming Department of Environmental Quality
BER	Baseline Environmental Report	WFO	Worland Field Office
BLM	Bureau of Land Management	WGFD	Wyoming Game and Fish Department
BMP	Best Management Practice	WSA	Wilderness Study Area
CBNG	Coalbed Natural Gas	WSR	Wild and Scenic River
CEQ	Council on Environmental Quality		
CFR	Code of Federal Regulations		
COT	Conservation Objectives Team		
CSU	Controlled Surface Use		
CYFO	Cody Field Office		
CX	Categorical Exclusion		
EIS	Environmental Impact Statement		
EO	Executive Order		
EOR	Enhanced Oil Recovery		
ESA	Endangered Species Act		
FLPMA	Federal Land Policy and Management Act		
FMP	Fire Management Plan		
GIS	Geographic Information System		
OHV	Off-Highway Vehicle		
HMA	Herd Management Area		
IM	Instruction Memorandum		
IMPLAN	Impact Analysis for Planning Model		
MLP	Master Leasing Plan		
MOU	Memorandum of Understanding		
NAAQS	National Ambient Air Quality Standards		
NEPA	National Environmental Policy Act		
NOA	Notice of Availability		
NOI	Notice of Intent		
NSO	No Surface Occupancy		
NTT	National Technical Team		
OGMA	Oil and Gas Management Area		
PHMAs	Priority Habitat Management Areas		
RDF	Required Design Feature		
RFD	Reasonably Foreseeable Development		
RMP	Resource Management Plan		
ROW	Rights-of-Way		
SRMA	Special Recreation Management Area		
TLS	Timing Limitation Stipulation		
USFWS	United States Fish and Wildlife Service		

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1.0 INTRODUCTION

The Bighorn Basin Resource Management Plan (RMP) Revision Project is a combined effort to revise RMPs for the Bureau of Land Management (BLM) Cody Field Office (CYFO) and BLM Worland Field Office (WFO). This document refers to the combined CYFO and WFO planning areas as the Planning Area. The BLM published the Notice of Availability (NOA) announcing the release of the Bighorn Basin Draft RMP and Draft Environmental Impact Statement (EIS) for public review and comment in the Federal Register on April 22, 2011. This notice initiated the 90-day comment period. At the request of the public and cooperating agencies, the BLM extended the comment period by 45 days, for a total comment period of 135 days. The comment period ended on September 7, 2011. During the 135-day comment period, the BLM hosted six public meetings within the Planning Area to gather comments on the Draft RMP and Draft EIS and to answer questions from the public.

In July 2012, the BLM Rocky Mountain Regional Interdisciplinary Team identified the need to prepare a Supplement to the Bighorn Basin Draft RMP and Draft EIS (the Supplement) to consider incorporation of proposed management actions in designated greater sage-grouse Key and Priority Habitat Areas and to thoroughly consider the conservation measures identified in the Greater Sage-grouse National Technical Team (NTT) Report on National Greater Sage-Grouse Conservation Measures (Sage-grouse NTT 2011), as referenced in BLM Instruction Memorandum (IM) 2012-044 (BLM National Greater Sage-Grouse Land Use Planning Strategy). The NOA announcing the release of the Supplement published in the *Federal Register* on July 12, 2013, initiated a 90-day comment period. The BLM initially scheduled 90 days for public comment and the original date for the close of the comment period was October 12, 2013. However, due to the lapse in appropriations and the resulting federal government shutdown, the documents were not available on the BLM website from October 1 through October 16, 2013 and the BLM extended the comment period 20 days; ending on November 1, 2013. During the 110-day comment period, the BLM held six public meetings within the Planning Area (in the same locations as meetings for the Draft RMP and Draft EIS) to discuss the content of the Supplement and to answer questions.

This report provides a summary of public comments received on the Bighorn Basin Draft RMP and Draft EIS during the comment period as well as public comments received on the Supplement during the subsequent comment period. During the Draft RMP and Draft EIS comment period, the BLM received a total of 46,009 comment documents: 44,951 were submitted by email, 1,029 were submitted in hard copy or sent by mail, 11 documents were received during public meetings, and 18 submissions were received through the BLM website. During the Supplement comment period, the BLM received a total of 2,145 comment documents: 2,112 were submitted by email, 32 were submitted in hard copy or sent by mail, and 1 was received through the BLM website. No comments were submitted at the public meetings held for the Supplement.

A public comment document refers to the entire written submission from a commenter (e.g., full letter, e-mail, etc.), whereas a comment refers to an individual and identifiable substantive expression of interest or issue statement included within a public comment document. For example, a letter (i.e., public comment document) received within the comment period may contain one or more separate comments. A commenter refers to the individual or organization who submitted the comment document. Of the 46,009 documents received, the BLM identified 45,454 comment documents as form letters regarding the Draft RMP and Draft EIS. During the Supplement comment period, the BLM received a total of 2,145 documents, of which 2,067 were identified as form letters. The BLM defined form letters as letters containing identical text submitted by more than five individuals.

This report provides a summary of the full range of public issues and concerns as submitted during the comment periods. The submitted comments and summary presented in this report do not necessarily represent the sentiments of the public as a whole. However, this summary does attempt to provide fair representation of the wide range of views submitted during the comment periods. In consideration of these views, it is important for the public and decision makers to understand that this process does not attempt to treat input as if it were a vote. Instead, comment analysis is a process that allows the BLM to review and consider received comments, develop appropriate responses, revise the Draft RMP and Draft EIS in response to comments, and support the BLM's decision-making process.

The remainder of this report is organized as follows:

- **Content Analysis Process** – Describes how the BLM received, recorded, and categorized comment documents and comments.
- **Commenter Demographics** – Presents demographic information associated with submitted comment documents including geography and affiliation of commenters.
- **Summary of Public Responses to the Draft RMP and Draft EIS and Supplement** – Provides a breakdown of the number of comments received by issue category, a summary of comments received, and BLM's response to comments received.
- **Analysis of Comments** – Outlines the parameters for substantive and non-substantive comments and provides a brief summary of comments and responses.
- **Attachment A: Draft RMP and Draft EIS Public Comment Response Index** – Includes instructions on how to use the tables in Attachments A and B. It also includes an index listing the names of all commenters and their associated comment document number.
- **Attachment B: Draft RMP and Draft EIS Individual Comments and Index to Summary Comments and Summary Responses** – Includes all substantive public comments received during the comment period along with an index to help users find their associated summary comments and response.
- **Attachment C: Supplement Public Comment Response Index** – Includes instructions on how to use the tables in Attachments C and D, as well as an index listing the names of all commenters and their associated comment document number.
- **Attachment D: Supplement Individual Comments and Index to Summary Comments and Summary Responses** – Includes all substantive public comments received during the comment period along with an index to help users find their associated summary comments and response.
- **Attachment E: Comment Documents** – Includes all substantive public comment documents received during the public comment periods.

Attachments B, D, and E are available on the Bighorn Basin RMP project website at:
<http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>.

2.0 COMMENT ANALYSIS PROCESS

The BLM defines comment analysis as a systematic method of compiling, categorizing, and evaluating written comments made by individuals, federal and state agencies, Tribal governments, elected representatives, and other organizations on the Draft RMP and Draft EIS and Supplement in order to identify substantive issues for review and response by BLM decision makers. The comment analysis process provides a methodical approach for the BLM to revise text in the RMP and EIS based on comments provided during the two comment periods. Additionally, through the comment analysis

process, BLM supplemented the project mailing list of commenters and compiled demographic information on the geographic distribution of commenters (see Section 3.0 of this report).

Public comment documents include hardcopy comments received at the public meetings and electronic or written comment documents postmarked or received via the project website within the comment periods. Methods of comment document submittal included mail, email, website submittals, and public meetings. All individuals attending public meetings were encouraged to submit comments in writing.

2.1. Analysis Process

The BLM comment analysis team utilized the program CommentWorks to catalogue, number, review, categorize, and respond to comments received during the Draft RMP and Draft EIS comment period as well as the Supplement comment period.

Upon receipt of a public comment document, a member of the comment analysis team logged the comment document into an Microsoft Excel comment tracking spreadsheet, assigned the document a unique identifier (i.e., Document 10001), and converted the comment document to a searchable electronic (i.e., PDF) document and a text file. The analysis team then added all pertinent commenter information (e.g., name, affiliation, address, and type of comment document) into CommentWorks and uploaded the electronic documents into the system.

The first step in the analysis process was to identify individual substantive comments within a public comment document. The comment analysis team identified each individual substantive comment based on guidance in the BLM National Environmental Policy Act (NEPA) Handbook (H-1790-1). Substantive comments are those that do one or more of the following:

- Question, with reasonable basis, the accuracy of information in the RMP and EIS;
- Question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis;
- Present new information relevant to the analysis;
- Present reasonable alternatives other than those analyzed in the RMP and EIS; or
- Cause changes or revisions in one or more of the alternatives.

Comments that were not considered substantive included the following:

- Comments in favor of or against the proposed action or alternatives without reasoning that meet the substantive comment criteria listed above;
- Comments that only agree or disagree with BLM policy or resource decisions without justification or supporting data that meet the substantive criteria listed above;
- Comments that do not pertain to the Planning Area or scope of the Bighorn Basin RMP Revision Project; or
- Comments that take the form of vague, open-ended questions.

The analysis team established an issue coding structure for all substantive comments within CommentWorks that was used to bracket and sort comments into logical groups or issue categories (e.g., air quality, cumulative impacts, process and procedure). CommentWorks is the comment tracking and analysis platform within the ePlanning system, which is being used for the Bighorn Basin RMP Revision Project. A list of all issue categories identified for the Draft RMP and Draft EIS is located below in Table A-1. Table A-2 lists the issue categories for the Supplement.

Appendix A – Comment Analysis
Comment Analysis Process

Once assigned an issue category, the BLM reviewed individual substantive comments and provided direction to develop a response. The comment analysis team then used the individual comments and direction to analyze, group, and summarize comments, and to develop responses to the summary comments.

When reviewing comments, the analysis team looked not only for each action or change requested by the public, but also for any supporting information to capture the comment and its context. In doing so, paragraphs within a comment letter may have been divided into several comments because of multiple comments being presented or, alternatively, sections of a letter may have been combined to form one coherent comment.

It is important to note that during the process of identifying individual comments and concerns, the BLM treated all comments equally. The BLM did not weigh comments based on organizational affiliation and the number of duplicate comments did not increase the priority or merit of one comment over another. The process was not one of counting votes and the BLM did not make any efforts to tabulate the exact number of people for, or against, any given aspect of the Draft RMP and Draft EIS and Supplement. Rather, the BLM focused on an understanding of the content of a comment, information that would lead to a reasoned choice among the alternatives, and appropriate responses and revisions.

Table A-1. Draft RMP and Draft EIS Issue Categories

Issue Categories		
Air Quality	Master Leasing Plans	Soils
Areas of Critical Environmental Concern	Mineral Potential and Reasonably Foreseeable Development	Special Status Species
Climate Change	Minerals	Travel and Transportation Management
Cultural	NEPA	Vegetation
Cumulative Impacts	Paleontology	Visual Resource Management
Extension Request	Process and Procedure	Water
Fire and Fuels	Readability and Format	Wild and Scenic Rivers
Fish	Recreation	Wild Horses
Historic Trails	Renewable Energy	Wilderness Characteristics
Invasive Species	Rights-of-Way	Wilderness Study Areas
Lands and Realty	Greater Sage-Grouse	Wildlife
Livestock Grazing	Socioeconomic	-

Issue categories identified for the Supplement are listed below in Table A-2.

Table A-2. Supplement Issue Categories

Issue Categories		
Air Resources	Leasable Minerals – Oil and Gas	Socioeconomic
Areas of Critical Environmental Concern	Livestock Grazing Management	Special Status Species
Consultation	Locatable Minerals	Trails and Travel Management
Cultural	Minerals – General	Vegetation
Cumulative Impacts	Out of Scope	Visual Resource Management
Extension Request	Paleontological	Water
Fire and Fuels	Planning Issues	Wild Horses
Greater Sage-Grouse	Recreation	Wilderness Characteristics
Invasive Species	Renewable Energy	Wildlife
Lands and Realty	Rights of Way and Corridors	-
Laws, Regulations, Guidance, Process	Riparian-Wetland	-

3.0 COMMENTER DEMOGRAPHICS

This section provides a summary of commenter demographics. Demographic analysis allows the BLM to form an overall picture of issues, as well as a better understanding of who is submitting comments, the geographic distribution of commenters, their affiliations, and the format of the public comment documents.

3.1. Geographic Representation

The BLM tracked the geographic representation for each comment document that included such information. Tables A-3 and A-4 identify the number of comment documents received from individual geographic locations (excluding form letters). Figures 3 and 4 depict the geographic distribution of comment documents received from within the Planning Area, documents received from outside the Planning Area but within the state of Wyoming, and documents received from out of state. The BLM received the greatest number of comment documents for the Draft RMP and Draft EIS from commenters within the Planning Area. The greatest number of comment documents received for the Supplement were from commenters outside the State of Wyoming.

Appendix A – Comment Analysis
Commenter Demographics

Table A-3. Number of Draft RMP and Draft EIS Commenters by Geographic Location

State	City	Number of Commenters
Alabama	Undisclosed	1
Arizona	Mesa	1
Arizona	Phoenix	1
Arizona	Scottsdale	1
California	Healdsburg	1
California	Oakland	1
California	Placerville	1
California	Redwood City	1
California	Somis	1
California	Tahoe City	1
California	Volcano	1
California	Undisclosed	1
Colorado	Arvada	1
Colorado	Boulder	1
Colorado	Colorado Springs	2
Colorado	Denver	11
Colorado	Fort Collins	1
Colorado	Lakewood	1
Colorado	Longmont	1
Colorado	Lyons	1
Colorado	Redvale	1
Colorado	Sedalia	1
Connecticut	Granby	1
Florida	Lighthouse Point	1
Florida	Orlando	1
Florida	Stuart	1
Georgia	Augusta	1
Idaho	Pocatello	1
Illinois	Evanston	1
Illinois	Rochelle	1
Illinois	Wheaton	2
Indiana	Boone	1
Maine	Tewksbury	1
Maryland	Gaithersburg	1

Table A-3. Number of Draft RMP and Draft EIS Commenters by Geographic Location (continued)

State	City	Number of Commenters
Massachusetts	Carlisle	1
Massachusetts	Hampden	3
Massachusetts	Holyoke	1
Michigan	Berkley	1
Mississippi	Becker	1
Montana	Belgrade	1
Montana	Billings	6
Montana	Bozeman	6
Montana	Dillon	1
Montana	Missoula	1
New Jersey	Lakewood	1
New York	New York	1
North Carolina	Gibsonville	1
North Carolina	Reidsville	1
Ohio	Cleveland	1
Ohio	Mentor	1
Ohio	Undisclosed	1
Oklahoma	Clinton	2
Oklahoma	Oklahoma City	1
Oregon	Portland	1
Other	Washington, DC	2
Pennsylvania	Philadelphia	1
Pennsylvania	Zelienople	1
Tennessee	Knoxville	2
Tennessee	Memphis	1
Texas	Austin	1
Texas	Belton	1
Texas	Denton	1
Texas	Houston	2
Texas	Sugarland	1
Utah	Salt Lake City	4
Virginia	Mechanicsville	1
Virginia	Williamsburg	1
Washington	Seattle	1
Washington	Spokane	1
Washington	Tacoma	1

Appendix A – Comment Analysis
Commenter Demographics

Table A-3. Number of Draft RMP and Draft EIS Commenters by Geographic Location (continued)

State	City	Number of Commenters
West Virginia	Zanesville	1
West Virginia	Undisclosed	1
Wisconsin	Madison	1
Wyoming	Alpine	1
Wyoming	Basin	14
Wyoming	Burlington	1
Wyoming	Byron	5
Wyoming	Casper	3
Wyoming	Cheyenne	15
Wyoming	Clark	4
Wyoming	Cody	90
Wyoming	Covell	1
Wyoming	Cowley	3
Wyoming	Deaver	2
Wyoming	Emblem	3
Wyoming	Gillette	2
Wyoming	Greybull	14
Wyoming	Hyattville	7
Wyoming	Jackson	2
Wyoming	Lander	5
Wyoming	Laramie	9
Wyoming	Lovell	13
Wyoming	Manderson	1
Wyoming	Meeteetse	5
Wyoming	Moran	1
Wyoming	Parkman	1
Wyoming	Pinedale	1
Wyoming	Powell	59
Wyoming	Ralston	3
Wyoming	Riverton	3
Wyoming	Shell	1
Wyoming	Sheridan	5
Wyoming	St. Stephens	1
Wyoming	Ten Sleep	9
Wyoming	Thermopolis	53
Wyoming	Wapiti	1

Table A-3. Number of Draft RMP and Draft EIS Commenters by Geographic Location (continued)

State	City	Number of Commenters
Wyoming	Wilson	1
Wyoming	Worland	20
Wyoming	Undisclosed	34
Undisclosed Number of Commenters	Undisclosed City	82
Total		579

Note: Form letters were counted once based on the geographic location of the originating entity for the master form letter.

Table A-4. Number of Supplement Commenters by Geographic Location

State	City	Number of Commenters
Arizona	Phoenix	1
Colorado	Craig	1
Colorado	Denver	5
Colorado	Fort Collins	1
District of Columbia	Washington	2
Idaho	Hailey	1
North Dakota	Bismarck	1
New York	Brooklyn	1
Oklahoma	Oklahoma City	1
Oregon	Bend	1
South Dakota	Black Hawk	1
Tennessee	Gatlinburg	1
Texas	Plano	1
Utah	Salt Lake City	2
Virginia	Alexandria	1
Washington	Spokane	1
Wyoming	Basin	1
Wyoming	Cheyenne	7
Wyoming	Cody	8
Wyoming	Greybull	5
Wyoming	Lander	2
Wyoming	Laramie	3
Wyoming	Lovell	2

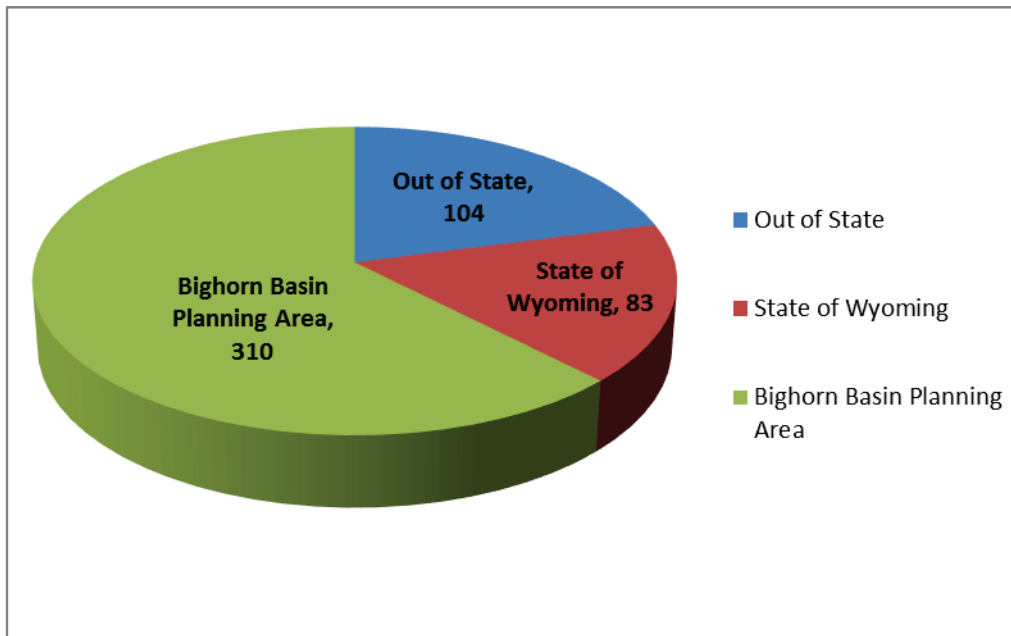
Appendix A – Comment Analysis
Commenter Demographics

Table A-4. Number of Supplement Commenters by Geographic Location (Continued)

State	City	Number of Commenters
Wyoming	Rock Springs	1
Wyoming	Sheridan	2
Wyoming	Ten Sleep	4
Wyoming	Thermopolis	6
Undisclosed	Undisclosed City	15
Total		78

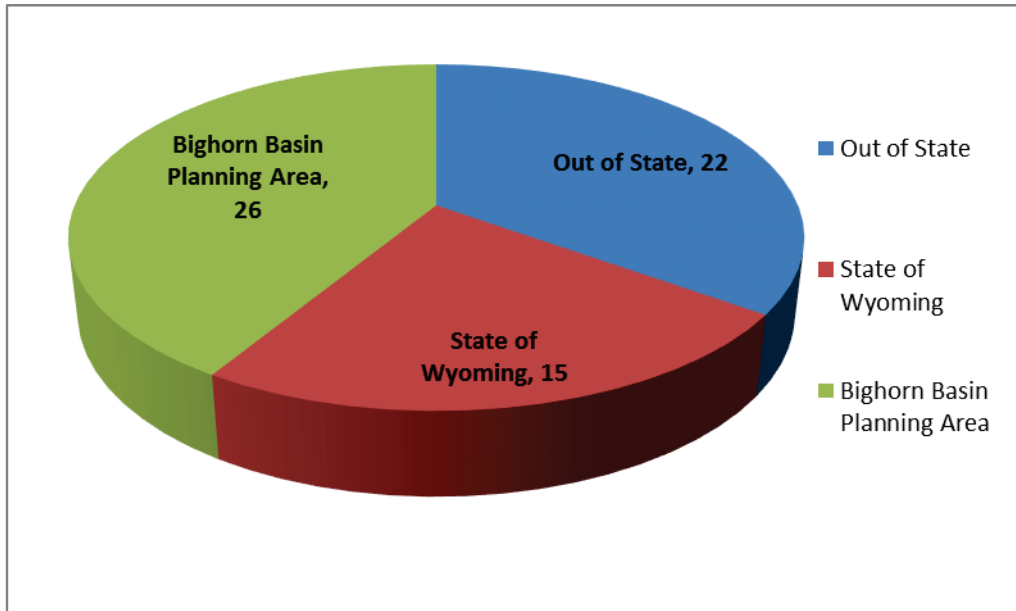
Note: Form letters were counted once based on the geographic location of the originating entity for the master form letter.

Figure A-1. Number of Draft EIS and Draft RMP Commenter Documents by Geography



Note: Comments received through email which did not contain mailing addresses or geographic representation accounted for a total of 82 submissions. Form letters were counted once based on the geographic location of the originating entity for the master form letter.

Figure A-2. Number of Supplement Commenter Documents by Geography



Note: Comments received through e-mail which did not contain mailing addresses or geographic representation accounted for a total of 15 submissions. Form letters were counted once based on the geographic location of the originating entity for the master form letter.

3.2. Organizational Affiliation

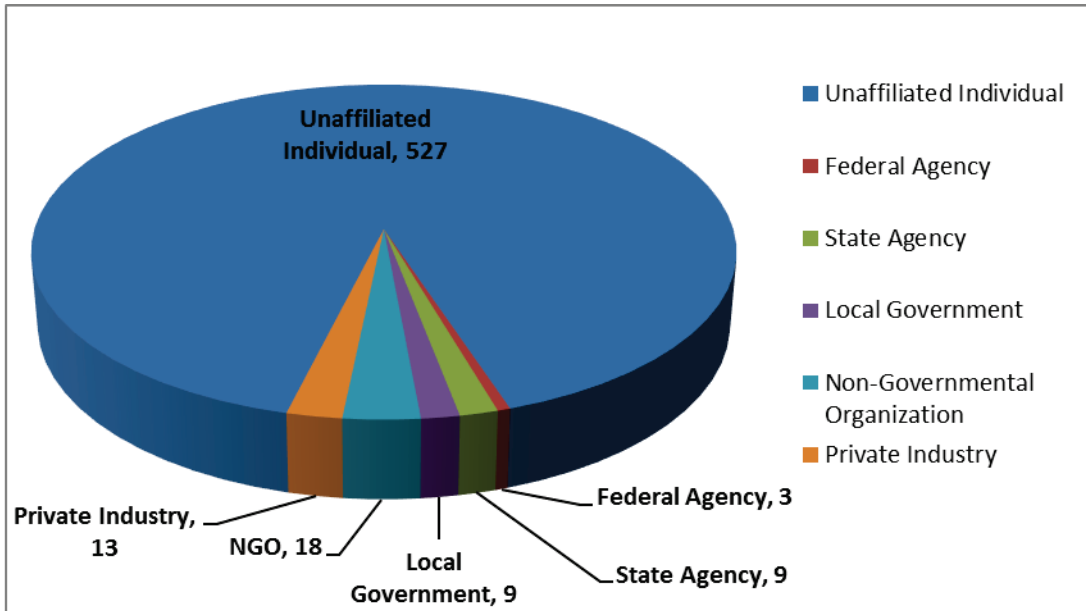
The BLM received comments from a range of entities including federal agencies, state agencies, local governments, non-governmental organizations, private industries, and unaffiliated individuals (Table A-5 and Figures 3 and 4). The BLM affiliated comment documents with a government or non-governmental organization if the document was received on official letterhead or was received through an official agency or organization email address. The BLM classified all other comment documents as unaffiliated individuals. The BLM received the greatest number of comment documents from unaffiliated individuals.

Table A-5. Number of Comment Documents by Affiliation (excluding form letters)

Affiliation	Number of Draft RMP and Draft EIS Public Comment Documents	Number of Supplement Public Comment Documents
Federal Agency	3	3
State Agency	9	2
Local Government	9	3
Non-Governmental Organization	18	22
Private Industry	13	19
Unaffiliated Individual	527	29
Total	579	78

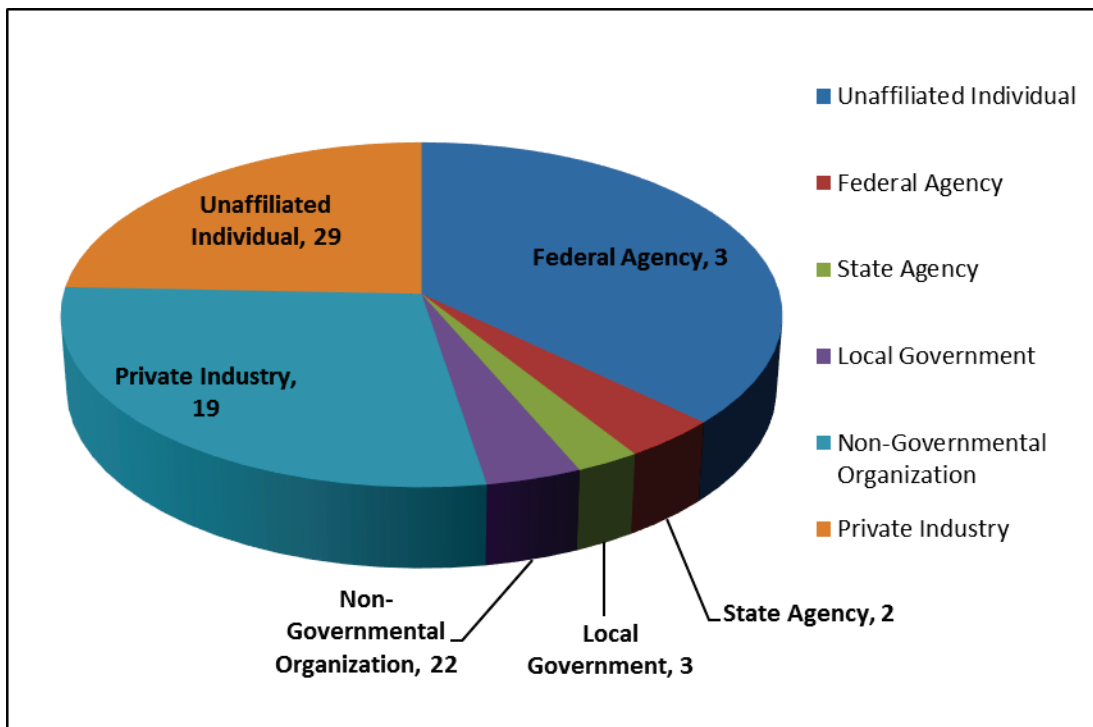
Note: Form letters were counted once based on the geographic location of the originating entity for the master form letter. See Section 3.4 for a breakdown of form letter affiliations.

Figure A-3. Number of Draft RMP and Draft EIS Comment Documents by Affiliation



Note: Form letters were counted once based on the geographic location of the originating entity for the master form letter. See Section 3.4 for a breakdown of form letter affiliations.

Figure A-4. Number of Supplement Comment Documents by Affiliation



Note: Form letters were counted once based on the geographic location of the originating entity for the master form letter. See Section 3.4 for a breakdown of form letter affiliations.

3.3. Public Comment Document Method of Delivery

The BLM received comment documents through a variety of delivery methods. Table A-6 identifies the number of documents received by method of delivery (e.g., email, letter, and website). The BLM received the greatest number of comment documents on the Draft RMP and Draft EIS through email (44,951) and mail (1,029). The BLM received the greatest number of comment documents on the Supplement through email (2,112) and mail (32).

Table A-6. Number of Public Comment Documents by Method of Delivery

Method of Delivery	Draft EIS and Draft RMP Number	Supplement Number
Email	44,951	2,112
Website	18	1
Mail	1,029	32
Public Meeting	11	0
Total	46,009	2,145

3.4. Form Letters

The BLM received 45,454 form letters from eight separate originating entities during the Draft RMP and Draft EIS comment period and 2,067 form letters from 2 non-governmental organizations and 55 from an unknown organization during the Supplement comment period. The BLM designated the first form letter from each originating entity as the “master” comment document and the BLM reviewed each subsequent form letter to ensure that the content was identical to the master comment document. The form letters were received primarily by email with the exception of 1 Marathon Oil form letter and 787 Greater Yellowstone Coalition postcards that were received by mail. Because the form letters contained identical text to their corresponding master comment document, the BLM analyzed the eight master comment documents. In those cases where form letters included additional text, they were reviewed and processed if substantive individual comments were identified. Table A-7 identifies the originating entity, affiliation, and number of each form letter received.

Table A-7. Form Letters Received by Affiliation

Originating Entity	Affiliation	Number Received on Draft RMP and Draft EIS	Number Received on Supplement
Natural Resources Defense Council	Non-Governmental Organization	43,286	-
Sierra Club	Non-Governmental Organization	98	7
Wilderness Society	Non-Governmental Organization	735	-
Greater Yellowstone Coalition	Non-Governmental Organization	1,222	-
Marathon Oil	Private Industry	73	-
Bighorn Basin RMP General Letter	Unaffiliated Individuals	12	-
Unknown Letter	Unaffiliated Individuals	-	55
Wild Horses Letter	Unaffiliated Individuals	20	-
Ward Letter	Unaffiliated Individuals	8	-
WildEarth Guardians	Non-Governmental Organization	-	2,005
Total		45,454	2,067

4.0 ANALYSIS OF COMMENTS

The BLM received 46,009 comment documents during the Draft RMP and Draft EIS comment period. As noted above, of the 46,009 letters received, 45,454 were form letters (which represented eight master form letter documents) and 571 were not form letters. The BLM analyzed a total of 579 comment documents, which included the 8 master form letter documents and 571 other comment documents.

The BLM received 2,145 comment documents during the Supplement comment period. Of the 2,145 letters received, 2,067 were form letters (which represented three master form letter documents) and 76 were not form letters. For the Supplement, the BLM analyzed a total of 78 comment documents, including the 3 master form letters documents and 76 other comment documents.

The 579 Draft RMP and Draft EIS public comment documents and 78 Supplement public comment documents contained substantive and non-substantive comments. Representative non-substantive comments included requests to be added to the project mailing list, requests for a copy of the Draft RMP and Draft EIS, personal preference or opinion, comments and questions that were not supported, and comments which are outside the scope of the Draft RMP and Draft EIS or Supplement. Non-substantive comments received during the two comment periods are further described in Section 4.1.3.

In accordance with the BLM’s NEPA Handbook (H-1790-1), comments received on the Bighorn Basin RMP and EIS were analyzed and responded to if they: “are substantive and relate to inadequacies or inaccuracies in the analysis or methodologies used; identify new impacts or recommend reasonable new alternatives or mitigation measures; or involve substantive disagreements on interpretations of significance.” (See 40 Code of Federal Regulations [CFR] 1502.19, 1503.3, 1503.4, 1506.6, and 516 DM 4.17). BLM’s NEPA Handbook (H-1790-1) identifies the following comment category examples and appropriate responses.

Substantive Comments:

- **Questions, with a reasonable basis, the accuracy of the information in the environmental impact statement.** Factual corrections should be made in the Proposed RMP and Final EIS in response to comments that identify inaccuracies or discrepancies in factual information, data, or analysis.
- **Questions, with a reasonable basis, the adequacy of environmental analysis as presented.** Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate may or may not lead to changes in the EIS. Interpretations of analyses should be based on professional expertise. Where there is disagreement within a professional discipline, a careful review of the various interpretations are warranted. In some cases, public comments may necessitate an evaluation of analytical conclusions. If, after reevaluation, the manager responsible for preparing the EIS does not think that a change is warranted, the response should provide the rationale for that conclusion.
- **Comments that identify new impacts, alternatives, or mitigation measures.** If public comments on a RMP and EIS identify impacts, alternatives, or mitigation measures that were not addressed in the draft, the manager responsible for preparing the RMP and EIS should determine if they warrant further consideration. If they do, that official must determine whether the new impacts, new alternatives, or new mitigation measures should be analyzed in either: the Proposed RMP and Final EIS; a supplement to the Draft RMP and Draft EIS; or a completely revised and recirculated Draft RMP and Draft EIS.
- **Disagreements with Significance Determinations.** Comments may directly or indirectly question determinations regarding the significance or severity of impacts. A reevaluation of these determinations may be warranted and may lead to changes in the Proposed RMP and Final EIS. If, after reevaluation, the manager responsible for preparing the EIS does not think that a change is warranted, the response should provide the rationale for that conclusion.

Non- Substantive Comments

- **Expressions of Personal Preferences.** Comments that express personal preferences or opinions on the proposal do not require further agency action. They are summarized whenever possible and brought to the attention of the manager responsible for preparing the RMP and EIS. Personal preferences and opinions generally will not affect the analysis.
- **Other.** In addition to the five categories from the NEPA Handbook described above, the BLM added a sixth category named “other” which includes requests for copies of the RMP and EIS, requests to be added to the project mailing list, requests for comment extensions, and comments that are outside the scope of the RMP and EIS. These comments are considered non-substantive and do not require further agency action.

4.1. Comment Submittals by Issue Category

Within the 579 received Draft RMP and Draft EIS comment documents, excluding multiple copies of form letters, the BLM identified 1,224 individual substantive comments covering a broad range of issue categories. The greatest number of substantive comments were associated with minerals (132), wildlife (126), livestock grazing (107), and NEPA-related comments (105). Attachment A includes an index for users to identify their comment documents and Attachment B includes all individual substantive comments and an index for users to identify the corresponding BLM summary comments and responses. Table A-8 and Figure A-5 identify the number of comments submitted by issue category for the Draft RMP and Draft EIS.

Table A-8. Number of Comments per Issue Category – Draft RMP and Draft EIS

Issue Category	Number of Comments Per Issue Category
Areas of Critical Environmental Concern	25
Air Quality	54
Climate Change	8
Cultural	25
Cumulative Impacts	4
Extension Request	12
Fire and Fuels	12
Fish	17
Historic Trails	4
Invasive Species	11
Lands and Realty	21
Livestock Grazing	107
Master Leasing Plans	15
Mineral Potential and Reasonably Foreseeable Development	15
Minerals	132
NEPA	105
Paleontological	3
Process and Procedure	9
Readability and Format	6
Recreation	48
Renewable Energy	5
Rights-of-Way	36
Sage-Grouse	59
Socioeconomic	42
Soil	10
Special Status Species	52

Table A-8. Number of Comments per Issue Category – Draft RMP and Draft EIS (Continued)

Issue Category	Number of Comments Per Issue Category
Travel and Transportation	35
Vegetation	50
Visual Resource Management	25
Water	42
Wild and Scenic Rivers	3
Wild Horses	30
Wilderness Characteristics	64
Wilderness Study Areas	12
Wildlife	126
Total	387

Note: Duplicative comments in form letters were only counted once.

The BLM identified 920 individual substantive comments within the 78 comment documents received on the Supplement, excluding multiple copies of form letters. The greatest number of substantive comments were related to greater sage-grouse (323), Leasable Minerals – Oil and Gas (121), livestock grazing management (60), and Socioeconomics (59). Attachments C and D include indexes for users to identify their comment documents on the Supplement. Individual substantive comments on the Supplement are presented in Attachment D with an index for users to identify the corresponding BLM summary comments and responses. Table A-9 and Figure A-6 identify the number of comments submitted by issue category for the Supplement.

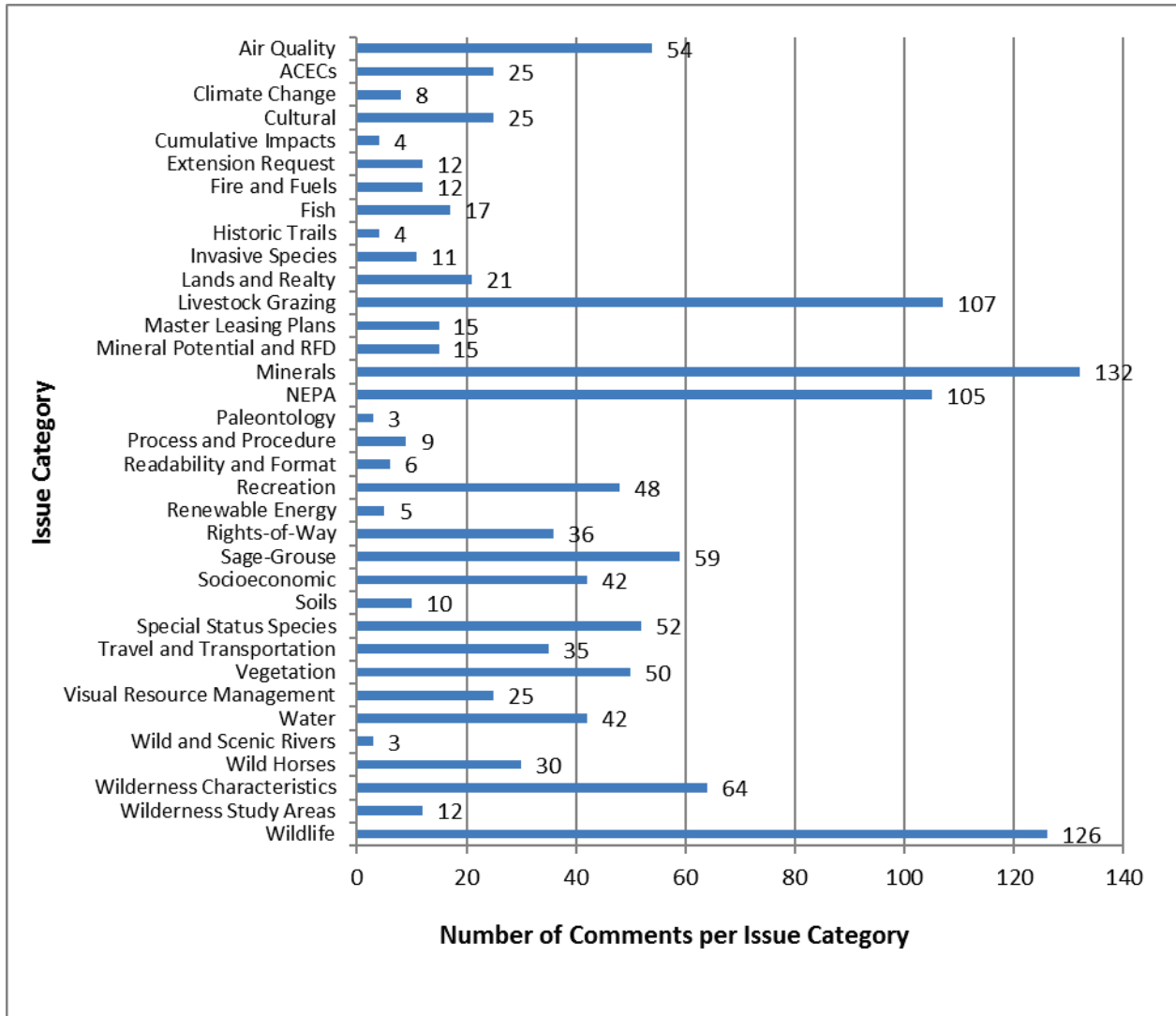
Appendix A – Comment Analysis
Analysis of Comments

Table A-9. Number of Comments per Issue Category – Supplement

Issue Category	Number of Comments Per Issue Category
Areas of Critical Environmental Concern	30
Air Resources	8
Consultation	4
Cultural	2
Cumulative Impacts	4
Fire and Fuels	30
Greater Sage-Grouse	323
Invasive Species	3
Lands and Realty	7
Laws, Regulations, Guidance, Process	47
Livestock Grazing Management	60
Minerals – General	13
Locatable Minerals	18
Leasable Minerals – Oil and Gas	121
Paleontological	1
Planning Issues	20
Recreation	2
Renewable Energy	6
Rights-of-Way and Corridors	45
Riparian-Wetland	6
Socioeconomic	59
Special Status Species	19
Trails and Travel Management	20
Vegetation	11
Visual Resource Management	2
Water	4
Wild Horses	8
Wilderness Characteristics	13
Wildlife	18
Out of Scope	15
Extension Request	1
Total	920

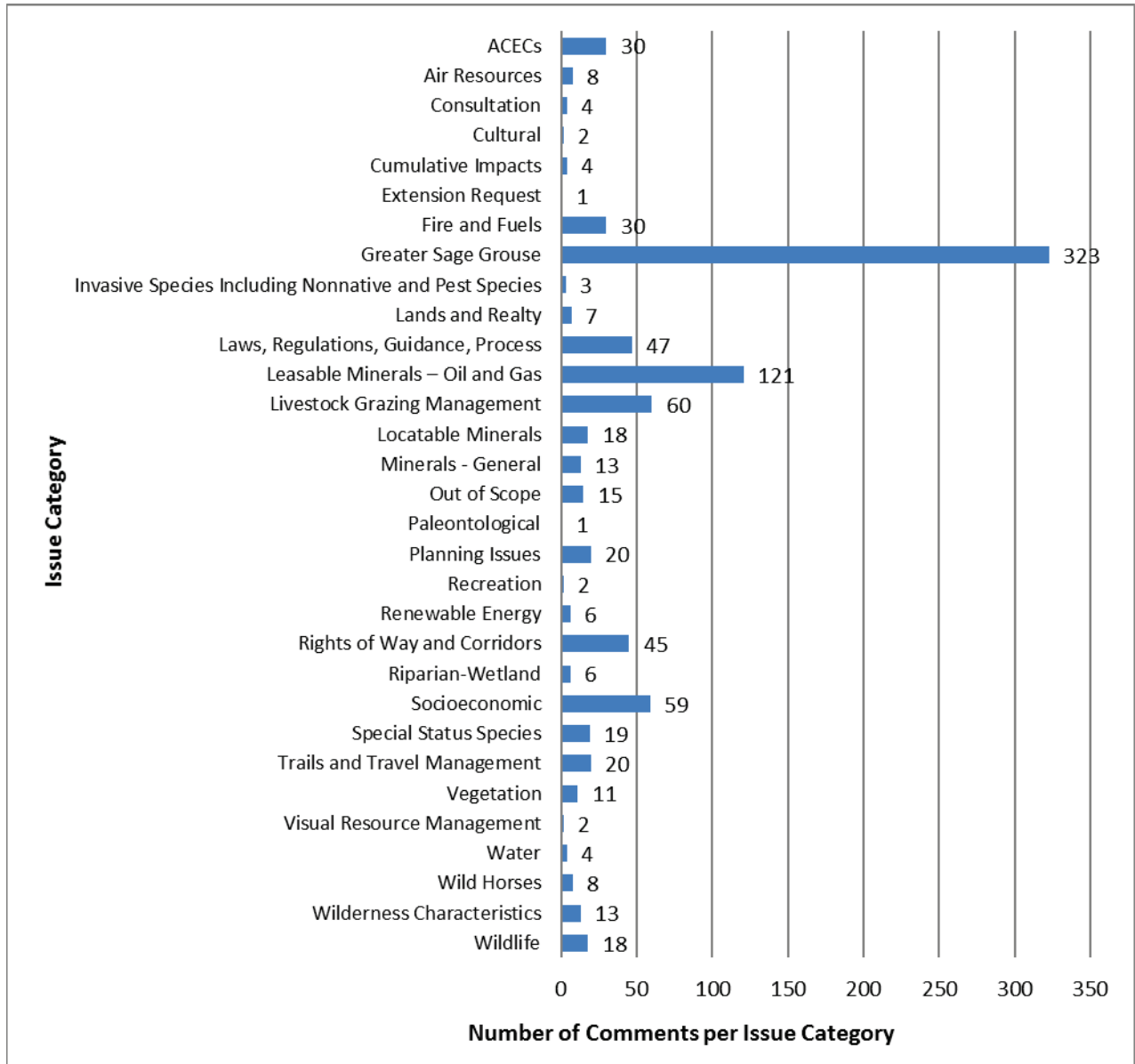
Note: Duplicative comments in form letters were only counted once.

Figure A-5. Number of Draft RMP and Draft EIS Individual Comments by Issue Category



Note: Duplicative comments in form letters were only counted once.

Figure A-6. Number of Supplement Individual Comments by Issue Category



Note: Duplicative comments in form letters were only counted once.

4.2. Substantive Comment Summary and Response

To provide a user-friendly method of understanding the broad themes and topics of concern expressed in the substantive comments, the BLM grouped individual comments with similar topics and concerns and developed 61 summary comments and responses for the Draft RMP and Draft EIS and 51 summary comments and responses for the Supplement. The summary comments and responses are presented below, and are generally organized alphabetically by BLM resource program or other appropriate issue categories (e.g., purpose and need) as described in Tables A-1 and 2. The summary comment numbers below can be used to track the summary comment and response to the individual comments presented in Attachments B and D on the project website:

<http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>. Comments on the Draft RMP and Draft EIS are identified with 2000 series numbers and comments on the Supplement are identified with 3000 series numbers.

4.2.1. Draft RMP and Draft EIS

The summary comment numbers below can be used to track the summary comment and response to the individual comments in Attachment B.

Air Quality

- Summary Comment #2009:** Commenters expressed concern about the inclusion and/or omission of air quality monitoring stations utilized to represent baseline air quality conditions in the Planning Area. Specifically, commenters argued that the use of the monitoring station located in Yellowstone National Park and other locations outside the Planning Area are inadequate because conditions at those monitoring stations are not similar to conditions in the Planning Area.
- Commenters indicated that the impact analysis did not adequately justify why data from selected monitoring stations were included and data from other monitoring stations were not included. Commenters requested additional information including maps depicting monitoring station locations, the criteria used to select monitoring stations, justification of the ability of monitoring sites to adequately characterize air quality in the Planning Area, and consideration of additional air quality monitors (including the Worland monitor).
- Commenters also questioned the authority of the BLM to regulate air quality in the region and the State of Wyoming overall. Commenters requested additional text clarifying the scope of BLM’s authority in regulating air quality.
- Summary Response:** The BLM considered including data from additional monitoring stations that may provide more localized data. If the BLM determined data from additional monitoring stations was more appropriate for the analysis, the data were incorporated into the Proposed RMP and Final EIS. Following the consideration of including data from additional monitoring stations, the BLM identified why monitoring

stations were added or excluded from the analysis in the Proposed RMP and Final EIS.

As stated in the Draft EIS and clarified in the Final EIS, the State of Wyoming has primacy with regard to air quality. The law requires the BLM to adhere to Wyoming Department of Environmental Quality (WDEQ) air quality standards. As the RMP is a planning level document, it is not possible to anticipate specific projects and specific air quality mitigation needs at this time. Accordingly, the BLM will consider mitigation for specific projects as needed. Special requirements to alleviate air quality impacts would be included on a case-by-case basis in future use authorizations (including lease stipulations for new leases) within the scope of the BLM's authority. The BLM has worked closely with the WDEQ and Environmental Protection Agency throughout the development of this RMP, and will continue that close working relationship in the development of specific projects in the future.

Summary Comment #2009_1:

Commenters expressed concern about various instances of inadequate, inaccurate or insufficient information/data throughout the air quality impact analysis. For instance, commenters indicated that National Ambient Air Quality Standards (NAAQS) levels were not included or accurately listed for criteria pollutants including, but not limited to, ozone and carbon dioxide. Additionally, commenters noted that standard metrics were not utilized to determine visibility conditions within the Planning Area. Commenters questioned the use of qualitative data rather than quantitative data in assessing potential air quality impacts. Commenters also indicated that the analysis failed to clearly address or present whether or not “levels of concern” have been reached for specific criteria pollutants including oxides of nitrogen and sulfur. Commenters questioned why a thorough cumulative impact assessment of air quality was not included for the Planning Area.

Summary Response:

The BLM utilized the best available data for the air quality analysis. In response to comments, the BLM reviewed the air quality analysis and revised any observed discrepancies and/or inaccuracies and added additional information including standard metrics used to determine visibility conditions, a list of criteria pollutants with concentrations that have reached a “level of concern,” and other information, as appropriate. The BLM included a specific air quality cumulative impact analysis.

Additionally, the BLM provided an updated emissions inventory and included an air resources appendix within the Proposed RMP and Final EIS.

Summary Comment #2009_2:

Commenters requested additional reference to applicable air quality laws and policies and that management demonstrate compliance with WDEQ regulations and other applicable regulations. Commenters

expressed concern about the valuation of sources that would potentially contribute to air emissions/impacts. For example, commenters indicated that the BLM concluded, without warrant, that construction activities associated with oil and gas development would produce more fugitive dust than development associated with other construction activities such as renewable energy development. Additionally, commenters indicated that distant/regional sources would contribute a higher concentration of air emissions than local sources.

Summary Response:

The BLM revised the air quality related text in the Proposed RMP and Final EIS including updating references to applicable air quality laws, regulations, and rules, and other revisions as appropriate. In addition, the BLM updated the emission inventory spreadsheets in the Proposed RMP and Final EIS. Emission spreadsheets were updated with the latest emission factors for motor vehicles, off-road engine types, and other activities corresponding to the base year (2005), and the out years, 2015 and 2024.

Areas of Critical Environmental Concern

Summary Comment #2001:

Commenters questioned if the existing and newly proposed Areas of Critical Environmental Concern (ACECs) meet the relevance and importance criteria as stated in 43 CFR 1610.7-2(a). Commenters also questioned whether these areas require special management to (1) protect the area and prevent irreparable damage to resources or natural systems, and (2) protect life and promote safety in areas where natural hazards exist. Commenters questioned how the BLM applied the relevance and importance criteria and requested additional documentation to support the findings. In some cases, commenters cited specific research supporting their position that the areas did not need special management. In addition, commenters requested more detailed information and citations in the text.

Summary Response:

The ACEC Evaluation Report (June 2010) documents the evaluation process for existing and newly proposed ACECs. The report outlines how each proposed ACEC meets or does not meet the relevance and importance criteria. The report is available on the project website at: <http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>.

The Proposed RMP and Final EIS includes additional citations to the ACEC report and other sources as appropriate to support the determinations.

Climate Change

Summary Comment #2003:

Commenters recommended management to consider and address climate change impacts on ecosystems, wildlife, and other resources. Commenters identified several technical edits including requests for

clarification of language, quantification of air emissions data, and mitigation measures for greenhouse gas emissions. In addition, to be compliant with Secretarial Order 3289 commenters requested that BLM include information specific to climate change planning actions in the Planning Area.

Summary Response:

The Proposed RMP and Final EIS incorporates revisions to the climate change sections of Chapters 3 and 4 based on commenter input. The BLM provided additional information throughout the text, made technical edits, and provided updated emission inventory information, as appropriate.

The BLM reviewed the document to ensure consistency with existing federal laws and guidance related to analyzing climate change in NEPA documents. Regarding the development and implementation of management that is responsive to potential climate change impacts on species and ecosystems, the BLM determined that the timing, impacts, and other variables associated with climate change are too uncertain to base long-term management decisions for the planning timeframe (20 years). The BLM will address management issues and planning for climate change impacts through re-evaluation to determine validity of RMP decisions and associated analysis in light of new climate change information and details about subsequent proposed actions in the Planning Area and continued compliance with federal guidance on climate change.

Cultural Resources

Summary Comment #2004:

Commenters expressed concern about surface-disturbing activity prohibitions for cultural resources. Specifically, commenters indicated that the 3- and 5-mile buffers for cultural sites would prevent development throughout a significant portion of the Planning Area. Additionally, commenters indicated that the management actions associated with alternatives B and D could potentially interfere with existing leasing rights. In some cases, commenters questioned why certain cultural resources were not specifically discussed in the analysis. Commenters also recommended clarifying terminology used in the management actions and impact analysis for cultural resources.

Summary Response:

The BLM is required to comply with Section 106 of the National Historic Preservation Act. As part of this compliance, cultural resource surveys are conducted prior to development on BLM surface to identify and provide field verified data regarding presence of cultural resources and heritage resources. It is often through these site specific surveys that cultural resources are identified and inventoried; the BLM acknowledges that it does not have a complete inventory of all cultural resources in the Planning Area, making an accurate calculation of acreages where a given management action would apply impossible. Therefore, for analysis purposes, an

assumption is made that the restriction would apply, although through site-specific analysis it may be determined that the restriction is not necessary.

The Proposed RMP and Final EIS presents an adequate range of alternatives for analysis purposes. Alternatives B and D are more restrictive than alternatives A and C. In relation to restrictions on surface-disturbing activities, the range of alternatives and analysis included current management (which only applies case-by-case restrictions on development) and other management actions (such as Alternative B, which includes restrictions out to 5 miles for certain cultural sites) to protect the elements that contribute to the sites eligibility under 36 CFR 60.4 (a), (b), or (c). The intent and extent of the application of these management actions is clarified in the Proposed RMP and Final EIS.

The National Trails System Act establishes that the purpose of a National Historic Trail is the identification and protection of the historic route and the historic remnants and artifacts for public use and enjoyment. The BLM manages, to the greatest extent possible, National Trails to safeguard the nature and purposes of the trail and in a manner that protects the values for which the trail was designated. BLM establishes a National Trail Management Corridor to achieve this purpose. The BLM requires the National Trail Management Corridor to be of sufficient width to constitute a manageable administrative unit that is identifiable on the ground and includes a public land area of sufficient width within which to encompass National Trail resources, qualities, values, and associated settings and the primary use or uses that are present or to be restored. The National Trail resources, qualities, values are the significant scenic, historic, cultural, recreation, natural (including biological, geological, and scientific), and other landscape areas through which such trails may pass as identified in the National Trails System Act.

The BLM revised the text in the Proposed RMP and Final EIS as needed to address commenter concerns regarding terminology.

Cumulative Impacts

Summary Comment #2005:

Commenters indicated that the overall cumulative effects analysis failed to adequately address potential impacts to various resources including, but not limited to, wildlife, vegetation, livestock grazing, and water quality. Additionally, commenters raised concerns about projects and emerging technologies that were not considered in the Reasonably Foreseeable Development (RFD), specifically, projects that involve horizontal and directional drilling technologies. Commenters also indicated that the analysis of range improvements and other management actions did not address cumulative impacts to various

resources including, but not limited to, wildlife, vegetation, and water quality or consistency with existing livestock grazing permits. Commenters also noted that the RMP and EIS should further discuss the capacity of resources to absorb cumulative effects.

Summary Response:

After additional review, the BLM determined the current cumulative impacts analysis is appropriate to compare impacts among the alternatives and adequately informs the decision-making process. The cumulative impacts analysis focuses on issues identified during scoping and other stakeholder coordination efforts. Chapter 3 of the RMP and EIS describes existing conditions resulting from past actions, including the current state of the environment resulting from cumulative past actions.

The RFD assumes technology improvement rates (Final RFD page 3) based on available information. Projects and technologies considered in the cumulative analysis are those that are proposed or highly probable, based on known opportunities or trends at the time of analysis, rather than projects or technologies that are potential or contemplated.

Fire and Fuels

Summary Comment #2008:

Commenters indicated that the overall analysis of fire and fuels requires explanations that are more descriptive, quantifications, and scientific reference. Specifically, commenters questioned or raised concerns pertaining to: (1) the amount of and specific cover types that would be affected by prescribed fires/fuel treatments; (2) why no background information or quantification are included for existing fuel conditions; and (3) how the alternatives are analyzed and compared. In addition, commenters requested a more detailed analysis of cheatgrass in an effort to determine if prescribed fires of cheatgrass should be permitted if prescribed fires of cheatgrass would result in adverse impacts to sage-grouse habitats. Moreover, commenters expressed concerns with the analysis and classification of natural fire regimes and questioned the feasibility of restoring natural fire regimes to the entire landscape.

Summary Response:

The BLM updated the fire and fuels section to include details regarding the expansion of cheatgrass by burns, indicators for making a reasoned choice among the alternatives, and various technical edits, as appropriate. The BLM also provided additional references as needed to support statements within the fire and fuels section. The BLM considered requests for text edits on an individual basis and addressed as necessary in the final document.

The BLM provides detailed information regarding fire regimes, condition classes, and background information for the Planning Area along with detailed maps at a course scale within the Fire Management Plan (FMP). On page 68 of the FMP, there is a condition

class map, which shows acres burned by vegetation type; additionally the FMP provides maps showing chemical, mechanical, and other treatment by vegetation type. The FMP and supporting maps are available at:
<http://www.blm.gov/wy/st/en/programs/Fire/planning.html>

Fish

Summary Comment #2002: Commenters identified a number of technical edits related to fish and their habitats. These edits included requests to use alternative language, corrections to technical statements and/or terms, definitions of terms, and clarification of language. In addition, commenters requested that BLM include a variety of references in the text as well as in the alternatives. Commenters asked that BLM incorporate recently released and updated information to the extent possible. Commenters also noted instances where proposed BLM management could be incompatible with current Wyoming law.

Summary Response: The BLM revised the *Fish and Wildlife - Fish* sections of the Proposed RMP and Final EIS based on commenter input. The BLM revised terminology definitions, technical edits, additional references, and changes to the management actions. The BLM updated all references that cite material or guidance to reflect the most current information.

The BLM reviewed the Draft RMP and Draft EIS to ensure the proposed management actions complied with all applicable laws and guidance; the BLM disagrees that the management of fish and fisheries proposed in the Draft RMP and Draft EIS violate applicable laws and guidance.

Historic Trails

Summary Comment #2010: Commenters indicated general concern regarding the proposed designation and protection offered to historic trails in the Planning Area, identified potential trails for BLM to apply protection, and indicated total surface acreage for historic trails is not provided within the alternatives tables. Specific concerns raised by commenters included the prohibition of surface-disturbing activities within 2 to 5 miles of a historic trail and improper designation of trail segments as being eligible for protections offered to historic trails.

Summary Response: BLM completed a Class I Regional Overview, in compliance with Section 106 of the National Historic Preservation Act, prior to the Draft RMP and Draft EIS. The intent of the Class I Regional Overview was to provide an accurate representation of historic trails and allow designation and protection of historic trail segments in the Planning Area.

Only the trail segments with current integrity of setting would have their setting managed; as noted throughout the RMP, the BLM has no

authority to manage activities on private or state lands, and management of setting for historic trails would not apply to these lands.

At this time, the BLM does not have sufficient information to determine the acreage of BLM-administered land where setting is important to the trail's eligibility to be placed on the NRHP and where the trail retains integrity.

The BLM provided additional information and clarification regarding historic trails where appropriate in the Historic Trails sections of the Proposed RMP and Final EIS.

Invasive Species

Summary Comment #2012:

Commenters indicated that the overall analysis of invasive species required increased information on management actions, additional quantification, and more field verified data. Specifically, commenters questioned or raised concerns pertaining to a lack of emphasis and direction regarding invasive weed management, inadequate Geographic Information System (GIS) reporting of invasive species acreages and locations in the Planning Area, and lack of quantitative information for measuring impacts and comparing alternatives. Commenters requested an updated and expanded field verified inventory of all invasive species in the Planning Area along with representative GIS mapping, acreages, and indicators to be used when comparing alternatives.

Summary Response:

The BLM acknowledges that complete inventories of invasive species are not currently available and that such inventories cannot be completed for this RMP revision project given budget and time constraints. The BLM also recognizes that there are more acres infested with cheatgrass and noxious weeds in the Planning Area than the numbers cited in the Draft RMP and Draft EIS. However, the BLM is not required to complete full inventories of all resources before conducting land use planning. Further discussion regarding BLM's treatment of invasive species and limitations on occurrence and spread of such species is available in Section 3.4.4 of the Proposed RMP and Final EIS.

The BLM reviewed GIS and other data presented in the Draft RMP and Draft EIS and made corrections or added clarification as appropriate. Specifically, the BLM clarified in Chapter 3 that the discrepancy between the 2004 and 2007 inventory data for invasive annual bromes resulted from the use of two different data sources. Further, an area may be infested with annual bromes, but annual bromes may not be the dominant vegetation cover. The difference, when land status is considered, is approximately 6,000 acres. The BLM cited these two data sources in the Proposed RMP and Final EIS.

For invasive species, acres of surface disturbance are used as an impact indicator; however, the BLM recognizes that the proportion of areas subject to surface disturbance that become infested with weeds is variable and will depend on a number of factors that are not known at the RMP level.

Lands and Realty

Summary Comment #2013: Commenters questioned how the total percent of land closures for leasing were determined and also inquired about the references and methodology used by the BLM when identifying land classifications, withdrawals, lands for disposal, and segregations among the alternatives. In addition, commenters requested clear requirements for re-analyzing the appropriateness of leasing expired or expiring leases.

Summary Response: The BLM revised the lands and realty sections based on commenter input and incorporated additional information and clarification regarding methodologies for identifying land tenure adjustments, land use classifications, and indirect impacts. The BLM also reviewed management actions and land use allocations associated with mineral leasing and updated the Minerals and Lands and Realty sections, as appropriate.

Land tenure adjustments criteria are further explained in Appendix M of the Proposed RMP and Final EIS.

Summary Comment #2013_1: Several commenters indicated that the overall analysis of lands and realty requires more descriptive explanations/definitions, clarification on BLM's analysis methods, and additional scientific reference. Specifically, commenters questioned or raised concerns pertaining to: (1) lack of discussion on how valid existing lease rights will relate or be impacted by land use decisions in the RMP and EIS; (2) BLM's methodology for determining the least restrictive stipulations for achieving resource objectives; (3) explanation of how geophysical explorations that do not require road construction can receive a Categorical exclusion (CX); and (4) detailed descriptions of special designations which qualify as acquisition areas.

Additionally, commenters noted missing information or editorial items in the Lands and Realty section and maps including missing GIS acreages within the Alternative A attribute table; inaccuracies in reported acreages for current oil and gas leasing; and reference citations pertinent to the lands and realty planning process which should be included.

Summary Response: The BLM revised the Lands and Realty section based on commenter input and provided additional reference information where available and appropriate. Within the Proposed RMP and Final EIS the BLM

provided additional information, clarification, definitions, and indicators and methods used to analyze impacts, as appropriate.

CXs are not always the best approach in land use planning, and do not apply to all road construction activities in the Planning Area. All projects receive NEPA review appropriate to the project proposal; all determinations as to the applicability of a CX are made on a case-by-case basis.

The BLM calculated the number of acres in the text from the areas depicted on representative GIS maps. In some cases, polygons on the maps may look larger than they should because RMP decisions do not apply to private or state-owned lands that may fall within the areas. The BLM believes all terms and descriptions are consistent throughout the Proposed RMP and Final EIS. Without specific examples where such inconsistencies exist, the BLM is unable to provide further response.

Livestock Grazing

Summary Comment #2074:

Commenters expressed concern regarding the lack of disclosure of direct impacts to livestock grazing. Specifically, commenters requested a more detailed description for each alternative of the direct impacts that would result from management actions that change Animal Unit Month (AUM) allocations in the Planning Area.

Summary Response:

The BLM developed and analyzed alternatives in the Proposed RMP and Final EIS using the best available information in compliance with federal laws, guidelines, and policies. The BLM included references that support decisions with regard to Livestock Grazing Management and made text edits on an individual basis as necessary.

The analysis in the Proposed RMP and Final EIS only considers losses of AUMs that occur as a result of closures or long-term surface disturbance. The Proposed RMP and Final EIS does not set utilization levels for livestock grazing, as those levels are established in site-specific Allotment Management Plan (AMPs). As stated in Appendix W, “utilization levels will be considered during the allotment monitoring, assessment, and evaluation process, as well as during activity plan development and the NEPA and permit/lease renewal process.” Because an RMP is a high level planning document that does not include site-specific actions, it is not possible to predict if and where adjustments to utilization levels will be needed or their effects on permittees or AUMs.

Summary Comment #2076:

Commenters recommended additional text on the process for modifying AUMs and AMPs and balancing livestock grazing and other resources.

Specific suggestions included that the BLM work directly with the permittees on monitoring and management development, and that

comprehensive monitoring studies and conflict resolution and mediation processes precede any AMP modification or elimination of grazing allotments.

Other comments requested language clarifications or additional analytic assumptions to characterize the influence of livestock grazing on other resources in a more positive light.

Summary Response:

The BLM reviewed all sections pertinent to livestock grazing management and determined that the impact analysis conclusions in the Proposed RMP and Final EIS are appropriate. It is reasonable to consider and analyze changes in AUM or other grazing management in areas where current livestock grazing has the potential to result in adverse effects on wildlife, special status species, or other resources; it is not a foregone conclusion that where livestock grazing has historically occurred there is no potential for conflicts with other resources and uses.

The BLM clarified language in Chapter 3 to state that changes to grazing management are implemented when rangelands are not meeting standards due to current livestock grazing.

Summary Comment #2011:

Commenters requested that the BLM incorporate additional text to better address livestock grazing management, particularly related to the BLM's proposed management of potential conflicts between livestock grazing and other resources and uses. Specifically, commenters requested more discussion on the impacts of livestock grazing on special status species (e.g., grizzly bears and greater sage-grouse) and wildlife; changes to vegetation as a result of livestock grazing; policies and specific management actions or changes to current management to guide livestock grazing activities in identified greater sage-grouse seasonal habitats; and reserve common allotments.

Commenters requested additional information on current livestock grazing AUMs by allotment and clarification of certain terms and concepts (particularly if livestock grazing was considered a surface-disturbing activity and the meaning of the phrase in consideration of other resource values).

Summary Response:

One method to deal with actual or perceived conflicts between livestock grazing and other land use allocations is to eliminate the conflict by removing livestock grazing. Alternative B uses this approach. Alternatives A, C, and D prescribe varying methods of addressing competing land use allocations. The BLM analyzed a reasonable range of alternatives by including one alternative that reduces conflicts through removing livestock grazing, and three that prescribe other methods.

No areas were proposed for closure to livestock grazing due to grizzly bears; the impacts to grizzly bears from livestock grazing are discussed

in Chapter 4 and the Draft Biological Assessment (available on the project website). The BLM believes that properly managed livestock grazing is compatible with maintaining quality sagebrush habitat (see Appendix W), and such use would be compatible with management or objectives to preserve or enhance this habitat type.

The phrase “consistent with other resource objectives” occurs throughout this document and is intended to reference the fact that the BLM is required to consider multiple uses of the public lands under its management. The BLM discloses projected AUMs for each alternative. Actual AUM adjustments are made through subsequent implementation level analysis and decisions. Any future adjustments, if necessary, would be based upon site-specific AMPs. For example, discussions of how managing livestock grazing to meet DPC would affect livestock grazing permittees is not appropriate for an RMP level analysis as it would require a site-specific analysis. Because the RMP is a high level planning document that does not authorize these types of site-specific actions, it is not possible to predict if and where such adjustment will be needed or their effects on permittees.

The BLM updated the Livestock Grazing Management sections to include additional information on the types of activities that are addressed in AMPs, clarification on reserve common allotments, and polices used to guide livestock management activities. The BLM addressed requested text edits, additional information, and references as deemed necessary. In addition, the BLM reviewed and revised the Proposed RMP and Final EIS as necessary to reflect the fact that the BLM does not consider livestock grazing or other herbivory to be a surface-disturbing activity.

Master Leasing Plans

Summary Comment #2014:

Commenters raised concerns about the potential closure of lands available for leasing and the resulting impacts on future lease sales in the Planning Area as well as the potential for slowed production and exploration activities. Additionally, commenters indicated that the BLM did not identify resources of concern in the three areas nominated for Master Leasing Plans (MLPs) reviews and requested the BLM to re-evaluate potential impacts associated with further land closures consistent with IM 2010-117. Moreover, commenters requested the use of phased leasing as a way to resolve potential resource conflicts in the Planning Area.

Commenters raised concerns regarding the lack of clear management and detailed information regarding conflicts between existing leases and the protections of important resources, specifically ACECs, lands with wilderness characteristics, and critical wildlife habitat. In addition, commenters indicated oil and gas leasing actions presented within the BLM Preferred Alternative are inconsistent with guidelines

established in the BLM IM 2010-117 Oil and Gas Leasing Reform. Specifically, commenters indicated under the Preferred Alternative BLM does not provide sufficient analysis, Best Management Practices (BMPs), or mitigation for biological resources in areas of oil and gas development as required by IM 2010-117.

Summary Response:

In response to the comments, BLM revised several sections of the RMP and EIS including adding information on the cumulative impacts of surrounding wilderness areas and National Parks on minerals development, additional information on the complete MLP analysis, and other information, as appropriate.

MLPs have been brought forward from Appendix Y of the Draft RMP and Draft EIS and are fully incorporated into the alternatives and analyzed in the Final EIS.

The BLM maintains compliance with all federal laws and guidance. Reevaluation of federal and BLM policy is outside the scope of this RMP and EIS. The BLM reviewed the RMP and EIS document for consistency with state and federal laws and determined the Proposed RMP and Final EIS is compliant with IM 2010-117 and MLPs.

Mineral Potential and Reasonably Foreseeable Development Scenario for Oil and Gas

Summary Comment #2061:

Commenters noted that the RFD scenario and the RMP and EIS underestimated mineral/oil and gas occurrence and development potential in several areas including the Mowry Shale and the Sub-Absaroka Play and that undiscovered reserves could increase drilling and production beyond the scenarios in the RFD and the analysis in the RMP and EIS. Commenters requested clarification of the role of the RFD in comparing impacts across alternatives in the RMP and EIS, noting that estimates of disturbance and other impacts are for analysis purposes only and exceedence of these analysis assumptions should not require a plan amendment. Commenters also requested that the RMP and EIS clarify that the RFD scenarios are not a cap or limitation on future development. Commenters noted that the RFD did not adequately consider several technologies that could increase development potential including horizontal drilling, carbon dioxide flooding, and other enhanced oil recovery (EOR) techniques. Commenters noted that the surface disturbance estimates in the RFD may need to be adjusted to reflect the larger well pad associated with horizontal drilling. Commenters requested that the RMP and EIS disclose the percent for high potential occurrence in the Planning Area.

Commenters requested that BLM provide inventories and mineral potential information for commercially viable deposits related to rare earth elements and fluvial placer deposits, as well as the acreage for occurrence of sand and gravel.

Summary Response:

The BLM revised text in the Proposed RMP and EIS including clarification of the role of the RFD in the analysis, identification of the percent for high potential occurrence in the Planning Area, clarification of the difference between occurrence and development potential, and other information, as appropriate.

The RFD provides a reasonably foreseeable development scenario for oil and gas resources as well as predicted fluid mineral potential based on staff knowledge, input from industry, and other information. The BLM acknowledges that the RFD is a best estimate of reasonable development based on available information and a current understanding of conditions and technologies (including horizontal drilling and EOR) and that actual development may vary from these estimates.

The Solid Mineral Occurrence and Development Potential Report provided information on mineral materials and other solid minerals. While sand and gravel occurrence acreages were available, acreage for potential occurrence for rare earth minerals, were not available due to a lack of data on such minerals in the Bighorn Basin.

Minerals

Summary Comment #2015:

Commenters questioned the data and methods used by the BLM to conduct the analysis and calculate acreage related to minerals management using GIS and noted potential inconsistencies in data and numbers within the document and compared to other data sources. Commenters raised specific questions and concerns pertaining to: (1) the source and accuracy of data, (2) lack of attribute information and metadata for certain GIS files, (3) the method used to generate mineral constraints, and (4) lack of documentation of methods used to calculate certain values. Some commenters explained that, in using the BLM's own GIS data, they were unable to reproduce the GIS-generated numbers presented in the Draft RMP and Draft EIS. Commenters also cited specific numbers in the document and raised questions about their accuracy and the consistency of their use throughout the document.

Summary Response:

The BLM reviewed GIS data, methods, and mapping products associated with minerals and revised and updated shapefiles, tables, acreages, text, and maps, as appropriate.

Summary Comment #2016:

Commenters requested clarification about how the BLM would manage geophysical exploration in the Planning Area including lessee requirements and site-specific NEPA analysis. Commenters also questioned how BLM management would affect a lessee's ability to obtain valid geophysical data under an approved exploration lease.

Summary Response:

As described in the RMP and EIS, all activities in the Planning Area will be subject to the goals and objectives identified in the RMP. All

individual geophysical operations will be assessed on a case-by-case basis consistent with the terms of the RMP and other applicable federal guidance.

Summary Comment #2017: Commenters questioned the way the BLM portrayed the potential for coal production in the Planning Area, and, citing an outside study, requested the BLM modify the discussion on coal to more accurately reflect the potential for coal production.

Summary Response: The BLM revised the text in Chapters 3 and 4 of the Proposed RMP and Final EIS to more adequately describe the potential for coal production from federal mineral estate in the Planning Area.

Summary Comment #2077: Commenters asked the BLM to identify acreage of withdrawals proposed in ACECs, and modify Visual Resource Management (VRM) Class II boundaries around the Sheep Mountain Anticline ACEC to include areas of bentonite potential. A commenter asked the BLM not to issue new leases in areas where there are few existing leases. Another commenter indicated that Timing Limitation Stipulation (TLS) and Controlled Surface Use (CSU) stipulations are too restrictive where habitats of species overlap. Regarding Alternative D, commenters believed that classifying certain right-of-way avoidance areas would hurt the bentonite industry and that an increase in the areas closed to oil and gas leasing would be inconsistent with goals and policies of county and conservation district land use plans. One commenter asked that the BLM include restrictions on salable mineral development at sage-grouse leks.

Summary Response: The BLM revised the Proposed RMP and Final EIS to include clarification of the process by which ACECs may be withdrawn on a case-by-case basis, adjustment of VRM boundaries as needed, and other revisions, as appropriate.

Summary Comment #2047: Commenters expressed concern that lease stipulations, constraints, and mitigation measures for mineral development are more restrictive than necessary and may not be compliant with Federal Land Policy and Management Act (FLPMA) and the Energy Policy Act of 2005; commenters recommended that stipulations be the least restrictive necessary to adequately protect other resource values. Commenters questioned the need for additional restrictions on oil and gas development in the Planning Area considering the existing restrictions in surrounding wilderness areas and National Parks.

Commenters requested a more detailed description of the reasoning behind increasing restrictions, stipulations, and areas closed to oil and gas leasing in the Planning Area as well as more information regarding impacts to state and local economies from restrictions on minerals development. Commenters requested several modifications in the RMP and EIS including changing VRM Class II areas from a moderate to a major restriction and further describing the impacts from managing big game crucial winter range as No Surface Occupancy

(NSO) Special Recreation Management Area (SRMA) under Alternative B. Commenters noted that closing an area to leasing is effectively a withdrawal and that withdrawals can only be made using specific procedures mandated by FLPMA.

Summary Response:

The BLM revised text in the Proposed RMP and Final EIS to include a description of cumulative impacts on minerals development considering management in surrounding Wilderness and National Parks, clarification of the application of NSO stipulations, and other information, as appropriate.

In accordance with NEPA and other guidance, the BLM provided and analyzed a range of alternatives and management scenarios for minerals development. Chapter 2 provides the rationale and restrictions on oil and gas development in the alternatives. Regarding comments related to closing an area to leasing being considered as a withdrawal, the BLM considers closure to leasing a discretionary action that does not constitute a withdrawal from mineral entry under the mining laws.

The BLM also notes that stipulations are attached prior to lease sale and issuance. Mitigation measures are attached as conditions of approval on site-specific projects. Should stipulations be determined unwarranted, they are subject to exception, modification, and waiver.

Summary Comment #2049:

Commenters requested reference to BLM and other agency policies, guidance, and requirements for minerals development and subsequent reclamation. Commenters requested that the BLM should update certain data to reflect current information including employment data for mining industry and number of Application for Permit to Drill approved in recent years. Commenters also requested the establishment of thresholds related to locatable minerals development. Commenters asked BLM to consider effects of management restrictions, implementing policies, and market conditions and cycles on mineral development. Commenters requested additional analysis on resources from bentonite mining and damage to oil and gas wells if they are shut-in on an annual basis.

Commenters requested modification to minerals management in the alternatives related to Oil and Gas Management Areas (OGMAs) and Rights-of-Way (ROW) corridors in relation to mining. Additionally, commenters requested clarifying language, correction of technical statements, and incorporation of additional information related to minerals in the RMP and EIS. Commenters requested the BLM to base management decisions on sound science, monitoring, and field data.

Summary Response:

The BLM revised the minerals and other appropriate sections in the Proposed RMP and Final EIS to include references to appropriate BLM Handbooks and other guidance, clarify reclamation standards and requirements, update the number of APDs, revise management

actions, clarify language regarding the shut-in of wells, and other information, as appropriate.

Regarding the development of thresholds for locatable minerals, the application of a threshold to locatable mineral development is unreasonable as the 1872 mining law, as amended, allows for mining activities unless withdrawn from appropriation under the mining laws.

Summary Comment #2050: Commenters provided several recommendations related to OGMAs including reconsideration of the number of designated OGMAs, adding language that allows for modification and expansion of OGMAs if development extends beyond the identified OGMA areas, adding certain areas to OGMAs under Alternative C, and modifying management actions associated with OGMAs.

Summary Response: The BLM reviewed the provided comments and revised Alternative D management and other sections in the Proposed RMP and Final EIS including adjustment of OGMA boundaries, addition of language allowing flexibility for expansion of OGMAs in the future if development extends beyond the currently identified OGMAs, and other revisions, as appropriate.

Summary Comment #2051: Commenters indicated that the RMP and EIS did not adequately consider EOR and other technologies such as horizontal-well drilling, and CO₂ sequestration related to EOR. Commenters noted that such technologies could increase oil and gas development beyond what is included in the RMP and EIS. Commenters indicated that the RFD scenario and Proposed RMP and Final EIS should analyze the potential for EOR to increase oil and gas production in the Planning Area. Commenters urged BLM to keep lands open to leasing and development to allow for advances in horizontal drilling and other technologies. Commenters indicated that EOR should be analyzed to allow future project development under Environmental Assessments rather than EISs.

Summary Response: The RFD and the RMP and EIS did include assumptions associated with technology improvements (see RFD page 30) including EOR. The BLM added these technology improvement assumptions to Chapter 4. The BLM also clarified the minerals sections of Chapters 3 and 4 with regard to the potential for EOR techniques to change the potential for oil and gas development in the Bighorn Basin, and included other information, as appropriate.

Summary Comment #2052: Commenters referenced several laws, policies, guidance documents, and case law regarding valid existing rights. Commenters indicated that the BLM does not have the authority to modify stipulations, apply unreasonable mitigation measures, or impose restrictions (such as NSO) on existing leases after a lease has been issued. Commenters also opposed management in alternatives B and D that would allow the BLM to prohibit suspension of existing leases. Commenters noted that a lease can only be modified by the mutual agreement of both

the lessee and the lessor and recommended revisions to reflect this in the RMP and EIS.

Summary Response:

The BLM updated management in the minerals sections in the Proposed RMP and Final EIS including clarification that stipulations on existing leases can only be added with the consent of the lease owner. The BLM included additional information on leasing adjacent to existing leases, clarification that the BLM may apply Conditions of Approval in conformance with Section 6 of the Standard Oil and Gas Lease Terms while recognizing valid existing rights, and other information as appropriate.

NEPA

Summary Comment #2055:

Commenters indicated a preference for the development of an alternative that implements a multiple use approach that would provide for resource extraction while also providing for the conservation for wildlife and biological resources. In addition, commenters requested an analysis of proposed management actions specific to wildlife resources, and, in some cases, requested the development of additional management actions and/or management areas be applied where appropriate. Commenters requested the inclusion of other alternatives including a phased oil and gas development alternative. Commenters also indicated that measurement indicators were missing making it difficult to perform an effects analysis of the alternatives.

Summary Response:

The BLM revised the text of the Proposed RMP and Final EIS based on received commenter input, providing additional information, definitions, details in the text and management actions within Alternative B geared toward conservation measures, reference citations and clearly identified impact indicators. Additionally, Alternative D was updated and contains language that implements a multiple-use approach which balances the needs of resource extraction with wildlife and biological resource conservation needs.

Performing an alternative analysis specific to wildlife resources is not feasible as this action would preclude the BLM from managing public lands for multiple uses and would not meet the purpose and need for the plan revision.

Phased development and phased leasing alternatives were considered, but not carried forward for detailed analysis for the reasons cited in Section 2.3. This does not preclude, however, the consideration of phased leasing or phased development on a site-specific basis.

Note: MLPs, as outlined in the alternatives of the Proposed RMP and Final EIS may include phased leasing.

Summary Comment #2057: Commenters indicated that various maps contained in the Draft RMP and Draft EIS are inaccurate, incomplete, and, in some cases, unable to be reproduced. Commenters also pointed to various inconsistencies associated with maps contained in the Draft RMP and Draft EIS. For instance, acreage inconsistencies were observed in shapefiles associated with Recreation Management Areas, Travel Management, Withdrawals, Geothermal Constraints, ROW Avoidance and Exclusion Areas, and Mineral Constraints. Furthermore, commenters requested an update of the administrative record to include documentation utilized to develop GIS analysis and all metadata utilized to generate maps.

Summary Response: The BLM reviewed GIS data, methods, and mapping products and revised and updated shapefiles, tables, acreages, and maps, as appropriate. The administrative record provides information documenting the GIS analysis process.

Summary Comment #2054: Commenters requested that the BLM incorporate additional information into the text of the RMP/EIS including, but not limited to an explanation of discrepancies between alternatives A and D in acres closed to oil and gas leasing within the Planning Area; providing more information on the effects of different levels of development on biological resources in the Planning Area; and providing specific direction for the completion of rangeland health standards assessments. Comments also requested additional information for the analysis including more current information on jobs associated with Bentonite mining, local research and modeling on the contribution of the oil and gas industry to local economics and air quality modeling to estimate potential impacts of planning decisions on the air quality resources within the Planning Area.

Commenters also requested a more detailed discussion of the purpose, implementation and enforcement of BMPs for resources in the Planning Area and additional information on timeframes and milestones associated with management and BMPs. Commenters expressed concern regarding the need for a greater use of scientific data to characterize historic and current conditions within the Planning Area as well as to substantiate the need for proposed changes in management.

Commenters requested additional information for the RFD including discussing potential increases in production from enhanced recovery techniques, requests for management to better accommodate EOR, and requests for other provisions related to EOR.

Commenters identified a number of technical edits related to the NEPA analysis including requests to use alternative language, correct technical statements and/or terms, define terms, and clarify language.

Summary Response: The BLM has reviewed and revised the text of the Proposed RMP and Final EIS. Based on commenter input, the Proposed RMP and Final EIS

includes revised glossary definitions, additional information, technical edits, clarifications, references, and other revisions, as appropriate.

Paleontological Resources

Summary Comment #2059: Commenters expressed concern regarding the proposed designation of ACECs in the Planning Area based on the protection of specific paleontological fossil locations. Specifically, commenters requested detailed information on how restricting surface disturbance in these areas would help to preserve paleontological resources. Additionally, commenters questioned the necessity of restricted surface disturbance when these areas are exposed to high volumes of natural wind and water erosion. Moreover, commenters questioned why fossil collection is prohibited in these areas and requested the inclusion of scientific citations within the RMP and EIS to provide a better description of the affected environment.

Summary Response: The BLM included additional references where appropriate in the Paleontological Resources section. The BLM considered commenter submitted edits and made technical corrections in the Proposed RMP and Final EIS, as necessary.

Process and Procedure

Summary Comment #2060: Commenters expressed frustration regarding the BLM not fully attending meetings held by the LGCA and noted their beliefs that the BLM's lack of participation and coordination with counties and other stakeholders is not consistent with FLPMA, NEPA, the terms of Memorandums of Understanding (MOUs), and other policies and guidance. Commenters expressed concern regarding the BLM's non-participation in local government public meetings.

Summary Response: The BLM developed the scope, management, and content in the RMP and EIS through a collaborative process that involved numerous public meetings between the BLM cooperating agencies, counties, the public, and other affected parties. The RMP and EIS was prepared consistent with NEPA, FLPMA, the BLM Land Use Planning Handbook, and other applicable guidance and policy.

Readability and Format

Summary Comment #2006: Commenters identified several readability issues and provided suggested format changes regarding the layout and presentation of information in the RMP and EIS. Specifically, commenters noted problems with viewing maps on their computer screens, indicated that the length of the document was excessive, and requested the use of pull out indexes for various large-scale tables and appendices.

Summary Response: The BLM evaluated all submitted requests regarding document readability and format on an individual basis and revised the text, tables, and maps, as appropriate.

Recreation

Summary Comment #2062: Commenters recommended managing additional areas in the Planning Area as SRMAs, while other commenters recommended dropping SRMA management for certain areas or revising management actions governing those areas. Commenters requested that clarifying language be added to the Draft RMP and Draft EIS to describe what types of recreation uses would benefit from specific SRMA designation, as well as more detailed information describing the goal of the SRMA designation.

Additionally, commenters requested clarification or revision of potential impacts to recreation from specific management actions under the various alternatives.

Summary Response: The BLM developed a reasonable range of alternatives for recreation and recreation management areas that were analyzed and considered for the Proposed RMP and Final EIS. Where appropriate, the BLM revised the text in the Proposed RMP and Final EIS to address comments on potential management of recreation and to clarify impacts.

Renewable Energy

Summary Comment #2065: Commenters requested that citations be included for information pertaining to increases in renewable energy development and associated activities in the Planning Area. In addition, commenters recommended that the BLM incorporate wind energy development guidance from the U.S. Fish and Wildlife Service (USFWS) and Wyoming Game and Fish Department (WGFD) and apply these guidelines in the RMP and EIS text.

Summary Response: Citations documenting increases in renewable energy development and associated activities are presented in the *Reasonable Foreseeable Development for Renewable Energy Resources in the Bighorn Basin RMP Planning Area* posted on the project website and referenced throughout the Draft RMP and Draft EIS. The *Summary of Environmental Consequences* table in Chapter 2 further illustrates impacts to and from renewable energy development in the Planning Area. The BLM will continue to consider federal and state guidance on mitigation measures associated with wind development throughout the planning period.

Rights-of-Way and Corridors

Summary Comment #2066: Commenters questioned the overall adequacy of the analysis in the ROW and corridors section and requested additional explanation/rationale to support the proposed ROW corridors and the exclusion and avoidance/mitigation areas under each alternative. Some commenters sought specific information about the proposed ROW programs under each alternative including the width of designated corridors, the requirements for collocation of projects, and the specific management prescriptions for avoidance/mitigation areas. Commenters also expressed concern that the criteria and process for identification of ROW corridors and ROW exclusion and avoidance/mitigation areas were unclear and did not account for some existing ROW projects in the Planning Area or adequately estimate the demand for future ROW projects such as carbon dioxide sequestration. Some commenters requested additional analysis of the impact of ROW management areas on ROW holders and applicants including the ability of an oil and gas lessee to access its lease, and consideration of the regulatory and economic constraints facing utility companies. Commenters also requested definition of terms and clarification of the differences in impacts to the ROW program among alternatives.

Summary Response: In response to comments, the BLM reviewed the ROW sections and provided additional information in the Proposed RMP and EIS, including clarifying resource impacts associated with ROW corridors and exclusion and avoidance areas, clarifying definitions, updating the glossary, and other appropriate revisions.

Summary Comment #2067: Commenters expressed concern regarding discrepancies between information in the Draft RMP and Draft EIS and the GIS data used by the BLM to delineate ROW avoidance and exclusion areas within the Planning Area. Commenters requested that the BLM reconcile the discrepancies or remove the information from the Draft RMP and Draft EIS. Commenters recommended the addition of new information that takes into account the increase in ROW use by future development in the Planning Area such as electrical transmission lines and CO₂ pipelines. Commenters also requested that BLM include a variety of references in the text as well as in the alternatives.

Summary Response: The BLM reviewed GIS data, methods, and mapping products associated with the ROW land use allocations and revised and updated shapefiles, tables, acreages, and maps, as appropriate. In addition, the BLM reviewed and revised the ROW sections in relation to the comments and provided additional information including clarification of existing and new ROWs, clarification of management precedence where ROW corridors overlap ROW exclusion and avoidance/mitigation areas, added language for management actions, and additional reference information, as appropriate.

Greater Sage-Grouse

Summary Comment #2068: Commenters indicated greater sage-grouse information in the Draft RMP and Draft EIS did not provide adequate details for the reader to draw conclusions about impacts among the different alternatives. Commenters raised concerns and requested information regarding: (1) invasive species management and livestock impacts on greater sage-grouse habitat; (2) missing scientific references and/or data to support BLM’s conclusions regarding impacts to greater sage-grouse under each alternative; (3) clarification regarding limiting noise levels around greater sage-grouse leks; and (4) disclosure of economic impacts resulting from land closure to livestock grazing as a protection measure for greater sage-grouse.

Summary Response: The BLM revised management actions and greater sage-grouse related text in the Proposed RMP and Final EIS, including clarification that management of livestock grazing under Alternative A may not improve the quality or quantity of sage-grouse habitat, and clarification regarding consistency with the Wyoming Governor’s Executive Order (EO) “Greater Sage-Grouse Core Area Protection” (EO 2011-5). In addition, BLM clarified language on impacts and included scientific references, as appropriate. (See also the Supplement EIS summary comments and responses in Section 4.2.2)

Summary Comment #2069: Several commenters raised concerns that management and identified Key Habitat Areas in the Draft RMP and Draft EIS may not be compliant with the State of Wyoming’s greater sage-grouse policy including IM WY-2010-012 and EO 2011-5. Commenters questioned BLM’s decision to expand Key Habitat Areas beyond the existing greater sage-grouse Core Area boundaries and requested scientific reasoning for the decision.

Summary Response: The BLM revised management in the alternatives, analysis, and applicable greater sage-grouse text to be consistent with current State of Wyoming policies and guidance on the management of greater sage-grouse and their habitat. As discussed Appendix Q of the Draft RMP and Draft EIS BLM intends to maintain consistency with the Core Areas as identified by the State of Wyoming. The Proposed RMP and Final EIS includes a reasonable range of alternatives for greater sage-grouse management. (See also the Supplement EIS summary comments and responses in Section 4.2.2)

Summary Comment #2071: Commenters indicated that the analysis of impacts to greater sage-grouse in the Draft RMP and Draft EIS could be improved through the inclusion of more descriptive explanations, editorial changes, clarification of terminology, and scientific references. Specifically, commenters questioned or raised concerns pertaining to: (1) impacts on livestock grazing, oil and gas, and other resources resulting from management of greater sage-grouse and their habitat; (2) suggestions that the BLM defer to the Wyoming Governor's EO 2011-5 for BMPs

regarding greater sage-grouse and correctly reference this EO throughout the document; (3) inconsistencies between BLM decisions and guidance provided in EO 2011-5; and (4) expanded detail on the management challenges for greater sage-grouse populations in the Planning Area.

Commenters cited specific research that could be referenced by the BLM to inform their decisions regarding impacts on and from other resources from management of greater sage-grouse. Additionally, commenters requested the BLM fully define terminology, add scientific references, and disclose detailed information pertinent to the planning and management of greater sage-grouse.

Summary Response:

The BLM revised management actions, Chapters 3 and 4, and other greater sage-grouse related text in the Proposed RMP and Final EIS to ensure consistency with EO 2011-5, included additional citations of scientific studies and research to support text, added references (to maps and other sections) where necessary, and made other revisions supplying clarifying language, as appropriate. (See also the Supplement EIS summary comments and responses in Section 4.2.2)

Regarding requests for additional details about sage-grouse nest cover and potential impacts, the BLM notes that greater sage-grouse nest cover amounts change from year to year, and it would be unreasonable to provide this kind and amount of data, annually, given the many variables, besides livestock grazing that affect it. It is reasonable to provide a livestock grazing utilization limit or level that allows for adequate greater sage-grouse nest cover, which is summarized in Appendix W. The BLM added a reference to this appendix in the livestock grazing section.

Socioeconomic Resources

Summary Comment #2046:

Commenters indicated that the analysis does not adequately address potential impacts to local communities and focuses too much on impacts at a regional or statewide level. For instance, commenters expressed concern about the use of the Impact Analysis for Planning Model (IMPLAN) because this model does not address how implementation of the alternatives would affect specific local communities. Additionally, commenters indicated that the analysis does not include historical or qualitative information associated with local communities, which prevents the analysis from accurately estimating the socioeconomic impacts to local communities.

Commenters indicated that the analysis fails to quantify and, thereby, consider the importance of the oil and gas industry to the economic wellbeing of local communities throughout the Planning Area. Commenters expressed concern that an Economic Strategies Workshop was never conducted, which, as a result, renders the analysis inadequate because it does not include the input of the public

as it pertains to desired social and economic conditions. Additionally, commenters indicated that the analysis undervalues the potential output of oil and gas development with respect to job creation and other economic factors.

Summary Response:

The level of impact analysis for individual communities in the Proposed RMP and Final EIS provides as accurate and geographically specific an assessment as available data allow. Additionally, as described in the Proposed RMP and Final EIS appendices, the IMPLAN model uses economic sector information from the four counties (not the entire state of Wyoming) to calculate potential indirect and induced impacts. The Final EIS for the Proposed RMP is at the programmatic level, and subsequent site-specific NEPA analysis and other actions such as APDs will have separate environmental clearance processes that consider impacts on socioeconomics.

In response to comments, the Proposed RMP and Final EIS includes historical information on local communities in the affected environment (Chapter 3). The affected environment section for economic conditions provides detailed information about the contribution of the mining and oil and gas industries to employment, wages, and tax revenues for local as well as state and federal governments.

The description of the affected environment and impacts analysis for socioeconomics utilized the best and most appropriate data and methods. The BLM held an Economic Strategies Workshop for the RMP and EIS in 2008 and used results of the workshop, in combination with input obtained during scoping and cooperator and agency review of draft document versions, to inform and refine the affected environment and impacts analysis for socioeconomics.

Summary Comment #2046_1:

Commenters indicated that the analysis did not consider several potential socioeconomic impacts including those that would result from management of special designations, management actions such as seasonal restrictions, as well as potential oil and gas development in Mowry Shale Formation of the Bighorn Basin. Commenters indicated that the implementation of seasonal restrictions could potentially result in “boom and bust” scenarios. Commenters requested that the RMP and EIS include an analysis of impacts to affected communities that would result from a potential boom and bust scenario.

Summary Response:

The BLM reviewed the socioeconomic analysis in response to the comments and revised text including clarifying potential impacts of an aging population, consideration of differences in local ad valorem production tax credits between BLM provided information in the RMP and EIS and Ecosystem Research Group information, and other information, as appropriate. The alternatives included restrictions

resulting from special designations that were considered in the economic analysis.

The Proposed RMP and Final EIS contains discussion on the seasonal boom and bust cycle by comparison with Alternative C, which would provide exceptions to discretionary seasonal restrictions in OGMA and ROW corridors.

It is not possible to design specific mitigation at the RMP level, because the RMP will not directly authorize any on-the-ground activities. The appropriateness of onsite and offsite mitigation, and the methods to be used, must be tied to a proposal where specific impacts can be predicted. The range of alternatives analyzed in detail provides for development of such mitigation during the analysis of a specific proposal (see management actions 8001, 8004, and 8005).

Summary Comment #2046_2:

Commenters noted that none of the alternatives considered, but eliminated dealt with socioeconomics. Additionally, commenters raised concerns that the *Key Terms and Concepts by Resources* section only discusses socioeconomics in the context of mitigation. Commenters requested the inclusion of socioeconomic factors in the discussion of key concepts including, but not limited to, Livestock Grazing, Mineral Leasing, and Well Withdrawals. Commenters also provided data and recommendations for considering recreation and tourism data in the analysis.

Summary Response:

As noted by commenters, the BLM considered several alternatives that had corresponding connections to socioeconomic resources and scenarios and did not carry them forward as described in Section 2.3 of the Proposed RMP and Final EIS. In addition, the socioeconomic impact analysis considers the economic and social impacts of alternatives in their entirety, including all relevant effects from management actions in other sectors (e.g., livestock, geothermal, oil and gas, etc.). The BLM reviewed the provided data on recreation and tourism in the region and revised the socioeconomic analysis and sections, as appropriate.

Soil

Summary Comment #2045:

Commenters expressed concern regarding the WEPP model used to predict soil erosion rates for the Planning Area. Commenters requested that a more detailed description of the WEPP model parameters be given in the text of the Draft RMP and Draft EIS along with language explaining why those parameters were chosen. Commenters recommended that impacts to soils from certain resources and activities be re-assessed while considering the scientific literature and examples provided. Commenters also recommended identifying priority areas in the Planning Area for soil erosion management in the text.

Summary Response: With respect to issues pertaining to soil loss, Chapter 3, section 3.1.3 identifies the threshold for soil loss in the Planning Area. Currently, there is no data available regarding the number of acres in the Planning Area where soil loss thresholds have been exceeded. The BLM acknowledges the need for additional soils data in the Planning Area and Management Action 1015 requires future soil survey efforts include erosion rates and soil stability parameters.

Appendix V of the Proposed RMP and Final EIS provides details regarding the WEPP parameters; additionally, the BLM added additional references as needed to support statements within the Soils section of the Proposed RMP and Final EIS.

Special Status Species

Summary Comment #2036: Commenters indicated the level of information within the special status species alternatives analysis did not supply adequate details for the reader to draw conclusions about impacts among the different alternatives. Specifically commenters raised concerns and requested information about: (a) detailed protections offered to species from future developments; (b) the size and use of protective buffers; and (c) why the BLM did not include quantifiable data (acres) for comparison of impacts between alternatives.

Summary Response: The BLM developed and analyzed alternatives within the Proposed RMP and Final EIS using the best available information in compliance with federal laws, guidelines, and policies. As necessary, the BLM included additional references and analysis that support decisions concerning special status species management.

The Proposed RMP and Final EIS provides an estimate of potential surface disturbance, sufficient for making a reasoned choice among the alternatives, and employs the assumption that such disturbance would affect vegetation communities proportionally to their current extent. However, the exact location of projects and their effects on various habitat types will not be known until projects are proposed.

Summary Comment #2041: Commenters recommended several changes to the discussion and analysis for the mountain plover. These edits included requests to use alternative language, correct technical statements, and clarify management actions for mountain plover protection. In particular, commenters requested the BLM reevaluate its analysis and alternatives to reflect mountain plover preferred habitat conditions. Commenters also requested the BLM update the Proposed RMP and Final EIS to incorporate the recently released determination from the USFWS removing the mountain plover from consideration of protections under the Endangered Species Act (ESA).

Summary Response: The BLM revised the Proposed RMP and Final EIS to reflect the USFWS ESA determination for the mountain plover. However, despite its

change in status with the USFWS, the mountain plover is a BLM Wyoming special status species and, as such, requires additional consideration and conservation measures.

The BLM acknowledges that mountain plover prefer sparsely vegetated sites; within the Bighorn Basin, the birds inhabit areas with very little vegetation that, consequently, receive little pressure from grazing animals. The Bighorn Basin has an abundance of naturally sparse habitats for mountain plover nesting and the BLM and USFWS do not see the need for, and have not proposed to, create more through application of heavy grazing or other management. Where appropriate, the Proposed RMP and Final EIS have been revised to clarify the focus of habitat management for this species.

Summary Comment #2042:

Commenters raised concerns about the overall adequacy of the special status species analysis and indicated several areas that could benefit from more detailed explanations. Specifically, commenters requested additional information be included within the analysis and raised questions regarding: (a) detailed information on BLM management direction and monitoring actions pertaining to special status species protection and habitat; (b) the accuracy of facts and data presented by the BLM; (c) requests for detailed explanations of BLM’s stated methods and assumptions for special status species; and (d) greater protections and safety measures for listed species.

Summary Response:

The BLM incorporated, in coordination with the USFWS and the WGFD, commenter requests for specific revisions and clarifications, technical edits, changes to management actions, and updates to data and mapping as appropriate.

The USFWS and WGFD are the lead authorities responsible for the protection, management, and monitoring of all flora and fauna species within the Planning Area. Both the USFWS and WGFD provided guidance to the BLM, which is reflected in the special status species sections and management actions in the Proposed RMP and Final EIS. In addition, the BLM coordinated with the USFWS and the WGFD in the collection of GIS data and the mapping of special status species.

Travel and Transportation Management

Summary Comment #2034:

Commenters indicated that travel management and travel restrictions would have a negative effect on energy development, grazing, and recreation uses. Commenters requested expansion of the analysis to fully describe the BLM’s reasoning behind travel management designations, including references to other resource uses that would be affected by these designations. Commenters also recommended designating certain areas in the Planning Area as Off-Highway Vehicle (OHV) Riding Parks or All-Terrain Vehicle “Open” areas. Additionally, commenters requested that management actions include restrictions

that are more stringent in an effort to protect resources including, but not limited to, wildlife and cultural resources. In addition, commenters highlighted various instances of missing and/or inadequate information.

Summary Response:

The BLM reviewed and revised the RMP and EIS in response to comments including additional references to applicable travel management plans, revision and addition of definitions to the glossary, edits to management actions, and other revisions, as appropriate.

The BLM will address site-specific road closures during subsequent travel management planning. The goal of travel management in the RMP is to identify broad travel management designations (i.e., areas closed, open, or limited for travel).

The BLM must provide a reasonable range of alternatives, and given the resource values associated within suggested open OHV areas, the range of alternatives in the EIS is deemed reasonable and appropriate for consideration.

43 CFR 8342.1, Designation Criteria, includes a basis for considering open OHV areas, and other travel management designations and directs the BLM as follows: “(a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and (b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitat.”

Public sentiment and BLM transportation and planning guidance does not support unlimited off-road, cross-country motorized travel. Generally, unlimited motorized cross-country travel may be warranted in areas where it does not affect other valuable resources, where conflicts with other recreational activities are insignificant, and where a substantial demand for this type of motorized recreational activity has been demonstrated.

Summary Comment #2034_1:

Commenters noted several inconsistencies between travel management acreages in GIS data and those reported in the RMP and EIS. Commenters also identified blank records and other data issues in the GIS data for travel management.

Summary Response:

The BLM reviewed the travel management data and information in the GIS files and the RMP and revised acreages, shapefiles, attributes, and maps, as appropriate.

Vegetation

Summary Comment #2033:

Commenters expressed concern regarding the overall analysis of vegetation in the RMP and EIS. Commenters indicated that the

vegetation information was not adequate and could be improved by using LANDFIRE data instead of GAP vegetation data; replacing incomplete inventories of existing conditions with more complete versions; comparing in greater detail historic and current vegetation conditions; reconciling discrepancies in acreages in the RMP and EIS and between the RMP and EIS and BLM-provided GIS data; and having a more in-depth discussion of the role of fire accompanied by tabular and spatial data. Commenters also recommended that the RMP and EIS provide a more detailed description of why certain events or activities are categorized as having an adverse or beneficial impact to vegetation.

Commenters expressed concern that the RMP and EIS does not provide significant changes in management for invasive species in the Planning Area and requested that the further assessment of invasive species management be initiated. Commenters requested that changes in AMPs be accompanied by a comprehensive monitoring study of the Planning Area based on livestock grazing as well as a comprehensive noxious weed inventory of the Planning Area. Additionally, commenters identified a number of technical edits related to vegetation including requests to use alternative language, correct technical statements and/or terms, define terms, and clarify language. Commenters requested that BLM include a variety of references in the text as well as in the alternatives.

Summary Response:

The BLM reviewed the provided vegetation comments and revised the RMP and EIS including adjustment and clarification of management actions, updates for ESA-listed and sensitive species, and other information, as appropriate.

The BLM will consider using LANDFIRE data in the future as part of keeping the Analysis of the Management Situation current. Neither the BLM nor any participating cooperators made a proposal to implement a comprehensive monitoring study of the vegetation resources, noxious weeds, or sensitive plant species within the Planning Area during the alternative development process. Therefore, under the Proposed RMP, the BLM will continue to manage the vegetation resources at the allotment and watershed level with an emphasis on large contiguous blocks of native plant communities.

The Wyoming North Zone FMP (May 2004) contains a more in depth discussion of the role of fire in each of the Planning Area's five Fire Management Units.

Visual Resources

Summary Comment #2032:

Commenters indicated that the proposed VRM restrictions would significantly reduce oil and gas development potential in the Planning Area. Some commenters stated that the BLM did not have the authority to impose VRM restrictions on state or private lands, as well

as on areas that have existing leases or permits for oil and gas development. In addition, commenters indicated that the determinations of visual inventory classes are unclear and not defined, specifically pertaining to sensitivity levels. Furthermore, commenters questioned the reasoning behind expanding several VRM classes from Alternative A to Alternative D. Commenters indicated that there are several editorial issues associated with the analysis.

Summary Response:

The BLM maintains an inventory of all resources on public lands, which includes maintaining an inventory of visual resources. As part of this RMP revision project, the WFO and CYFO conducted new inventories or updated their existing visual resource inventories. These updated inventories identified changes in sensitivity levels and scenic quality, which changed the Visual Resource Inventory (VRI) classes. Some areas moved from VRI Class II and III to IV, and other areas from VRI Class III and IV to II. The BLM reviewed the manageability of these VRI classes, resulting in the VRM classes analyzed in the Proposed RMP and Final EIS alternatives. The full visual resource inventories are available for public viewing at the CYFO and the WFO, and information on how the BLM conducts inventories is available in Manual 8410-1, Visual Resource Inventory (BLM 1986c).

The Proposed RMP only directs management of public lands and resources administered by the BLM within the Cody and Worland field offices. VRM management classes, therefore, do not apply to any state or private lands. The BLM added this information to the Proposed RMP and Final EIS.

In the case of split estate lands, the application of VRM management class objectives apply to the development of the mineral estate as they would to federal mineral estate on federal surface lands, provided the stipulations do not adversely affect the surface owner's land use or actions. Exceptions to surface development restrictions could be granted if requested or agreed to by the surface owner.

Water

Summary Comment #2031:

Commenters requested that the BLM include additional protective management for water resources. Specific requests included NSO restrictions for areas proximate to drinking water sources, such as aquifers, and the identification of BMPs and monitoring programs to protect and evaluate water quality. Commenters requested justification or clarification concerning several management actions.

Commenters also questioned the BLM's authority to regulate surface water quality, which they noted was under the jurisdiction of WDEQ.

Summary Response:

The BLM revised the text in the Proposed RMP and Final EIS where appropriate to provide additional information and references, and to

clarify the intent of management actions. BLM clarified the intent to require water management plans for new authorizations resulting in produced water. Additionally BLM made changes to Management Action 1029, requiring the development of a groundwater monitoring program in accordance with state requirements.

Appendix L includes a list of standard BMPs for groundwater protection. The inclusion of circumstances under which BMPs would be applied is beyond the scope of this RMP, however, general criteria for application of BMP's to projects is provided in the final document.

While the BLM acknowledges that WDEQ is the authority for water regulation in the State of Wyoming, it is the BLM's responsibility to consult with WDEQ regarding water-related issues during permitting processes that occur on public lands and to follow-up if issues associated with permitted discharges are discovered.

Summary Comment #2031_1:

Commenters indicated that the water section was missing information demonstrating compliance with Wyoming water laws as well as the characterization of specific water resource types such as groundwater and Class I waters. Additionally, commenters indicated that the analysis failed to use the most recent data pertaining to the characterization and classification of specific water resource types. Commenters indicated that the analysis did not provide data or baseline conditions for water resources indicators that would allow for an evaluation of potential impacts including chemical characteristics, physical characteristics, and biological characteristics. Commenters also questioned the determination that no violations of water quality standards would occur under any of the alternatives. Finally, commenters expressed concern that the analysis did not consider the beneficial uses of water produced by development activities including, but not limited to livestock grazing and the creation of riparian zones and wetlands.

Summary Response:

The BLM revised the text in the Proposed RMP and Final EIS based on commenter input to provide definitions, technical corrections, additional text, and clarifications as needed. Specifically, the BLM included additional discussion on the beneficial and adverse effects of produced water discharges. The BLM revised the document where appropriate to include commenter suggested data and reference updates, and conducted additional reviews to ensure consistency with current federal laws and guidance.

BLM RMP's are planning level documents that cannot analyze many site-specific impacts that will affect water quality. While the BLM acknowledges that waters can be described based on their chemical, physical, and biological characteristics, the BLM did not intend these to be the impact indicators used in Chapter 4 of the RMP and EIS and, therefore, did not include baseline information on these characteristics in Chapter 3. Specific water quality indicators

suggested by commenters would likely be addressed during permitting for site-specific actions.

The BLM recognizes that many stream segments do not meet state water quality standards (refer to Chapter 3, Table 3-6). To this end, the BLM revised Chapter 2 and 4 of the final document to state that no additional impacts to surface water quality are anticipated other than the potential for those waters currently impaired to continue to exceed standards for fecal coliform and E. coli. In addition, the BLM revised Chapter 4 to include an expanded discussion of Management Action 1040, which would have a positive impact on water quality due to cooperation with adjacent landowners and implementation of BMPs.

Summary Comment #2031_2:

Commenters expressed concern related to the assumptions and modeling used in the water quality analysis. Commenter questioned the assumption that Coalbed Natural Gas (CBNG) produced water would be of the same quality and quantity as produced water from oil and gas development. Additionally, commenters indicated that the WEPP model utilized in the analysis was inadequate due to underestimations of natural and manmade erosion and runoff rates. Commenters stated that the model did not appear to have been calibrated to represent conditions specific to the Bighorn Basin.

Summary Response:

The BLM revised the text in the Proposed RMP and Final EIS to provide additional text, reference, and clarifications as appropriate. Specifically, the BLM included information on the role of the Wyoming Pollutant Discharge Elimination System in increasing beneficial impacts and reducing adverse impacts, the quality of produced water from CBNG versus conventional oil and gas development, and an expanded discussion on the assumption and limitations of the WEPP model.

The WEPP model is a high level-planning tool; the results presented in the Proposed RMP and Final EIS are not intended to show an accurate projection of total natural and manmade runoff in the Planning Area, but instead to provide a way to evaluate the effects of the alternatives in relation to one another. This type of comparative analysis is appropriate at the RMP level; impacts on runoff will vary based on project type, mitigation and BMPs applied, and other site-specific factors that will be identified at the project level.

Wild and Scenic Rivers

Summary Comment #2018:

Commenters expressed concern regarding the selection of a Preferred Alternative that does not protect and enhance potential Wild and Scenic River (WSRs) resources in the Planning Area. Commenters recommended that the BLM give additional information in the Proposed RMP and Final EIS regarding the basis for the listing of waterways within the Planning Area with special consideration for

consistency of WSR designation between the BLM and agencies with which the BLM shares a boundary.

Summary Response:

The BLM developed and analyzed a reasonable range of alternatives for the Proposed RMP and Final EIS. WSR guidance directs the BLM to analyze suitability for each eligible waterway segment before making a decision on whether or not to recommend an eligible waterway segment to Congress for inclusion in the Wild and Scenic River System. The BLM used the RMP revision as the suitability analysis, which included scoping, public meetings, and intimate planning with the local cooperators and public comments to the Draft RMP and Draft EIS. Appendix F addresses the determination of suitability. In addition, the WFO and CYFO WSR reports are available on the project website.

Wild Horses

Summary Comment #2030:

Commenters presented recommendations on the potential management of wild horses in the Draft RMP and Draft EIS that would both expand and reduce wild horse herds and ranges. Commenters requested the BLM include an option for increasing the appropriate management level for wild horse Herd Management Areas (HMAs). Commenters also requested an option for decreasing the appropriate management level and the AUMs allotted for wild horses or managing wild horses to the lowest allowable appropriate management level. Additionally, commenters suggested the BLM expand HMA boundaries or manage all HMAs and HAs for wild horses, while other commenters suggested the BLM remove wild horses from certain HMAs. Other comments either requested the consideration of additional specific protections for wild horses or questioned the need for specific management actions considered in the Draft RMP and Draft EIS.

Commenters requested that the Proposed RMP and Final EIS include provisions for rangeland health assessments for the HMAs.

Commenters identified a number of technical edits related to wild horses, including requests for BLM to use revised language, correct technical statements, define terms, and clarify language.

Commenters also requested that BLM include a variety of references in the text as well as in the alternatives.

Summary Response:

The Proposed RMP and Final EIS analyzes a full range of alternatives. This range included alternatives that prioritize forage allocation for wild horses, as well as alternatives that prioritize other resources and uses. Some issues (e.g., stocking level for the HMAs and setting appropriate management level) are not RMP level decisions, and would be addressed as applicable in subsequent NEPA or permit renewal processes, or HMA plans.

Section 3.4.10 Wild Horses of the Draft RMP and Draft EIS incorporates by reference previous analysis that determined that managing wild horses in Herd Areas resulted in management issues or conflicts that were most appropriately resolved by the removal of wild horses or the management of horses in smaller HMAs within the original Herd Area boundaries. The BLM reviewed these analyses and determined them to be valid, with the exception of a portion of the McCullough Peaks area. In the case of McCullough Peaks, the BLM considered alternatives that would expand the HMA boundary to address issues and conflicts.

The BLM revised the text in the Proposed RMP and Final EIS based on commenter input to provide additional information, definitions, details, technical edits and citations as deemed necessary.

Wilderness Study Areas

Summary Comment #2019:

Commenters recommended that the acreage for Wilderness Study Areas (WSAs) in the Planning Area be increased to protect, through adaptive management, wilderness characteristics and WSAs. Additionally, commenters expressed concern that citizen proposed WSAs were not included in the proposed alternatives. Commenters requested a description of the reasoning behind recommending WSAs near ongoing operations that may preclude the area from WSA designation.

Summary Response:

The BLM's authority to recommend areas as WSAs under FLPMA section 603 (43 U.S.C. § 1782) has expired and only Congress can make determinations regarding the status of WSAs pending before it. Comments requesting consideration of WSAs have been addressed through identification and analysis of lands with wilderness characteristics.

The BLM conducted a wilderness characteristics inventory of lands in the Planning Area to identify areas with wilderness characteristics. The BLM disclosed the results of that inventory and developed and analyzed a reasonable range of alternatives for managing areas with wilderness characteristics. The inventory forms are available for public review at the WFO and the CYFO and on their respective websites.

Wildlife

Summary Comment #2020:

Commenters raised several questions and concerns regarding wildlife management in the alternatives. Specifically, commenters raised concerns and provided information for BLM's consideration including: (a) recommended constraints on federal mineral estate in Wildlife Management Areas; (b) requests for clarification of management including leasing restrictions in the Absaroka Front; (c) preferences to

allow reasonable access to existing oil and gas well locations even in sensitive wildlife habitat; (d) concerns some alternatives are not in compliance with BLM’s wildlife policy; (e) recommendations for BMPs; (f) recommendations regarding applying seasonal wildlife protections on a case-by-case basis; (g) flexibility in management to effectively manage wildlife through hunting; (h) additional information on wildlife management challenges associated with predation; (i) and requests for revision of wildlife information in the Affected Environment.

Summary Response:

The BLM updated wildlife management in the alternatives and other wildlife-related text in the Proposed RMP and Final EIS, including revisions to the referenced management actions, clarification of terminology, clear identification of areas open and closed to leasing under each alternative, addition of references and citations to support stated information, incorporation of submitted commenter input, and other revisions, as appropriate.

Summary Comment #2022:

Commenters provided several edits for GIS and mapping, as well as other revisions to support the wildlife impacts analysis. Commenters questioned or raised concerns pertaining to: (1) the need for additional maps and revision to big game wildlife species maps; (2) inconsistencies between the BLM and WGFD big game crucial winter range acreages and mapping; (3) factual corrections on area classification; and (4) missing acreage and/or details within the analysis, including summer range acres unavailable for and/or closed to oil and gas development.

Summary Response:

The BLM revised the Proposed RMP and Final EIS in response to comments, as appropriate. The BLM coordinated with WGFD during the preparation of the Draft RMP and Draft EIS and the WGFD concurred with the big game crucial winter range maps as depicted in the Proposed RMP and Final EIS.

Summary Comment #2025:

Commenters raised concerns about completeness of data presented in the wildlife analysis and indicated several areas that could benefit from additional explanations. Specifically, commenters requested additional information be included in the analysis and raised questions regarding: (1) the impacts/effects resulting from wildlife and livestock grazing management, mineral development, and other resource uses; (2) the BLM’s quantification of baseline data; and (3) requests for detailed explanation of BLM’s methods and assumptions for wildlife resources.

Additionally, commenters indicated the Draft RMP and Draft EIS had several deficiencies, specifically in relation to: (a) a clearly stated monitoring and evaluation protocol for the RMP goals and objectives; (b) inconsistencies between objectives for wildlife and special status species; and (c) clear direction regarding public and land manager involvement with the monitoring and evaluation protocol.

Summary Response:

The BLM incorporated commenter requests for specific revisions and clarifications, technical edits, and updates to data as appropriate. Appendix D of the Draft RMP and Draft EIS outlines opportunities for public involvement.

Big game and wildlife population numbers and management are ultimately a WGFD issue. When wildlife population numbers and effects on other resources become an issue, the BLM has several ways to resolve the issue. Examples include habitat enhancement projects to disperse elk use, increased hunter access, and increased harvest negotiated with the WGFD. Additionally, the BLM proposed to help the WGFD manage wildlife populations towards stated objectives by managing identified important habitats (e.g., aspen, willow, mixed conifer and spruce fir communities).

Wilderness Characteristics

Summary Comment #2027:

Commenters expressed concern that based on the guidelines set forth in BLM Manual 6301 the BLM did not properly conduct the lands with wilderness characteristics inventory for the Planning Area.

Commenters requested that the BLM include a more detailed discussion, with references to guidance material, of the reasoning behind the inclusion of each land with wilderness characteristics identified in the inventory. Commenters noted that many proposed lands with wilderness characteristics contained numerous roads and other man-made structures that were not discussed in the text or disclosed on the maps of the RMP and EIS. In addition, commenters recommended the BLM clarify the definition of roads as used in the lands with wilderness characteristics inventory.

Commenters also expressed concern regarding the recent changes in the Department of the Interior's administration of lands with wilderness characteristics and recommended removal of all lands with wilderness characteristics references from the text of the Draft RMP and Draft EIS.

Some commenters requested that BLM institute specific management prescriptions for lands identified as having wilderness characteristics for protection of those characteristics. Commenters expressed concern that the Draft RMP and Draft EIS did not fully address how the proposal of lands with wilderness characteristics would impact resource uses such as ranching and mineral development.

Commenters identified a number of technical edits related to wilderness characteristics including requests to use alternative language, correcting technical statements and/or terms, defining terms, and clarifying language. Commenters also requested the BLM include a variety of references in the text as well as in the alternatives.

Summary Response:

FLPMA, Section 201, requires the BLM to maintain its inventory of wilderness characteristics, which includes augmenting inventory efforts by analyzing additional and new information submitted by the public. BLM's inventory obligation is a continuous one and is not merely an activity that BLM completes during the land use planning process. The intent of an RMP is to set forth the management of areas with inventoried wilderness characteristics, which includes analyzing potential management of areas containing wilderness characteristics for those characteristics.

The BLM is not required to manage lands outside of WSAs or Wilderness Areas for wilderness characteristics. However, the BLM developed a reasonable range of alternatives for lands with wilderness characteristics that were analyzed and considered for the Proposed RMP and Final EIS. This range included alternatives designed to protect wilderness characteristics in these areas, as well as alternatives without such protections. Where specific management actions for the protection of wilderness characteristics were considered, managed lands with wilderness characteristics would still allow for grandfathered uses and would be subject to valid existing rights.

Based on commenter input, the BLM revised the lands with wilderness characteristics sections in the Proposed RMP and Final EIS as appropriate to provide clarifying information, define terminology, and provide references.

The BLM has been updating its inventory of lands with wilderness characteristics consistent with FLPMA, and the discussion in the Proposed RMP and Final EIS is based on information in the updated inventory. As such, the Proposed RMP and Final EIS is consistent with recent policy and guidance (BLM Manuals 6310 and 6320) on lands with wilderness characteristics. For example, while lands with wilderness characteristics continue to be a resource the BLM is required to consider consistent with FLPMA, the BLM concurs that references to the term "Wild Lands" and Secretarial Order 3310 are no longer appropriate and have, therefore, removed them in the Proposed RMP and Final EIS.

4.2.2. Supplement to the Draft RMP and Draft EIS

Similar to that described for the Draft RMP and Draft EIS, the summary comments and responses are presented below, and generally organized by BLM resource program or other appropriate issue categories (e.g., greater sage-grouse) as described in Table A-2. The summary comment numbers below can be used to track the summary comment and response to the individual comments presented in Attachment D.

Air Quality

Summary Comment #3002: Commenters requested BLM provide the rationale for concluding that Alternative E will not exceed the NAAQS or Wyoming Ambient Air Quality Standards.

Commenters questioned why Tables 4-3 and 4-4 only included carbon dioxide emissions, did not include other greenhouse gases, and the years chosen for the carbon dioxide analysis. Commenters suggested “equivalent” be removed in the titles of Tables 4-3 and 4-4 and the footnotes deleted. Commenters requested BLM provide a reference supporting the statement that carbon dioxide from prescribed fires is considered to be counterbalanced by increased productivity of existing larger vegetation and new growth.

Summary Response: The BLM updated the text in the Air Quality sections to provide additional explanation, clarification and/or references; updated the emissions spreadsheets and tables including adding CH₄ and N₂O emissions; and added an Air Resource Management Plan as an appendix to the Proposed RMP.

Areas of Critical Environmental Concern

Summary Comment #3001: Commenters requested the BLM provide clarification on the ACEC designation process, why the ACECs were necessary for conservation of greater sage-grouse, and possible acreage discrepancies between ACEC boundaries overlapping federal mineral estate. Other commenters requested BLM develop other habitat management solutions instead of designating greater sage-grouse ACECs.

Additionally, commenters questioned the scientific facts behind the proposed ACEC designations, if the ACECs met the relevance and importance criteria for designation, and suggested ACEC designation violated the BLM multiple use mandate. Commenters offered support for Alternative D suggesting that the protections in place under the Wyoming Governor’s EO 2011-5 were sufficient to protect greater sage-grouse and its habitat, stating that alternatives E and F were not consistent with the Wyoming Governor’s EO 2011-5. Commenter noted that the two EOs used to inform sage-grouse management efforts had been replaced or are no longer in effect. Other commenters called into question the level of constraints on oil and gas development described in the document due to ACEC designation. Commenters noted that ACEC designation unreasonably encumbered other resource uses and prioritized protection of greater sage-grouse over other resource uses. Commenters also offered that due to the size of the area designated as ACECs, enforcement and management would be burdensome for BLM.

Summary Response: The BLM developed the greater sage-grouse ACECs (under alternatives E and F in the Supplement) to respond to the needs to

address goals, objectives, and conservation measures to conserve greater sage-grouse in response to the potential of its being listed under the ESA, as well as to consider ACEC nominations submitted by the public in response to the 2011 NOI for preparation of EISs and Supplemental EISs to Incorporate Greater Sage-grouse Conservation Measures into Land Use Plans and Land Management Plans (76 FR 77008, December 9, 2011). Additionally, alternatives E and F thoroughly considered the conservation measures identified in the NTT report, as required by the BLM National Greater Sage-Grouse Land Use Planning Strategy (IM 2012-044). The values of concern for both proposed ACECs are sagebrush steppe vegetation communities that provide habitat for special status wildlife species, including areas designated as greater sage-grouse Key Habitat Areas and Priority Habitat Management Areas (PHMAs).

BLM's planning process allows consideration of a range of alternatives that identifies and incorporates appropriate regulatory mechanisms to address these needs to ensure that a balanced management approach was recommended. The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights.

BLM's Proposed RMP and Final EIS is consistent with the Wyoming Governor's EO 2011-5 that has been determined sufficient to conserve greater sage-grouse throughout Wyoming.

The BLM provided additional explanation about the ACEC nomination process, updated acreages, and updated text as needed.

Climate Change

Summary Comment #3003: Commenters suggested the BLM did not account for the impacts of livestock grazing on climate change, except for acknowledging that reducing AUMs would reduce methane emissions from cattle. Commenters requested additional analyses be conducted for the Proposed RMP and Final EIS, including impacts of livestock grazing on carbon sequestration and vegetation utilization.

Summary Response: The comments regarding the impacts of livestock grazing on climate change, carbon sequestration, and vegetation utilization are outside the scope of the Supplement. Climate change is addressed as appropriate in the Proposed RMP.

Consultation

Summary Comment #3006: Commenters recommended close coordination with all appropriate state and federal wildlife agencies (e.g., Western Association of Fish and Wildlife Agencies [WAFWA], WGFD) to minimize and mitigate adverse impacts to wildlife species from BLM-authorized activities.

Specifically, commenters recommended working with state agencies to develop planning and habitat management objectives to maintain population objectives and ensure RMP management is flexible enough to respond to changes in state management needs, including coordinating WAFWA recommended dates for big game restrictions and greater sage-grouse management.

Summary Response:

The USFWS and WGFD are cooperating agencies for the RMP and involved in development of the Final EIS. Current and proposed BLM management is designed to help support WGFD population objectives for big game and greater sage-grouse. The management actions related to fish, wildlife, and special status species, included in this RMP, are expected to mitigate impacts to wildlife and are based on recommendations from the appropriate state and federal agencies; the BLM will continue to work with the USFWS and WGFD when implementing the RMP.

Cultural Resources

Summary Comment #3007:

Commenters recommended the BLM not unreasonably constrain oil and gas development since it often leads to discovery and preservation of cultural resources due to Section 106 compliance.

Summary Response:

The BLM developed the Supplement to ensure that a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands.

Cumulative Impacts

Summary Comment #3008:

Commenters indicated that the cumulative impacts analysis did not adequately address the potential impacts of greater sage-grouse management actions on the local economy and resource uses when combined with existing or proposed regulations or plans of other state and federal agencies including the Shoshone Forest Management Plan, the Big Horn River Total Maximum Daily Load Study, and current WGFD and USFWS practices. Commenters also suggested the BLM address the cumulative impacts of Greater sage-grouse management on oil and gas development due to an increased length in permitting.

Commenters suggested cumulative impacts of greater sage-grouse management were understated and requested BLM analyze of the cumulative impacts on livestock grazing from other RMP revisions within Wyoming and Idaho.

Commenters expressed concern that the cumulative impacts analysis did not include information from the USGS baseline study that identifies overlapping direct and indirect impacts on priority greater sage-grouse habitat.

Summary Response:

The BLM thoroughly explained its consideration and analysis of cumulative effects in the Supplement in Section 4.9, including assumptions regarding proposed projects and other reasonably foreseeable future actions. The Supplement considered the present effects of past actions, to the extent that they are relevant, and present and reasonably foreseeable (not highly speculative) federal and non-federal actions, taking into account the relationship between the proposed alternatives and these reasonably foreseeable actions.

The BLM complied fully with the requirements of Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) and prepared a cumulative impact analysis to the extent possible based on the broad nature and scope of the proposed management options under consideration at the land use planning level.

Additionally, to ensure consistency across the greater sage-grouse's range, BLM's National Operation Center conducted management zone and range-wide cumulative impact analysis, which is included in the Proposed RMP Chapter 7.

Fire and Fuels

Summary Comment #3011-1:

Commenters requested the BLM provide additional explanation and/or information on fire and fuels management, including effectiveness of post-fire stabilization, post-fuels-management for seeded or pre-treatment native plants, management to minimize adverse impacts of fire, if livestock exclosures also prevent wildlife grazing, areas receiving less than 12 inches annual precipitation, impacts attributed to livestock grazing and achieving 65 percent or more of Historical Climax Plant Community.

Commenters expressed concern that management of prescribed fire in ACECs was overly restrictive, indicating fire was an important tool in treating sagebrush, improving forage, controlling invasive species, and preventing catastrophic wildfires. Commenters asserted that impacts on greater sage-grouse from proposed fire management was not inadequately addressed, likely to harm greater sage-grouse in the long term, and indicated the analysis should be revised. Other commenters questioned allowing use of fire and mechanical treatments in ACECs, suggesting they were harmful to greater sage-grouse and their habitat, and indicated that prescriptions the use of fire should be strengthened.

Commenters were concerned over management that closed burned areas to livestock grazing for extended periods to allow vegetation to recover and meet greater sage-grouse habitat objectives. Specific concerns raised include: (1) impacts to livestock grazing, (2) the length of time needed for woody and herbaceous plants to meet the greater sage-grouse habitat objectives, (3) closing entire allotments and/or pastures if they could not be fenced from unburned areas, and (4) lack

of justification for this management. Commenters suggested that livestock grazing could assist in recovery by eliminating competitive plants and that proper livestock grazing management in sensitive areas is effective.

Commenters also submitted recommendations from other RMP amendments for incorporation in the Proposed RMP and Final EIS.

Summary Response:

The management of the greater sage-grouse ACECs under alternatives E and F represent approaches to managing these areas that were not considered in the Draft RMP and Draft EIS. As specific actions come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. Site-specific concerns and more detailed environmental descriptions will be addressed when project-level reviews are tiered to the analysis in this EIS (40 CFR 1502.20, 40 CFR 1508.28). In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for any site-specific actions. The BLM would conduct stabilization and rehabilitation consistent with BLM policy and guidance and in accordance with the FMP. There are no restrictions or limitations on stabilization and rehabilitation in specific areas under any of the alternatives.

Implementation of fuels management activities would be designed with consideration of the Required Design Features (RDFs) and BMPs for greater sage-grouse identified in Appendix L. If prescribed fire is to be used for vegetation treatments, the burn plan will clearly indicate how the Conservation Objectives Team (COT) objectives will be addressed and met by its use, and why alternative techniques were not selected. Additionally, a Risk Assessment will be completed for implementation of prescribed fire in relation to the greater sage-grouse goals and objectives.

The BLM drafted a monitoring framework that is included in the Proposed RMP as Appendix Y. The appendix describes the process that the BLM will use to monitor implementation and effectiveness of land use plan decisions. The monitoring framework includes monitoring at various scales specific to greater sage-grouse habitat, consistent indicators to measure and metric descriptions for each of the scales, analysis and reporting methods, and the incorporation of monitoring results into adaptive management. To accomplish effectiveness monitoring, the BLM will analyze the monitoring data to characterize the relationship among disturbance, implementation actions and habitat condition at the appropriate and applicable geographic scale or boundary.

During scoping, individuals and conservation groups submitted management direction recommendations for protection and conservation of greater sage-grouse and their habitat. The BLM reviewed the recommendations considering resource allocation

opportunities and internal sub-regional BLM input to develop the management direction for greater sage-grouse under alternatives E and F. Examples of conservation measures included in the alternatives would include a 3-percent cap on disturbance in priority habitat, RDFs, and ROW exclusion areas in priority habitat.

Greater Sage-Grouse

Summary Comment #3035_1: Commenters expressed concern over the management prescribed under the alternatives the BLM analyzed in the Supplement to meet their conservation goals and objectives for greater sage-grouse. As a result, commenters requested the BLM consider and analyze different alternatives such as a “no grazing” alternative, a “50 percent reduction in grazing” alternative, a BLM Manual 6840 alternative, a “Sage-Grouse Recovery” alternative, and a “sagebrush ecosystem” ACEC. Additionally, comments indicated the No Action Alternative analysis should quantify ongoing conservation efforts to protect greater sage-grouse and their habitat. Some commenters requested the BLM explain why current regulatory mechanisms are or are not effective in the sage-grouse conservation effort.

Commenters questioned the BLM’s rationale for designating the Key Habitat Areas or PHMAs as ACECs indicating there was no justification or supporting data. Other commenters stated preference for Alternative E because of its strong conservation of sage-grouse habitat as an ACEC.

Several commenters requested the BLM’s management actions be consistent with the Wyoming Governor’s EO 2011-5 which has been deemed successful, citing the EO’s measures were supported by the USFWS and BLM’s own policies and guidance and thus should be adopted in the Proposed RMP. Commenters requested the BLM omit the use of Key Areas to stay consistent with EO 2011-5 as well as change or better define specific terms. Additionally, commenters asked BLM to ensure consistency with EO 2013-3.

Other commenters had concerns that the Wyoming Governor’s EO 2011-5 and BLM policies and guidance (IM 2012-019 and the NTT Report) do not uphold BLM’s obligation to prevent degradation of greater sage-grouse habitat or a decline in population, supporting designation of Key Habitat areas over Core Areas and suggesting modifications.

Commenters requested that the BLM make management prescriptions consistent with the NTT Report as specified by IM 2012-044, while others stated the BLM had not analyzed the measures in the NTT Report or they needed to be more protective. Commenters questioned the science behind the NTT conservation measures, stated they were not always appropriate or did not address the immediate threats, was not based on Manual 6840 or the ESA, and that other

conservation measures should be considered and implemented. Additionally, commenters requested the BLM provide their analysis of NTT conservation measures and consider other wildlife protections that would also be beneficial for greater sage-grouse.

Some commenters asked that habitat designations be consistent with the NTT Report. Other commenters called for the BLM to designate priority and general Habitat boundaries as well as other criteria that match the ESA efforts from USFWS. Commenters also requested that the TLS be changed to NSO to better protect greater sage-grouse and their habitat, while others questioned why a TLS was necessary if activities were precluded by NSO depending on the alternative.

Summary Response:

The management of the greater sage-grouse priority habitat ACECs in alternatives E and F represent approaches to managing these areas that were not considered in the Draft RMP and Draft EIS and was derived from recommendations in the NTT report as well as public comments. The BLM considered a reasonable range of alternatives during the greater sage-grouse planning process in full compliance with the NEPA. The CEQ regulations (40 CFR 1502.1) require that the BLM consider reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. While there are many possible alternatives or actions to manage public lands and greater sage-grouse in the Planning Area, the BLM fully considered the management opportunities presented in the Analysis of the Management Situation and the planning issues and criteria developed during the scoping process to determine a reasonable range of alternatives. As a result, two new alternatives were analyzed in detail in the Supplement that best addressed the issues and concerns identified by the affected public. The range of alternatives in the Supplement and Draft EIS represented a full spectrum of options including a no action alternative (current management, Alternative A, Draft EIS).

Nominations for greater sage-grouse-related ACECs were submitted by members of the public in response to the 2011 NOI for preparation of EISs and Supplemental EISs to Incorporate Greater Sage-grouse Conservation Measures into Land Use Plans and Land Management Plans (76 FR 77008, December 9, 2011). The BLM reviewed these nominations and found importance and relevance criteria to be met, warranting consideration in the Bighorn Basin RMP Revision Project. Although these ACEC nominations were submitted in response to the December 2011 NOI, ACEC nominations can be submitted by any individual or organization inside or outside of the BLM at any time during the development of a land use plan. Alternatives E and F each propose the designation of a greater sage-grouse-related ACEC that simultaneously responds to the needs to consider ACEC nominations submitted by the public and to thoroughly consider the conservation measures identified in the NTT report, as referenced in the BLM

National Greater Sage-Grouse Land Use Planning Strategy (IM 2012-044).

The BLM's Proposed RMP was modified to be consistent with the Wyoming Governor's EO 2011-5 that has been determined sufficient to conserve greater sage-grouse throughout Wyoming and WAFWA Management Zones I and II.

The range of alternatives is based upon analysis of public scoping comments as well as information provided in the NTT report, the U.S. Geological Survey's Baseline Environmental Report (BER), the COT report, and state management plans. The alternatives represent different degrees of and approaches to balancing resources and resource use among competing human interests, land uses, and the conservation of natural and cultural resource values, while sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat. For example, alternatives E and F incorporate adjustments to the NTT report (NTT 2011) based on cooperating agency input to provide a balanced level of protection, restoration, enhancement, and use of resources and services to meet ongoing programs and land uses. Anthropogenic surface disturbance would be managed not to exceed 3 percent in ecological sites that support sagebrush within Preliminary Priority Habitat (Figure 2-1, Ecological Sites Supporting Sagebrush in Preliminary Priority Habitat, in Appendix B, Figures).

Greater sage-grouse conservation measures in *A Report on National Greater Sage-grouse Conservation Measures* (NTT 2011) were used to form BLM management direction under alternatives E and F, which is consistent with the direction provided in BLM Washington Office IM 2012-044.

The habitat delineations were created by the BLM and USFWS in collaboration with state fish and wildlife agencies that are responsible for managing and monitoring greater sage-grouse populations. Based on the BER and in cooperation with the WGFD, the BLM created the Preliminary Priority Habitat and Preliminary General Habitat areas (Mainer et al. 2013). For the Supplement to the Bighorn Basin Draft RMP and Draft EIS, the BLM worked with the WGFD and presented the scientific information used to determine the PPH and PGH delineations and findings in the Supplement's Executive Summary. The alternatives analyzed in the Supplement identified two areas considered as priority habitat areas.

The BLM has identified Alternative D as its Proposed RMP, which is consistent with the Wyoming Governor's EO 2011-5. The stipulations (TLS and NSO) in management actions 4116, 4117, and 4118 have been revised accordingly.

Summary Comment #3035_2:

Commenters felt the baseline information used by BLM in the Supplement's analysis was not supported by scientific facts to

conserve greater sage-grouse and suggested different sources be used instead. These sources were provided because of the recent information they could provide for the analysis. Commenters questioned the greater sage-grouse habitat thresholds established by BLM and at what scale they would be applied. Commenters questioned if the new information used in the development of alternatives E and F was used in the development of alternatives A through D, suggesting the newer information should be incorporated in alternatives presented in the Draft RMP and Draft EIS, which would improve those management alternatives.

Commenters also asked the BLM to acknowledge that the State of Wyoming has the sole authority to regulate greater sage-grouse as a game animal asserting BLM uses the terms habitat management or conservation as de facto authorization to manage the species.

Commenters requested a map and data be presented depicting the amount of land changed from sagebrush to agricultural land and that BLM be specific about where RDFs apply as well as provide exception criteria. Some commenters questioned if the management recommendations in the Supplement would measure up to the USFWS Policy for Evaluating Conservation Efforts criteria.

Commenters were concerned that the NTT Report was not the “best available science” to inform sage-grouse management in the Bighorn Basin. Commenters stated the BLM had not considered other more appropriate and effective sources such as those developed by USFWS and the USGS. Other commenters felt differently regarding the NTT report indicating that the NTT conservation measures for greater sage-grouse and their habitat were more appropriate, supportable, and more conservative than EO 2011-5.

Commenters asked the BLM to consider greater sage-grouse population trends suggested by hunting harvest data for projecting populations. Other commenters stated that population information presented in the Supplement is inaccurate, inadequate, unsupported, and questioned the sources used by BLM for their analysis. Commenters also questioned if the impacts to greater sage-grouse populations from oil and gas development were uniform across the planning area and disputed information in the Supplement that attributed population declines to oil and gas development.

Commenters were concerned that the NTT Report was not the “best available science” to inform greater sage-grouse management in the Bighorn Basin. Commenters stated the BLM had not considered other more appropriate and effective sources such as those developed by USFWS and the USGS. Other commenters felt differently regarding the NTT report indicating that the NTT conservation measures for greater sage-grouse and their habitat were more appropriate, supportable, and more conservative than EO 2011-5.

Commenters requested the BLM define occupied lek throughout the document and the process by which leks are deemed occupied or unoccupied asserting leks with no activity for 3 years be considered unoccupied. Commenters requested maps of winter concentration areas be made available as well as the acreage amount of the winter concentration areas.

Summary Response:

Before beginning the Supplement and throughout the planning effort, the BLM considered the availability of data from all sources, adequacy of existing data, data gaps, and the type of data necessary to support informed management decisions at the land-use plan level. The data needed to support broad-scale analysis of the Bighorn Basin Planning Area are substantially different than the data needed to support site-specific analysis of projects. The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed decision. The baseline data provided in Chapter 3 and various appendices is sufficient to support, at the general land use planning-level of analysis and the environmental impact analysis (Chapter 4) resulting from management actions presented in the Supplement. The BLM used the most recent and best information available that was relevant to a land-use planning-level analysis including the U.S. Geological Survey's BER (BER; Manier et al. 2013). The U.S. Geological Survey's BER looked at each of the threats to greater sage-grouse identified in the USFWS's "warranted but precluded" finding for the species. For these threats, the report summarized the current scientific understanding, of various impacts to greater sage-grouse populations and habitats. The report also quantitatively measured the location, magnitude, and extent of each threat. These data were used in the planning process to describe threats at other levels, such as the sub-regional boundary and WAFWA Management Zone scale, to facilitate comparison between sub-regions. Additionally, the BLM consulted with, collected, and incorporated data from other agencies and sources, including but not limited to the USFWS and the WGFD. As a result of these actions, the BLM gathered the necessary data essential to make a reasoned choice among the alternatives analyzed in detail in the Supplement and Proposed RMP. Finally, the BLM has made a reasonable effort to collect and analyze all available data.

The WGFD manages wildlife within Wyoming, while the BLM focus is on managing habitat and the BLM will continue to work with the WGFD to meet state wildlife population objectives. While USFWS has responsibility for threatened and endangered species, the BLM manages a significant portion of greater sage-grouse habitat. Thus, although it is the USFWS's responsibility to administer the ESA, management of wildlife habitat is within the BLM's multiple-use mandate and is properly a resource to be managed in their planning decisions.

The BLM has identified Alternative D as its Proposed RMP, which is consistent with the Wyoming Governor's EO 2011-5.

The BLM updated the Chapter 3 greater sage-grouse section with recent trend data and recent information on hunting harvest rates. Definitions for occupied lek and unoccupied leks were added to glossary (from BLM IM 2012-019).

The BLM will continue to follow WGFD recommendations affording protections to occupied leks until they are determined to be unoccupied. Winter concentration areas are addressed in management actions 7186 and 7272 (Proposed RMP). Additionally, greater sage-grouse winter concentration areas were recently mapped by WGFD and BLM personnel and are shown on the special status species wildlife maps in the Proposed RMP.

Summary Comment #3035_3-1: Commenters suggested that the BLM focus on issues other than West Nile virus in regards to threats to greater sage-grouse. Other commenters offered suggestions or alternative methods to improve BMPs/RDFs. Commenters questioned certain BMPs/RDFs because they were too broad and vague, in particular noise shields and siting compressor stations. Commenters cited issues pertaining to these BMPs/RDFs including the different types and shapes of noise shields and engineering concerns when siting compressor stations outside priority habitat as well as proximity to other resources besides greater sage-grouse. Other commenters stated the measures did not address livestock grazing.

Commenters requested that BMPs be updated as more and new information becomes available. Commenters expressed concern that the BMPs/RDFs from the NTT Report were too restrictive and the BLM may not have the legal authority to implement them.

Summary Response:

The BLM modified Appendix L to include language that acknowledges BMPs for greater sage-grouse protections is an evolving field and that the appendix will be supplemented as technology and understanding of greater sage-grouse advance. The RDFs in Appendix L are from BLM's Greater Sage-Grouse NTT. To provide Bureau-wide consistency the recommendations cannot be revised. However, during implementation the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility. The BMP and RDF lists are not exhaustive, other methods may also be appropriate.

The BLM may apply Conditions of Approval in conformance with Section 6 of the Standard Oil and Gas Lease terms and conditions while recognizing valid existing rights.

Summary Comment #3035_3-2: Commenters requested clarification on Table 4-9 in the Supplement regarding the acreage in key greater sage-grouse habitat areas. Another commenter asked for clarification on Management Action 71,

specifically why a TLS was need when activities were already precluded by the NSO stipulation.

Summary Response:

The table in question includes acres both proposed and existing ACECs. The BLM complied with the NEPA by including a discussion of measures that may mitigate adverse environmental impacts of the alternatives in the Supplement. Taking certain actions is only one of many potential forms of mitigation. The BLM must include mitigation measures in an EIS pursuant to the NEPA; yet the BLM have full discretion in selecting which mitigation measures are most appropriate, including which forms of mitigation are inappropriate.

Summary Comment #3035_4:

Commenters stated the BLM should be consistent with EO 2011-5 and implement the 5 percent disturbance cap. Other commenters supported the 3 percent disturbance cap but felt that the DDCT calculation is inaccurate and results in a higher surface disturbance number, suggesting modifications to limit disturbance or otherwise strengthen the prescription. Commenters remarked that the 3 percent disturbance cap was inconsistent with the EO 2011-5 and overly restrictive. Some commenters offered supporting information regarding what they thought the density of development and/or disturbance cap should be. Some commenters asked that all management prescriptions be consistent with EO 2011-5 because the EO recognizes existing rights and/or development. Commenters asserted the BLM did not specify the types of activities included in disturbance calculations and others suggested burned areas be included in the calculation.

Summary Response:

The Supplement analyzed conservation measures for greater sage-grouse in alternatives E and F and the consequences of the constraints are evaluated to inform the decision. The BLM's Proposed RMP (Alternative D) in the Final EIS is consistent with EO 2011-5 with the 5 percent disturbance cap. Additionally, the BLM will utilize the most current greater sage-grouse density disturbance process or other state and/or federal agreed upon process for compliance evaluations.

Summary Comment #3035_5:

Commenters expressed concern that the BLM implement the strongest conservation measures possible to support greater sage-grouse conservation and recovery. Commenters felt the BLM did not adequately comply with the NEPA's "hard look" requirement for impacts on greater sage-grouse and should provide a more robust impact analysis. Commenters asked the BLM to withdraw priority habitat from various mining development and to further analyze the effects of energy development on greater sage-grouse habitat. Another commenter suggested BLM consider the limited surface disturbance from locatable mining in their impact analysis.

Other commenters suggested the BLM expand the discussion regarding greater sage-grouse population declines as a result of predation, weather, and other threats including hunting, fences, and

various impacts or relationships (beneficial or adverse) of predators on greater sage-grouse and their habitat.

Commenters either supported or expressed concerns regarding noise BMPs in the RMP. Commenters objected to setting ambient noise level range of 20 to 24 dBA, stating it had not been proven to represent ambient noise levels on multiple-use lands and should be removed. Commenters suggested the BLM implement noise prescriptions consistent with EO 2011-5, while others thought it should be changed consistent the BLM Lander's Field Office measures. Other commenters suggested noise measures be strengthened including recommending BLM anticipate the need to change management to reduce impacts of noise on greater sage-grouse populations.

Summary Response:

Per the requirements of NEPA, the Supplement provided analysis of the effects of each alternative and provides an adequate discussion of the environmental consequences of the presented alternatives. While the BLM has used a consistent method for developing alternatives, the specifics of each sub-region necessitated modification of the range of alternatives to accommodate locality and population differences. Alternatives E and F provide the "hard look". Additionally, the BLM's National Operation Center conducted management zone and range-wide cumulative effects analyses, which is included in the Proposed RMP and Final EIS. As a multiple use agency, the BLM must consider the protection of greater sage-grouse and their habitats as well as the potential for mineral recovery.

Chapter 3 discusses trends and threats to greater sage-grouse and the BLM updated the section with recent information. Predator control was not included as a threat in the USFWS's listing decision for greater sage-grouse. The BLM will continue to work with agencies to address current predation of greater sage-grouse, and BLM-administered lands in the planning area will remain open to predator control under state laws. Additionally, the BLM will continue to work with the WGFD to meet state wildlife population objectives.

The BLM would work with proponents to limit project-related noise where it would be expected to reduce functionality of habitats that support PHMAs and Connectivity Habitat Area populations. Noise restrictions in the Proposed RMP and Final EIS are consistent with the Wyoming Governor's EO 2011-5. As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on sage-grouse PHMAs population behavioral cycles. As new research is completed, new specific limitations would be coordinated with the WGFD and partners.

Summary Comment #3035_6: Commenters provided specific recommendations for livestock grazing to protect greater sage-grouse habitat, including routing livestock drives to avoid greater sage-grouse leks, shifting on-off dates to coincide with nesting periods, determining triggers for allotment closures after fires, incorporating specific measures from BLMs National Sage-grouse Habitat Conservation Strategy, and closing riparian areas to livestock grazing. Commenters also requested that allotments in greater sage-grouse priority habitat be managed to meet or exceed Wyoming Standards for Healthy Rangelands while others suggested that meeting the standards does not benefit the greater sage-grouse indicating new standards should be considered. Other commenters recommended BLM implement procedures and actions for allotments in greater sage-grouse priority and general habitat and provided supporting references. Commenters also requested that the livestock grazing management from alternatives E and F be applied under the Preferred Alternative. Commenters continued by suggesting that the BLM coordinate with the BLM Pinedale Office regarding their success in developing effective mitigation measures for greater sage-grouse incorporating livestock management practices.

Several commenters felt supporting retirement of grazing permits would be beneficial to greater sage-grouse, while others felt the opposite. Other commenters asked the BLM to identify who would monitor effects of retiring grazing permits on greater sage-grouse.

Commenters also asked the BLM to acknowledge livestock grazing could have positive effects on sage-grouse habitat and others asked the BLM to provide supporting documentation for these beneficial effects. Commenters asserted that the BLM did not adequately address impacts of livestock grazing on sage-grouse, including threats of West Nile virus from water developments; a lack of adequate mechanisms for use authorizations, allotments assessments, and appropriate livestock grazing levels; and habitat degradation from herbivory.

Summary Response: The BLM considered a reasonable range of alternatives during the greater sage-grouse planning process in full compliance with the NEPA. The range of alternatives in the Supplement and Draft RMP and Draft EIS represented a full spectrum of options to adequately address the impacts. Alternative E reduced grazing and eliminated it from certain areas to resolve resource concerns and is within the range of alternatives analyzed in detail providing the "hard look". The elimination of livestock grazing from all BLM-administered lands in the Planning Area as a method for resolving range, watershed, and wildlife habitat-related planning issues was considered, but eliminated from detailed analysis. This alternative would not meet the purpose and need of the RMP revision. The Supplement contains only planning actions and does not include any implementation

actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions. The BLM considers impacts to sensitive species during site-specific analysis of grazing renewals. The Livestock Grazing Management Response #2017_1 addresses retirement of grazing permits.

The BLM methodology for determining rangeland health is based on the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management. In addition, the BLM will collaborate with appropriate Federal agencies, and the State of Wyoming as contemplated under the Governor's EO 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where greater sage-grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and greater sage-grouse conservation objectives; and 3) identify appropriate site-based action to achieve greater sage-grouse conservation objectives within the framework. Please see Appendix C for an overview of the Bighorn Basin Monitoring and Evaluation protocol.

The BLM modified the Chapter 3 Livestock Grazing Management and greater sage-grouse sections, incorporating additional information on current BLM practices for assessing rangeland health and potential adverse and beneficial impacts from livestock grazing with supporting references, respectively.

Summary Comment #3035_7:

Commenters asked the BLM to implement mitigation measures such as water developments using solar power instead of windmills. Commenters also asked the BLM to state that all mitigation measures regarding greater sage-grouse would be evaluated on a case-by-case basis when referring to existing leases. Commenters offered new references or mitigation measures to better protect greater sage-grouse and others supported implementing measures in the COT Report.

Commenters asked the BLM to provide a detailed description of the seed mixtures that would be preferential for use. Commenters asked the BLM to provide specific mitigation and reclamation measures as well and asked if operators would receive credit for previous reclamation projects. Commenters also requested that reclaimed greater sage-grouse habitat not be counted as disturbed habitat. Commenters were opposed to the requirement for restoration versus

reclamation of greater sage-grouse habitat, indicating it was not consistent with BLM regulations and policies.

Commenters requested clarification on how the BLM's Interim Policy on Regional Mitigation Measures would be incorporated in the RMP and asked that a description of the CEQ's mitigation hierarchy also be included. Other commenters cited their own mitigation measures that they requested be used in the RMP. Commenters suggested the BLM should implement a compensatory mitigation program, and work with Avian Power Line Interaction Committee to develop more robust mitigation measures.

Commenters requested that BLM establish a database for monitoring data and make it available to other agencies, industry, and the public. Commenters asked the BLM to provide more detail in regards to the type of monitoring and others suggested monitoring objectives were only applicable to larger scale projects. Commenters also questioned the presentation of the data from WGFD that depicts differences in population between male and female greater sage-grouse and male greater sage-grouse alone. Commenter asked the BLM to collaborate with the WGFD and private landowners to increase the level of information gathered. Commenters expressed concern over not being able to review and comment on Appendix C, *Monitoring and Evaluation*, which does not comply with NEPA requirements and required preparation of another supplemental document. Other commenters requested that BLM implement adaptive management to address future threats to greater sage-grouse.

Summary Response:

The BLM complied with the NEPA by including a discussion of measures that may mitigate adverse environmental impacts of the alternatives in the Supplement. See 40 CFR 1502.14(f), 1502.16(h). Potential forms of mitigation include: (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (5) compensating for the impact by replacing or providing substitute resources or environments. 40 CFR 1508.20. Taking certain actions, such as compensatory mitigation or a detailed list of preferential seed mixtures, are only some of many potential forms of mitigation. The BLM must include mitigation measures in an EIS pursuant to the NEPA; yet the BLM has full discretion in selecting which mitigation measures are most appropriate, including which forms of mitigation are inappropriate.

The best available information pertinent to the decisions to be made was used in developing the RMP and EIS. The BLM made considerable effort to acquire resource data, which included the NTT, the BER,

state management plans, and COT report. Subsequent site-specific project-level analysis would provide the opportunity to collect and examine site-specific inventory data to determine appropriate application of planning guidance.

BLM's planning regulations, specifically 43 CFR 1610.4-9 require that land use plans establish intervals and standards for monitoring, based on the sensitivity of the resource decisions. Land use plan monitoring is the process of tracking the implementation of land use plan decisions (implementation monitoring) and collecting data/information necessary to evaluate the effectiveness of land use plan decisions (effectiveness monitoring). Appendix C provides an overview of the Bighorn Basin Monitoring and Evaluation protocol. Establishing monitoring protocols will follow BLM program specific policy. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known.

For those impacts that cannot be sufficiently avoided or minimized onsite, the BLM will implement effective measures to offset (or compensate for) such impacts. A mitigation strategy for BLM-administered lands will comply with BLM's Regional Mitigation Manual Section (MS) 1794.

BLM's Wyoming State Office worked with the State of Wyoming and the USFWS to develop a statewide greater sage-grouse adaptive management strategy, which is included in the Proposed RMP as Appendix Y.

The appendix describes the process that the BLM will use to monitor implementation and effectiveness of land use plan decisions. The monitoring framework includes monitoring at various scales specific to greater sage-grouse habitat, consistent indicators to measure and metric descriptions for each of the scales, analysis and reporting methods, and the incorporation of monitoring results into adaptive management. The need for fine and site-scale specific habitat monitoring (see Habitat Assessment Framework) will vary by area depending on existing conditions, habitat variability, threats, and land health. To accomplish effectiveness monitoring, the BLM will analyze the monitoring data to characterize the relationship among disturbance, implementation actions and habitat condition at the appropriate and applicable geographic scale or boundary.

Summary Comment #3035_8: Commenters offered various recommendations from other RMP amendments in Wyoming and surrounding states to aid in the development of the Bighorn Basin RMP.

Summary Response: While the BLM has used a consistent method for developing alternatives, the specifics of each sub-region necessitated

modification of the range of alternatives to accommodate locality and population differences.

In response to the greater sage-grouse management objectives described in the 2006 WAFWA *Greater Sage-grouse Comprehensive Conservation Strategy*, many reports have been prepared for the development of management recommendations, strategies, and regulatory guidelines. The NTT report (NTT 2011), Conservations Objectives Team (COT; USFWS 2013), and the Summary of Science, Activities, Programs and Policies that Influence the Rangeland Conservation of Greater Sage-Grouse (also referred to as the BER; Manier et al. 2013) are the most widely used reports that have been incorporated in the BLM Supplement that addresses the effects of implementing greater sage-grouse conservation measures on public lands. Both documents helped planning teams identify issues within their planning area, determine the context within the management zone, prioritize habitats, and assist in creating a range of alternatives with management actions that can alleviate or mitigate threats to greater sage-grouse at an appropriate level. Both the NTT report and the COT report tier from the WAFWA *Greater Sage-grouse Comprehensive Conservation Strategy* (Stiver et al. 2006). Alternatives E and F are based on the NTT report per direction in IM 2012-044.

Summary Comment #3035_9:

Commenters requested that greater sage-grouse priority habitat be withdrawn from future development and allow existing leases to lapse as they expire. Other commenters expressed opposition to closing the Greater Sage-Grouse Key Habitat Area ACEC (Alternative E) to future leasing. Commenters also stated that impacts to greater sage-grouse from oil and gas development will decrease as new technology for drilling and production is developed and provided supporting information. Commenters also noted the extra truck trips required when using closed loop systems and associated road upgrades could cause additional impacts and suggested fence installation was a better alternative. Commenters asserted that Alternative F's level of constraints on oil and gas leasing was major and not moderate as stated in the Supplement. Commenters requested the BLM clarify how requiring clustering of oil and gas facilities and operations outside priority habitat would work in the event wells are located in priority habitat areas.

Commenters asked the BLM to use specific language to remain compliant with EO-2011-5 regarding TLS. Other commenters felt buffers prescribed by EO-2011-5 were too small to adequately protect greater sage-grouse, suggesting buffers should be increased. Another commenter voiced opposition to OGMAs asserting establishing these areas conflicted with BLM's greater sage-grouse conservation efforts.

Commenters recommended the BLM include management that would provide for flexibility to update management as scientific information

Summary Response:

on greater sage-grouse evolves and utilize specific buffers and restrictions based on provided justification.

The BLM developed the Supplement with involvement from cooperating agencies, including WGFD, Wyoming Governor's office, USFWS, and local agencies/governments to ensure a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. The BLM's Proposed RMP is consistent with the Wyoming Governor's EO 2011-5, which has been determined sufficient to conserve greater sage-grouse throughout Wyoming. The BMP and RDF lists are not exhaustive, other methods may also be appropriate and Appendix L will be supplemented as technology and understanding of greater sage-grouse advance. During implementation, the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility.

Major and moderate oil and gas constraints are defined in the Glossary and are consistent with BLM H-1601-1 — *Land Use Planning Handbook*. Where criteria applied to areas as major constraints those were utilized for analysis. Methods and assumptions for the impact analysis are presented at the beginning of each impact section in Chapter 4, which did consider the impacts of additional siting constraints, including the 3-percent density disturbance restrictions.

Before beginning the Supplement and throughout the planning effort, the BLM considered the availability of data from all sources, adequacy of existing data, data gaps, and the type of data necessary to support informed management decisions at the land-use plan level. The data needed to support broad-scale analysis of the Bighorn Basin planning area are substantially different from the data needed to support site-specific analysis of projects. The information presented in map and table form is sufficient to support the broad scale analyses required for land use planning. As a result of these actions, the BLM gathered the necessary data essential to make a reasoned choice among the alternatives analyzed in detail in the Supplement, and provided an adequate analysis that led to an adequate disclosure of the potential environmental consequences of the alternatives (Chapter 4). A land use planning-level decision is broad in scope and, therefore, does not require an exhaustive gathering and monitoring of baseline data. A more quantified or detailed and specific analysis would be required only if the scope of the decision included implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the

opportunity to participate in the NEPA process for implementation actions.

The term “administratively unavailable” has been changed to “closed” throughout the document, based on guidance from the BLM Wyoming State Office.

Summary Comment #3035_10: Commenters recommended that greater sage-grouse Core Areas (as identified by Version 3 of Wyoming Governor’s EO 2011-5) located within WSAs be closed to motorized and mechanized vehicle use or at a minimum be limited to existing roads and trails with seasonal closures during breeding and nesting seasons. Commenters identified five WSAs containing these areas including Alkali Creek, Bobcat Draw, Cedar Mountain, Honeycombs, and Medicine Lodge.

Summary Response: The BLM complied with the NEPA by including a discussion of measures that may mitigate adverse environmental impacts of the alternatives in the Supplement. Taking certain actions, such as closing PHMAs to motor vehicle use, is only one of many potential forms of mitigation. The BLM must include mitigation measures in an EIS pursuant to the NEPA; yet the BLM has full discretion in selecting which mitigation measures are most appropriate, including which forms of mitigation are inappropriate. The Proposed RMP and Final EIS is consistent with the Wyoming Governor’s EO 2011-5.

Invasive Species

Summary Comment #3014: Commenters requested the BLM clarify how the BMP requiring power washing of vehicles and equipment would be implemented and questioned if it was reasonable. In addition, commenters requested the BLM clarify that reclamation plans are required for all oil and gas development activities by Onshore Oil and Gas Order No. 1.

Commenters felt the management action restricting activities in greater sage-grouse habitat that facilitate spread of invasive plants was overly broad and could be misinterpreted to apply to any surface-disturbing activity, including oil and gas development activities. Commenters suggested the language should be modified to reflect the BLMs multiple use requirements.

Commenters were concerned over restrictions on the use of herbicides in Key or PHMAs sage-grouse habitats due to a lack of capacity for the BLM to manage invasive plants, suggesting the BLM should implement a pilot program allowing herbicide use where infestations total more than 5 acres in these areas. Another commenter suggested the herbicide “Plateau” could be applied manually in areas not being used by greater sage-grouse and heavily infested with cheatgrass.

Summary Response: The BLM’s FLPMA (Section 103(c)) defines “multiple use” as the management of the public lands and their various resource values so

that they are utilized in the combination that will best meet the present and future needs of the American people. Accordingly, the BLM is responsible for the complicated task of striking a balance among the many competing uses to which public lands can be put. The BLM's multiple-use mandate does not require that all uses be allowed on all areas of the public lands. The purpose of the mandate is to require the BLM to evaluate and choose an appropriate balance of resource uses which involves tradeoffs between competing uses. The Supplement is a targeted amendment specifically addressing goals, objectives, and conservation measures to conserve greater sage-grouse and respond to the potential of its being listed. The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights. Construction, stabilization, and reclamation plan(s) address the site-specific soil/site issues to mitigate and the degree of detail required. These details are in addition to other federal regulations.

Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. Additionally, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

The RDFs in Appendix L are from BLM's Greater Sage-Grouse NTT and cannot be modified in order to provide Bureau-wide consistency. During implementation the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility.

Lands and Realty

Summary Comment #3016_1:

Commenters were concerned that public lands would no longer be available for Desert Land Entry applications and stated that the BLM did not provide justification for this action. Commenters suggested that while these entries may be underutilized, they should remain available to the public, and that agricultural development of these lands would not be detrimental to greater sage-grouse.

Summary Response:

The BLM would retain the 1,409 acres open for entry under the Desert Land Act in the Proposed RMP and consider Desert Land Entry applications for unclassified lands on a case-by-case basis consistent

with Desert Land Entry criteria and resource objectives. Only Alternative B proposes to revoke the 1,409 acres of classified Desert Land Entry lands, the other alternatives do not.

Summary Comment #3016_2: Commenters expressed opposition to acquisition of state or private lands for greater sage-grouse habitat management due to lack of adequate funding for managing and/or acquiring public lands. Instead, commenters suggested the BLM acknowledge valid existing rights and work with private landowners to develop appropriate programs for greater sage-grouse management.

Summary Response: The BLM may pursue the acquisition of lands under the FLMPA. Please refer to Appendix M, *Land Disposal and Acquisition* for details on criteria applied by the BLM in identifying lands for acquisition. As stated in the Supplement, the BLM prepared a land use plan revision applied to lands with greater sage-grouse habitat. This effort responds to the USFWS’s March 2010 ‘warranted, but precluded’ ESA listing petition decision. The Supplement focused on areas affected by threats to greater sage-grouse habitat identified by the USFWS in the March 2010 listing decision. The purpose and need provided the appropriate scope to allow the BLM to analyze a reasonable number of alternatives to cover the full spectrum of potential impacts, which includes considering acquiring lands for greater sage-grouse management.

Laws, Regulations, Guidance, Process

Summary Comment #3027_1: Commenters requested clarification on why a Supplement to the Draft RMP and Draft EIS was required. Commenters expressed concern that the Supplement was inconsistent with various laws, regulations, and policies including, but not limited to, FLPMA, the Property Clause of the United States Constitution, the General Mining Law of 1872, the Mining, Minerals and Policy Act, the Energy Policy Act, BLM Manual 6840, and the Wyoming Governor’s EO 2011-5. Commenters felt that alternatives B, E, and F were far too restrictive on resource uses. Commenters also asserted that the Supplement did not meet the requirements of the NEPA process citing incomplete and inadequate analysis. In particular, commenters stated the BLM did not analyze a range of reasonable alternatives that could satisfy the USFWS requirements regarding greater sage-grouse. Commenters were unclear on which alternative was the BLM’s Preferred Alternative, since the release of the Supplement with new alternatives E and F. Commenters also asked that the BLM continue to use the CX as an option when evaluating projects.

Commenters also offered that existing BLM policy is being jettisoned because of IM 2012-044 and the NTT Report, and that these new policies are leading to new regulations that have no explanations and are arbitrary in nature. Other commenters questioned the BLM’s

reliance on the NTT report in developing the Supplement, citing recent information that it was biased and scientifically flawed. In addition, commenters suggested that the BLM use conservation measures worded as mandatory rather than discretionary.

Commenters called into question the BLM's authority to prescribe management actions that could affect existing rights. Commenters also stated that BLM is overstepping its statutory authority and did not comply with CEQ guidelines regarding resource management.

Summary Response:

The analysis in the Supplement, in combination with the analysis included in the Draft EIS, does comply with FLPMA, NEPA and other applicable laws. As stated in the Supplement, the BLM is preparing a land use plan revision and associated EIS for lands with greater sage-grouse habitat, in response to the USFWS's March 2010 'warranted, but precluded' ESA listing petition decision, and that existing regulatory mechanisms in BLM and the Forest Service land use plans was inadequate to protect the species and its habitat. The 15 plan amendments and revisions will focus on areas affected by threats to greater sage-grouse habitat identified by the USFWS in the March 2010 listing decision. The two primary threats to sagebrush habitat are infrastructure from energy development in the eastern portion of the species' range and conversion of sagebrush habitat to annual grasslands due to wildfires in the western portion of the species' range. To address the threats, BLM are considering a range of changes in management of greater sage-grouse habitats to avoid the continued decline of populations and habitats across BLM-administered lands. This purpose and need provides the appropriate scope to allow the BLM to analyze a reasonable number of alternatives to cover the full spectrum of potential impacts. The management of the greater sage-grouse priority habitat ACECs in alternatives E and F represent approaches to managing these areas that were not considered in the Draft RMP and Draft EIS. Valid existing development rights would not be eliminated or invalidated.

The BLM considered a reasonable range of alternatives during the greater sage-grouse planning process in full compliance with the NEPA. The CEQ regulations (40 CFR 1502.1) require that the BLM consider reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. While there are many possible alternatives or actions to manage public lands and greater sage-grouse in the planning area, the range of alternatives in the Supplement and Draft EIS represent a full spectrum of options including a no action alternative (current management, Alternative A in the Draft RMP and Draft EIS).

The BLM disclosed in the Supplement that Alternative D as presented in the Draft RMP and Draft EIS, remained the Agency Preferred Alternative and that the Proposed RMP and Final EIS would contain content from the Draft RMP and Draft EIS and the Supplement. The

BLM’s Proposed RMP is consistent with EO 2011-5, as well as EO 2013-3.

A CX would be considered for actions that meet the associated requirements and that extraordinary circumstances do not preclude the use of the CX. If any extraordinary circumstances apply, an EA or EIS must be prepared.

Greater sage-grouse conservation measures in the NTT Report were used to form BLM management direction under alternatives E and F consistent with the direction provided in IM 2012-044 (the BLM must consider all applicable conservation measures developed by the NTT in at least one alternative in the land use planning process). The NTT report used the best current scientific knowledge to guide the BLM planning effort through management considerations to ameliorate threats, focused primarily on priority greater sage-grouse habitats on public lands but was not the sole source of information. In addition, the 2013 COT (COT; USFWS 2013) qualitatively identifies threats/issues that are important for individual populations across the range of greater sage-grouse, regardless of land ownership. The Summary of Science, Activities, Programs and Policies that Influence the Rangeland Conservation of Greater Sage-Grouse (also referred to as the BER; Manier et al. 2013) then provides complimentary quantitative information to support and supplement the conclusions in the COT. Both documents helped planning teams identify issues within their planning area, determine the context within the management zone, prioritize habitats, and assist in creating a range of alternatives with management actions that can alleviate or mitigate threats to greater sage-grouse at an appropriate level. Both the NTT report and the COT report tier from the WAFWA *Greater Sage-grouse Comprehensive Conservation Strategy* (Stiver et al. 2006).

Summary Comment #3027_2: Commenters questioned if the BLM had adequately addressed local plans for counties in the Planning Area and if the impacts associated with the management objectives had been thoroughly analyzed. Commenters also stated that RMP does account for changing technology enough and thus the restrictions on development could be much higher. Commenters requested that EO 2011-5, EO 2013-3, and all individual county Land Use Plans be published in the Proposed RMP and Final EIS.

Summary Response: The BLM considered local plans during alternative development and management actions were developed with the assistance of the cooperating agencies, which included the counties, WGFD, Wyoming Governor’s office, and the USFWS. The Reasonable Foreseeable Development addresses oil and gas development potential including updates in technologies.

Summary Comment #3027_3: Commenters requested that additional mitigation measures be considered, such as funding additional studies to better understand

factors affecting greater sage-grouse, industry incentives, mitigation banks, offsite mitigation, etc. Commenters questioned why the BLM did not reference the Avian Power Line Interaction Committee’s new guidance manual.

Summary Response:

The BLM's Proposed RMP is consistent with the Wyoming Governor's EO 2011-5 and EO 2011-5 seeks a cooperative effort to develop incentives for development outside of Core Areas. Additionally, the list of BMPs in Appendix L are not intended to encompass all potentially applicable BMPs. The BLM will examine BMPs, such as those in the Avian Power Line Interaction Committee’s manual for incorporation during implementation of site-specific activities.

Leasable Minerals – Oil and Gas

Summary Comment #3023_1:

Commenters asserted that some of the specific BMPs and/or RDFs included in Appendix L were not feasible or practical and may have unintended consequences. Some of the specific BMPs mentioned included requiring directional drilling wherever possible, remote monitoring, closed loop systems, facility location and placement, power-washing vehicles, and mesh nets over ponds. Commenters offered alternative language for BMPs pertaining to directional drilling or suggested BLM implement measures from other RMPs. Many commenters asserted that BMPs were not consistent with EO 2011-5 and/or BLM IM 2012-019. Several other commenters asked for flexibility in regards to many BMPs and RDFs requirements because each situation is unique.

Commenters questioned management actions and as BMPs and RDFs prescribed by BLM, specifically stating that the management contradicts current BLM regulations and guidance related to oil and gas development as well as violates existing rights. Commenters also asked that the BLM change the language regarding areas “administratively unavailable” to “closed” because it met the definition of a withdrawal. Other commenters asked BLM acknowledge in the RMP the rights of lessees. Commenters requested that BLM honor existing rights indicating proposed stipulations violated those rights. Other commenters added that conservation measures are an attempt by BLM to limit future oil and gas development and are not compliant with FLPMA. Commenters questioned how BLM intends to comply with the existing MOU with the State of Wyoming Oil and Gas Conservation Commission on well spacing based on information in Appendix T. Commenters asked the BLM to consider the effects of constraining development on the local communities and the national interest.

Commenters asked the BLM to clarify which alternative is now the Preferred Alternative and provide evidence for this decision. Other commenters offered that restrictions on oil and gas development

under alternatives E and F violates the BLM’s multiple use mandate and are unreasonable. A commenter asked BLM to develop broad management goals and objectives and not waste resources analyzing site-specific impacts from oil and gas development. One commenter offered that BLM misinterpreted the purpose of unitization and Commenters felt that BLM concludes oil and gas development always negatively impacts wildlife and their habitat without providing supporting information. Other commenters indicated development density under Alternative E was supported by scientific information to protect greater sage-grouse while it was not under the other alternatives and that this alternative should be implemented. Commenters also recommended Alternative E buffers apply outside Key Habitat Areas. Some commenters indicated the Wyoming Core Area Strategy should be strengthened by closing these areas to future leasing as recommended in the NTT report. Another commenter suggested compensatory funds could not mitigate the loss of PHMAs.

Commenters suggested that EOR technology could be used to develop unconventional reservoirs in the Planning Area requesting the BLM consider the impacts of alternatives E and F to this type of development. Commenters also requested that lands with favorable EOR potential in developed fields not be included in areas designated as greater sage-grouse priority habitat.

Commenters also asked the BLM to consider a phased development alternative to help limit environmental impacts on sensitive resources or closure of areas to leasing in highly sensitive areas. Alternatively, other commenters opposed phased development because of delays in production and asserted it was not reasonable.

Commenters voiced concern over seasonal road closures noting that the BLM had not justified these closures and they should not be implemented.

Summary Response:

The BLM developed the Supplement to the Bighorn Basin Draft RMP and Draft EIS with involvement from cooperating agencies, including WGFD, Wyoming Governor’s office, USFWS, and local agencies/governments to ensure that a balanced multiple-use management strategy to address the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. The BMP and RDF lists are not exhaustive, other methods may also be appropriate and Appendix L will be supplemented as technology and understanding of greater sage-grouse advance. The RDFs in Appendix L are from BLM's Greater Sage-Grouse NTT and cannot be revised in order to provide Bureau-wide consistency. However, during implementation the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility. The BLM may apply Conditions of Approval in conformance with Section 6 of the

Standard Oil and Gas Lease terms and conditions while recognizing valid existing rights.

The BLM complied with its multiple-use mandate by evaluating an appropriate balance of resource uses, which involves tradeoffs between competing uses. The Supplement was targeted specifically to address goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed (see Section 1.0, Purpose and Need). The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights. The BLM developed the Supplement with involvement from the agencies listed above to ensure a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands.

Before beginning the Supplement and throughout the planning effort, the BLM considered the availability of data from all sources, adequacy of existing data, data gaps, and the type of data necessary to support informed management decisions at the land-use plan level. The data needed to support broad-scale analysis of the Bighorn Basin Planning Area are substantially different from the data needed to support site-specific analysis of projects. The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed decision. The baseline data provided in Chapter 3 and various appendices is sufficient to support, at the general land use planning-level of analysis and the environmental impact analysis (Chapter 4) resulting from management actions presented in the Supplement.

The BLM used the most recent and best information available that was relevant to a land-use planning-level analysis including the BER (BER; Manier et al. 2013). The BER looked at each of the threats to greater sage-grouse identified in the USFWS's "warranted but precluded" finding for the species. For these threats, the report summarized the current scientific understanding, of various impacts to greater sage-grouse populations and habitats. The report also quantitatively measured the location, magnitude, and extent of each threat. These data were used in the planning process to describe threats at other levels, such as the sub-regional boundary and WAFWA Management Zone scale, to facilitate comparison between sub-regions. Additionally, the BLM consulted with, collected, and incorporated data from other agencies and sources, as noted above. As a result of these actions, the BLM gathered the necessary data essential to make a reasoned choice among the alternatives analyzed in detail in the Supplement and Proposed RMP. Finally, the BLM has made a reasonable effort to collect and analyze all available data.

The Supplement provides an adequate discussion of the environmental consequences, including the cumulative impacts, of the presented alternatives. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

The BLM's Proposed RMP is consistent with the Wyoming Governor's EO 2011-5 that has been determined sufficient to conserve greater sage-grouse throughout Wyoming and WAFWA Management Zones I and II.

The BLM changed the term “administratively unavailable” to “closed” throughout the document, based on guidance from the BLM Wyoming State Office. Additionally, stipulations provided in Alternative D (management actions 4116, 4117, and 4118) were updated in coordination with the State of Wyoming and WGFD consistent with EO 2011-5.

The purpose of unitization is described according to 30 U.S.C. Sec. 181 et seq, which includes “...for the purpose of more properly conserving the natural resources thereof whenever determined by the Secretary of the Interior to be necessary or advisable in the public interest;...”. Further, “...it is the purpose of the parties hereto to conserve natural resources, prevent waste, and secure other benefits obtainable through development and operation of the area subject to this agreement...” The Department has broad discretion in the interpretation of the term “conservation of natural resources” and it may include surface resources such as the greater sage-grouse and associated habitat.

Summary Comment #3023_4:

Commenters asserted that there is very little to no surface disturbance from geophysical exploration and questioned why this type of exploration would be restricted in the Greater Sage-grouse Key Habitat ACEC under Alternative E. Others stated that restricting geophysical exploration is not an objective in BLM IM 2012-044 or the USFWS COT Report, violates existing rights, and that this management should be removed from the RMP. Some commenters said that

geophysical exploration should be encouraged instead of constrained. Commenters asked if the BLM has the authority to prohibit geophysical exploration and stated that this mitigation measure would not affect greater sage-grouse mitigation efforts. Some commenters recommended BLM approve geophysical exploration using CXs.

Summary Response:

Areas open and/or closed to oil and gas leasing are open and/or closed to geophysical exploration unless noted otherwise. Geophysical exploration may be permitted on a case-by-case basis so long as the resource goals and objectives under which the area was closed are not compromised. The BLM will consider CXs for actions that meet the associated requirements and if extraordinary circumstances do not preclude the use of the CX. If any extraordinary circumstances apply, an EA or EIS must be prepared.

Summary Comment #3023_5:

Commenters asserted the economic impacts were not adequately disclosed under alternatives E and F. Commenters asked the BLM to consider economic effects of constraints on oil and gas development and EOR under alternatives E and F. Commenters also emphasized that the socioeconomic impacts would be very detrimental to the local communities in the Bighorn Basin and urged the BLM to reject alternatives E and F.

Summary Response:

The Supplement provides an adequate discussion of the environmental consequences, including the cumulative impacts, of the presented alternatives. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

Summary Comment #3023_6:

Many commenters felt that requiring Master Development Plans rather than using the APD process on all but wildcat wells is inappropriate because of the greater likelihood of periodic drilling in the Bighorn Basin. Other commenters asked that BLM allow infill development within existing fields without a Master Development Plan. Commenters also supported enlarging OGMAs under Alternative D, similar to that under Alternative C.

Commenters had concerns about how BLM would apply leasing screens in areas with MLP areas. Other commenters supported application of MLPS and recommended BLM develop Resource Condition Objectives for each sensitive resource in MLP areas.

Summary Response:

Comments specific to master development plans, OGMAs, and MLPs are outside the scope of the Supplement, which the BLM developed to ensure that a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. The Proposed RMP and Final EIS addresses these issues and incorporates MLPs within the document.

The BLM has identified Alternative D as its Proposed RMP in the Final EIS, which does not require master development plans in lieu of APD-by-APD processing for all but wildcat wells.

Livestock Grazing Management

Summary Comment #3017_1:

Several commenters requested the BLM add additional language to be consistent with the Wyoming Governor’s EO 2013-3. Other commenters asked the BLM to add language regarding additional agency coordination between BLM and WDEQ. Commenters requested clarification on what actions contribute to surface-disturbing activities including those used in the surface disturbance cap, and whether or not BLM considers livestock grazing a surface-disturbing activity. Commenters requested the BLM update the definition of surface-disturbing activities in the Glossary.

Commenters asserted that the BLM’s alternatives do not comply with BLM IM 2013-184 and requested that the BLM evaluate permanent retirement of AUMs that have been voluntarily waived. Other commenters stated allotment retirement was biased against livestock grazing, inappropriate, and should be removed from the document. Commenters also requested the BLM clarify the management under which allotment retirement would require a NEPA analysis and management categories of custodial, improve, and maintain.

Summary Response:

The BLM incorporated language in the Proposed RMP consistent with the Wyoming Governor’s EO 2013-3 and IM 2013-184, in Management Action 4122 and Goal LR:10-2, respectively. Additionally, the BLM added and/or clarified text as appropriate, including in the *Livestock Grazing Management* section, Appendix P, and definitions in the Glossary.

The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs. In the event of retirement of a grazing allotment, the BLM would follow the grazing regulations (CFR 4100 - Grazing Administration) including preparation of an allotment specific document analyzing the potential impacts. All

of Subpart 4160 - Administrative Remedies, including protest and appeals would be applicable. The Proposed RMP does not include this management prescription.

Summary Comment #3017_2: Commenters requested the BLM analyze a no grazing alternative. Other commenters said that livestock forage consumption had increased since the definition of AUM was originally developed, which should be accounted for in the analysis.

Summary Response: Alternative E in the Supplement reduced grazing and eliminated it from certain areas to resolve resource concerns, which is within the range of alternatives analyzed in detail. The elimination of livestock grazing from all BLM-administered lands in the Planning Area as a method for resolving range, watershed, and wildlife habitat-related planning issues was considered, but eliminated from detailed analysis. This alternative would not meet the purpose and need of the RMP revision. Addressing changes in livestock forage consumption is outside the scope of the Supplement and Proposed RMP.

Summary Comment #3017_3: Commenters requested that the impacts to livestock grazing be reassessed asserting that the alternatives analyzed in the Supplement did not adequately assess impacts to livestock grazing, specifically actions that affect AUMs. Commenters also stated that the BLM did not adequately account for effects of livestock grazing on greater sage-grouse habitat. Comments asserted the Supplement incorrectly blamed increased juniper encroachment on livestock grazing. A commenter also asked that natural springs be fenced off to limit impacts from livestock grazing.

Commenters also asserted that the impacts to greater sage-grouse priority habitat were not accurate and stated that livestock grazing can have positive impacts on greater sage-grouse habitat. Other commenters said some allotments did not meet rangeland standards and had a negative impact on greater sage-grouse. Many commenters did not support the closure of priority greater sage-grouse habitat to livestock grazing under alternatives E and/or F, stating this management did not meet BLMs multiple use mandate.

Summary Response: The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs including livestock grazing and conservation measures for greater sage-grouse. In accordance with BLM's multiple use mandate the BLM must find the balance among the many competing uses to which public lands can be put. The BLM's multiple-use mandate does not require that all uses be allowed on all areas of the public lands. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental

consequences associated with the alternatives, in accordance with 40 CFR 1502.1.

The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

The BLM considers impacts to sensitive species during site-specific analysis of grazing renewals. Regarding juniper encroachment, the text in question referenced threats to greater sage-grouse habitat identified in the USFWS COT report and was not specific to the Planning Area. The BLM revised the greater sage-grouse discussion in Chapter 3 to acknowledge livestock grazing can be compatible with, or even beneficial to, greater sage-grouse habitat under certain circumstances.

Summary Comment #3017_4:

Commenters stated that various types of vegetation management, like hand cutting, flash burning, and other treatments for invasive species, would be too difficult to be successful and are burdensome. Other commenters asked the BLM to clarify how vegetation recovery would be determined, details on pretreatment data, and if grazing would be deferred while pretreatment data is collected.

Summary Response:

The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under Governor's EO 2013-3, to: (1) develop appropriate conservation objectives; (2) define a framework for evaluating situations where greater sage-grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between proper grazing (by wildlife or wild horses or livestock) and greater sage-grouse conservation objectives; and (3) identify appropriate site-based action to achieve greater sage-grouse conservation objectives within the framework.

The BLM drafted a monitoring framework that is included in the Proposed RMP as Appendix Y. The appendix describes the process that the BLM will use to monitor implementation and effectiveness of land use plan decisions.

Summary Comment #3017_5:

Commenters requested BLM include further detail regarding socioeconomic impacts from restrictions on livestock grazing in the Supplement, including explanations as to why some alternatives would have similar impacts.

Summary Response:

The BLM revised the Chapter 4 Economic section to include additional explanation. The differences that are present between the

alternatives are reflected in the revised analysis and the quantitative data available.

Locatable Minerals

Summary Comment #3020_1:

Commenters requested the BLM provide further rationale for the impacts to mineral development. Additionally, commenters asserted that the cumulative impacts analysis did not adequately address the impacts to the mining industry as a result of mineral withdrawals and surface-use restrictions.

Commenters offered that the RMP does not comply with some mining laws, regulations, the Mining and Mineral Policy Act, and FLPMA, and BLM has an obligation to comply with mining laws and regulations. Commenters also requested that BLM respect existing mining claims. Commenters also requested that validity testing for mining claims be applied uniformly in compliance with the General Mining Law of 1872. Commenters also requested that validity testing not be used to delay mineral development and BLM should state where, when, and how validity examinations will affect authorizations. Some commenters noted that additional validity testing would be burdensome without any identified ecological or economic benefit.

Other commenters requested that EAs be required rather than EISs for mining authorization because they are more economical and yield similar results to an EIS. Commenters offered concerns regarding the RMP's ability to supersede individual mining claims and development. Commenters requested that exploratory drilling for bentonite require a plan of operations level-structure rather than a notice level. Other commenters asserted that management prescribed under Alternative E would increase the surface disturbance footprint from bentonite mining, an industry that already has successful mitigation and reclamation procedures in place. Commenters also offered that conservation measures for greater sage-grouse should be proportionate to the threat from locatable mineral development.

Commenters asserted that BLM did not include locatable mineral development in the socioeconomic analysis. Commenters also requested the BLM analyze the socioeconomic effects of closures and/or restrictions on mining companies under alternatives B, E, and F. Commenters requested additional quantitative data regarding the benefits to greater sage-grouse from restrictions on mining. Commenters requested more analysis on impacts to mining from greater sage-grouse management be presented in alternatives E and F instead of referring the reader to the Draft RMP and Draft EIS.

Summary Response:

The BLM's FLPMA (Section 103(c)) defines "multiple use" as the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people. Accordingly, the

BLM is responsible for the complicated task of striking a balance among the many competing uses to which public lands can be put. The BLM's multiple-use mandate does not require that all uses be allowed on all areas of the public lands. The purpose of the mandate is to require the BLM to evaluate and choose an appropriate balance of resource uses which involves tradeoffs between competing uses. The Supplement is a targeted amendment specifically addressing goals, objectives, and conservation measures to conserve greater sage-grouse and respond to the potential of its being listed and the alternatives provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights. The BLM manages a significant portion of greater sage-grouse habitat and management of wildlife habitat is within the BLM's multiple-use mandate and is properly a resource to be managed in their planning decisions. Further, the BLM developed the Supplement with involvement from cooperating agencies, including WGFD, Wyoming Governor's office, USFWS, and local agencies/governments to ensure that a balanced multiple-use management strategy to address the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands.

Regarding validity examinations, as stated in Management Action 68 in the Supplement, minerals exploration would be subjected to a validity examination in Key Habitat Areas under Alternative E. Additionally, the requirements and/or criterion are published and available to the public in BLM Handbook 3890-3, Validity Mineral Reports. The BLM has identified Alternative D as its Proposed RMP in the Final EIS. Alternative D does not designate greater sage-grouse key habitat as an ACEC.

The Supplement provides an adequate discussion of the environmental consequences, including the cumulative impacts, of the presented alternatives. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. In addition, as required by NEPA, the

public will be offered the opportunity to participate in the NEPA process for implementation actions.

During preparation of the Proposed RMP and Final EIS, the BLM integrated the information and alternatives from the Supplement with the Draft RMP and Draft EIS.

Minerals - General

Summary Comment #3019_1: Commenters asked the BLM to recognize the importance of energy and/or mineral development as well as greater sage-grouse habitat conservation in compliance with FLMPA. Other commenters offered ideas on how to protect greater sage-grouse habitat. Commenters recommended specific language for modifying Record 71 to be consistent with EO 2011-5 and Record 72 to encourage instead of require unitization.

Commenters asked the BLM to add specific language to clarify that existing rights will not be violated by the implementation of management actions related to greater sage-grouse habitat conservation. Some commenters noted that specific management actions were inconsistent with EO 2011-5, which recognizes existing rights and recommended the management actions be removed from the RMP and EIS.

Commenters requested that BLM provide specific language about the right of private landowners regarding mineral development. Commenters also voiced concerns over management actions that could limit or eliminate mineral development on split estate lands. Commenters also urged BLM to work with operators and the state to implement a reasonable monitoring program.

Summary Response: The BLM complied with its multiple-use mandate by evaluating an appropriate balance of resource uses, which involves tradeoffs between competing uses. The Supplement was targeted specifically to address goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed (see Section 1.0, Purpose and Need). The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights. The BLM developed the Supplement with involvement from cooperating agencies, including the WGFD, Wyoming Governor's office, USFWS, and local agencies/governments to ensure that a balanced multiple-use management strategy to address the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. Management actions 71 and 72 were not modified, however, stipulations provided under Alternative D (management actions 4116, 4117, and 4118) were updated in coordination with the State of Wyoming and WGFD consistent with EO 2011-5.

Paleontological Resources

Summary Comment #3028: Commenters suggested the BLM should not unreasonably restrict oil and gas development since it may lead to the discovery of new paleontological resources.

Summary Response: The BLM developed the Supplement to ensure that a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands.

Recreation

Summary Comment #3030: Commenters asked whether or not special recreation permits required in greater sage-grouse priority habitat areas apply to hunting and trapping.

Summary Response: Special Recreation Permits are authorizations which allow specified recreational uses and are issued as a means to manage visitor use, protect natural and cultural resources, and provide a mechanism to accommodate commercial recreational uses. If the actions described in the comment are subject to a Special Recreation Permit then yes, under alternatives E and F a permit would be required and mitigation may be applied to reduce impacts to greater sage-grouse.

Renewable Energy

Summary Comment #3032: Commenters provided multiple recommendations for renewable energy development to minimize impacts to greater sage-grouse, as well as other birds and raptors. Specific recommendations included installing bird deterrent devices on all guy wires, avoid siting temporary meteorological towers near leks or greater sage-grouse habitat, and siting wind energy development outside key habitat areas at least 5 miles from active leks, and 4 miles from the perimeter of greater sage-grouse winter habitat. Commenters urged the BLM to exclude wind energy development in key habitat areas under the Preferred Alternative. Commenters also suggested excluding development in raptor concentration areas.

Commenters recommended the BLM recognize the value of wind energy to the American public and reconsider how some of the adverse impacts to wind energy are characterized. Commenters noted how wind energy projects can be designed to reduce surface disturbance and construction scheduled to limit disturbances to wildlife and their habitat. Commenters suggested not all viewers consider wind turbines as having a negative effect on the landscape.

Summary Response: The BLM complied with the NEPA by including a discussion of measures that may mitigate adverse environmental impacts of the alternatives in the Supplement. Taking certain actions such as those

suggested by commenters, are only some of many potential forms of mitigation. The BLM must include mitigation measures in an EIS pursuant to the NEPA; yet the BLM has full discretion in selecting which mitigation measures are most appropriate and those that are not. The BLM has reviewed the suggested reports, data, articles, and recommendations to determine if they are substantially different than the information cited in the Supplement. The commenters' additional information was found to provide the findings as already noted in the Supplement, therefore inclusion and consideration would not substantially alter the conclusions or analysis. Therefore, they were not incorporated into the Proposed RMP and Final EIS.

The BLM considers wind to be a valuable energy source however; the purpose of the Supplement is to specifically address the goals, objectives, and measures for conservation of greater sage-grouse and their habitat. All ROW applications, including wind energy will be reviewed on a case-by-case basis, to balance protection of resources with America's wind energy needs.

Rights-of-Way and Corridors

Summary Comment #3033_1: Commenters voiced concerns regarding BMPs and/or RDFs, specifically co-location of transmission lines and use of perch discouragers. Commenters also recommended the BLM obtain additional information on BMPs from the Avian Power Line Interaction Committee (APLIC) and USFWS regarding greater sage-grouse for incorporation in the RMP. Commenters also expressed concern over BMPs that have not been peer reviewed or that may not always be feasible. In general, commenters asked the BLM to be flexible when prescribing measures during implementation.

Commenters rejected the BLM proposed ACEC designation for sage-grouse habitat because it violates access to existing rights, requesting that existing and pending access to ROWs and existing facilities be excluded from ACEC designation. Commenters suggested ROW and corridor management should be consistent with EO 2011-5. Other commenters supported management prescriptions for ROWs and corridors to protect greater sage-grouse habitat under either Alternative E or Alternative F. Commenters also suggested removing ROW avoidance and mitigation areas from OGMAs, separating the analysis for ROW avoidance and mitigation areas to clarify the areas to be avoided or that require mitigation, and that there was a lack of analysis presented of restrictions on ROWs.

Commenters offered new information for BLM to consider regarding the interaction between transmission lines and sage-grouse such as the APLIC studies. Commenters also supplied information disputing the effectiveness of perch discouragers preventing predation of greater sage-grouse, suggesting the BLM employ alternative

measures. Commenters noted there was a lack of information on the effects of tall structures on greater sage-grouse, requesting the BLM work with the industry to better understand decision-related impacts on the species as well as industry. Other commenters requested distribution lines be buried in the greater sage-grouse priority habitat areas and encouraged the use of perch discouragers on above-ground lines.

Summary Response:

The BLM developed the Supplement with involvement from cooperating agencies, including WGFD, Wyoming Governor's office, USFWS, and local agencies/governments to ensure a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. The BMP and RDF lists are not exhaustive, other methods may also be appropriate and the BLM will review additional BMPs such as those from APLIC documents. In addition, Appendix L will be supplemented as technology and understanding of greater sage-grouse advance. The RDFs in Appendix L are from BLM's Greater Sage-Grouse NTT and cannot be revised in order to provide Bureau-wide consistency. However, during implementation the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility. The BLM's Proposed RMP is consistent with EO 2011-5.

The BLM complied with its multiple-use mandate by evaluating an appropriate balance of resource uses, which involves tradeoffs between competing uses. The Supplement was targeted specifically to address goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed (see Section 1.0, Purpose and Need). The Supplement included alternatives that provide a greater and lesser degree of restrictions in various use programs, but would not eliminate or invalidate any valid existing development rights.

Before beginning the Supplement and throughout the planning effort, the BLM considered the availability of data from all sources, adequacy of existing data, data gaps, and the type of data necessary to support informed management decisions at the land-use plan level. The data needed to support broad-scale analysis of the Bighorn Basin Planning Area are substantially different from the data needed to support site-specific analysis of projects. The information presented in map and table form is sufficient to support the broad scale analyses required for land use planning. As a result of these actions, the BLM gathered the necessary data essential to make a reasoned choice among the alternatives analyzed in detail in the Supplement, and provided an adequate analysis that led to an adequate disclosure of the potential environmental consequences of the alternatives (Chapter 4). A land use planning-level decision is broad in scope and, therefore, does not

require an exhaustive gathering and monitoring of baseline data. A more quantified or detailed and specific analysis would be required only if the scope of the decision included implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

The Supplement provides an adequate discussion of the environmental consequences, including the cumulative impacts, of the presented alternatives. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions. Finally, the BLM's National Operation Center conducted management zone and range-wide cumulative effects analyses and is included in the Proposed RMP and Final EIS.

Summary Comment #3033_2:

Commenters questioned the management to bury multiple pipelines of different operators within greater sage-grouse priority habitat areas and the legal implications.

Commenters do not support limitation on new ROWs corridors within the project area, requesting that BLM identify ROW exclusion and avoidance areas as major constraints for oil and gas development.

Commenters were concerned about management that would require burying transmission lines in greater sage-grouse habitat as realistic because it may not be feasible for several reasons including economics, engineering, and environmental, and violated existing rights. Commenters also stated that ROWs for buried transmission lines would likely be wider than those of above-ground transmission lines, leading to more surface and habitat disturbance during construction as well as maintenance. Commenters also had concerns

about co-locating powerlines within existing ROWs, which conflicts with requirements, policies and guidelines defined by the North American Electric Reliability Corporation and the Federal Regulatory Energy Commission.

Commenters noted that certain existing transmissions lines did not appear on the Supplement’s maps and requested they be included in the current ROW corridor designations.

Summary Response:

Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. A more quantified or detailed and specific analysis would be required only if the scope of the decision included implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

The ROW and corridors maps have been updated since the release of the Draft RMP and Draft EIS. The maps show designated ROW corridors under each alternative, as proposed in management action 6033. Corridors are the preferred locations for the placement of new ROW. Existing ROWs may or may not be located within these corridors and are not displayed on the maps. Additionally, the BLM revised as requested, Management Action 9 (renumbered as 7186 in the Proposed RMP and Final EIS) as well as Management Action 6033 (number did not change).

Riparian-Wetland

Summary Comment #3034:

Commenters submitted recommendations from other RMP amendments for incorporation in the Proposed RMP and Final EIS for riparian-wetland management. A commenter further suggested adding additional measures such as prohibiting new range improvement projects within 0.5 mile of water and riparian-wetland areas to avoid perching locations for raptors to prevent predation of greater sage-grouse and controlling invasive species.

Commenters indicated the impact analysis for riparian-wetland areas was flawed asserting proper functioning condition was rarely achieved, a minimal standard, and did not respond to fisheries or wildlife habitat needs. In addition, commenters suggested management prescriptions be strengthened to protect those riparian areas that do meet proper functioning condition.

Commenters provided scientific citations supporting livestock grazing impacts on wetland-riparian areas, specifically that grazing affects efforts to maintain proper functioning condition and monitoring should focus on riparian areas, and that BLM should not rely on placing salt blocks in upland areas to draw livestock away from riparian-wetland areas.

Summary Response:

The Supplement only included management actions related to the Key Habitat Areas and PHMAs ACECs. The Draft RMP and Draft EIS included management actions specific to riparian/wetland resources, as does the Proposed RMP and Final EIS.

While the BLM used a consistent method for developing alternatives, the specifics of each sub-region necessitated modification of the range of alternatives to accommodate locality and population differences. In response to the greater sage-grouse management objectives described in the 2006 WAFWA *Greater Sage-grouse Comprehensive Conservation Strategy*, many reports have been prepared for the development of management recommendations, strategies, and regulatory guidelines. The 2011 NTT report, the 2013 Conservations Objectives Team (COT; USFWS 2013), and the 2013 Summary of Science, Activities, Programs and Policies that Influence the Rangeland Conservation of Greater Sage-Grouse (also referred to as BER; Manier et al. 2013) are the most widely used reports that were incorporated in the Supplement to address the effects of implementing greater sage-grouse conservation measures on public lands.

Socioeconomic Resources

Summary Comment #3036_1:

Commenters expressed concern regarding the socioeconomic impacts as a result of ACEC designation on multiple land uses under alternatives E and F, in particular voicing concern that the economic impacts were not accurately portrayed. Commenters also felt that the BLM tried to align alternatives D and F but cannot do so because of the differences in management prescriptions between the alternatives. Commenters requested BLM conduct additional analysis comparing alternatives, update information, incorporate supplied data, and provide supporting information for conclusions. Commenters requested the BLM also address socioeconomic impacts of management to and from land uses including oil and gas development, bentonite mining, livestock grazing, locatable minerals, and EOR development. Other commenters requested that the BLM include economic information and studies on the impacts of hunting, fishing, and the outdoor industry to the local economies in the Bighorn Basin. The commenters added that IMPLAN does not offer the most comprehensive impact analysis and that proposed management was inconsistent with EO 2011-5.

Commenters also pointed out that requiring validity exams in withdrawn or segregated lands could adversely impact small businesses since the ACECs overlap areas with high to moderate locatable mineral potential, which was not addressed, and could put the Proposed RMP at risk of invalidation.

Commenters also requested the BLM conduct further analysis regarding the socioeconomic cumulative impacts to the Bighorn Basin based on restrictions on land uses, in particular, loss of revenue from mineral development and closing public lands to livestock grazing. Other commenters raised issues regarding livestock grazing and how designation of ACECs will affect current and future livestock grazing management. Other commenters asked how the BLM would place an economic value on the social impact of restrictions on livestock grazing.

Commenters also voiced support for management included in the Supplement related to livestock grazing, asserting the value of public lands is often overestimated, not accounted for or could present opportunities for administrative cost savings for BLM.

Summary Response:

The BLM has provided an adequate analysis of potential economic impacts with the RMP; see Chapter 3 and 4, and Appendix Q. The changes suggested by some commenters (e.g., high social impacts in Alt E and F) are driven by the supposition of substantial economic impacts in bentonite, oil/gas, and grazing in Alternatives E and F. The quantitative data provided by BLM do not indicate there would be substantial differences between Alternative E and B, or between Alternative F and D. The differences that are present are reflected in the revised analysis.

The Supplement provides an adequate discussion of the environmental consequences, including the cumulative impacts, of the presented alternatives. As required by 40 CFR 1502.16, the Supplement provides a discussion of the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided should the alternatives be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented. The Supplement provided sufficiently detailed information to aid in determining whether to proceed with the Preferred Alternative or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1.

Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use

Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The EIS contains only planning actions and does not include any implementation actions. A more quantified or detailed and specific analysis would be required only if the scope of the decision included implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

Summary Comment #3036_2: Commenters were concerned that the BLM did not adequately reflect the socioeconomic impacts to local communities from limiting land uses such as oil and gas development and livestock grazing. Commenters remarked that revenue from oil and gas activities, mining, employment, property taxes, recreation, etc., could not be replaced from other revenue streams. Commenters requested BLM conduct additional analysis regarding the loss of tax royalties paid by oil and gas companies and associated impacts on the local communities. Commenters recommended the BLM develop and include a monitoring and mitigation plan in the Record of Decision, due to the anticipated socioeconomic impacts, especially smaller communities in the Planning Area.

Summary Response: Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The Supplement contains only planning actions and does not include any implementation actions. A more quantified or detailed and specific analysis would be required only if the scope of the decision included implementation actions.

As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The site-specific analyses will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for implementation actions.

Special Status Species

Summary Comment #3038: Commenters requested active raptor nests be defined to include nests that have been active within the past seven years and winter roost sites. Commenters also requested the Proposed RMP and Final EIS address golden eagle populations and use in the planning area, as

well as prohibit surface-disturbing activities with 1 mile of golden eagle nests.

Summary Response:

Thank you for your comment. The comment is outside the scope of the Supplement to the Bighorn Basin Draft RMP, a targeted analysis specifically addressing goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed. Analysis for raptor protections are in compliance with the United States Fish and Wildlife Service recommend spatial and seasonal buffer zones to avoid or minimize disturbance and the risk of take.

Trails and Travel Management

Summary Comment #3039_1:

Commenters had concerns about seasonally closing roads in greater sage-grouse priority habitats because it could present safety concerns for existing facilities and that eliminating access would violate existing rights. In addition, commenters requested that the BLM allow seasonal access for emergency repairs and maintenance. Commenters stated travel management prescriptions were inconsistent with EO 2011-5 and should be eliminated or modified consistent with the EO.

Commenters discouraged management prohibiting new roads within 1.9 miles from active leks, indicating it could negatively impact utility response, delivery, and maintenance requesting BLM provide for exceptions. Commenters also requested BLM provide citations supporting the buffers required for road construction. Commenters recommended limiting motorized use to existing roads and trails pending travel management planning. Commenters recommended tertiary roads be located further than 0.6 mile from active leks and other important greater sage-grouse habitat. Commenters expressed support for closing unnecessary routes and trails utilizing reclamation practices to benefit wildlife habitat.

Summary Response:

The BLM has identified Alternative D as its Proposed RMP, which is consistent with the Wyoming Governor's EO 2011-5. EO 2011-5 has been determined sufficient to conserve greater sage-grouse throughout Wyoming and WAFWA Management Zones I and II.

Before beginning the Supplement to the Bighorn Basin Draft RMP and Draft EIS and throughout the planning effort, the BLM considered the availability of data from all sources, adequacy of existing data, data gaps, and the type of data necessary to support informed management decisions at the land-use plan level. The data needed to support broad-scale analysis of the Bighorn Basin Planning Area are substantially different from the data needed to support site-specific analysis of projects. The Supplement data and information is presented in map and table form and is sufficient to support the broad scale analyses required for land use planning.

The BLM used the most recent and best information available that was relevant to a land-use planning-level analysis including the BER (BER; Manier et al. 2013). The BER assisted the BLM in summarizing the effect of the planning efforts at a range-wide scale, particularly in the affected environment and cumulative impacts sections. The BER looked at each of the threats to greater sage-grouse identified in the USFWS’s “warranted but precluded” finding for the species. For these threats, the report summarized the current scientific understanding, as of report publication date (June 2013), of various impacts to greater sage-grouse populations and habitats. The report also quantitatively measured the location, magnitude, and extent of each threat. These data were used in the planning process to describe threats at other levels, such as the sub-regional boundary and WAFWA Management Zone scale, to facilitate comparison between sub-regions. The BER provided data and information to show how management under different alternatives may meet specific plans, goals, and objectives.

Summary Comment #3039_2: Commenters voiced concern about BMPs and/or RDFs in Appendix L, in particular those that require heliportable seismic exploration, when seasonal restrictions would suffice and have less impact. Commenters indicated that BLM defer decisions regarding road locations on split estate lands to the private landowner. Other commenters stated that telemetry or remote monitoring alone was not sufficient in all cases and recommended BLM consider operational and economic factors before implementation of this RDF.

Summary Response: The BLM developed the Supplement to the Bighorn Basin Draft RMP and Draft EIS with involvement from cooperating agencies, including WGFD, Wyoming Governor’s office, USFWS, and local agencies/governments to ensure that a balanced multiple-use management strategy addresses the protection of greater sage-grouse while allowing for utilization of renewable and nonrenewable resources on the public lands. The RDFs in Appendix L are from BLM’s Greater Sage-Grouse NTT. To provide Bureau-wide consistency the recommendations cannot be revised. However, during implementation the site-specific situation shall be considered including effectiveness of the design feature as well as technical and economic feasibility. The BLM’s Proposed RMP is consistent with the Wyoming Governor’s EO 2011-5 that has been determined sufficient to conserve greater sage-grouse throughout Wyoming and WAFWA Management Zones I and II.

Vegetation

Summary Comment #3042: Commenters provided justification and scientific data supporting the use of Ecological Site Descriptions instead of Historical Climax Plant Community, for restoration and habitat management. Commenters felt Ecological Site Descriptions provided a better assessment of

change over time and response following disturbance, and standardized data collection and analysis for addressing ecosystem health.

Commenters expressed opposition to language used for managing thatch, indicating it reflected negatively on livestock grazing management. Commenters suggested revisions and/or requested the management not be included in the Proposed RMP and Final EIS. Commenters recommended removing text in the impact analysis, stating it was redundant because the BLM is already required to determine if rangeland health standards are being met. Commenters identified technical edits to BMPs in Appendix L, including requests to use alternative language and corrections to technical terms.

Commenters questioned if vegetation treatments proposed to improve greater sage-grouse habitat were beneficial to the recovery of the species or a threat. Specifically, commenters suggested further evaluation and testing was necessary to substantiate the impacts, whether adverse or beneficial. Commenters further advised prohibiting vegetation treatments with 3 miles of lek sites and including one alternative that targets a 10.2-inch residual summer height during nesting season.

Summary Response:

Vegetation management is conducted using Ecological Site Descriptions developed by the Natural Resources Conservation Service, and the concept of Historic Climax Plant Community is an integral part of the Ecological Site Description in the state and transition model. The BLM revised Management Action 4030 in the Proposed RMP to reference plant community state or phases based on Ecological Site Descriptions.

The Supplement provided analysis of the effects of each alternative as required by NEPA and provides an adequate discussion of the environmental consequences of the presented alternatives. The Supplement contains only planning actions and does not include any implementation actions. As specific actions that may affect the area come under consideration, the BLM will conduct subsequent NEPA analyses that include site-specific project and implementation-level actions. The public will be offered the opportunity to participate in the NEPA process for implementation actions. The BLM considers impacts to sensitive species during site-specific analysis of grazing renewals and Standard 4 of Standards for Healthy Rangelands and Guidelines for Livestock Grazing applies to special status species habitat.

See the Wyoming Governor's EO 2011-5 for clarification on sagebrush treatments and their relation to disturbance. The BLM has identified Alternative D as its Proposed RMP in the Final EIS, which is consistent with EO 2011-5. Further, the BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under

the Governor’s EO 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where greater sage-grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and greater sage-grouse conservation objectives; and 3) identify appropriate site-based action to achieve greater sage-grouse conservation objectives within the framework.

The RDFs in Appendix L are from BLM's Greater Sage-Grouse NTT and to provide Bureau-wide consistency the recommendations cannot be revised. During implementation the site-specific situation will be considered on a project specific basis.

Visual Resource Management

Summary Comment #3043: Commenters requested the BLM correct the Alternative F VRM Class II boundary for the Sheep Mountain Anticline ACEC to provide an additional 0.25-mile buffer from the adjacent VRM Class IV area so it includes all the bentonite potential areas depicted in the BLM’s bentonite potential GIS file.

Summary Response: Thank you for your comment. The comment is outside the scope of the Supplement to the Bighorn Basin Draft RMP and Draft EIS, a targeted analysis specifically addressing goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed.

All GIS maps, data, and information have been updated for the Proposed RMP and Final EIS.

Water

Summary Comment #3044: Commenters questioned NTT RDFs related to water impoundments and management of produced water, noting the RDFs were duplicative of programs under the jurisdiction of state agencies. Commenters expressed concern that removal or reinjection of produced water would result in loss of habitat and water sources for greater sage-grouse. Commenters asked for clarification on how RDFs will interface with NSO and CSU requirements, where the RDFs apply (in greater sage-grouse priority habitat only or both priority and general habitats), and if there will be a process for granting waivers, exceptions or modifications.

Summary Response: The NTT report (or BER, or COT) is not the sole source of management decisions for the range of alternatives. The NTT was formed as an independent, science-based team to ensure that the best information about how to manage the greater sage-grouse is reviewed, evaluated, and provided to the BLM in the planning process. The group produced a report in December 2011 that identified science-based

management considerations to promote sustainable greater sage-grouse populations. The NTT is staying involved as the BLM work through the strategy to make sure that relevant science is considered, reasonably interpreted, and accurately presented; and that uncertainties and risks are acknowledged and documented.

A baseline environmental report, titled *Summary of Science, Activities, Programs, and Policies That Influence the Rangewide Conservation of Greater Sage-grouse (Centrocercus urophasianus)* (referred to as the BER), was released on June 3, 2013, by the U.S. Geological Survey. The peer-reviewed report summarizes the current scientific understanding about the various impacts to greater sage-grouse populations and habitats and addresses the location, magnitude, and extent of each threat. The BER does not provide management options. The report is being used by the BLM in our efforts to develop regulatory mechanisms and improve our conservation efforts of the greater sage-grouse and its habitat to reduce the potential for listing it under the ESA. The data for this report were gathered from BLM, and other sources and were the "best available" at the range-wide scale at the time collected. The report provides a framework for considering potential implications and management options, and demonstrates a regional context and perspective needed for local planning and decision-making.

In March 2012, the USFWS initiated a collaborative approach to develop range-wide conservation objectives for the greater sage-grouse to inform the 2015 decision about the need to list the species and to inform the collective conservation efforts of the many partners working to conserve the species. In March 2013, this team of State and USFWS representatives, released the COT report based upon the best scientific and commercial data available at the time that identifies key areas for greater sage-grouse conservation, key threats in those areas, and the extent to which they need to be reduced for the species to be conserved. The report serves as guidance to federal land management agencies, State greater sage-grouse teams, and others in focusing efforts to achieve effective conservation for this species.

The range of alternatives is based upon analysis of public scoping comments as well as information provided in the NTT report, the BER, the COT report, and State management plans. The alternatives represent different degrees of and approaches to balancing resources and resource use among competing human interests, land uses, and the conservation of natural and cultural resource values, while sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat. For example, Alternatives E and F incorporates adjustments to the NTT report (NTT 2011) based on cooperating agency input to provide a balanced level of protection, restoration, enhancement, and use of resources and services to meet

ongoing programs and land uses. Anthropogenic surface disturbance would be managed not to exceed 3 percent in ecological sites that support sagebrush within Preliminary Priority Habitat (Figure 2-1, Ecological Sites Supporting Sagebrush in Preliminary Priority Habitat, in Appendix B, Figures).

Greater sage-grouse conservation measures in *A Report on National Greater Sage-grouse Conservation Measures* (NTT 2011) were used to form BLM management direction under alternatives E and F, which is consistent with the direction provided in BLM Washington Office IM 2012-044.

Wild Horses

Summary Comment #3045: Commenters expressed concern that management for greater sage-grouse habitat objectives in HMAs should include managing wild horses at minimum population levels to address impacts on range conditions from wild horses. Further, commenters suggested revising HMA management within Key and Priority habitats to prioritize evaluation of Appropriate Management Levels.

Commenters asked that language in the Supplement acknowledging the impacts of wild ungulates (including wild or feral horses) on the quality and composition of key forage species be incorporated in the *Fish and Wildlife Resources – Wildlife* section of the Proposed RMP and Final EIS.

Summary Response: Management Action 4145 was revised to require inclusion of greater sage-grouse objectives in HMA plan updates. In addition, language was revised to acknowledge that management challenges for big game species include poor habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, invasive species, motorized vehicle misuse, disease, hunter access, and the impacts of livestock, wildlife, and ungulate grazing and browsing on the frequency, quality, and composition of key forage species.

Wilderness Characteristics

Summary Comment #3046: Commenters expressed concern over designation of lands with wilderness characteristics indicating the inventory was inadequate and should be updated. Commenters noted that some proposed lands with wilderness characteristics do not have wilderness characteristics because the viewshed requirements are not being met and they contain roads and other man-made structures. Commenters asked for clarification regarding the “scale” of analysis of lands with wilderness characteristics and requested that the BLM only use one scale for the analysis. Commenters felt management that called for restoration of roads and trails in greater sage-grouse priority habitat

would lead to “rewilding” of areas that no longer contain or are not being managed for wilderness characteristics, stating this management did not comply with the BLM’s multiple use mandate.

Commenters requested special management prescriptions for greater sage-grouse PHMAs located within lands with wilderness characteristics and areas recommended in the Citizens’ Wilderness Proposal, to protect greater sage-grouse and wilderness character. Commenters identified 22 lands with wilderness characteristics and 6 Citizens’ Wilderness Proposals that contain greater sage-grouse PHMAs and recommended stipulations for motorized and mechanized vehicle use, VRM, mineral and oil and gas leasing, geophysical exploration, mineral materials disposal, ROWs, and renewable energy. Commenters presented supporting information for implementing the special restrictions to protect greater sage-grouse, citing several technical documents. Commenters also submitted additional information for the BLM to consider about the Citizens’ Wilderness Proposal areas.

Summary Response:

Thank you for your comment. The comment is outside the scope of the Supplement to the Bighorn Basin Draft RMP, a targeted analysis specifically addressing goals, objectives, and conservation measures to conserve greater sage-grouse and to respond to the potential of its being listed.

The BLM has identified Alternative D as the Proposed RMP in the Final EIS, which does not designate Key Habitat Areas or PHMA ACECs, nor does it manage lands to maintain wilderness characteristics; these areas would be managed consistent with management for other resources and resource uses. Alternative D is consistent with the Wyoming Governor's EO 2011-5.

Wildlife

Summary Comment #3049:

Commenters requested that BLM consider multiple published articles and guidance regarding wildlife and greater sage-grouse, noting several relevant articles on greater sage-grouse were not cited.

Commenters identified seven important bird areas for inclusion in the RMP, providing information about the areas and noting that several overlap greater sage-grouse PHMAs, emphasizing the ecological importance of these areas for greater sage-grouse and critical avian habitat.

Commenters were confused by restrictions on locatable minerals due to closure of big game crucial winter range, questioning the BLM’s authority to manage game species and discretion to restrict development in big game habitat.

Commenters suggested the BLM clarify what “closed” meant, recognize WGFD’s responsibility for game management, and support cooperative management where wildlife concerns exist.

Commenters indicated impacts on greater sage-grouse were overstated, asserting recent studies confirmed this assertion, suggesting ROW restrictions were not necessary, and that restrictions and/or mitigation should be specific to greater sage-grouse and based on valid science.

Summary Response:

BLM reviewed the suggested reports/data/articles to determine if they are substantially different from the information cited in the Supplement. The commenters’ additional information was found to provide the general findings as already noted in the Supplement, therefore inclusion and consideration would not substantially alter the conclusions or analysis. Therefore, they were not incorporated into the Proposed RMP and Final EIS.

The BLM acknowledges that WGFD manages wildlife within Wyoming, while the BLM focus is on managing habitat. The BLM will continue to work with the WGFD to meet state wildlife population objectives.

The BLM complied with the NEPA by including a discussion of measures that may mitigate adverse environmental impacts of the alternatives in the RMP and EIS. See 40 CFR 1502.14(f), 1502.16(h). Potential forms of mitigation include: (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (5) compensating for the impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Taking certain actions are only some of many potential forms of mitigation. The BLM must include mitigation measures in an EIS pursuant to the NEPA; yet the BLM has full discretion in selecting which mitigation measures are most appropriate, including which forms of mitigation are inappropriate.

4.3. Non-Substantive Comments

In addition to the substantive comments summarized and responded to above, the BLM received numerous non-substantive comments during the comment period. In accordance with the BLM NEPA Handbook (H-1790-1), a formal response to non-substantive comments is not required; however, the BLM has reviewed and acknowledges all received comments. Non-substantive comments generally included:

- Comments in favor of or against management alternatives and allocations without reasoning that meet the criteria for substantive comments (such as: we disagree with the Preferred Alternative and believe the BLM should select Alternative C);
- Comments that only agreed or disagreed with BLM policy or resource decisions without justification or supporting data that meet the criteria for substantive comments (such as: the BLM needs to better manage oil and gas development in the Planning Area);
- Comments that did not pertain to the Bighorn Basin Planning Area;
- Comments that were outside the scope of analysis for the RMP and EIS (such as comments related to revision and update of laws, policies, and regulations);
- Comments that take took form of vague, open-ended questions or statements that did not meet the criteria for substantive comments; and
- Comments submitted during the comment period for the Supplement that focused on the Draft RMP and Draft EIS rather than the supplement.

5.0 CONCLUSION

The BLM integrated the content of the Supplement into the Draft RMP and Draft EIS, revised the combined document, and prepared the Proposed RMP and Final EIS in response to substantive comments received during both comment periods. The BLM will continue to consider public, agency, and other stakeholder comments through completion of the Bighorn Basin RMP Revision Project, as appropriate.

*Proposed Resource Management Plan and
Final Environmental Impact Statement
Comment Analysis Report*

Attachment A

Draft Resource Management Plan and
Draft Environmental Impact Statement

Commenter Response Index

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*Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index*

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**ATTACHMENT A
COMMENTER RESPONSE INDEX**

1.0 INTRODUCTION

The tables presented in Attachments A and B are provided to assist commenters in finding their submitted comments and identifying the associated BLM comment summary and response in the Comment Analysis Report. Table A-1 provides a list of first and last names of commenters, the commenter’s affiliation (if applicable), and the commenter’s comment document number. PDF copies of all received comment documents are located on the BLM website: <http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>. Within Attachment B, also located at the above website, Table B-1 includes all individual substantive comments and identifies the BLM summary comment and response number associated with individual comments, organized by comment document number.

To use these tables:

1. Locate your name and associated comment document number in Table A-1.
2. Using the comment document numbers from Table A-1, go to Attachment B on the BLM website address provided above and find your identified individual comment(s), comment text, and BLM summary comment and response numbers in Table B-1.
3. The BLM summary comment/response numbers match those provided in Section 4.2.1 of the Comment Analysis Report.

With this information (comment document number, comment number, and summary comment and response number) commenters can locate a copy of their original comment document on the BLM website, their individual comments in Attachment B, and BLM summary comments and responses in Section 4.2.1 of the Comment Analysis Report.

Table A-1. Index of Commenters

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Abell	Stanton J.	Unaffiliated Individual	10105
Abell	Linda K.	Unaffiliated Individual	10106
Ackerly	Elaine	Unaffiliated Individual	10325
Admidin	Gene	Unaffiliated Individual	10559
Ahalt	Susan	Ironside Bird Rescue, Inc.	10022
Akin	Allen	Unaffiliated Individual	10526
Alameda	Glen	Wyoming State Grazing Board Central Committee	10216
Allard	Bret	Unaffiliated Individual	10042
Anderson	Clarence	Unaffiliated Individual	10343
Anderson	Lance	Unaffiliated Individual	10491
Anderson	Colleen	Unaffiliated Individual	10036
Anderson, MD	Richard	Unaffiliated Individual	10063

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Andrews	Bonnie	Unaffiliated Individual	10444
Andromidas	Jorge	Unaffiliated Individual	10049
Andrus	Melanie	Unaffiliated Individual	10460
Anonymous		Unaffiliated Individual	10533
Babcock	Nancy	Unaffiliated Individual	10571
Baird	John	Unaffiliated Individual	10298
Baker	Mary	Unaffiliated Individual	10245
Baker	LeAnn	Washakie Development Association	10285
Baker	Mike	Hot Springs County Commission	10404
Bales	Shirley	Unaffiliated Individual	10124
Ball	Gene	Unaffiliated Individual	10149
Ballinger	Garry	J&R Well Service	10509
Ballwanz	Gerri	Unaffiliated Individual	10451
Balyo	Scott	Cody Country Chamber of Commerce	10386
Bannon	Joy	Wyoming Wildlife Federation	10283
Barski	Joe	Unaffiliated Individual	10046
Bassett	Tom	MOC	10102
Beatty	Brenda	Unaffiliated Individual	10355
Bebout	Eli	State Of Wyoming Legislature	10030
Bebout	Eli and Rep. Tom Lockhart	Joint Minerals, Business and Economic Development Interim Committee of the Wyoming Legislature	10278
Berryman	Carl	City of Powell	10029
Bettters	Kathleen	Unaffiliated Individual	10453
Bettters	Anthony	J&R Well Service	10550
Bighorn Basin Local Government Cooperating Agencies		Bighorn Basin Local Government Cooperating Agencies	10262
Bishop	Norman A.	Unaffiliated Individual	10173
Black	Joshua	Phoenix Production Company	10056
Blackburn	Kenneth G.	Unaffiliated Individual	10578
Blake	Nancy	Unaffiliated Individual	10442
Blakesley	Marvin	Gene R George and Associates Inc.	10059
Blakesley	Marvin	Unaffiliated Individual	10369
Blymer	Mike	Unaffiliated Individual	10214
Bohan	Suzanne	EPA Region 8	10261
Bolbol	Deniz	American Wild Horse Preservation Campaign	10479
Bolles	Randy	Devon Energy Corporation	10286
Booher	Sam	Unaffiliated Individual	10459
Boreen	Phil	Boreen Hay & Cattle Co. LLC	10402
Bowers	Carla	Unaffiliated Individual	10271
Branch	Colby	Unaffiliated Individual	10230
Braten	R. Gene and Judy	Unaffiliated Individual	10238
Brooks	John	Unaffiliated Individual	10182

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Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Brouillette	John and Louise	Unaffiliated Individual	10406
Brown	Rob	Unaffiliated Individual	10004
Brown	Matt and Teresa	Unaffiliated Individual	10275
Brown	Teresa	Unaffiliated Individual	10276
Brutger	Steve	Trout Unlimited	10281
Buck	Dina	Unaffiliated Individual	10336
Buller	Tom	Unaffiliated Individual	10557
Burke	Dave	Park County	10273
Burken	Allan	Unaffiliated Individual	10007
Butts	Gary	City of Powell	10579
Byrne	Brenda	Unaffiliated Individual	10161
Caines	Philip	Unaffiliated Individual	10377
Caldwell	David	Unaffiliated Individual	10127
Campbell	Scott	Unaffiliated Individual	10345
Canapp	Justin	Unaffiliated Individual	10504
Capozzelli	J	Unaffiliated Individual	10290
Capron	Bob	Unaffiliated Individual	10323
Carlson	Jim	Unaffiliated Individual	10062
Carney	Mike and Karen	Unaffiliated Individual	10489
Carter	Yancy	Unaffiliated Individual	10556
Chapman	Diane	Unaffiliated Individual	10417
Cheatham	Kelly	J and R Well Service	10539
Class	Lonnie	Unaffiliated Individual	10496
Clifford	Adam	Unaffiliated Individual	10575
Cline	Shawn	Unaffiliated Individual	10473
Close	Dan	Unaffiliated Individual	10180
Clouse	John	Unaffiliated Individual	10316
Coggins	Sawyer	Cooley's Welding	10075
Conner	Seth	Cooley's Welding	10079
Cooley	Jim	Cooley's Welding	10082
Corkran	Dave and Char	Unaffiliated Individual	10234
Corra	John	Wyoming Department of Environmental Quality	10200
Corra	John	Wyoming Department of Environmental Quality	10225
Cowan	Kimberly	Unaffiliated Individual	10353
Cox	Trenton B.	Unaffiliated Individual	10146
Cozzens	Dee	Institute of Water Resources (IWR)	10031
Cozzens	R. Dee	Unaffiliated Individual	10095
Crawford	Gordon	Unaffiliated Individual	10132
Crumrine	Max	Unaffiliated Individual	10416
Cruz	Rosando	Cooley's Welding	10081
Cruz	Rosando	Cooley's Welding	10516
Culver	Nada	The Wilderness Society	10389
Curtis	Chad	Weatherford Completion Systems	10555

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Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Dale	Daniel	Unaffiliated Individual	10410
Dalin	Lisa	Unaffiliated Individual	10111
Darling	Kelly	Unaffiliated Individual	10485
Darlington	Toddi	NRPC (Natural Resource Planning Committee)	10032
Darlington	Toddi	Unaffiliated Individual	10329
Davis	Chad and Mary Jo	Unaffiliated Individual	10405
Deiss	Allory	Wyoming State Geological Survey	10280
Dellinger	Betty	Unaffiliated Individual	10472
Deromedi	Monica	Bighorn Basin Resource Alliance	10057
Deromedi	Shelley	Unaffiliated Individual	10120
Deromedi	Anthony and Monica	Unaffiliated Individual	10381
DeVries	Mark	JadeCo Electric	10544
Dewar	Pat	Unaffiliated Individual	10327
Dickinson	Marion	Unaffiliated Individual	10347
Dickson	Brian	Unaffiliated Individual	10109
Dillon	John	Unaffiliated Individual	10335
Dirks	Jewel	Unaffiliated Individual	10318
Dockery	Carl	H.S.C Farm Bureau and Family Farm-Ranch	10497
Doll	Thomas	Wyoming Oil and Gas Conservation Commission	10227
Dollard	Jerry	Unaffiliated Individual	10140
Dominick	Marshall	Unaffiliated Individual	10217
Dominick	Bettye	Unaffiliated Individual	10568
Donato	Scot	Bill Barrett Corporation	10375
Donham	Craig	Marathon Oil	10519
Douthett	Deborah	Unaffiliated Individual	10457
Dragon	Cynthia	Unaffiliated Individual	10116
Durney	Mike	J&R Well Service	10553
Eisen	Terry and John	Unaffiliated Individual	10148
Elias	Francisco	Unaffiliated Individual	10083
Ely	Pat and Johnna	Unaffiliated Individual	10317
Emmerich	John	Wyoming Game and Fish Department	10264
Emmett	Kim and Darwin	Unaffiliated Individual	10178
Entel	John	J and R Well Service	10541
Evans	Dinda	Unaffiliated Individual	10308
Evenson	Marilyn	Unaffiliated Individual	10160
Ewen	Jerold	Bighorn County Commissioners	10058
Ewen	Jerry	Big Horn County Commissioner	10384
Ewing	David	Ewing Exploration Company	10024
Fabia	Lisa Rose	Unaffiliated Individual	10470
Fader	Judith	Unaffiliated Individual	10206
Fauth	Paula	Unaffiliated Individual	10088
Fearneyhough	Jason	Wyoming Department of Agriculture	10481

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Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Feick	Duane	Wyoming BLM	10358
Ferlisi	Tony	Wyoming Wilderness Association	10268
Field	Patricia	Unaffiliated Individual	10324
Fink	Richard	Unaffiliated Individual	10101
Fisher	Mark	Unaffiliated Individual	10218
Fitzsimmons	Doneen	Unaffiliated Individual	10006
Fletner	Mary	Unaffiliated Individual	10035
Flitner	David	Flitner Ranch and Hideout Adventures	10409
Flowers	James	Unaffiliated Individual	10537
Frey	Travis	Marathon Oil Company	10003
Frick	Douglas	Unaffiliated Individual	10306
Frost	Sandra	Unaffiliated Individual	10210
Fry	Margaret	Unaffiliated Individual	10212
Galyan	Ellen	Unaffiliated Individual	10548
Garbin	Paul	Unaffiliated Individual	10247
Garrett	Rick	Unaffiliated Individual	10341
Garvey	Lydia	Unaffiliated Individual	10188
Garvey	Lydia	Unaffiliated Individual	10314
Gay	Susan	Unaffiliated Individual	10443
Gifford	Tom	Gifford Ranch LLC	10125
Gilbert	Bryce	Champion Technologies	10551
Gilmore	Rickey	J&R Well Service	10554
Gindice	Gary	Unaffiliated Individual	10099
Goldstein	Carol Ann	Unaffiliated Individual	10158
Good	Brian	Unaffiliated Individual	10322
Good	Mike	Unaffiliated Individual	10503
Greer	Julie	Unaffiliated Individual	10407
Greer	William	Unaffiliated Individual	10411
Griffith	Johnny	Unaffiliated Individual	10536
Grimes	Daphne	Unaffiliated Individual	10066
Groves	Linda	Unaffiliated Individual	10248
Grubbs	Kathy and David	Unaffiliated Individual	10310
Guynup	Sharon	Unaffiliated Individual	10438
Guzzi	Sherry and Ted	Unaffiliated Individual	10243
Haeseley	Ryan	Unaffiliated Individual	10092
Hale	Sharon	Unaffiliated Individual	10256
Halloran	Georgia	Unaffiliated Individual	10415
Hamilton	Wesley	Unaffiliated Individual	10122
Hamilton	Eleanor	Unaffiliated Individual	10211
Hamilton	Keith and Linda	Hamilton Ranch, INC	10387
Hamlin	Chris	Smith Oilfield	10499
Hammer	Douglas	Unaffiliated Individual	10257
Handelsman	Robert	Unaffiliated Individual	10018

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Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Hankee	Bill	Unaffiliated Individual	10187
Hanson	Vincent	Unaffiliated Individual	10315
Harvey	Ron	Washakie County Commissioners	10053
Harvey	Ron	Washakie County Commissioners	10482
Hassan	Helen	91 Ranch, A Wyoming Corporation	10089
Haubrich	Martin and Barbara	Unaffiliated Individual	10475
Hawthorne	Brian	Blue Ribbon Coalition	10370
Hay	Anne	Unaffiliated Individual	10071
Haywood	Evan	J&R Well Services	10494
Haywood	Heath	J & R Well Service	10524
Hecht	Scott	Unaffiliated Individual	10301
Heinze	Kendi	Unaffiliated Individual	10194
Heinze	Kendi	Thermopolis-Hot Springs County Economic Development Company (EDC)	10197
Henley	Bob	Unaffiliated Individual	10038
Henrichsen	Katherine	Unaffiliated Individual	10272
Henze	Fritz	Marathon Oil (BAR-T Electric)	10564
Herd	David	J&R Well Service	10510
Herman	Robert L.	Unaffiliated Individual	10026
Hessenthaler	Paul	Unaffiliated Individual	10121
Heyward	E	Unaffiliated Individual	10023
Heyward	Joslin	Unaffiliated Individual	10190
Hill	Eric	Unaffiliated Individual	10141
Hill	William Lee	Unaffiliated Individual	10179
Hill	William Lee	Unaffiliated Individual	10488
Hillberry	James	Unaffiliated Individual	10565
Hinckley	Ann	Unaffiliated Individual	10573
Hinebaugh	Josh	Cooley's Welding	10087
Holdsworth	Scott	Unaffiliated Individual	10535
Hooper	Jacob	Rochards Construction Contracting for MOC in Oregon Basin	10530
Hopkins	Elaine	Unaffiliated Individual	10462
Hopkins	Mary	Wyoming State Historic Preservation Office	10490
House	Glen	Unaffiliated Individual	10153
Hurt	Luc	Unaffiliated Individual	10478
Icenogle	Joseph	Fidelity Exploration and Production Company	10051
Inberg	Judy	Unaffiliated Individual	10192
Inman	Kate	Unaffiliated Individual	10309
Irelan	Shirley	Unaffiliated Individual	10228
Iverson	Taunya	Unaffiliated Individual	10342
Jachowski	Kathleen	Guardians of the Range	10383
Jacobsen	Andrew	Unaffiliated Individual	10436

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Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Jacobson	Harold and Agnes	Unaffiliated Individual	10039
Jeffries	Brian	Wyoming Pipeline Authority	10265
Jensen	Robert	Unaffiliated Individual	10114
Johansson	Isla	Unaffiliated Individual	10351
Johansson Murray	Ester	Unaffiliated Individual	10232
John	Murphy	Unaffiliated Individual	10138
John	Gallagher	Park County Pedalers Board of Directors	10577
Johnsey	Billy	Hoodoo Ranch	10449
Johnson	Bettie	ZE Ranch Co.	10143
Johnson	Jack	Unaffiliated Individual	10240
Johnson	Ruth Clare	V Ranch	10292
Johnson	Kim	Unaffiliated Individual	10304
Johnson	Ruth Clare	Unaffiliated Individual	10498
Jolley	Jacob	Unaffiliated Individual	10513
Jolovich	Anthony	Unaffiliated Individual	10244
Jolovich	Rudy	Unaffiliated Individual	10520
Jones	Joeann	Kirby Creek Ranch	10299
Jones	Steve	Meeteetse Conservation District	10371
Jordan	Judy	Unaffiliated Individual	10169
Joyce	Nancy	Unaffiliated Individual	10372
Kane	Stephen	Unaffiliated Individual	10382
Kane	Stephen	Unaffiliated Individual	10413
Kania	Amy	Town of Basin	10303
Kastel	Diane	Greater Yellowstone Coalition - Cody	10060
Kastel	Diane M.	Unaffiliated Individual	10156
Kathrens	Ginger	The Cloud Foundation	10376
Kattenhorn	Trever	Unaffiliated Individual	10562
Kavanaugh	Frank D.	Unaffiliated Individual	10151
Kawano	Evan	Unaffiliated Individual	10532
Kelso	George	Unaffiliated Individual	10401
Kenyon	Kris	Unaffiliated Individual	10441
Kerns	Ken	Unaffiliated Individual	10366
Kersten	Becky	Unaffiliated Individual	10269
Kesselheim	Donn and Chelsea	Unaffiliated Individual	10112
Kessler	Mark	Unaffiliated Individual	10507
Kidston	Justin	Unaffiliated Individual	10014
Kimes	Doug	Smith Oilfield	10500
Kimm	Taylor	Cooley's Welding	10084
Kinkol	Karen	Unaffiliated Individual	10171
Kirsch	James D.	Unaffiliated Individual	10186
Kirsch	James	Unaffiliated Individual	10313
Kisner	Al	Unaffiliated Individual	10456
Klimek	Tom	Unaffiliated Individual	10027

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Klym	David	Unaffiliated Individual	10235
Kolacny	Colt	Cooley's Welding	10078
Koval	Dave	Fidelity Exploration and Production Company	10177
Koval	Dave	Fidelity Exploration and Production Company	10487
Kress	Joseph	Unaffiliated Individual	10421
Krisjansons	Brigita	Unaffiliated Individual	10354
Kroehler	Corbett	Unaffiliated Individual	10175
Kroger	Richard	Worland BLM Retired Employees Coalition for Responsible Public Land	10388
Kunkle	Adam	Marathon Oil	10518
La Budda	Hilary	Unaffiliated Individual	10098
La Point	Peggy	Unaffiliated Individual	10242
LaCognata	Dale	Unaffiliated Individual	10159
Laieski	Caleb	Unaffiliated Individual	10166
Lance	Ryan M.	Office of State Lands and Investments	10203
Lansford	Jamie	Unaffiliated Individual	10279
LaPrade	Becky	Unaffiliated Individual	10452
Lawrence	Charley	J and R Well Service	10543
Lawson	Matt	Unaffiliated Individual	10073
Lee	Mary Ellen	Unaffiliated Individual	10184
Lee	Bryon	Unaffiliated Individual	10430
Lee	Beth	Unaffiliated Individual	10469
Lefler	Susan	Unaffiliated Individual	10468
Leshner	Stacy	Prime Power	10542
Lichtendahl	Ken	Unaffiliated Individual	10196
Lindstrom	Loren	Unaffiliated Individual	10300
Lindstrom	Alison	Unaffiliated Individual	10463
Lindstrom	Loren	Marathon Oil Company	10493
Linebaugh	Josh	Unaffiliated Individual	10515
Little	Deb	Unaffiliated Individual	10380
Livingston	Ed	Unaffiliated Individual	10446
Loos	Karl	Smith Oil Field	10517
Lopez	Joe	Unaffiliated Individual	10511
Lout	Robert	Unaffiliated Individual	10241
Love	Jeanie	Unaffiliated Individual	10567
Lovell	Brandy	Unaffiliated Individual	10344
Lowery	Jeff	Cooley's Welding	10086
Lowry	Jeff	Cooley's Welding	10501
Loyning	Doug	Unaffiliated Individual	10433
Lumley	John	Hot Springs County Commissioners/ Park County Commissioners	10054
Lumley	John	Hot Springs County Commissioners	10363

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Luskin	Richard	Black Diamond, Inc.	10021
Macauley	Greg	Unaffiliated Individual	10154
MacDonald	Mary Lou	Unaffiliated Individual	10064
Magagna	Jim	Wyoming Stock Growers Association	10215
Magdanz	Susan	Unaffiliated Individual	10576
Magstadt	Rick	Wyo-Ben	10205
Magstadt	Rick	Unaffiliated Individual	10274
Mahoney	Kevin	Unaffiliated Individual	10357
Mangold	Scott	Powell, WY	10282
Martin	Steve	Unaffiliated Individual	10191
Martin	Lisa	Unaffiliated Individual	10331
Matteson	Kip	Unaffiliated Individual	10529
May	Jordan	Cooley's Welding	10074
May	Gerald	Unaffiliated Individual	10512
McArtor	Nancy	Unaffiliated Individual	10566
McCall	Carla	Unaffiliated Individual	10183
McColl	John	Unaffiliated Individual	10531
McCoy	Grace	Unaffiliated Individual	10013
McDonald	Jazmyn	Unaffiliated Individual	10431
McGee	Scott	Unaffiliated Individual	10137
McKee	Jan	US Fish and Wildlife Service	10574
McNair	Robert L.	Unaffiliated Individual	10163
Meabon	R.P.	Marathon Oil Company	10055
Meabon	Randy	Unaffiliated Individual	10249
Meabon	Dennis	Marathon Oil Co.	10558
Mead	Matthew	Office of the Governor	10139
Mead	Matthew	State of Wyoming	10364
Mechels	Sally	Unaffiliated Individual	10065
Menzel	Ben	Unaffiliated Individual	10117
Mesick	Kathleen	Unaffiliated Individual	10471
Metcalf	Peter	Black Diamond Equipment	10048
Meyer	Patricia	Greater Yellowstone Coalition - Cody	10067
Milek	Dorothy	Unaffiliated Individual	10378
Miller	Neil and Jennifer	Unaffiliated Individual	10414
Minemyer	Nick	Prime Power	10540
Mock	Kathy	Unaffiliated Individual	10538
Moeller	Susann	Unaffiliated Individual	10461
Monk	Sherie	Unaffiliated Individual	10425

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Monk	David	Unaffiliated Individual	10426
Moore	Sherry L.	Unaffiliated Individual	10167
Moore	Tom	Unaffiliated Individual	10204
Morrison	Bruce	Town of Lovell	10570
Mosely	Claire	Public Lands Advocacy	10263
Murphy	Warren	Unaffiliated Individual	10091
Myers	Rex	Unaffiliated Individual	10025
Myric	Matt	Richards Construction Inc.	10534
Naples	Jean Marie	Unaffiliated Individual	10157
Naumann	Chris	Unaffiliated Individual	10195
Neal	Chuck	Unaffiliated Individual	10113
Negus	Kevin	Unaffiliated Individual	10349
Nelson	Peter	Defenders of Wildlife	10379
Nelson	Jeff	Orchard Ranch	10439
Nelson	April	Orchard Ranch	10440
Neves	Kay	Unaffiliated Individual	10219
Neves	Dave	Unaffiliated Individual	10224
Neves	Mike	Unaffiliated Individual	10445
Nicholson	Jack	Unaffiliated Individual	10016
Nickola	Robert	Unaffiliated Individual	10246
Nielson	Glenn A.	Y-Text Corporation	10164
Nistico	Leslie	Unaffiliated Individual	10450
Nordberg	Ronald	Unaffiliated Individual	10020
Norman	Bruce B	Unaffiliated Individual	10189
Norsworthy	Billie Jo and Jason	Unaffiliated Individual	10250
Norwick	Tom	Unaffiliated Individual	10011
Norwick	Tom	Unaffiliated Individual	10012
Nuttall	Rob	Unaffiliated Individual	10424
Nuttall	Dale	Unaffiliated Individual	10428
Olenik	Bryan	Unaffiliated Individual	10522
Olin	John	Unaffiliated Individual	10033
O'Mara	Kevin	Unaffiliated Individual	10107
Orchard	Robert	Orchard Ranch LTD	10231
Orme	Diane	Unaffiliated Individual	10287
Orr	Diane	Utah Rock Art Research Association	10135
Osborne	Sharon	Unaffiliated Individual	10185
Osgood	John	Unaffiliated Individual	10147

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Ozcan	John	Unaffiliated Individual	10288
Parker	William Harwar	Unaffiliated Individual	10291
Patla	Debra	Unaffiliated Individual	10435
Patrick	Nic	Unaffiliated Individual	10239
Patrick	Joyce	Unaffiliated Individual	10352
Patten	Leslie	Unaffiliated Individual	10045
Patterson	Cynthia	Unaffiliated Individual	10447
Pearson	Mark	Unaffiliated Individual	10340
Pedersen	Ryan	Unaffiliated Individual	10312
Peel	Deborah	Unaffiliated Individual	10455
Peirce	Susan	Unaffiliated Individual	10307
Pendry	Bruce	Greater Yellowstone Coalition/Wyoming Outdoor Council/The Wilderness Society	10152
Pensinger	LuRilla	Unaffiliated Individual	10226
Perry	Sean	Unaffiliated Individual	10080
Pfrangle	Louis	Unaffiliated Individual	10546
Phillips	Stuart	Unaffiliated Individual	10126
Phillips	Mandy	Unaffiliated Individual	10162
Powick	Kolin	Unaffiliated Individual	10043
Preator	Ryan	Cooley's Welding	10076
Pring	Jodee	Wyoming State Engineer's Office	10259
Quarberg	DeLoyd	Bighorn Ranch	10486
Radzicki	Dottie	Unaffiliated Individual	10350
Rageth	Marvin Brent and Sherri L.	Unaffiliated Individual	10110
Ralph	Elizabeth	Unaffiliated Individual	10437
Ratner	Jonathan	Unaffiliated Individual	10181
Ray	Chris	Unaffiliated Individual	10348
Raynolds	Linda	Unaffiliated Individual	10222
Reed	Linda	Unaffiliated Individual	10213
Reed	Kyle	J&R Well Service	10514
Reiswig	Barry	Unaffiliated Individual	10072
Reiter	Lee Ann	Unaffiliated Individual	10144
Renner	Rori	Unaffiliated Individual	10346
Rhodes	Donna	Unaffiliated Individual	10448
Rice	Dan	Unaffiliated Individual	10220
Rice	Dan	Washakie County Conservation District	10266
Richards	Susan	Unaffiliated Individual	10070
Ridgway	Richard	Elk Creek Ranch	10129
Robertson	Bill	Unaffiliated Individual	10118

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Robertson	Gene and Kris	Unaffiliated Individual	10484
Robinson	Janet	Unaffiliated Individual	10474
Rodgers	Lyle	Unaffiliated Individual	10254
Rosencranse	Jennifer	City of Cody	10260
S	Anne	Unaffiliated Individual	10429
Sackett	Dale	Unaffiliated Individual	10423
Sander	Dana	Unaffiliated Individual	10128
Sander	Dana	Unaffiliated Individual	10270
Sanders	Judith	Unaffiliated Individual	10476
Saylor	Marc	Fidelity Exploration and Production Company	10069
Schatz	Lynda	Unaffiliated Individual	10068
Scheffel	Phil and Sandy	Unaffiliated Individual	10193
Schilling	Bill	Wyoming Business Alliance - Wyoming Heritage Foundation	10047
Schmidtman	Ed	Unaffiliated Individual	10432
Schwartz	Louise	Unaffiliated Individual	10155
Scott	Warren	Bentonite Performance Minerals, LLC	10385
Scott	Melvin	Unaffiliated Individual	10061
Scott	Warren	Lovell Mine - Bentonite Performance Minerals, LLC	10165
Scott	Mary	Unaffiliated Individual	10170
Secord	Reed	Unaffiliated Individual	10134
Shaffer	Raymond	Unaffiliated Individual	10221
Shaffer	Doug	Unaffiliated Individual	10320
Shea	Nancy	Unaffiliated Individual	10005
Shear	Kerry	Unaffiliated Individual	10465
Sheehan	Sean	Unaffiliated Individual	10420
Sheffield	Tim	Unaffiliated Individual	10508
Sheldon	Pam and Jack	Unaffiliated Individual	10302
Sherwood	Vance R.	Unaffiliated Individual	10174
Showalter	Dave	Unaffiliated Individual	10199
Showalter	Jason	Northstat Corp.	10549
Simmons	Patricia	Unaffiliated Individual	10545
Simpson	Ann	Unaffiliated Individual	10145
Sindelar	Mona L.	Unaffiliated Individual	10168
Siska Hjelmgren	Janice	Unaffiliated Individual	10467
Slover	David	Unaffiliated Individual	10097
Smith	Blake	Unaffiliated Individual	10131
Smith	Dallen	Livestock Systems	10207
Smith	Jack	Unaffiliated Individual	10208
Smith	Steven	Unaffiliated Individual	10297
Smith	Douglas	J&R Well Service	10506
Smith	Thor	Marathon Oil	10528
Soderberg	Nathan	Unaffiliated Individual	10523

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Solberg	Lisa	BLM, Wyoming State Office - Stationed at Pinedale Field Office	10359
Soldier Wolf	Mark	Northern Arapahoe Preservation Society (NAPS)	10233
Spomer	Skyler	Unaffiliated Individual	10505
Spomer	Greg	Unaffiliated Individual	10552
Staffanson	Robert	Unaffiliated Individual	10236
Stafford	John	Unaffiliated Individual	10237
Standridge	Rebecca	Unaffiliated Individual	10223
Starbuck	Jamie	Starbuck Ranch	10150
Steilen	Aaron	Unaffiliated Individual	10251
Steilen	Geordie	Unaffiliated Individual	10252
Steilen	Sherri	Unaffiliated Individual	10295
Steinmetz	Matthew	Unaffiliated Individual	10008
Steve	Brock	Shoshone Back Country Horsemen	10136
Stewart	Mara	Unaffiliated Individual	10289
Stockman	Olivia	Unaffiliated Individual	10130
Story		Unaffiliated Individual	10569
Stroh	Helen	Unaffiliated Individual	10009
Stroh	Gerald	Unaffiliated Individual	10010
Stuart	Pat	Unaffiliated Individual	10418
Stufflebeam	Judy	Unaffiliated Individual	10454
Stumpf	CJ	Unaffiliated Individual	10328
Sullivan	Roberta	Unaffiliated Individual	10115
Sunderland	Douglas	Unaffiliated Individual	10326
Sylvester	Joseph	Unaffiliated Individual	10572
Szewczyk	Les and Pat	Unaffiliated Individual	10108
Tarazon	Bill	Richards Construction	10527
Taylor	Wendy	Unaffiliated Individual	10094
Thagard	Neil	Theodore Roosevelt Conservation Partnership	10198
Thomas	Deb	Powder River Basin Resource Council	10373
Thomas	Carla	Unaffiliated Individual	10434
Thompson	Brad	Cooley's Welding	10085
Thompson	Brad	Cooleys Welding Inc.	10560
Tokash	Joe	Unaffiliated Individual	10001
Tollman	Vicki	Unaffiliated Individual	10253
Tom	Paul	Marathon Oil	10123
Tonn	Matt	Progressive Construction, Inc.	10017
Torrey	Steve	Unaffiliated Individual	10483
Trask	Megan	Cirque Resources LP	10052
Turiano	Thomas	Unaffiliated Individual	10305
Turick	Pam	Unaffiliated Individual	10464
Ullman	Dee	Unaffiliated Individual	10296
Ulrich	Wallace	Wyoming State Geological Survey	10362

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Urban	Dee	Unaffiliated Individual	10319
Urbonas	Wayne	Unaffiliated Individual	10356
Van Antwerp	Clay	Unaffiliated Individual	10330
Versloot	G.J.C.	Unaffiliated Individual	10477
Veza	Matthew	Marathon Oil Company	10277
Veza	Matthew	Marathon Oil	10333
Wagner	John	Wyoming Department of Environmental Quality	10400
Wahler	Randy	Natural Resource Planning Committee	10294
Wainscott	Michael	Unaffiliated Individual	10561
Walker	Carol	Unaffiliated Individual	10367
Waller	Breean	Unaffiliated Individual	10034
Waller	Jim	Bighorn County Mapping and Planning	10258
Walsh	Danny	Unaffiliated Individual	10050
Walsh	Ken	Marathon Oil Company	10492
Walter	Alison	Unaffiliated Individual	10427
Walz	Barbara	Tri-state generation and transmission association	10361
Wantulok	Owen	Unaffiliated Individual	10019
Wantulok	Owen	Unaffiliated Individual	10100
Wantulok	Janice	Unaffiliated Individual	10103
Ward	Paul	Hot Springs County Farm Bureau	10338
Ward	Ginger	Unaffiliated Individual	10339
Washburn	Natalie	Unaffiliated Individual	10321
Watson	Elaine	Unaffiliated Individual	10458
Wattle	Kathleen	Unaffiliated Individual	10403
Webb	John C.	Unaffiliated Individual	10255
Webber	Steven	DOE-Western Area Power Administration	10332
Weeter	Bruce and Georgia	Double H Ranch	10176
Welke	Margaret	Unaffiliated Individual	10090
Welsh	Philip	Unaffiliated Individual	10133
Wilbert	Connie	Sierra Club, WY Chapter	10040
Wilbert	Connie and Bonnie	Wyoming Chapter Sierra Club	10374
Willett	Loni	Cooley's Welding	10077
Willett	Loni	Cooley's Welding	10502
Williams	Ted	Rocky Mountain Power	10368
Williams	Michael	Unaffiliated Individual	10408
Williams	Kraig	Unaffiliated Individual	10521
Wilson	Mona	Unaffiliated Individual	10201
Wilson	Robert M.	Unaffiliated Individual	10202
Wilson	Willard and Maycle	Unaffiliated Individual	10229
Wilson	Jim	Unaffiliated Individual	10293
Winkler	Debra	Unaffiliated Individual	10041
Winkler	Joe	Unaffiliated Individual	10142

**Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index**

Table A-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Winsor	John	J&R Well Services	10563
Winters	Chris	J&R Well Services	10495
Wold	Peter	Enhanced Oil Recovery Commission	10044
Wolf	James	Unaffiliated Individual	10547
Wolfe	Lawrence	Holland and Hart, CLP	10267
Wood	M R	Unaffiliated Individual	10422
Woodiwiss	Kimberly	Unaffiliated Individual	10419
Woods	Spencer	Unaffiliated Individual	10037
Woods	Susan J.	Unaffiliated Individual	10096
Woodwell	Caroline	Unaffiliated Individual	10172
Wozniak	Thomas	Unaffiliated Individual	10311
Wychgram	Daniel	Unaffiliated Individual	10334
Yaple	Henry M.	Unaffiliated Individual	10209
Young	Gary	Unaffiliated Individual	10119
Zaydee		Unaffiliated Individual	10466
Zeller	Frank	Unaffiliated Individual	10525
Zolnikov	Daniel	Families for Outdoor Recreation	10412
-	-	Anonymous	10002
-	-	Environmental Quality External Review Team National Park Service Intermountain Region (AZ, CO, NM, MT, OK, TX, UT, WY)	10093
-	-	MC Land and Cattle, LLC	10104
-	-	U.S. Fish and Wildlife Service	10480

***Attachment A – Draft Resource Management Plan and Draft Environmental Impact Statement
Commenter Response Index***

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*Proposed Resource Management Plan and
Final Environmental Impact Statement
Comment Analysis Report*

Attachment B

Draft Resource Management Plan and
Draft Environmental Impact Statement

Individual Comments and Index to Summary Comments and
Summary Responses

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**Attachment B – Draft Resource Management Plan and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

ATTACHMENT B

Table B-1 includes all individual substantive comments and identifies the BLM summary comment and response number associated with individual comments. The table is organized by comment document number. Please refer to Attachment A, Table A-1 within the Comment Analysis Report for the Bighorn Basin Resource Management Plan Revision Project to locate your name and associated comment document number.

Table B-1. Individual Comments and BLM Response Index

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10004	10004-1	You do not list all of the existing roads, is it your plan to block off any that are not listed.	2034
10024	10024-5	Comment on Pages 4-60, Figure 4-3: In Figure 4-3, there is no justification for having more Moderate Constraints in Alternative A than in either Alternative A or D. Alternative A should be designed to offer encouragement to further exploration.	2047
10024	10024-6	Recommendation #1: To accommodate and encourage additional exploration along the Absaroka Front, it is strongly recommended that Alternative C be chosen by the BLM. Concurrent with and as a part of this recommendation, there should be a reduction in the 90,000 acres presently classified as Moderate Constraints under Alternative A, Figure Y-4 by reclassifying them as Standard Restrictions. The recommended reduction would eliminate many of the Stipulations presently impeding exploration, and should stimulate oil industry activity in one of the few prospective structural areas remaining in the Bighorn Basin. The acres recommended for reclassification to Standard Restrictions are contained within the following described townships:T44N-R99W through R101W;T47N-R101W through R104W;T45N-R99W through R101W;T48N-R102W through R104W;T46N-R100W through R102W;T49N-R102W through R104W.	2047
10024	10024-7	Comment on Impacts Common to all Alternatives, Page 4-62: To obtain valid geophysical data under approved exploration leases requires that the ends of the lines, which would be stopped against the edges of NGE leases, be extended onto the NGE leases to obtain structural data under all of the approved or issued leases. When conducting seismic work, the tail-end of lines are routinely extended beyond the limits of the acreage being mapped to obtain data under 100% of the leases.	2016
10042	10042-1	Several statements in the RMP Executive Summary are very questionable. For example, on page 5, it states: "Goals are broad statements of desired outcomes that are usually not quantifiable." In business, "Best Management Practices" define goals as providing definable programmatic direction focusing on the desired end result. That is why they are called goals and not some unquantifiable vague ideology. True, objectives provide more precise measurement and steps to achieve the goal. Another example is also on page 5. Allowable uses identify uses that "are allowed, restricted, or excluded on BLM-administered surface lands and federal mineral estate." According to a BLM specialist, this statement means that allowable uses are those uses allowed, restricted, or not allowed. I was also told that this is the BLM definition of "allowable uses." How can an allowable use be not allowed?	2054

**Attachment B – Draft Resource Management Plan and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10042	10042-2	Include milestone points in the plan to revisit certain land uses to adjust the process as required for the good of the area and the country. When I questioned one of the BLM specialists, I was told that the BLM's intent is to make specific reviews throughout the life of a particular regulation. This should be clearly communicated to the public together with the associated review criteria to include what triggers these periodic reviews.	2054
10042	10042-3	Some of the assumptions in the RMP are flawed. For example, with respect to the McCullough Peak wild horse range, the executive summary states: "Expansion of the McCullough Peaks HMA under alternatives B and D would result in beneficial impacts to wild horses by adjusting the HMA boundary to more accurately correspond to the range the resident herd uses, rather than continued attempts to recapture and move horses." Does the BLM really think that expanding the area will keep the herd from naturally growing and ultimately overpopulating the new area without further management of the herd size? If this the wildlife management science applied by the BLM in this case, it is terribly wrong.	2054
10042	10042-4	There are no real definable buffer limits when inferring "visual resource" protections. Depending on the topography along some areas along the trails, the exclusion could be more that 15 to 20 miles wide. What purpose is served by these egregiously applied buffers? Preserve the antiquity value of the trail, yes, but not necessarily from horizon to horizon. This concept of visual horizons needs to be re-thought. What purpose will the "preservation of a visual resource" serve other than to close a large portion of the Big Horn Basin from any activity except to serve a few purists while significantly impacting beneficial use of the land for the greater good of the public?	2032
10044	10044-1	It has come to our attention that there is little or no consideration of enhanced oil recovery technologies and the associated development needs in the draft Bighorn Basin RMP.	2051
10047	10047-1	The BLM, to its credit, lists socioeconomic as an analysis portrait, but the Wyoming Business Alliance observes this section doesn't address the advent of new technology and how this has shaped the energy landscape in Wyoming over the last decade---i.e., without new technology there would be no Jonah and Pinedale anti-cline in Sublette County, CBM in Campbell County, natural gas development in Sweetwater County, and the most recent activity regarding the Niobrara Oil play. Because these counties have progressed in terms of direct energy job creation, it should be understood that each of these jobs accounts for 3.65 jobs total--a fact which is important to consider if new energy development were to occur in the Bighorn Basin.	2046
10047	10047-2	In the Alternative C there should be an analysis of technology and how energy development in the future could expand (based on technology) in the Bighorn Basin and why this would be foreclosed in Alternative D, the agency's Preferred Alternative.	2054
10051	10051-1	Public participation in this RMP is very important and many of the people affected will have a lot to learn in order to fully understand, process and compare the alternatives set forth by BLM and provide appropriate, educated comments. Adding this 60 day extension would allow comments to be of greater assistance to BLM when preparing the Final RMP.	2007
10051	10052-1	An additional 90 days would provide better opportunities for a more comprehensive review of the documents by all interested parties. We believe it	2007

B-2

*Bighorn Basin Proposed RMP and Final EIS
Comment Analysis Report*

**Attachment B – Draft Resource Management Plan and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		is imperative that all interested parties have the opportunity to participate in the BHB planning process and we believe this is one of BLM's primary planning goals. Therefore, we urge that you grant a 90-day extension to facilitate review and comment by all interested parties.	
10053	10053-1	The Commissioners of Bighorn, Hot Springs, Park and Washakie Counties would like to formally request that the Bureau of Land Management extend the current public review period for the Draft Bighorn Basin Resource Management Plan and Draft Environmental Statement from 90 days to 120 days	2007
10054	10054-1	The Commissioners of Hot Springs, Park and Washakie Counties would like to formally request that the Bureau of Land Management extend the current public review period for the Draft Bighorn Basin Resource Management Plan and Draft Environmental Statement from 90 days to 120 days.	2007
10055	10055-1	Marathon Oil Company respectfully requests a 90-day extension of the comment public period for the Draft Bighorn Basin RMP/EIS due to the broad public interest in BLM's proposed management of the nearly 6 million acres in the Bighorn Basin.	2007
10056	10056-1	Phoenix Production respectfully requests a 90-day extension of the comment public period for the Draft Bighorn Basin RMP/EIS.	2007
10057	10057-1	The Bighorn Basin Resource Alliance respectfully requests a 90-day extension of the comment public period for the Draft Bighorn Basin RMP/EIS.	2007
10059	10059-1	I would like to request a 60 day extension of the public comment period for the Draft Bighorn Basin RMP/EIS. Due to both the size and complexity of the document, it will be difficult for the general public and other interested stake holders, to digest the document and provide substantive comments before the current 90 day comment period expires on July 20, 2011.	2007
10060	10060-2	Finally, I feel that BLM should institute stricter standards to protect the Yellowstone grizzly bear. In order to keep bears away from unnatural food sources the BLM should implement a food storage order for all BLM lands within occupied grizzly bear habitat. In addition, the BLM should not allow black bear baiting in occupied grizzly habitat. This practice leads to increases in grizzly conflicts by attracting grizzly bears to areas where they are more likely to come into conflict with humans. Protecting grizzly habitat is yet another reason to designate the Absaroka Front Management Area as off-limits to oil and gas leasing. BLM lands along the Absaroka-Beartooth Front provide increasingly important habitat for bears, particularly in the spring and fall. Development of roads and other infrastructure in this area will undoubtedly impact bears' ability to thrive on this landscape. Therefore, I want to emphasize that the BLM should designate the Absaroka Front Management Area as off-limits to future oil and gas leasing, and institute a no-net-gain policy for roads and other forms of development within occupied grizzly habitat along the Absaroka-Beartooth Front (Record #4117).	2039
10060	10060-3	To keep bears away from unnatural food sources, the BLM should implement a food storage order for all BLM lands within occupied grizzly bear habitat. The BLM is proposing that they would require bear-proof food storage for permittees and within developed recreational sites, but this does not go far enough. The vast majority of grizzly-occupied BLM lands fall outside of developed recreational sites and most of the people using these lands are not commercial outfitters or livestock producers. Therefore, it would be most effective if BLM were to require that everybody work to keep bears wild and	2042

**Attachment B – Draft Resource Management Plan and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		safe through the simple act of food storage.	
10067	10067-1	Grizzlies are a keystone species and their presence is key to the survival of these wild lands. The issue of black bear baiting is one I was not aware of and I would welcome a statement of the reasoning for this	2042
10091	10091-1	May I also point out that according to my own personal research, you may have missed a trail? A significant Native American corridor went from Ten Sleep Pass, through what is now Medicine Lodge State Park and then along the western base of the Big Horns until it went back up the mountains to the Medicine Wheel. Much of this is on what are now BLM public lands.	2010
10091	10091-2	Wyoming is one area of the country that has not experienced the full effect of the recession. Oil and gas jobs will mostly come from outside the region and they were not considered under socioeconomic impacts.	2046
10118	10118-1	The Greater Sage Grouse core areas 2008 designation in the Bear Creek area and in the area north of Hyattville better reflects actual distributions and areas of concern than does the 2010 version.	2069
10118	10118-2	Big game winter range does not include Core areas not designated as such in an area west of the Alkali Road and South of the Red Gulch Road. This area is crucial for wintering elk and mule deer.	2022
10121	10121-1	I would like to see the public discussion of the RMP be extended by at least 3 months so people that live in the Bighorn Basin have time to adequately discuss and comment on the new RMP plan.	2007
10124	10124-1	Wildlife is described based only on perceptions, without qualitative and quantitative data. This is supposed to be a document based on science and facts, not opinion. EXAMPLE: Mule Deer discussion provides no support for the statement (pg. 3-97): (b) because of seasonal dependence on woody plant communities, mule deer are generally declining in numbers due to a decline in habitat quality and quantity. How can you make a statement like this without providing evidence to back it up? No acres, no changes over time are substantiated. Nothing.	2025
10124	10124-2	ECONOMIC WORKSHOPS - these were not conducted throughout this NEPA process-not real economic workshops. This was pointed out to the agency on more than one occasion, but ignored. This is legally challengeable and no doubt will be.	2046
10124	10124-3	+ LIVESTOCK AUMS: Unsubstantiated reductions in animal unit months (AUMs) are called for. There are, however, no numbers, data, or quantitative information to justify such reductions. The document refers to surface disturbances, yet ties nothing to livestock grazing as causing or warranting the restrictions of surface disturbances. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations.	2011
10124	10124-4	TABLE 2 - 5 (RMP/EIS p. 2-160-162) state that management must be consistent with "other resource objectives" but the document does not disclose which resource objectives are being referred to---nor how livestock grazing might be negatively affecting "other resource objective." Just to say it does not make it so!	2011
10128	10128-1	I would like to propose the inclusion of three OHV Riding Parks into the BLM RMP process as described in the attached document. Please let me know how I need to proceed and I will follow up with a list of petitions and names for this project.	2034

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10128	10128-2	Proposal for a BLM OHV Riding Park located in North Oregon Basin area T52N - R100W and R101W which utilizes the current trails and roads as shown in the Maps proceeding.	2034
10133	10133-1	Recommendations should be made to congress to extend the "Wild and Scenic" designation from the Shoshone National Forest downstream at least to Wyoming Rt. 120. This area is, by my own observation, heavily used habitat for Golden Eagles, Ospreys, and Elk. Numerous Elk cows and calves are frequently seen in the thickets along the river where feed and cover are abundant. Both Mule and White Tailed deer also use the area. I strongly recommend that "No Surface Occupancy" management be employed on the BLM lands abutting the river.	2018
10133	10133-2	I live on that section of land that straddles County Rd. 8VC, also known as Canyon Rd., and Road 8UD running north from it in Clark. My property abuts a BLM plot on the west side. Here too, I would like to see "No Surface Occupancy" management employed for the following reasons. 1) This plot provides the only public BLM access to Little Rocky Creek in the Clark area. 2) The aquifer that lies beneath Little Rocky is severely defined and provides all the drinking water for the Clark community.	2034
10133	10133-2	I live on that section of land that straddles County Rd. 8VC, also known as Canyon Rd., and Road 8UD running north from it in Clark. My property abuts a BLM plot on the west side. Here too, I would like to see "No Surface Occupancy" management employed for the following reasons. 1) This plot provides the only public BLM access to Little Rocky Creek in the Clark area. 2) The aquifer that lies beneath Little Rocky is severely defined and provides all the drinking water for the Clark community.	2031
10135	10135-5	Rock art is damaged by animals rubbing the rock surface. Livestock trails leave a permanent coat of dust on panels. Grazing permits should provide significant buffer zones between sites and livestock.	2004
10139	10139-1	In light of the requests by Cooperating Agencies and the public for an extension of time to submit their comments and in order to provide my office sufficient time to thoroughly review the Draft Bighorn Basin BLM RMP and EIS, I advise that the State supports and requests a 45 day extension of the comment period through August 26, 2011.	2007
10140	10140-1	This letter is in reference to the BLM's draft Resource Management Plan: It is my opinion and request that the 120 extension be granted.	2007
10152	10152-11	In addition, the Clarks Fork River receives Wild and Scenic River protections as it traverses the Shoshone National Forest. Recreationalists enjoy and treasure the BLM portion of this river as well. We feel that managing to protect its Wild and Scenic qualities is justified not only when BLM lands are considered in isolation, but even more so when the river is considered as a whole, such that management would not change across jurisdictional boundaries.	2018
10152	10152-12	Perhaps the most significant addition relative to the special management areas that is found in chapter 2 of the Draft EIS is that unlike in Maps 60 and 62, names are provided for the special recreation management areas, recreation management zones, and extensive recreation management areas. See Draft EIS at 2-13 to -125 (presenting the names of the special recreation management areas). We think this is a valuable addition and these names should also be provided on the maps. The names of these areas provide a great deal of information and "color" regarding these areas that is lacking without the names	2057

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		being provided on the maps. The Badlands Special Recreation Management Area, Absaroka Foothills Area, Tour de Badlands Area, Wild Badlands area, Tatman Mountain Area-these are poignant reminders of why these areas are important and valuable and we ask the BLM to keep these names in mind as it makes its management decisions, and to apply these names on the maps when the Final EIS is released.	
10152	10152-13	However, we admit to some confusion regarding the West Slope Special Recreation Management Area. In Table 4-15 in the Draft EIS it is indicated that under alternative D this area would be 318,385 acres, whereas under alternative B it would be only 126,914 acres. Draft EIS at 4-337. Yet when we look at Maps 60 and 62 it is not apparent that there is such a large differential in the acreage of the West Slope Special Recreation Management Area. In fact, the special recreation management area under alternative B would appear to be larger because under alternative D a fairly large portion of this area-in the southern Bighorns-would be designated an extensive recreation management area.	2057
10152	10152-14	Research has shown that a variety of wildlife taxa are adversely affected by artificial night lighting. And night lighting is very disturbing to recreationists and other public lands users. BLM should strive to minimize the impacts of light pollution	2032
10152	10152-16	The WGFD has developed an important document relative to mitigation of impacts to wildlife in the face of oil and gas development. This document is entitled "Recommendations for Development of Oil and Gas Resources Within Important Wildlife Habitats." It is available at http://gf.state.wv.us/downloads/pdflog.pdf . The Wyoming Game and Fish Department also has developed a similar document with regard to wind energy development: "Wildlife Protection Recommendations for Wind Energy Development in Wyoming." It is available at http://gf.state.wy.us/downloads/pdf/Final%20WGFC%20Approved%20Wind%20Recommendations%2011-17-10.pdf . The BLM should recognize these important guidance documents in the RMP and adopt their provisions as a component of the RMP.	2025
10152	10152-18	We are concerned by alternative D's counterpart provision that would only apply a CSU stipulation or prohibit or restrict surface-disturbing activities or surface occupancy within 0.25 miles of occupied or undetermined sage-grouse leks outside KHAs. Research has shown that this 0.25 mile buffer, widely used by the BLM in coalbed natural gas (CBNG) development areas, has been inadequate in preventing local sage-grouse populations from declining in energy fields. 19 In the Powder River Basin, 98 percent CBNG development within two miles of leks was projected to reduce the average probability of lek persistence from 87 percent to 5percent.20	2036
10152	10152-19	We prefer the TLS in alternative B, which would "avoid surface-disturbing and disruptive activities in greater sage-grouse nesting and early brood-rearing habitat within 3 miles of occupied greater sage-grouse leks ... or in identified nesting and early brood-rearing outside the 3-mile lek buffer. ... from February 1 to July 31." Alternative D instead applies a TLS in suitable sage-grouse habitat within KHAs from March 1 to June 30. We are concerned that the earlier June 30 end date for the TLS in alternative D will fail to protect female grouse that have re-nested after losing their first nest to predators, inclement weather, or other causes. Female grouse that make second or third nest attempts may hatch their	2068

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		eggs as late as early-to-mid-July. Therefore, we believe that a compromise between alternative B and D's TLS dates, such as March 1 - July 15, might be most appropriate to maximize grouse productivity while allowing the maximum possible time for development activities.	
10152	10152-2	The 15-Mile Basin remains largely un-leased for oil and gas development. This presents BLM with an important opportunity to protect a landscape where real protection can still be had. Making this area unavailable for leasing could help link together the three WSAs and provide a large, un-fragmented area for citizens to hunt, explore, and find solitude free of industrial intrusion. This would help protect the wilderness values that dominate in this area, and protect the solitude people seek in this area, as well as its wildlife. Therefore this area should be made unavailable for oil and gas leasing. And because there is an increasing problem with unauthorized roads in this area, this area should be designated as an area where vehicular travel is only authorized on designated routes.	2019
10152	10152-20	Alternative D provides only a half-mile buffer for active golden eagle nests, for example. The USFWS recently published its "Draft Eagle Conservation Plan Guidance" because of its concern over the adverse impact of wind energy development on golden eagles in particular. Given that golden eagle nesting territories can extend over five miles from their nests ² and given the vulnerability of golden eagles to collisions with wind turbines and their sensitivity to anthropogenic disturbances, we believe that a half mile TLS for nesting golden eagles is inadequate.	2071
10152	10152-21	If wind energy development is permitted along the Absaroka-Beartooth Front, BLM should be in a position to strongly regulate it. As currently shown in the Draft EIS, BLM only plans to use the mitigation measures provided in the Record of Decision for Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments (BLM 2005c) and BLM Instruction Memorandum 2009-43. Draft EIS at 2-110. We ask the BLM to incorporate, at a minimum, wind energy development guidance from the USFWS and the WGFD whenever it permits wind development, particularly along the Absaroka-Beartooth Front, and to make provision for the application of these guidelines in the RMP ³⁰	2065
10152	10152-22	However, under both alternatives B and D there would be a communications site designated in T53N R90W, in the Bighorn Front area. Maps 52 and 54. We ask the BLM to reconsider designating this communications site. For one, under either alternative B or alternative D, this communications site would be located in a rights-of-way avoidance and mitigation area, so BLM should start to avoid right now the placement of rights-of-way in this area by not designating this area for a potential communication site. Moreover, under alternative B this communication site would be located immediately adjacent to a rights-of-way exclusion area, so designating this site is an inherent conflict with this management direction. Cell phone towers, which is probably what "communications sites" refers to, are anathema to the important environmental values in the Priority Conservation Areas. Among other things, communication towers kill millions of birds each year. Where BLM does permit communication towers, it should require best management practices such as appropriate lighting that doesn't attract birds (e.g., no solid red lights) and bird diverters that highlight guy wires to reduce bird collision fatalities. ³³	2020
10152	10152-23	Under alternatives A, C, and D 5,171 acres would be closed to livestock grazing.	2011

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Table B-1. Individual Comments and BLM Response Index (Continued)

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		Draft EIS at 2-19. This represents less than 0.2 percent of the 3,189,743 BLM surface acres in the Bighorn Basin. Then, under alternative B, 1,988,927 acres would be closed to livestock grazing, or 62 percent of the BLM lands in the Bighorn Basin. This is a radically disproportionate approach to livestock grazing management. The area of closure under alternative B is 385 times the area of closure under any of the other alternatives. And there is nothing in between. This does not represent a reasonable range of alternatives. All we are given to consider is closing almost nothing to grazing or closing well over half of the planning area. That is not a balanced range of alternatives, and therefore defeats informed public and agency involvement and comment on this process, bedrock principles of National Environmental Policy Act (NEPA) law and process. Because of this imbalance, we ask the BLM to develop one or more proposals for grazing management that would close an intermediate portion of the planning area to grazing relative to the options that are currently presented.	
10152	10152-24	Furthermore, in the MLP Evaluation report, the state office said, "[t]o preserve decision space, oil and gas leasing will be deferred in key areas identified [in an accompanying figure] until at a minimum the release of the draft EIS and proposed plan." MLP Evaluation at un-numbered page 30. It is not apparent that this decision has factored into the MLP analysis presented in the Draft EIS and Draft RMP. Will deferral of leasing continue past the release of this Draft EIS? We do not know the answer to that question from what is presented in the draft EIS. The BLM should clarify the timeline over which leasing deferral will continue, and as has been said a number of times at a minimum the lease deferral decision should continue beyond just the release of this draft EIS, and in fact be made permanent in the Priority Conservation Areas.	2014
10152	10152-25	However, on June 23, 2011 the BLM, EPA, and the Forest Service entered into a memorandum of understanding regarding air quality analyses. This memorandum raises the possibility that a more in-depth analysis of air quality issues needs to be prepared for the Bighorn Basin RMP. We ask the BLM to carefully consider this possibility. In particular, it is crucial that visibility in nearby Class I areas-the Teton, Washakie, and North Absaroka Wilderness Areas-be adequately evaluated and protected.	2009_1
10152	10152-5	As shown in Draft EIS Map 7, the level of existing leasing in the Absaroka-Beartooth Front, 15-Mile Basin, and Bighorn Front is generally quite low. That is, by not leasing in these areas in the future, as we request, there would be little impact on oil and gas development in the basin. It is reasonable and practical to not engage in future leasing in these three iconic areas.	2077
10152	10152-6	As we noted above, if our leasing availability approach-which is largely reflected in the provisions of alternative B-were adopted in the RMP only 46.3 percent of the mineral estate in the planning area would be closed to leasing and the remainder would be available for leasing. The fraction of the planning area in the Priority Conservation Areas is even smaller. We note that in the Pinedale RMP the BLM designated 49 percent of the BLM surface estate as unavailable for future leasing. So there is precedent for closing areas to leasing of this magnitude. The Cody and Worland Field Offices would be following in the steps of the Pinedale Field Office if 46.3 percent of these Field Offices was made unavailable for future leasing in the RMP, and they should do so.	2013
10152	10152-7	While there are 137 named fields in the Bighorn Basin, there are only eight major producing oil fields (by volume) and six major producing gas fields. Draft EIS at 3-51. Consequently, we believe the BLM should carefully consider the	2050

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		designated oil and gas management areas that would be established under alternatives C and D and determine whether the number of recognized fields can be scaled back with little or no impact on oil and gas production. The purpose of recognizing these fields is to promote oil and gas production, so if there is little reason to expect much production from many of these fields, they should not be recognized as oil and gas management areas.	
10152	10152-8	Consequently, under the provisions of the Federal Land Policy and Management Act (FLPMA) BLM must give "priority" to the "designation" of these ACECs, a requirement which alternative B clearly meets and which the other alternatives do not.	2068
10152	10152-9	In several maps the Absaroka Front Management Area is recognized. See, e.g., Maps 30 and 68. We strongly support creation and recognition of this management area because it corresponds closely with the Absaroka-Beartooth Front management area specified in our maps in the enclosed CD. As shown in Record # 4080 in the Draft EIS, this area would be recognized under alternatives B, C, and D. Draft EIS at 2-77. After considering the management prescriptions that are presented, we would support protection of the acreages presented for alternative D (130,895 acres of BLM surface estate and 253,159 acres of mineral estate); however, we believe that the management prescriptions presented for alternative B should be applied.	2055
10165	10165-1	In the plan it states: The six mines in the Bighorn Basin employ 132 persons, and another 360 persons are employed at the milling processing facilities at six different mills (one in the Worland area, two near Greybull, and three near Lovell, Wyoming). The stated number of employed people in the bighorn basin from the bentonite industry is a lot more than the number in the plan. My mine alone has four full-time contractors (stripping overburden, hauling bentonite, drilling/blasting and conducting environmental activities) totaling over 60 employees. The number stated in the plan is the number of employees who work "in-house" for the bentonite companies, i.e. not contractors. Please state there is substantially more people employed as contractors from the bentonite industry in the Bighorn basin. My guess is the number of workers in the bentonite industry is 10X more than what the RMP states.	2049
10165	10165-2	Page 3-42 in Management Challenges Approximately 30,000 acres of land has been disturbed in the Bighorn Basin due to bentonite mining, along with approximately 4,000 acres of road and haul-road disturbance (BLM 2008c). The approximate of 4000 acres of road disturbance from bentonite activities cannot be accurate. Assuming 30 linear feet of width per road, this equates to 1100 miles of roads from bentonite activity. Unless the other bentonite mines have substantially more roads than my mine, the 4000 acres of road disturbance stated in the RMP should be reviewed for accuracy.	2015
10165	10165-3	Map 54 Land Resources Rights-of-Way and Corridors Alternative D Why is the area east of the Big Horn River and SE of Lovell mostly classified as Right-of-Way Avoidance/Mitigation Area? This area is a major active bentonite mining region in the Bighorn basin. Won't this designation hurt the bentonite industry when we need to obtain a ROW to access new mining areas in the future?	2077
10165	10165-4	Page 3-169 in Lands with Wilderness Characteristics The BLM performed an inventory of lands in the Planning Area to determine if any BLM-administered lands had wilderness characteristics. Wilderness characteristics are resource values that include naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation. Areas	2028

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Table B-1. Individual Comments and BLM Response Index (Continued)

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		evaluated for wilderness characteristics generally occur in undeveloped locations of sufficient size (usually at least 5,000 acres) to be practical to manage for these characteristics. Smaller areas are considered if they are contiguous with designated Wilderness or WSAs or are of a manageable size. Map 63 Land Resource. In the Township T55N R93W there is a Wilderness designated area to the east of our patented mining claims which is actively being mined day and night. Based on the Wilderness characteristics listed above in the RMP, this area should not be classified as a WSA because the area is certainly not in solitude with the dozers, scrapers and blasting operating daily nor is it an unconfined recreation area either for the same reason.	
10165	10165-4	Page 3-169 in Lands with Wilderness Characteristics The BLM performed an inventory of lands in the Planning Area to determine if any BLM-administered lands had wilderness characteristics. Wilderness characteristics are resource values that include naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation. Areas evaluated for wilderness characteristics generally occur in undeveloped locations of sufficient size (usually at least 5,000 acres) to be practical to manage for these characteristics. Smaller areas are considered if they are contiguous with designated Wilderness or WSAs or are of a manageable size. Map 63 Land Resource. In the Township T55N R93W there is a Wilderness designated area to the east of our patented mining claims which is actively being mined day and night. Based on the Wilderness characteristics listed above in the RMP, this area should not be classified as a WSA because the area is certainly not in solitude with the dozers, scrapers and blasting operating daily nor is it an unconfined recreation area either for the same reason.	2027
10168	10168-1	The BLM has failed to address the "Big Picture" of the Big Horn Basin. When the 5.6 million acres of the RMP study area (3.1 million BLM surface acres and 4.2 million mineral acres) is referenced, it is not stated that the RMP study area is already surrounded by 9>13 million acres of U.S. Forest Service, Wilderness Areas and National Parks. It is somewhat deceiving to the reader of the document that the surrounding areas already exist and are protected from numerous effects that are being addressed in the Big Horn Basin RMP. The question of why more acreage needs to be restricted or closed needs to be addressed as well and the economic impact to the basin if lands are removed from leasing.	2047
10177	10177-1	the current controlled surface use stipulations are protective of resource values while allowing a prudent method to conduct future exploration to meet the domestic energy demands. We cannot predict exactly where the new accumulations of Oil and Gas will be, but we know we need public lands access to test our exploration concepts with seismic and drilling operations.	2047
10178	10178-3	the agricultural community has become greatly dependent on the surface discharge from oil and gas development. It has become a vital water source for many ranchers and provides perennial fresh-water sources. Additionally, the water creates hundreds of miles of riparian zones and thousands of acres of wetlands. The draft never mentions this.	2031
10178	10178-5	the increased buffer zones around special designation areas are not based on science. New research shows that when grouse are in danger, the grouse move closer to oil and gas development and any human activity to get away from their predators. Due to this fact, buffer zones are inadequate.	2071
10178	10178-6	The BLM needs to look at more locally available data in regards to our economic	2046

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*Bighorn Basin Proposed RMP and Final EIS
Comment Analysis Report*

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		viability (for instance the research done by Bighorn Basin Resource Alliance). This data clearly shows how important oil and gas is to our communities and in 2,000 pages the BLM doesn't clearly represent how important it is. For instance, all four of the counties in the Bighorn Basin received 54 percent of their property taxes directly from oil and gas development. By including this information, it will inform citizens of the current economics.	
10178	10178-7	The BLM fails to include reasonably foreseeable development in the next 20 years. Horizontal and directional drilling is happening in neighboring communities. I heard a presentation by the Bighorn Basin Resource Alliance (quoting the USGS statistics), showing that an additional 3 trillion barrels of oil equivalent are yet to be produced in the Basin through enhanced oil recovery techniques that are happening near Riverton and Casper (Sand Draw). Why weren't these considered in the BLM's RFD? This section is extremely incomplete and needs to be recompleted before the record of decision is issued.	2061
10181	10181-1	Include in all RMP alternatives measurable (i.e. quantifiable) standards for livestock grazing including maximum upland and riparian utilization of 30% on any herbaceous graminoids; maximum bank or wetland trampling annually not to exceed 10% of hydric and mesic soils areas; maximum use of woody browse by all sources not to exceed 15% of new leader growth annually. Such obvious requirements, based on current range science, have not been included	2011
10181	10181-10	We provide in C_Grazing Capacity Info Proposed Outline, a scientifically and legally defensible methodology for determining capability and suitability of BLM lands for livestock grazing. We request the BLM incorporate this process into the RMP as well as the EIS alternatives.	2011
10181	10181-11	Frequently, the DEIS uses such terminology as "maintain or improve" but this is often inappropriate in most of the contexts it is used. For instance, an objective for riparian areas may say maintain or improve riparian condition but this is inappropriate as areas below objective must be improved not merely maintained. Similarly, for special status species by definition maintaining habitat is insufficient because by their very definition special status species are declining.	2054
10181	10181-12	2-12: The document states that the BLM will "include the use of best management practices to preserve the air, soil, cave and karst, and water resources" but the BLM fails to provide exactly what these BMP's actually are, when they will be required, how their effectiveness will be monitored and even more importantly research regarding their effectiveness.	2054
10181	10181-13	2-20: We see that all alternatives contain nearly identical acres of WSAs despite the submission of citizens proposed WSAs which appear to have been ignored.	2019
10181	10181-14	2-42: As an example of the deficiencies in the proposed RMP one merely has to look at the 2nd "management action" where the lack of a timeframe for this to be required by renders it worthless. 1003 is similar in that it fails to provide any timeframe for implementation and takes up space with such worthless actions as "and work cooperatively to encourage industry and other permittees to adopt measures to reduce emissions".	2054
10181	10181-15	2-44: "use BMPs to reduce runoff, soil erosion and sediment yield and to retain water on the landscape". Again, this is worthless from an implementation perspective. What these BMPs are, when and how they will be required, or even how effective they are is not provided for within the RMP direction. In	2054

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		other words, these various "actions" in the proposed RMP completely lack the level of detail necessary for implementation and enforcement.	
10181	10181-16	2-47: 1026 provides an extremely general "protect watershed resources through the application of watershed conservation practices and BMPs". This is again completely worthless from an implementation standpoint because it fails to provide any specificity as to what these practices are, when they will be required, how their effectiveness will be monitored or other such critical details.	2054
10181	10181-17	2-48: Not only do springs need to be fenced but the responsibility for fence maintenance must be placed on the permittees since there would be no reason to fence Springs and reservoirs if it were not for their permitted livestock. The proposed RMP contains no requirements to meet fisheries habitat needs. The habitat needs for trout and other aquatic species are well researched and need to be required by the RMP.	2025
10181	10181-18	2-58: There needs to be clear requirements for re-analyzing the appropriateness of leasing expired or expiring leases.	2013
10181	10181-19	2-59: Goal FM2 states "restore natural fire regimes and frequencies to the landscape and utilize fire in vegetation treatments to accomplish DPC objectives". The document provides no analysis or research on what "natural fire regimes" are for the different land areas within the assessment area. This is, of course, a critical issue because without understanding the current science regarding what natural fire regimes are the BLM has no way to manage to achieve those. In addition, DPC objectives are not laid out in any fashion that would allow for their implementation. Additionally, this section is entirely lacking direction regarding cheatgrass and other invasives. For instance areas with the potential for cheatgrass should have no prescribed fire allowed.	2008
10181	10181-2	In addition to analyzing current management, suitable alternatives to analyze would include eliminating livestock grazing from all sensitive areas such as Wilderness, ACEC, cultural resources, and important wildlife habitat; reducing grazing from the 99.9% of the resource area to 40% of the resource area; and a no grazing alternative along with reduced utilization rates for uplands and riparian areas.	2055
10181	10181-20	4030 does not require any monitoring and given the history of an almost complete lack of data collection over last 25 years by the BLM such a requirement is critical. This item requires a "substantial shift in both the timing and level of production" in order to trigger the undefined "actions". What is substantial? So what is this shift in "timing" that has to be there in addition to a substantial change in productivity? The combination of these 2 leads to the result that even the vague direction in this section will never be triggered.	2054
10181	10181-21	2-68: This section only requires the management of repairing areas to meet PFC despite the fact that PFC is only the minimal physical functioning required to withstand twenty-year flood events and is well below the habitat needs for fish and wildlife. Therefore such an objective is inappropriate. This section does not define what "priority riparian wetland areas" are nor what the "desired future conditions" for these are. Without this being done in the RMP itself, the result will be a meaningless objective.	2033
10181	10181-22	2-72: Again, this section conflates "conserve, recover and maintain". The requirements for species recovery such as ESA or BLM listed sensitive species needs to apply all such species habitats. "Maintaining" is not appropriate for the management of these species because by definition they are in decline.	2042

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10181	10181-23	4076 needs to include public access into the upper Owl Creek drainage as a condition for reassurance of grazing permits. This section provides no requirements to restrict livestock utilization rates within winter range or crucial winter range which is a critical consideration.	2011
10181	10181-24	2-80: Again, the RMP wrongly states that it is appropriate to merely "maintain" habitat for special status species. This is completely inappropriate and does not comply with the sensitive species manual.	2042
10181	10181-25	4099 seeks to "maintain" instead of improve conditions in undefined "crucial seasonal greater sage grouse habitats". Without defining these habitats the direction is not implementable.	2042
10181	10181-27	6281 fails to include the Interested Public as required in the regulations. This section lacks a wide range of obvious requirements such as utilization rates, seasons of use issues, riparian impacts such as alteration, etc.	2054
10181	10181-29	2-221: the BLM somehow concludes that no violations of water quality standards would occur under any of the alternatives. This is unsupported by the research or experience. We have collected water quality data throughout BLM lands in Wyoming for over half a decade and we have never collected a single sample that met state water quality standards in any allotment where livestock were present. Exceedance of the E. coli standard generally ranges from 10 to 30 times the state standard.	2031
10181	10181-30	3-29: The document discusses the sensitive nature of the soil throughout most of the planning area but fails to discuss any of the research regarding the impacts of livestock grazing on sensitive soils. We provide a number of papers as attachments including the famous paired watershed study done by the BLM in the 1970s on similar soils to those found within the planning area. Despite the fact that most of the planning area contains the sensitive soils there are insufficient requirements and limitations in the proposed RMP to address these issues.	2045
10181	10181-31	3-33: this section lists various impaired water bodies due to degraded watershed conditions yet the RMP fails to provide any requirements or limitations to deal with this issue.	2031
10181	10181-32	3-80: Despite the admission of the failure of current invasive species management the proposed RMP provides no further significant management requirements or limitations to deal with this issue.	2033
10181	10181-33	3-81: This section discusses the impact of soil loss but fails to provide any information regarding how many acres within the planning area have already crossed this threshold as well as those areas mirroring the threshold, which of course would be clear management priorities.	2045
10181	10181-34	3-87: Again, this section clearly indicates current efforts regarding invasive species is woefully inadequate yet the proposed RMP continues virtually the same actions as are in place now. Clearly, the effectiveness of current actions must be reviewed and further actions taken. The document mentions that approximately 10% of the basin has been inventoried for cheatgrass infestations and have documented 57,000 acres.	2033
10181	10181-35	3-98: The outcome of the Working Group has no bearing upon the legal responsibilities of the BLM regarding wildlife management. The document needs to map big horn sheep habitat throughout the planning area and overlay domestic sheep allotments or trailing that occur within 10 miles of these habitats and then implement specific requirements and limitations regarding	2022

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		domestic sheep permitting to allow for recovery of big horn sheep. Again, this section provides details regarding "management challenges" but the RMP provides no limitations or requirements to address these issues.	
10181	10181-36	3-102: the BLM admits declining habitat conditions for reptiles and amphibians and that their populations are "generally on a downward trend" but again the proposed RMP fails to implement requirements or limitations to address these issues.	2025
10181	10181-37	3-107: This section likewise discusses various "management challenges" to various sensitive species but the proposed RMP fails to implement specific requirements or limitations to deal with these issues. In the sage grouse section we see a concern for "fragmentation and degradation" but again the RMP fails to implement specific requirements or limitations to deal with this issue. The nongame amphibians section has a similar list of "management challenges" but fails to deal with them.	2042
10181	10181-38	3-178: the BLM is required to conduct rangeland health assessments on all allotments over a 10 year schedule. In the 15 years since the implementation of Rangeland Reform, these 2 field offices have only conducted standards assessments on 40% of the allotments, instead of 150%. The RMP needs to provide specific direction for the completion of standards assessments on the remaining 60% of allotments as well as a schedule and resource allocation to complete 100% in 10 years.	2054
10181	10181-39	4-32: The BLM states that "special designations, such as ACECs , would restrict surface disturbing activities and resource uses that may adversely impact water quality and quantity", but as we've discussed previously proposed RMP allows livestock grazing regardless of its impacts to the resources for which the ACEC was designated. So the above statement is misleading at best. Carefully review the proposed RMP and see how such "resource uses that may adversely impact water quality" are restricted within ACECs.	2054
10181	10181-4	The EIS should disclose the type, location, and number of the various "range improvements" (fencing, water developments, water pipelines, access roads, and so forth) that currently exist on the public lands that will be managed under the direction of the RMP revision. What cumulative impacts have these "improvements" had on vegetation, wildlife habitat, water quality, riparian areas, soils, and habitat fragmentation? What changes/impacts to upland vegetation, water quality, habitat values, and other resources near these developments have occurred as a result of these "improvements?" Have these management activities been successful at accomplishing the goals for which they were implemented? These questions must be answered.	2005
10181	10181-40	4-108: The BLM correctly states that livestock "contribute to the introduction and spread of invasive species" but again the RMP fails to implement requirements and limitations to deal with this issue.	2054
10181	10181-41	4-228: the proposed RMP fails to implement the "long-term management to promote desirable plant communities" or the "annual management of the standing crop to provide cover for the greater sage grouse". Despite the fact that the cover requirements for sage grouse are well researched the proposed RMP fails to implement any requirements or limitations that would provide the "standing crop to provide cover for the greater sage grouse". Likewise the document says "monitoring is important to ensure grazing intensity and duration does not remove required herbaceous cover and litter important for maintaining greater sage grouse habitats. Not only does the proposed RMP not	2042

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*Bighorn Basin Proposed RMP and Final EIS
Comment Analysis Report*

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		require any monitoring it does not require any herbaceous cover.	
10181	10181-42	the BLM falsely states that "more beneficial impacts to greater sage grouse" would occur by allowing livestock grazing. This ignores the vast body of sage grouse research including the BLM's own literature reviews regarding the impacts of livestock grazing on sage grouse which we provide as attachments.	2042
10181	10181-5	Additionally, the EIS should document how domestic grazing activities on allotments has affected habitat for threatened, endangered, and sensitive species in the project area. How has vegetation changed as a result of a century of livestock grazing?	2011
10181	10181-6	BLM should address how it will handle the buy-out of grazing permits by conservation and other organizations, and should identify how it will retire such permits through the planning process. BLM should work with permittees to identify those who are interested in retiring their permits or being relocated to prevent resource damage or other impacts such as disease transmission from domestic sheep to bighorn sheep.	2011
10181	10181-7	Those areas that are to continue being grazed by livestock must be stocked and managed in accordance with the condition of the land and its vegetation. This needs to be done not just in an alternative the BLM well knows it will never choose. In areas to be grazed by livestock, the amount of forage produced must be determined and allocations of forage to watershed protection (50%), wildlife (25%) and livestock (25%) be made as recommended by Holechek et al (1998)1. Field data collection will be necessary to accomplish this.	2076
10181	10181-8	The BLM cannot just assume that an AUM is 800 lbs of forage consumption per month. The RMP/EIS must analyze the current and potentially available forage to satisfy the forage consumption by the number of livestock it currently permits or proposes to permit. It cannot assume that the forage capacity determined 20-40 years ago is applicable today	2074
10181	10181-9	The current RMP authorizes a certain number of AUMs. However, that is based on an AUM equivalent to 800 lbs of forage per month. The most current information, reviewed above shows that number to be 1368 lbs/month per AUM. Therefore, if sufficient forage were available to satisfy all needs, the numbers of livestock grazed should be reduced to account for the increases in weight and correct the erroneous assumption that 800 lbs/month is an accurate consumption figure. Using the ratio between the current RMP's forage amount per AUM divided by the correct figure above, gives a needed reduction in permitted numbers and/or seasons of use of 42% to account for the RMP's understated forage consumption, without accounting for wildlife, plant and watershed needs	2074
10186	10186-1	The BLM fails to look at the big picture of Big Horn Basin land management. Although the planning area contains 4.2 million mineral acres and 3.1 million surface acres (5.6 million acres of RMP study area) is included, the BLM doesn't explain that the Basin is already surrounded by 91.3 million acres of U.S. Forest Service, Wilderness Areas and National Parks. These areas are already being protected to the highest degree and none or little leasing has taken place. Why do more acres need to be closed to leasing?	2014
10189	10189-12	Because a reduced regulatory climate enhances true multiple use, which is the BLM's original mandate, the text should be amended to include a fifth alternative - Alternative E-which is a compilation of the least-restrictive elements of both Alternative A and Alternative C.	2055

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10189	10189-5	Although Secretarial Order 3310 has been rescinded, the Areas of Wildland Designation have not been removed from the maps and text of the draft RMP. This is unacceptable, as the draft document is now in violation of Department of the Interior policy. Our fears of the decision being reversed at some future, more convenient time are reinforced by the retention of the maps and text, which include these proto-wilderness study areas. The several areas designated as Wildlands must be removed from the text of the draft document, and from every map and table in the draft document, before the review process can continue	2027
10189	10189-6	At present, there are almost 1.5 million acres of oil and gas leases within the Bighorn Basin, yet the Agency Preferred Alternative (D) calls for less than 570,000 acres of Oil & Gas Management Areas. I am unclear how the Bureau can consider planning for less exploration, development, and production than it has already leased land for	2050
10194	10194-1	The BLM does not fully support the reason WHY a new resource management plan is needed, other than "the plans must be revised every 20 years".	2054
10194	10194-2	The current 'buffer zones' are not reasonable, in any scenario, as no real science was used to develop these 'buffer zones'. For instance, new science shows that when sage grouse are in danger they move closer to human activity (i.e. ranching and oil and gas development) This fact makes 'buffer zones' useless. Buffer zones also take out a huge chunk of land that could very well be used for 'multiple use'.	2071
10194	10194-3	Alternative D, the preferred alternative, lists 85% more 'standard' restrictions as 'moderate' for oil and gas companies. This slows down the ability of producers to do their job and decreases our ability to produce domestic energy for our country. Yet the BLM fails to ever explain (with science) the reason those restrictions have increased so drastically.	2047
10194	10194-4	The BLM doesn't fully explain how important oil and gas is to our Basin especially in Hot Springs where over 70% of our property tax revenue comes directly from oil and gas.	2046
10194	10194-5	The BLM also lists much more acres (nearly double) for Big Game Crucial Winter Range than the Wyoming Game and Fish. Why is that?	2022
10197	10197-1	With the exception of government enterprises, mining (oil and gas) is the strongest sector of income in Hot Springs County. Data provided by BIGHORN BASIN RESOURCE ALLIANCE ECONOMIC REVENUE REPORT depicts that importance of oil and gas exploration, development and production. The BLM doesn't provide enough detail, such as this report, to help guide the public to the best decision. For this reason, the report is incomplete. Moreover, the IMPLAN regional modeling doesn't fit our needs as well as local modeling and research would, throwing off the analysis	2054
10197	10197-2	The Draft RMP doesn't properly explain how the Bighorn Basin and the communities benefit from oil and gas production and instead, tries to discriminate against oil and gas.	2046
10197	10197-3	Alternative D increases 85 percent of "standard" regulations to "moderate" and doesn't explain why	2047
10197	10197-5	with Enhanced Oil Recovery, both of which the BLM left out of their analysis and alternatives. The BLM should prepare a more detailed and factual document to present to the public. This potential should be considered in the Reasonable Foreseeable Development.	2051

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10200	10200-1	The Draft BB RMP currently includes disclosure of specific ambient air quality monitoring data that are used to characterize the existing environment, and a quantitative emissions inventory estimate, but lacks any air quality modeling to estimate potential impacts of planning decisions on the air quality resource.	2054
10202	10202-1	The RMP designates large areas of surface estate as “moderate” constraints for oil and gas leasing. Why is it necessary to increase from the “standard” regulations when there has never been a sight of a lack of regulation in the basin?	2054
10202	10202-4	The BLM has also overlooked or neglected to consider and include reasonably foreseeable development in the next 20 years. Horizontal and directional drilling is happening in neighboring communities. A presentation by the Bighorn Basing Resource Alliance (quoting USGS statistics) showed that an additional 3 trillion barrels of oil equivalent are yet to be produced in the Basing through enhanced oil recovery techniques that are already occurring near Riverton and Casper. Why weren’t these facts considered in the BLM RFD? This section’s is extremely incomplete and lacking. It needs to be recompleted before the ROD is issued	2054
10203	10203-1	Because my office and the Board of Land Commissioners are charged with managing the trust assets for the short- and long-term return to the beneficiaries, our paramount concern revolves around the adequacy of the plan in terms of its provisions related to enhanced oil recovery. Given the potential for CO2 flood and enhanced oil recovery opportunities within developed fields, all of which contain state minerals, it would appear that the document must be altered to better accommodate and facilitate enhanced oil recovery. There are approximately 21,862.43 acres of trust mineral estate that lie within the potential Bighorn Basin CO2 Residual Oil Zone (ROZ) site boundaries	2054
10203	10203-2	In view of the above projections, OSLI requests that the BLM include the following provisions specifically related to enhanced oil recovery:1) The reasonably foreseeable development scenario for oil and gas will not be a threshold for analysis; acreage will be the only analysis point to compare alternatives as long as such disturbance occurs in oil and gas management areas (see 2 below).2) The existing oil and gas management areas must be expanded to include the entire ROZ area. In other words, all federal surface and minerals within ROZs will be oil and gas management areas plus 28,000 acres (over Alternative C). In addition, while not part of the BLM’s allocation under the RMP, the State of Wyoming and trust beneficiaries will benefit by virtue of enlarged boundaries and the production that accrues from the expanded areas.3) The description of the oil and gas management areas will be modified in a way that will not trigger re-analysis as long as development remains within existing spacing levels; similar to the Pinedale RMP, a ROZ may expand if development within it remains within the spacing limits of the existing field.4) The definition of right of way corridor will be modified to state that as long as the new pipeline is built adjacent to existing lines, the new pipeline will be considered “in the corridor” regardless of the actual width.5) CO2 sequestration will be an allowed use for purposes of the RMP in all properties used for enhanced oil recovery.6) A comprehensive description of enhanced oil recovery is incorporated in the document, including a state enhanced oil recovery production projection. OSLI would strongly encourage the BLM to work in partnership with the State to establish a state-wide CO2 network to produce and deliver CO2 across Wyoming and if necessary, amend other existing	2054

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		Resource Management Plans to facilitate enhanced oil recovery throughout Wyoming	
10205	10205-1	BLM has attempted to characterize bentonite mining over the last 60 or so years. Its analysis is out-of-date/low on employment, pg. 3-41. Wyo-Ben would estimate direct milling and mining employment from bentonite in the Bighorn Basin at well over 600, and perhaps as many as 700. BLM should conduct a more thorough investigation on employment, as these numbers directly-affect socioeconomic impacts discussed later in the RMP.	2054
10205	10205-10	On pg 4-266, on Alternative A (and by reference Alternative D), BLM states that dust and vibration from mineral development activities can cause degradation to rock art. Wyo-Ben has inquired previously about the body of evidence or studies to indicate the challenges with rock art degradation from dust and vibration. BLM has failed to produce this data. Since no scientific reference exists in the proposed RMP, we must assume there is no technical data to support BLM's position, and ask that this language be removed.	2055
10205	10205-11	On page 4-274 the RMP states, "Rock art and other prehistoric and historic sites and districts are managed for scientific, public and sociocultural use, and research and preservation study and use. Known important cultural sites are protected from surface-disturbing activities. For resources where setting is important to the site's integrity, the site's foreground is to be avoided with buffers that may be up to 3 miles wide." BLM has given no scientific or legal justification for limiting activities with their arbitrary three mile buffers, BLM does not have authority to limit non-discretionary activities such as locatable minerals for virtual or intangible reasons	2054
10205	10205-2	On pg. 3-42 describing "management challenges," BLM assigns disturbance of 30,000 acres to bentonite mining in the Bighorn Basin. Most of the acreage is on private lands, with inference of an impact to the federal estate. BLM should clarify the acreage by differentiating the private from federal land.	2055
10205	10205-3	Wyo-Ben supports the preservation of cultural resources. On page 3-122 the RMP states, "Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community/or scientific, traditional, religious, or other purposes. Cultural resources include archeological resources, historic architectural and engineering resources, traditional resources Traditional resources can include archeological resources, structures, topographic features, habitats, plants, wildlife, and minerals that Native Americans or other groups consider essential to the preservation of traditional culture. ... The definition of traditional resources is being expanded to topographic features and structures. Our bentonite mining operation exists in topographic features located in the Frontier, Mowry-Shale and Thermopolis Shale formations. The RMP does not specifically-mention any topographic feature or place, yet plans to regulate activities with these features. The RMP should specify BLM's intent and effect on other uses.	2054
10205	10205-4	On pg. 3-126,127, the RMP mentions several trails including unnamed trails but provides no details on location or management. Failure to disclose the locations eliminates the possibility of a predictable regulatory landscape. Other multiple use and development costs that could be avoided will be uselessly spent on areas with a high potential for conflict	2054
10205	10205-5	On page 3-133, the RMP states, "As shown in Map 37. approximately 50 percent of the Planning Area is classified as Class 4 or 5 geologic formations. indicating a	2057

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		"High" or "Very High" potential for vertebrate or scientifically important paleontological resources." In reviewing Map 37, the PFYC 4 has been merged into PFYC 3. We cannot identify the 50 percent that Class 4 and 5 encompass. Also from Map 37, over 80% of the area is considered PFYC 3 or greater requiring an on the ground survey for any ground disturbing activity.	
10205	10205-6	On pg 3-133, BLM states that outcrops of Mowry and Thcrmpolis Shale produce the fossil bones of marine reptiles, yet no citation for this claim exists	2055
10205	10205-7	In Table 3-34, BLM elaborates that the Frontier and Cody Shales also produce marine reptiles. These formations are the commercially-viable bentonite-producing formations. Of the hundreds of thousands of tons mined here, Wyo-Ben is unaware of any scientifically-important find of marine reptiles in the bentonite-bearing geologic units in the Bighorn Basin. This erroneously conveys the impression that expensive surveys are a reasonable, proactive conservation tool for subsurface-disturbing activity such as bentonite mining. BLM should correct this error or provide scientific proof otherwise	2054
10205	10205-8	Page 2-84 (Table 2-5) regarding sage grouse, Alternative D, unlike alternative A, does not distinguish between discretionary and non-discretionary activity when stating sage grouse protection stipulations within Key Habitat areas.	2071
10205	10205-9	On pg. 4-43, BLM mentions the Endangered Species Act without commenting on the 1872 Mining Law. We recognize these laws may conflict, but compliance is required on both counts. There can be no assumption of one law trumping the other.	2054
10208	10208-1	The plan reports approximately 3.2 million acres of public lands in the planning area. Current BLM Wilderness Study Areas total 140,924 acres, or 4.4%, of the public lands in the basin. The plan reports that a total of 960,000 acres of federal mineral estate had been leased through June 1998. The release of this planning document (Scoping Report in March 2009) could have easily incorporated the acreages from the expanded leasing that occurred during the final months of the Bush Administration to come up with a more accurate acreage value. Information I was able to attain from the BLM's oil and gas leasing website indicated an additional 45,636.31 acres of oil and gas leasing in Big Horn, Hot Springs, Park, and Washakie Counties occurred with the August 1998 auction and an additional 32,951.49 acres in these four counties leased during the October 1998 auction. This April 2011 document could have easily shown the leasing acreage to be well over 1 million acres instead of the 960,000 figure. All told, additional oil and gas leasing from August 1998 through August 2011 has added 141,455.64 acres to the basin's leasing total; 531 more acres leased in this 3 year period alone than the total acreage contained in all of the basin's WSAs. The total acreage to-date of oil and gas leases in the planning area is now approximately 1,101,500 acres. The plan reports a total of 4,219,790 acres of federal mineral estate in the planning area. The current leased amount would therefore be 26.1% of the total federal mineral estate in the basin.	2013
10208	10208-2	BLM may have used language on the Travel Management Maps that may unnecessarily alarm certain readers. The stop-light red notation for areas closed to motorized vehicle use is simply labeled as "closed." This could give the impression that these lands are completely closed to all entry. This label should clearly denote these areas are "closed to motorized vehicle use." Travel into these areas by foot or on horseback is certainly not curtailed.	2054

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10211	10211-1	We believe that livestock grazing has shown itself to be a sustainable use of the resource. The DEIS discusses the in Appendix W that livestock grazing is to be considered a surface disturbing activity. I feel this is stretching the concept of a surface disturbing activity to almost beyond the breaking point. All of the areas encompassed by the RMP have had grazing activity on them for thousands of years. The plant species have all evolved with grazing and a sizable body of evidence exists to document the importance grazing is to these species. To then move those activities into the realm of a surface disturbance similar in nature to road building or mining is not logical and I believe such categorization of this activity should be taken out of the final document.	2011
10211	10211-2	Furthermore I strongly disagree with the designations of lands with wilderness characteristics. The DEIS has identified 56 areas totaling 571,000 acres. However, within these acres there are approximately 600 miles of road; over 400 reservoirs; close to 300 miles of fences. In addition there are over 150 range improvements; 17 water wells and 10 miles of water pipelines. All of these argue against wilderness characteristic. Designation of areas as wilderness or lands with wilderness characteristics has significant economic impacts on ranching operations. These additional costs contribute to further difficulties in maintaining a viable ranching unit. Efforts should be made by the BLM to reduce the economic burdens on the ranching community.	2027
10211	10211-3	The RMP/DEIS establishes some 1.8 million acres for sage grouse protection in the management area. The document is not clear on what the BLM anticipates towards grazing in sage grouse areas. Grazing could be adversely impacted depending on the restrictions put in place to protect sage grouse.	2071
10214	10214-2	Oil and gas stipulations should incorporate wording to prohibit surface-disturbing activities within ¼ mile of or within riparian/wetland areas as shown in alternative B (record #4037).	2033
10214	10214-4	Oil and gas leasing on Federal lands is critical to both the Nation and to the local economy. It also has the potential to significantly impact and degrade the Big Horn Basin. To better plan for and manage these leases the BLM needs to consider spacing requirements for all new leases. The spacing requirements should be made on a watershed/geographic basis and include a minimum 2-mile buffer from all identified sage grouse leks and nesting areas. Geographic areas for well/facility spacing should be mapped (delineated) and include classifications such as “heavy industrial” (5-acre or less pad/facility spacing); “industrial” (40-acre pad/facility spacing); “light industrial” (160-acre pad/facility spacing) as an example.	2049
10214	10214-5	Best management practices should be required and not just recommended as a lease stipulation on all new leases. In particular, all evaporation ponds, skim pits, and reserve pits need to be netted, at a minimum, to prevent accidental mortality of migratory birds. In conjunction with required netting the BLM needs to implement comprehensive monitoring of existing oil production facilities. Monitoring needs to be intensive enough to insure that netting is adequately maintained, and that all spilled oil is promptly cleaned up and the site remediated to prevent entrapment or contamination of birds and other wildlife.	2025
10214	10214-6	Noxious weeds have deleterious impacts to riparian systems, wildlife habitat and livestock grazing. Consequently, the RMP needs more emphasis/resources applied to their management. Emerging problems such as the invasion of riparian areas by Russian knapweed should be met aggressively and on a	2012

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		priority basis while the problem can still be realistically addressed. The BLM must work cooperatively with State and county organizations to establish priorities for control and to establish monitoring standards to establish successful treatment strategies. A permit condition for all surface-disturbing activities such as leasable mineral, locatable mineral and salable mineral development/extraction and their related facilities such as right-of ways and access roads should include annual physical inspections for and treatment of noxious weeds by the permit holder. Permit holders should be required to submit an annual report of noxious weed monitoring/treatment activities as a condition of permit approval.	
10214	10214-7	Mining impacts water quality, recreation, wildlife habitat, and livestock grazing. Cumulative impacts that have and will result from bentonite mining need to be evaluated. By doing this effective measures can be put into place to keep the industry from having unnecessary/undue degradation on the environment. In situ leach mining operations require test wells to detect any leakage or contamination of groundwater outside the aquifer mining zone. In addition, suitable bonding is required to assure remediation of groundwater contamination that may result from in situ mining operations. Concurrent reclamation should, generally, be required of all open-pit mining operations.	2049
10214	10214-8	The BLM should, however, give additional attention to route management. Although the legal use of off highway vehicles on designated roads and trails is a popular and valid use of public lands, it is extremely important to protect our wildlife, scenic and cultural values. These resources provide the basis of our recreation industry and play a critical role in providing quality of life benefits for those of us that have chosen to make the Big Horn Basin our home. Due to the importance of these resources, motorized vehicle use on most of the BLM lands covered by the RMP should be classified as limited to designated roads and trails with seasonal closures on the majority of sage grouse nesting areas and big game crucial winter range. To accomplish this it will be necessary for the BLM to work with state, county and local organizations to identify areas, roads and trails to promote appropriate motorized use. The effective implementation of any travel management plan(s) will require vigorous enforcement against unauthorized use.	2034
10215	10215-1	To the extent that Alternative D deviates from Alternative A, changes should be based on mandatory statutory and regulatory changes or identified failure to meet the multiple use mandates for BLM land management. WSGA finds that several proposed changes fail to meet these criteria. The increased emphasis on “conservation of physical, biological, and heritage and visual resources”; designation of numerous types of priority management areas (SMAs, MAs, ACECs, SRMAs, ERMAs); these all represent further erosion of the fundamental multiple use concept which Congress has determined should guide BLM resource management.	2055
10215	10215-11	Records 4092-4111 Greater Sage Grouse: The USFWS has accepted the Wyoming Governor’s Executive Order and the concept of core areas as an appropriate methodology to address the needs of the greater sage grouse. WSGA urges BLM to reference and adopt this strategy as its management guidance.	2071
10215	10215-12	Record 4115: This section should specify that, if the gray wolf is delisted in Wyoming, BLM will undertake no conservation or management actions to protect the wolf or its habitat unless requested to do so by the WY G&F.	2042

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10215	10215-14	Record 6283: The language under alternative D is very unclear. WSGA suggests using language from alternative A or otherwise clarifying the intent.	2011
10215	10215-2	While WSGA concurs that “BLM is required to inventory lands to determine whether they possess wilderness characteristics”, this inventory under FLIPMA carries no greater weight than the inventories for grazing suitability, minerals etc. There is no requirement that these lands be managed primarily for their wilderness characteristics. In light of the congressional prohibition of the use of funds for the identification of LWCs and designation of Wild Lands, WSGA assumes that all references to LWCs, Wild lands, Secretarial order 3310 and corresponding BLM Manuals will be removed from any final RMP.	2027
10215	10215-5	WSGA respectfully suggest the use of more current and more directly applicable USDA NASS data on pages 3-176/177. Using recently released 2010 data, Wyoming accounted for 2.2% of the U.S. inventory of beef cows, giving us a ranking of 15th. For 2010 Wyoming had 6.7% of the total number of breeding sheep, a ranking of 3rd, and ranked 3rd in wool production.	2011
10215	10215-6	Record 1037: WSGA notes that Alternatives A-C include references to maintaining natural flow regimes “in compliance with Wyoming water laws”. Alternative D fails to include this language. We hope that this was an oversight that will be corrected.	2031
10215	10215-8	Record # 4077: If the purpose of this restriction is to mitigate negative impacts of livestock on elk parturition, such actions should only be considered on a case-by-case basis if formally requested by the WY G&F, the agency with management authority over elk. If the purpose is to reduce the risk of brucellosis transmission to cattle, WSGA recommends that the following language be substituted: “BLM would consider implementation, on a case by case basis, of management actions jointly recommended by wildlife managers, grazing permittees and animal health officials that would control the transmission of brucellosis.”	2025
10216	10216-10	On page 2-39, we comment that “Livestock Grazing Management” should not be included in the “Resource Topic” for the Surface-disturbing/surface disturbance “Term or Concept”.	2011
10216	10216-11	On page 3-116, we comment that the Final RMP should convey to the public ALL of the reasons the BLM used when they made the decisions over 30 years ago to remove all “wild” horses from Foster Gulch, North Shoshone, Zimmerman Springs, Alkali Spring Creek, and Sand Draw Herd areas. For example, we are aware that a significant reason for removing all “wild” horses from the Foster Gulch Herd area was an insistence from the Wyoming Game and Fish Department that a new fence on the south side of this Herd area which would have been required to keep these horses inside the Herd area would have been very detrimental to seasonal migrations of mule deer. The BLM and public agreed with that reason and those horses were removed. It is also our understanding that there were legitimate reasons that were considered much more significant than the “competition for forage with livestock” shown on page 3-116 & 7 as justification for the BLM decisions to remove all horses from the Zimmerman Springs and Sand Draw areas. Please convey ALL of these justifications to the public.	2030
10216	10216-12	We also comment that the Final RMP should include the viable option of a complete removal or management for a 100% non-reproducing herd of “wild” horses in the Fifteen Mile HMA. The horse program within the BLM is in a state	2030

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		of desperate financial and administrative condition. The BLM needs to prioritize the number of HMAs their budget and staff can properly manage in compliance with the 1971 Wild Horse and Burro Act. The Fifteen Mile HMA certainly qualifies as an HMA that could be returned to a priority for wildlife, recreation, and livestock multiple uses. The health of the lands and natural resources could then recover it would save the BLM a lot of time and the public’s money. The WSGB has been on-the-ground in a number of rangeland areas in the Fifteen Mile HMA. It is our opinion that a number of sizable polygons in this HMA do NOT meet one or more of the Wyoming Rangeland Health Standards due to impacts to natural resources from year-long “wild” horse use. We are of an understanding that a significant reason for the amount of nonuse by livestock permittees who hold grazing rights in the Fifteen Mile HMA is directly related to the adverse rangeland health and water quantity/quality issues created by the “Wild” horses in this area. We comment that a new assessment of the Wyoming Health Standards should be conducted in the Fifteen Mile HMA with the participation of rangeland scientist from outside the employ of the BLM.	
10216	10216-13	On page 3-179, we comment that the paper by Holechek, 1988, should not be the basis for the narrative on the subject of “suitability” because his paper only applies, if at all, the New Mexico rangelands, not to cool season grasslands in Wyoming. We can find NO science based, peer reviewed published literature or research that supports the concept of distance to water and suitability of rangelands for livestock grazing in cool season ecosystems and we request that this concept be removed from the Final RMP	2011
10216	10216-14	On page D-1, the narrative under 1.0 speaks to a requirement that cooperative agencies need to be involved in the continued monitoring of the implementation of the entire RMP. But the narrative under 4.0, MONITORING WORKING GROUP conveys an intent to develop a “Monitoring Working Group” to develop an overall monitoring plan related to livestock grazing issues. This section states that guidance and direction to monitor implementation of the entire RMP will be provided by Appendix C. Appendix C deals with livestock grazing monitoring and evaluation protocols. It is our comment that monitoring the implementation of the entire RMP is a MUCH different task than monitoring of livestock grazing influences on federal rangelands. Please provide a much clearer statement in the Final RMP as to how the BLM intends to monitor the implantation of the entire RMP as a separate process from monitoring the impacts, if any, of livestock grazing.	2011
10216	10216-15	In Appendix C, under 2.0, DATA COLLECTION, why are the permittees not included in the list of those with whom the BLM intends to cooperate in the collection, analyzing, and report monitoring data? Why are the permittees not specifically included in those involved in the determination of causes and effects, predictive modeling, and condition and trend from the results of the monitoring program ?We propose that the Final RMP clearly convey an intent by the BLM to use the “Joint/Cooperative Monitoring Program” , JCM as supported by, and authorized by the National Memorandum of Understanding between the National Public Lands Council and National BLM Director for all monitoring programs in the RMP area. If the RMP Team does not have a copy of this MOU, please contact the Director of BLM or BLM Chief of Range for that information.	2054
10216	10216-16	We do not see in this Draft AMP a Table that shows the current Preference level of livestock AUM’s held by your permittees. Appendix P only shows the level of	2011

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		“active AUMs”. Please include a Table in the Final RMP that conveys the Preference level, active use level, and suspended use levels of livestock AUMs for each permit and lease in the RMP area.	
10216	10216-17	In the Final RMP, please convey an additional level of detail with respect to the policies and specific management actions or changes to current management that will be used by the BLM to guide livestock grazing activities in identified sage grouse seasonal habitats. We also request that the Final RMP convey in the ROD a commitment to identify and map all seasonal grouse habitats on federal lands within a specific time frame. Neither the permittees nor BLM can expect to be effective with respect to the conservation of grouse without that knowledge. The information in the draft RMP is not specific enough to be able to evaluate the potential impacts of the grouse subject sections on either current or future livestock	2011
10216	10216-18	In Appendix W, in the fifth paragraph on page W-1, a narrative conveys that watershed and vegetation management “objectives” would not be met if utilization levels consistently exceed the levels in Table W-1. We specifically request that the Final RMP offer peer reviewed, science based support for this statement. We can find no statements in the draft RMP that convey what are the specific measurable “objectives” with respect to watershed and vegetation management that would not be met if the use levels in Table W-1 are exceeded. We can find Goals, but no objectives. Objectives are by definition, measurable, (see Glossary at pg. 24 and Appendix N at N-8). If the RMP contains site specific objectives that the BLM feels will react in a trend to the use levels in W-1, please guide us to those so we can evaluate and provide a comment with respect to whether or not the restrictive utilizations in Table W-1 could accomplish what the RMP conveys.	2033
10216	10216-19	We also comment that we have read Appendix N, Wyoming Standards For Rangeland Health, and we can find no direct relationship between the utilization levels in W-1 and whether or not an allotment would either pass or fail these “Standards” or help fix a flunked standard. We have reviewed considerable published and peer reviewed range science literature on the subject of the influence of utilization on the trend of resource values. In cool season ecosystems, with the exception of situations of consistent, year after year grazing during the growing season at use levels of either “too much” often defined as 70% or more, or “too little” often defined as 10% or less, we can find nothing to support that utilization by livestock in a rotation system at levels that are going to be required by Table W-1 will have ANY measurable effect on trends of resource parameters. We can find NO published literature to support that use levels required by Table W-1 will have a measurable effect on either rangeland health parameters according to the Rangeland Science profession or the Wyoming Rangeland Health Standards. It is also the experience of the WSGB that in situations where an allotment has flunked one or more of the Wyoming Standards, and the BLM has applied utilization standards as an “effective action” as required by CFR 4100 Part 4180, we can find no documentation from the BLM to support that the utilization prescription actually brought the allotment back into compliance with the Wyoming Standard.	2011
10216	10216-20	We comment that the Final RMP should contain a statement that management of utilization levels for the expressed purpose of helping bring an allotment back into compliance with one or more Wyoming Standards or to assist in achieving one or more site specific resource objectives jointly develop between the BLM	2076

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		and permittee, will ONLY be applied when it has been determined from data collected from a science-based, joint cooperative monitoring program with the permittee(s) that active management of utilization is a required and necessary “effective action” under CFR 4100 part 4180.	
10216	10216-21	In Appendix V, WEPP Technical Support Document, we comment that the parameters used as input to the WEPP model to simulate conditions in the Planning area are much too generic to adequately represent the very wide variety of actual on-the-ground situations. For example, at each proposed rangeland improvement, the variability in gradients, aspects, soil types, bare ground percentages, and rock cover, in the Big Horn Basin can and will be dramatically different. We request that the entire section of the RMP with respect to the predicted results from the WEPP model be removed because the reliability of predicted results of soil erosion from this model in as conveyed in Table V-1 can not be estimated with any degree of precision due to the inflexible inputs to the model. The results convey an amount of soil erosion from human caused activity that is unreliable and misleading to the public. We VERY much disagree with the statement in this Appendix that conveys that the model estimated that with no disturbance there would only be trace amounts of annual runoff. It is common knowledge that the Bighorn Basin is and always has been before man arrived, a very highly erosive environment.	2011
10216	10216-22	We agree with the definition of “utilization” in the Glossary and request that the narratives in entire RMP related to this subject recognize and apply this definition where appropriate.	2011
10216	10216-4	We also request that the Final RMP/ROD specifically exclude livestock management activities conducted by the permittees to accomplish the terms and conditions on their permit as required by the BLM from the additional proposed off-road restrictions. This is another example of an adverse impact on permittees.	2011
10216	10216-6	We do not support the addition of any new Areas of Critical Environmental Concern, (ACEC), and request the removal of existing ACECs until such time as it has been determined through a public process that there are any areas in the Worland or Cody Field offices of the BLM that qualify under the definition of that concept as stated in the Federal Land Planning and Management Act, FLPMA. The definition of an ACEC in the FLPMA clearly conveys that an area of federal lands can only be proposed for ACEC status if that action by the BLM, “is required to protect and prevent IRREPARABLE (our emphasis) damage to important historic, cultural, or scenic values.” (quote from the FLPMA definition)The key word from this Congressional definition is “IRREPARABLE” and we have not read in this draft RMP any support for current or proposed ACECs as a requirement to prevent “IRREPARABLE” damage to federal lands. If the Final RMP/ROD includes ANY ACECs, we request that these documents clearly convey what will be done by the BLM with respect to action items that preclude “irreparable damage” to these ACECs.	2001
10216	10216-7	On page 2-33, in the last sentence on this page, please convey what and specifically where are the “new resource uses” that will be mitigated to minimize or avoid conflict with livestock grazing?	2011
10216	10216-8	On page 2-35, we comment in total opposition to the seasonal restriction on livestock grazing in elk parturition areas. To date, neither the WSGB nor the public have been provided any justification for the concern that livestock grazing has ANY adverse effect of elk calving success ratios. We request that the	2011

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		Final RMP/ROD remove this unfounded bias.	
10216	10216-9	On page 2-35, we also comment that the seasonal restrictions from February 1 to July 31 should not apply to livestock or rangeland management practices. The Executive Order from the Wyoming Governor with respect to Sage Grouse specifically conveyed that normal livestock and rangeland management practices we considered “de minimus” by that Order and we understand that the State BLM has adopted that Order for federal BLM lands in Wyoming.	2011
10217	10217-1	I believe the wild horses of the two HMAs in the Bighorn Basin deserve protection and preservation. I note that these horses, and most especially the McCullough Peaks horses, are attracting more and more recreational viewers to the HMAs each year. I further note that recreational use in general (hikers, horseback riders, ORVs, fossil hunters, sight-seers, hunters, and photographers) in both the McCullough Peaks area and the Fifteen Mile Basin has risen significantly in recent years. I contend that the final RMP should respond to the public’s interest in these recreational opportunities by managing both areas as Special Recreation Management Areas (SRMAs).	2062
10217	10217-2	For the McCullough Peaks area, I suggest the establishment of the SRMA of 160,860 acres, as put forth in Alternative B. The SRMA should be managed for both motorized and non-motorized recreational use with No Surface Occupancy restrictions on future oil and gas leasing within this area. Any currently held leases which may be “grandfathered in” should be strictly held to the BLM’s highest “Gold Book” standards, with NSO’s stipulated wherever possible. The SRMA should be managed as a ROW avoidance and/ or mitigation area, and surface disturbing activities should be limited to development of recreation related facilities or activities which will enhance wildlife habitat. Since the McCullough Peaks area currently offers a world-class viewshed, it should be protected by designating the entire SRMA as Visual Resource Management Class II. Future developments of renewable energy resources (wind, solar, geothermal) should be disallowed. Motorized vehicle use should be limited to designated roads within the SRMA.	2062
10217	10217-3	As to the McCullough Peaks HMA, I believe that the western boundary should extend to the Shoshone River. In past years I have personally observed wild horses coming down to the Shoshone River to drink. The river presents a natural barrier for horses crossing from BLM land onto private lands across the river. This is part of the wild horse historic range and the river obviously provides a perennial water source for the western side of the McCullough Peaks wild horse range. Water is a limited commodity within the HMA.	2030
10217	10217-4	I also suggest that the RMP be written so as to allow for the possibility of putting in crossing areas for wild horses and other wildlife to move from the McCullough Peaks area to BLM lands on the east side of Highway 32. Underpasses near Dry Creek and Coon Creek come to mind. These safe crossing areas would allow wild horses to access that area which lies east of Highway 32, which is also a part of their historic range. I believe that the BLM refers to this area as Foster Gulch.	2030
10217	10217-5	The RMP should also provide a mechanism which will trigger a reevaluation of the Herd Management Level (HML) for both the McCullough Peaks and the Fifteen Mile HMAs. I would suggest that a fresh assessment of the HMLs is appropriate as soon as is practical, and another assessment should be programmed for twenty years hence.	2030

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10217	10217-7	I firmly believe that a restriction should be imposed upon approaching closer than 100 yards from wild horses. This restriction protects both the human observers (recreationists, photographers, hikers, etc.) and the horses. It should be specified that designated wild horses managers are exempt from this restriction, so that the PZP field darting, necessary gathers, and the like may be continued as management practices.	2030
10217	10217-8	I recommend designating the Fifteen Mile Basin area as a Special Recreation Management Area (SRMA). By doing so, it would help to protect this area from activities which would degrade its outstanding recreational values, and paleontological resources. It would also serve to create a physical connection between the Bobcat Draw Badlands, Red Butte, and Sheep Mountain Wilderness Study Areas. The SRMA should be managed with limitations to motorized vehicle use on designated roads and trails only. NSO should apply to oil and gas leasing. ROWs should be avoided and or mitigated. Surface disturbance should be limited to establishing recreational facilities of enhancing wildlife/ wild horse habitat. It should be given a VRM class I or Class II rating (most restrictive as possible), and renewable energy sources should not be developed. Additional water development projects should be planned for this area.	2062
10218	10218-1	In the BLM RMP, a fair amount of discussion pertained to the protection of the Paleocene-Eocene Thermal Maximum (PETM) stratigraphic zone. In particular, a number of Areas of Critical Environmental Concern (ACEC) were proposed based on the protection of this geologic horizon as the outcrop snakes around the basin. These ACECs include the Clark’s Fork Basin/Polecat Bench West Paleontological Area, McCullough Peaks South Paleontological Area and Foster Gulch Paleontological Area. The PETM horizon does not need any protection. Paleocene and Eocene sediments in the Bighorn Basin are composed of claystones, mudstones, siltstones, sandstones and occasional coals. Almost all geoscience field studies of intervals composed of claystones, mudstones, siltstone, coal and thin sandstones are dependent on fresh exposures along road cuts. Without fresh exposures, there is little to study on the surface. Almost all geoscience field trips that focus on these types of rocks take their participants to road cuts or mining highwalls. Studies of the PETM would benefit from oil and gas development that would provide fresh exposures. The PETM is not a depleting resource like Native American artifacts on the surface. The PETM horizon continues into the subsurface. If some of the PETM is removed by oil and gas surface development, there is more PETM immediately below what was removed. The BLM RMP does not say how restricting surface disturbance on the PETM will specifically help the study of it. It seems rather obvious that surface disturbance will provide critical exposure to these soft sediments for better study.	2034
10218	10218-2	In the BLM RMP, a fair amount of discussion pertained to the protection of botanical and vertebrate fossils. In particular, a number of Areas of Critical Environmental Concern (ACEC) were proposed based on the protection of these fossils. These ACECs include the Clark’s Fork Basin/Polecat Bench West Paleontological Area, McCullough Peaks South Paleontological Area and Foster Gulch Paleontological Area. The sediments and areas that contain these fossils do not need any protection. These fossils are exposed to erosion and degradation every day. They slowly fall apart and dissolve. The particles that remain are then washed down the drainages and rivers. The government does	2034

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		not allow private/commercial collection of the vertebrate fossils, thus what value might exist with these fossils is lost since they just erode. Compared to how much erodes away, very little is collected for academic studies. Erosion of the rocks that contain these fossils has been occurring for millions of years. It is not a depleting resource like Native American artifacts that only occur on the surface. The beds that contain the fossils continue into the subsurface and continue across the basin. There is an almost unlimited supply of new fossils below the surface. If some of the fossils are removed by oil and gas surface development, there are more fossils immediately below what was removed. Surface disturbance by oil and gas development would provide fresh exposures in these sediments to better study and potentially find additional fossils. The value of botanical and vertebrate fossils potentially disturbed by oil and gas development in the Bighorn Basin is miniscule compared to the value of oil and gas that could come from that same area.	
10218	10218-3	My experience with oil and gas exploration from a long career is that new geologic ideas and new technology results in the economic development of oil and gas resources in areas that were previously thought to be non-commercial. The BLM and the USGS may believe an area has low potential for commercial oil and gas, but that same area may be a tremendous oil and gas resource for the nation in the future. We have seen that repeatedly across the nation in new plays like the Bakken, Eagle Ford, Barnett, Marcellus, Fayetteville, Bone Springs and Haynesville shales. Do not shut down an area to future oil and gas development because today you perceive it to have low potential.	2051
10219	10219-4	3.6.6 Lands with Wilderness Characteristics. Many existing roads, livestock reservoirs, and fences were not considered, to be able to consider this an area with wilderness characteristics. When is a road not a road? Reminds me of "it depends on what the definition of "is" is." Roads are roads. Reservoirs that are on the BLM's own listing of BLM allotments were not included.	2027
10220	10220-1	Surface disturbance should be limited to mechanical activities, and be consistent with other RMPs, therefore the Big Horn Basin RMP should use, Information Bulletin WY-2007-029, Guidance for Use of Standard Surface Use Definitions. New definition: Updated 5/26/2009Surface-Disturbing Activities: These are Public Land resource uses/activities that disturb the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface-disturbing activities include: construction of well pads and roads, pits and reservoirs, pipelines and power lines, and most types of vegetation treatments (e.g., prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., No Surface Disturbing Activities), this phrase prohibits all resource use or activity, except those uses and activities that are specifically authorized, likely to disturb the endemic vegetation, surface geologic features, and surface/near surface soils. Original definition: Grass Creek Planning Area 1998Surface-Disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of land surface and vegetation. These activities range from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some	2054

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		timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; trip pit and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction	
10220	10220-12	6045 Snowmobiling is not a surface disturbing activity and should not be limited to roads and trails.	2034
10220	10220-13	Recreation is too specific for this large document it is difficult to comment because it is unclear to where the described areas are. The names and locations are confusing for this large resource area. There is no clear description of the land locations and therefore it is difficult to identify the impacts of the alternatives.	2062
10220	10220-14	6000 Lands With Wilderness Characteristics/Wild Lands uses incomplete inventories to classify wilderness characteristics and should be removed from this document, furthermore funding has been removed for wildlands, so they should be removed.	2027
10220	10220-15	Goal LR10.1 Remove “consistent with multiple-use needs” replace with “for.” Livestock grazing should be managed for sustained yield. Monitoring and mitigation can coordinate livestock grazing with other resource objectives. A resource (livestock grazing) has its own goals and actions that are designed to manage that resource (livestock grazing), stating that a resource (livestock grazing) will be used to meet other objectives is not management of the resource (livestock grazing), it is a management action of another resource that should not be in another resources (livestock grazing) actions.	2011
10220	10220-17	6268 Replace “stakeholder” with “interested public.” Interested public is cited in CFR 4100.0-5. Stakeholder is not defined in the federal regulations.	2011
10220	10220-18	6268 Remove “and meet other multiple use objectives.” Each resource should stand on its own merits rather than one resource stating that it will give. This is unfair multiple use and could cause economic loss to permittees and local economies. A resource (livestock grazing) has its own goals and actions that are designed to manage that resource (livestock grazing), stating that a resource (livestock grazing) will be used to meet other objectives is not management of the resource (livestock grazing), it is a management action of another resource that should not be in another resources (livestock grazing) actions	2011
10220	10220-19	6276 Remove “to support other resource objectives and” replace with “to.”	2011
10220	10220-2	1000 PR: 3 remove the word significant. Significant cannot be measured.	2009_1
10220	10220-22	The BLM failed to consider new technologies that can manipulate plants communities and water develop that could prevent no net loss of AUMs. Appendix P should include Preference AUMs	2011
10220	10220-23	Utilization Levels in Appendix W Table W-1 are new levels and are incorporating precipitation zone with season of use to classify levels of utilization. These changes in utilization levels were not compared and analyzed for environmental impacts regarding AUMs or economic impacts. “35% or less utilization of current standing crop during growing season” conflicts with the definition of utilization. Current year’s forage production cannot be determined during the growing season, therefore 35% cannot be determined. Extensive wildlife use cannot be analyzed or described in quantitative terms as stated in Footnote 1 of Appendix W.	2074

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10220	10220-4	1039 PR: 4.3, 4.4 there is no definition to "casual factors."	2031
10220	10220-7	4132 Remove "through upland management" since impact is marginalized	2042
10220	10220-8	GOAL BR: 11 Remove "thriving" descriptive personal interpretation.	2030
10230	10230-1	Along the south side of Gypsum Creek Road are north-facing cliffs composed of dark shale. (See Map 2). These cliffs have been used extensively for motorcycle hill-climbing. One of my concerns is that your Preferred Alternative designates this area as "Limited to Existing Roads and Trails." This is not practical in a historical play area. There are trails everywhere. Further, anyone who does not make it to the top of the hill must necessarily leave the existing trail, at least for a short distance. The cliffs should also be designated "Open." There are areas along the ATV Trail between the Bentonite Hills and the cliffs that have historically been used as play areas. One such area is depicted on Map 3. These areas have no surface water, no vegetation, and support no wildlife. Being composed primarily of bentonite, the soil (such as it is) swells with every rain. It then shrinks and crumbles as it dries, erasing recent ATV tracks and trails. This land is ideally suited for Play Areas - and little else. As appropriate, non-vegetated areas along the ATV Trail should be designated as "Open" areas.	2034
10248	10248-1	. The plan is a 20 year plan yet the BLM fails to include reasonably foreseeable development which addresses horizontal and directional drilling.	2061
10248	10248-2	By decreasing lands available for grazing by 27% you are negatively effecting the ranching industry, ranch employment and all jobs supporting the ranching industry including federal employment, which will decrease property tax, sales tax, and retail wholesale spending resulting in an economic hardship. The BLM has not shown how these decreases will better the LWCs by not allowing grazing.	2027
10248	10248-3	There is a discrepancy in the Big Game Winter Range area identified by the BLM and also by the WGFD. BLM Big Game Crucial Range covers nearly twice the area as WGFD Big Game Crucial Habitat, nearly 649,246 acres. This discrepancy is unacceptable and unjustified. The BLM must reevaluate these areas in the Draft RMP and limit the designation of such areas to those necessary for the maintenance of populations at object levels.	2022
10248	10248-4	An example is Legend Rock Petroglyph site. All alternatives states that a three mile buffer zone will be used around all cultural sites. When you follow the trail to view the petroglyphs you are facing a cliff face on one side so there is less than 100 yards of visual resource. If you turn around you face a small hill which also limits your view. A three mile buffer is unnecessary in this instance.	2004
10248	10248-5	NO WHERE in the plan do you address what roads can, mayor will be closed or your sound reasoning of why.	2034
10248	10248-7	The BLM did not conduct a study of special designations and other management areas and the economic impact on stakeholders and locals governments from the associated constraints and restrictions.	2046
10261	10261-1	EPA believes that the Draft EIS contains insufficient information to evaluate and disclose potential impacts to air quality and air quality related values. A thorough analysis of air quality is essential because of the proximity of the proposed development and its associated projected emissions to five federal Class I areas (North Absaroka, Washakie, Fitzpatrick and Bridger Wilderness Areas, and Yellowstone National Park) and four sensitive Class II areas (Bighorn Canyon National Recreation Area, Bighorn National Forest, Teton Wilderness Area, and Cloud Peak Wilderness Area). More specifically, these sensitive areas	2009

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		are located either within, directly adjacent to, or within 35 miles of the RMP planning area. Without an air quality impact analysis to confirm otherwise. EPA must assume that the predicted cumulative emissions from the estimated 1,534 new oil gas and coalbed methane wells identified for the preferred alternative are potentially substantial.	
10261	10261-10	The Draft EIS provides no explanation of or justification for BLM's selection of a preferred alternative that does not protect and enhance Wild and Scenic River resources. The EPA recommends that the Final EIS describe the basis for BLM's decision with regard to listing of waterways within the planning area.	2018
10261	10261-11	The Draft EIS estimates 920 acres of short term disturbance and 139 acres of long-term disturbance to wetlands and riparian areas. The Draft EIS further explains that due to requirements to avoid surface disturbing activities within 500 feet of water, actual direct impacts to wetlands would be less than this estimate. The EPA recommends that the Final EIS display the reduced disturbance achieved in order to provide a more accurate estimate of potential disturbance that considers the avoidance requirement. Doing so will more clearly identify where concerns exist, and enable focus on sensitive areas for protection.	2033
10261	10261-12	It does not appear that the Draft EIS addresses the jurisdictional status of wetlands in the planning area. We recommend that a preliminary assessment of wetland jurisdiction be included in the Final EIS. Having this information readily available will be of use to BLM in future project planning by enabling focus of management practices on areas where sensitive resources are most at risk of being impacted. We further recommend that the RMP/EIS explain that jurisdiction will be determined in future project specific EISs. Further, because a current National Wetlands Inventory is not available for the full planning area, we suggest that the BLM prepare an inventory of aquatic resources, characteristics, functions and overall ecological health. Having such an inventory will provide greater wetland and riparian area protection in the Bighorn Basin by providing information that can be used by BLM when authorizing surface disturbance or planning mitigation for unavoidable impacts to wetlands. Because preparation of an inventory may take time, we recommend that the Final EIS explain how BLM plans to undertake an aquatic resource inventory in the future, and offer our assistance in designing such an inventory.	2033
10261	10261-13	Additionally, we are interested in the Draft EIS's reference to potential carbon sequestration research and projects in Alternatives C and D; however, we were not able to find any detail on these efforts in the Alternative descriptions in the Draft EIS. We recommend that BLM consider additional mitigation measures that could reduce greenhouse gas emissions from RMP activities, for example methods to limit fugitive emissions of methane from oil and gas operations or to reduce combustion emissions.	2003
10261	10261-14	We recommend that the discussion of potential greenhouse gas emissions associated with other activities (e.g., motorized vehicle use as was included in the emissions inventory prepared for the Lander RMP) be quantified if possible, or else qualitatively compared as a total impact associated with each alternative, to allow for a more clear comparison among alternatives.	2003
10261	10261-15	We also urge that BLM provide additional detail to Alternative D of this management action to make clear how the BLM will address water bodies not meeting state water quality standards. We believe this can be accomplished by identifying the best management practices and discussion how they will be	2031

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		prioritized and implemented to address causal factors related to the impairment of water quality.	
10261	10261-16	The Draft EIS identifies mitigation measures associated with Alternative D to address some potential impacts to surface water quality, including requiring a 1/4 mile water resource buffer for placement of salt, mineral or forage supplements. Given that the Draft EIS acknowledges that livestock may increase loading of fecal bacteria. EPA suggests that the Final EIS clearly discuss how this buffer will be adequate to protect water quality in the planning area, or whether additional mitigation measures are needed (e.g. larger buffer, timing). Finally and because Alternative B provides for a 1/2 mile buffer, we recommend that the Final EIS explain whether any additional benefits would be gained from this wider buffer size.	2031
10261	10261-17	Draft EIS, Table 3.3, Applicable NAAQS and Representative Concentration. Please note that the sulfur dioxide method measured by the WARMS network is not directly comparable to the SO ₂ NAAQS. The WARMS method is a filter-cartridge based method used to sample sulfate aerosols, typically used in for visibility-related comparisons. An equivalent reference method analyzer meeting the requirements of 40 CFR Part 50. Appendix A should be used to compare against the NAAQS. We recommend contacting the Wyoming DEQ for appropriate SO ₂ monitoring data.	2009
10261	10261-18	Draft EIS, Section 4.1.1, Air Quality and Appendix U. Technical Support Document for Air Quality. The EPA is confused by the discussion on page 4-6 of the Draft EIS, which lists "fire management (including prescribed fire)" as among the activities for which emissions have been quantified. but later states "emissions from any prescribed fire activities conducted on BLM land within the Planning Area have not been estimated in this analysis" Based on Appendix U, it appears to us that prescribed fire emissions have been included in the emissions inventory, and we recommend that the Final EIS clarify this point.	2009_1
10261	10261-19	In addition to the commitment to manage prescribed burns to comply with Wyoming DEQ Air Quality District smoke-management rules and regulations already included as Management Action 1001, we recommend that the Final EIS include: (1) discussion of appropriate smoke monitoring techniques and mitigation (including meteorological conditions favorable for mitigated prescribed fire smoke and alternatives to prescribed fire such as mechanical fuel reduction methods); (2) requirements for the incorporation of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008) into site-specific burn plans that would be designed for each prescribed burn conducted under this GMP; and (3) commitment to public notification of pending burns.	2009_1
10261	10261-2	Our understanding is that BLM has not completed a cumulative air quality impact analysis for the 6,133 oil and gas wells that have already been drilled on BLM administered mineral estate. We also understand that BLM has not completed such an analysis for the 4,544 existing active wells within the planning area or for the 1,534 planned wells. In short, the EPA believes that the "level of concern" that would warrant modeling under Management Action 1005 (contained in the Draft RMP) has already been reached.	2009_1
10261	10261-20	We recommend that the Final EIS specify that the 20 acre NSO will apply to all wetlands regardless of jurisdiction, in accordance with Executive Order 11990. In addition, we recommend that BLM consider whether any high value wetland areas smaller than 20 acres would also warrant protection through a SO	2033

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		stipulation. Factors to consider include but are not limited to: the jurisdictional waters of the U.S.; agency responsibilities under Executive Orders 11990 and 11988; the needs of species of concern; and potential impacts to aquatic communities.	
10261	10261-21	We recommend that this plan include the following key elements:1. A statement that: "The activity in the basin has already reached a level of concern regarding cumulative adverse air quality impacts. This concern is based on the level of current emissions (1100 tons per year NOx) and the proximity (between 1 and 50 miles) of proposed leasing areas to five federal Class I areas, including Yellowstone National Park, North Absaroka, Washakie, Fitzpatrick, and Bridger Wilderness Area." 2. A discussion of the current air quality status of Class I areas in the project area, based on existing monitoring data and any other available information.3. A statement that: "basin wide modeling to characterize the air quality of Class I areas will occur as soon as possible, subject to funding and staffing levels."4. A statement that: "The modeling would be either (1) a project-specific model (e.g., Calpuff) or (2) another planned modeling effort decided upon in consultation with EPA and DEQ.5. A description of activities that BLM may authorized before Class I area Characterization is completed (e.g., A requirement for Applications for Permit to Drill or field development proposals to include an emissions inventory until such time as the Class I modeling and characterization is completed).6. A statement that: "A statement that "based upon the findings of the Class I Characterization, and as provided for by law and consistent with lease rights and obligations, BLM will ensure implementation of reasonable mitigation and control measures and design features through appropriate mechanisms including lease stipulations and conditions of approval, notices to lessee, and permit terms and conditions."7. A statement that "BLM would consider applying mitigation measures to oil and gas projects developed under this RMP in the event that a future air quality impact analysis determines there are adverse impacts to Class I areas."8. Inclusion of a list of mitigation measures that BLM could apply in the event future air quality modeling shows there to be an adverse impact to Class I.9. Inclusion of the Oil and Gas mitigation table currently in the Lander Air Plan, revised as appropriate to apply to the Bighorn Basin RMP.	2009_1
10261	10261-22	The EPA recommends that the BLM develop lease stipulations for protection of sensitive drinking water resources during this RMP revision, which presents a key opportunity for avoidance and mitigation of potential significant impacts. Based upon our knowledge of the planning area, including the presence of sensitive groundwater and surface water resources designated by the State of Wyoming, we provide the following recommendations for inclusion in the Final EIS: Groundwater recharge areas: Consider No Leasing in a recharge area with a 1000 foot wide buffer zone on both sides of all perennial streams for a distance of one mile upstream of the recharge area or to the point where the stream becomes intermittent. Sole Source Aquifers: Consider No Leasing. Source Water Protection Areas and Well Head Protection Areas: Consider No Leasing in Groundwater Zones 1-3. Consider No Leasing in Surface Water Zones 1-2. If leasing occurs, impose No Surface Occupancy lease stipulations in Groundwater Zones 1-3 and Surface Water Zones 1-2. Impose Controlled Surface Use Stipulations in Surface Water Zone 3 including but not limited to: Closed loop drilling systems. Line surface impoundment ponds (evaporation ponds or drilling pits) with synthetic liners and subsequently decommissioned by removing all contaminants and liner and reclaiming the area with natural	2031

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		<p>vegetation. Identify private wells and set stipulations to be protective (e.g., no occupancy within immediate area, collect baseline data on groundwater, etc.); In cases already permitted but not drilled, impose Conditions of Approval for APDs including but not limited to the Controlled Surface Use Stipulations listed above. For areas with unconfined shallow groundwater, because the shallower the depth to water the more sensitive an aquifer is to contamination: Consider No Surface Occupancy; Prohibit use of evaporation ponds in proximity to shallow aquifers; Review the geology of shallow aquifers to determine well construction requirements, which may include cementing to surface and drilling with a fresh water mud system. To accurately identify sensitive aquifer systems, we recommend using the Wyoming Ground Water Vulnerability Assessment Handbook. General recommendations for standard lease stipulations/best management practices: A general well design requirement to set surface casing and cement to a specific formation or depth if there are aquifers at depth that need protection; Surface casing needs to be below the lowermost USDW and set into a confining (e.g. shale) layer; A requirement for an intermediate string of casing and cement may be appropriate in the event of encountering very deep aquifers; Specify in the RMP that future oil and gas projects will need a Water Resource Management Plan to address water consumption and produced water disposal including identifying water recycling opportunities.</p>	
10261	10261-3	<p>For the reasons stated above. EPA prefers that the Final EIS include a quantitative analysis that utilizes air quality modeling of the potential impacts of activities authorized under the Bighorn Basin RMP. Nonetheless, we agree that air quality impacts can be adequately evaluated and disclosed provided that BLM pursues one of the following approaches: 1) Conduct basin-wide dispersion modeling based on the emissions inventory and include this information in the Final EIS; or 2) Utilize representative photochemical grid modeling planned for another project (e.g. Powder River Basin Coal Review) with the appropriate modeling domain for the Bighorn Basin to determine the contribution of the RMP activities and include this information in the Final EIS; or 3) Modify Management Action 1005 in the Final EIS to include an air resources management plan. The air resources management plan should be included in the Final EIS and as described in Attachment 2 contain additional detail clarifying how and when modeling will be performed and mitigation potentially implemented.</p>	2009
10261	10261-4	<p>Incomplete Disclosure of Groundwater Characteristics and Potential Impacts The characterization of groundwater in the Draft EIS does not include important and up-to-date information necessary to protect groundwater water resources. The Draft EIS acknowledges that the planning area includes sensitive drinking water resources, but does not contain a complete and up-to-date evaluation of these resources, including recharge areas and source water protection zones designated by the State of Wyoming. The Draft EIS references the Wyoming Water Development Commission's (Commission's) 2003 Wind/Bighorn River Basin Plan for the ground water analysis. The Commission is currently updating the 2003 report and intends to circulate the revised report for public comment later this summer. Additional data that is included in the 2011 revision includes identification of the major aquifers in the basin, their three dimensional extent and the physical and chemical characteristics of their groundwater; estimates of the quantity of water in the aquifers and aquifer recharge rates; and descriptions of the aquifer recharge areas. In addition, EPA recommends BLM consider the Wyoming Ground Water Vulnerability Assessment Handbook</p>	2031

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		(SDVC Report 98-01, 1998) which includes maps of aquifer sensitivity and identifies shallow groundwater aquifers that are susceptible to contamination. Analysis of this updated information in the Final EIS will maximize the ability of the BLM to determine where leasing stipulations are needed to protect current and future drinking water resources. The EPA recommends that BLM use this updated information in the Final EIS to identify water budget projections related to activities considered on BLM land, since water shortages were identified in the Draft EIS as a potential concern. In the event that updated groundwater hydrology and quality information is unavailable, we recommend that the Final EIS explain that the groundwater resources are not fully defined and identify the potential future requirements applicable to operators for gathering information on water quality and depth of useable groundwater and subsequently to comply with protective requirements as appropriate.	
10261	10261-5	The Draft EIS provides insufficient information regarding mitigation measures that could be employed to protect groundwater resources.	2031
10261	10261-6	According to the Draft EIS, one of the key ways BLM intends to address these potential impacts is to establish best management practices (BMPs). However, the Draft EIS does not provide the specificity needed to assess the adequacy of the BMPs. EPA suggests that BLM provide this specificity by including additional information in the Final EIS on the types of BMPs the BLM plans to implement including the circumstances under which the BMPs would be applied. Specifically, EPA recommends the Final EIS include: 1) A list of BMPs that may be required to protect groundwater resources. EPA recommends BLM consider the groundwater BMPs that were developed for the Pinedale Anticline oil and gas field in response to monitored groundwater contamination. 2) Identification of the circumstances under which the BMPs would be applied (e.g. wetlands, shallow water aquifers, proximity of water wells.) 3) Identification of how BMPs would be monitored and enforced.	2031
10261	10261-7	We recommend that the BLM develop lease stipulations for sensitive resources to ensure that the potentially significant impacts are avoided as much as possible. Our specific recommendations for stipulations to avoid and protect sensitive drinking water resources are attached (See Attachment 3). EPA developed these recommendations based on the Wyoming's Source Water Assessment and Protection Guidance (October 2000) and in consideration of BLM's Instructional Memorandum UT 2010-055 Protection of Groundwater Associated with Oil and Gas Leasing, Exploration, and Development.	2031
10261	10261-8	The Draft EIS contains insufficient information to evaluate the adequacy of BLM's planned groundwater monitoring program. The Draft EIS indicates the BLM plans to require groundwater monitoring "in areas of concentrated oil and gas development where groundwater has been determined to be of 'High' and 'Moderately High' priority by Wyoming DEQ" (Management Action 1028, Draft EIS page 2-47). However, neither the location of the development relative to the WDEQ priority areas nor the level of monitoring to be expected of oil and gas lease holders is disclosed. EPA believes this information is necessary to evaluate the adequacy of the proposed monitoring program and therefore requests that it be included in the Final EIS/RMP. An essential component of future project-level monitoring is baseline and long-term monitoring for private wells and clearly defining how the water supply will be replaced in the event that it is impacted. Monitoring is important to assure mitigation measures are adequate and that groundwater resources are being fully protected. In the	2031

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		absence of modeling to determine the distance from the project at which impacts may occur we recommend that monitoring occur in private wells within one mile of the project area (the BLM Pinedale Anticline project and the U.S. Forest Service Eagle Prospect project area examples of where similar monitoring programs have been established). Groundwater baseline monitoring may also be necessary to identify the depths of aquifers that are used or could be used in the future for drinking water, referred to as Underground Sources of Drinking Water (USDWs). Aquifers are presumed to be USDWs unless they have been specifically exempted or if they have been shown to fall outside the definition of USDW (e.g. over 10,000 mgf TDS). We further recommend that the Final EIS/RMP include a commitment that future project-level NEPA analyses for oil and gas development will contain a specific comprehensive monitoring plan and program to track groundwater impacts as drilling and production operations occur.	
10262	10262-13	Relevance and importance criteria used in the analysis of Areas of Critical Environmental Concern (ACEC) is generic and does not include data sets to confirm or deny the four noted importance criteria and the five relevance criteria.	2001
10262	10262-7	Protective measures for fish include intensively manage intermittent streams on a case-by-case basis. Intensive management measures for fish, or their need, are not disclosed and thus could unnecessarily hamper local governments and stakeholders.	2002
10262	10262-89	Throughout the RMP/EIS, there are many terms and practices regarding fish resources that are not defined or described. The issues have been highlighted where clarification is needed, including questions that will assist in better identifying where such information is lacking.	2002
10262	10262-200	Please justify only including carbon dioxide emissions in Tables 4-3 and 4-4, particularly when they are titled “Carbon Dioxide Equivalent Emissions” implying inclusion of other greenhouse gases.	2003
10262	10262-2	Cultural site and historic trail buffers are excessive. Alternative D buffers for cultural sites, national, and other historic trails would restrict or constrain resources uses on BLM that have yet to be identified. The BLM does not identify intact segments of historic trails nor do they identify cultural sites where the scene and setting is intact. The three mile buffer on cultural sites and the two, three, and five mile buffers (depending upon resource) of the historic trails shall be reduced and the BLM must identify exactly where the scene and the setting is intact in the Bighorn Basin to effectively analyze the economic impacts of these actions. If the BLM cannot produce intact segments of historic trails or properly identifying the cultural sites where the scene and setting is intact then the buffers for both resources will be eliminated.	2004
10262	10262-275	In the description of the affected environment, Table 3-19 on page 3-65 should be re-titled. It displays fire regime groups not the fire regime condition classification system.	2008
10262	10262-276	The bottom of page 3-65 needs references to support the rationale for not allowing fires to burn in cheatgrass invaded sage-grouse habitats. The assumption is that cheatgrass will expand and damage sage-grouse habitat. This is a statement of fact that needs to be supported by scientific evidence. We do not necessarily disagree, but some explanation or reference should be provided.	2008
10262	10262-277	On page 3-67, the sentence stating “Upslope from the basin bottom, fuel types	2008

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		and fire regimes are similar to those found in the physiographic areas, and nearly all wildfires and prescribed fires occur in these areas” needs to be corrected. The use of “physiographic” in this sentence is awkward and confusing.	
10262	10262-278	The fire and fuels analysis could benefit from a better explanation or quantification of fuels conditions. Right now there is only a cursory discussion of the existing condition of fuels. Of the lands that are classed in FRCC 2 and 3, what vegetation types that are most changed? Table 3-21 identifies acres of fires burned. It would be helpful to know the cover types these wildfires occurred.	2008
10262	10262-279	In Section 3.2.2 (prescribed fires), there is no quantification. Please include the acreage of fuel treatments per year by cover type.	2008
10262	10262-280	No analysis methods are identified in the environmental consequences, only assumptions and definitions are given. What are the indicators? How are alternatives being compared? Without this discussion, much of the following analyses are meaningless. It seems much of the subsequent analysis is based on speculation because it is difficult to predict fire behavior, weather, etc. While this is understandable, there should probably be a discussion here about the nature of the unpredictability of variables and outcome.	2008
10262	10262-281	Several issues are identified as potentially “adversely impacting wildfire management” but there is no indication to the context or intensity. Are these impacts significant? Why or why not? If these can’t be quantified they at least have to be explained in more detail to explain more about significance. This needs to be addressed throughout the majority of the fire and fuels section.	2008
10262	10262-282	Under the discussion in the last paragraph of page 4-90 in Section 4.3.1.3, quantitative figures are finally given. Unfortunately, the context and intensity is not adequately discussed. It appears here that the analysis is using acres of treatment as an indicator. What do these numbers mean? Are they significant? Are they discountable? How does this help someone make a decision on the best alternative? Please frame this discussion with better interpretation of the differences and how this would help the decision maker decide on an alternative. This needs to occur wherever numbers are presented.	2008
10262	10262-86	The fire and fuels analysis could benefit from a better explanation or quantification of fuels conditions. In its current form, there is only a cursory discussion of the existing condition of fuels	2008
10262	10262-1	The Wyoming Department of Environmental Quality (WDEQ) is not given a seat at the table in the monitoring of air quality in the Bighorn Basin. Air quality and state-of-the-art monitoring is important to the LGCA. It is fundamental that the WDEQ is given primacy in monitoring of air quality in the Planning Area.	2009
10262	10262-180	Page 3-5 states that air quality monitoring sites in the Bighorn Basin and relevant sties nearby are listed in Table 3-1. Please include a map of the air quality monitoring sites listed in Table 3-1.	2009
10262	10262-181	The North Absaroka is described as one of two air quality monitors located in the planning area. The location provided in Table 3-1 places the site outside of the planning area. Please clarify this discrepancy.	2009
10262	10262-182	The process for identifying relevant air quality monitoring sites is not described in the RMP/EIS. Please include the criteria used in selecting relevant sites.	2009
10262	10262-183	Along with descriptions of the site selection process, please include an expanded description of the relevant sites, particularly the differences in	2009

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		climate and topography from locations in the planning area.	
10262	10262-184	Please include justification for not including air quality monitoring sites located to the southwest. For example, the Boulder monitoring station (NO ₂ , O ₃ , and PM ₁₀) is located approximately 70 miles from the planning area, and the Bridger Wilderness IMPROVE monitor is located approximately 58 miles from the planning area. Both are a shorter linear distance than Thunder Basin SPM and IMPROVE sites (100 miles).	2009
10262	10262-185	Following expanded description of the process used to identify relevant air quality monitoring sites, please provide justification of their ability to accurately characterize the air quality in the Planning Area. If this justification cannot be provided, or is deemed insufficient by the cooperating agencies, then additional air quality monitoring stations should be established.	2009
10262	10262-186	Additional air quality monitoring sites distributed throughout the basin should be established to accurately represent the air quality in the Planning Area.	2009
10262	10262-187	Table 3-3 presents applicable standards for criteria pollutants and current representative concentrations for the Planning Area. Beginning with page 3-8, the Trends section does not address all sources presented in Table 3-3. Please provide justification for selection of presented data.	2009
10262	10262-188	Page 3-13 states that a WARMS monitoring site is currently operating northwest of Worland. Please present any relevant data from the Worland WARMS monitoring site, even though the three years of data required for determining compliance have not been collected. Observed concentrations of ozone at a site within the planning area would provide information that is more relevant than data from a site significantly removed from the planning area.	2009
10262	10262-189	Figure 3-5 on page 3-14 does not include the NAQQS standard for ozone, which deviates from previous figures. Please show the 75ppb standard in Figure 3-5 in order to clearly represent the standard as compared to ozone concentrations at the Thunder Basin SPM Site.	2009
10262	10262-199	Please include measurements from the Worland monitor established in 2010.	2009
10262	10262-114	There are no impacts disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that “when rangelands are not meeting resource objectives, the BLM implements changes in grazing management”.	2011
10262	10262-115	There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160-162) that state management must be consistent with “other resource objectives”, but does not disclose which resources or objectives. The other resource management actions could have significant impacts to livestock grazing, but are not disclosed in the RMP/EIS.	2011
10262	10262-15	Counter to existing BLM RMPs in Wyoming, the RMP/EIS discloses in the glossary that grazing is a “surface disturbing activities.” Livestock grazing should not be considered a surface disturbing activity due to the onerous/nebulous requirements that such a designation would carry.	2011
10262	10262-177	The LGCA is concerned that these other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. The County and Conservation District Land Use Plans are clear in that they are opposed to any reductions in grazing, particularly if they are not backed up by scientific data including monitoring of vegetation resources, trend analyses, etc.	2011

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10262	10262-298	This section presents that in 2007, "...the WFO estimated that approximately 57,000 acres in the field office were infested with nonnative annual bromes." This inventory is stated to only cover 10% of the Bighorn Basin so, "actual infested acreage might vary." We argue that this acreage could be substantially higher. The 57,000-acre figure is contradictory to table 3-22 in the RMP/EIS, which presents acres for non-native annual bromes at 37,505 for BLM surface estate and 46,875 for BLM mineral estate. [Figure 11 Spatial comparison of BLM's 'BighornBasin_GapVegetation' and 'WFO_Invasive_NonNative' GIS layers] The discrepancy seems to lay in the GIS data provided by the BLM. A GIS layer entitled 'WFO_Invasive_NonNative' totals 57,413 acres, which approximates the 57,000 acres presented in section 3.4.4. The issue seems to be that not all of the shapes in the 'WFO_Invasive_NonNative' GIS layer were incorporated into the 'BighornBasin_GapVegetation' GIS layer. Figure 11 below presents a comparison of the BLM's 'BighornBasin_GapVegetation' and 'WFO_Invasive_NonNative' GIS layers. Notice how only some of the shapes from 'WFO_Invasive_NonNative' were captured by the 'BighornBasin_GapVegetation' layer. The LGCA requests that this issue be explained and corrected, and a complete vegetation and noxious weed inventory be completed for the basin.	2012
10262	10262-299	Cooperative Management in Invasive Species and Pest Control In this section it is stated, "The goal is to contain and reduce densities of known invasive species populations." This sentence needs to be introduced to state that only very small portions of the Bighorn Basin have been inventoried for weeds and the sentence in question needs to be added to account for newly identified populations.	2012
10262	10262-88	Within the Invasive Species and Pest Management section there is nearly nonexistent disclosure of relevant field-verified data. The most glaring deficiency within this subject area is that only 10% of the Worland Field Office has been inventoried for invasive nonnative annual bromes. Clearly an EIS cannot accurately analyze the impact of invasive species when only 10% of the Worland Field Office has been inventoried. Prior to finalization, the BLM must conduct a new, expanded inventory and reanalyze impacts.	2012
10262	10262-268	Also, following any updates to the oil and gas development potential in the Planning Area the BLM shall reevaluate the indirect impacts from ROW management actions.	2013
10262	10262-53	Withdrawals: Alternative A GIS files contain blank records in the GIS attribute tables. Acres do not match those in the RMP.	2013
10262	10262-229	The BLM reviewed proposals for three areas nominated for MLP reviews: Absaroka-Beartooth Front, Fifteen Mile, and Bighorn Front. After review, the BLM stated none of the areas met the criteria necessary for MLP analysis; however, they did identify resources of concern within those areas. They also stated additional MLP areas may be identified and analyzed at the BLM's discretion at any time.	2014
10262	10262-230	The LGCA is concerned that future lease sales and therefore exploration and production may be slowed significantly if MLPs are required in other sections of the Planning Area, or if the BLM identifies additional resources of concern in the three MLPs analyzed to date.	2014
10262	10262-242	The LGCA requests an addition to that list: the additional challenges resulting from NEPA processes that may be necessary if the IM 2010-117 is implemented prior to the letting of leases in the Planning Area, as discussed above. It is	2014

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		thought that the execution of a MLP will detrimentally impact oil and gas exploration and development and could ultimately force oil and gas companies to spend their exploration budgets elsewhere.	
10262	10262-265	The LGCA is concerned that future lease sales and therefore exploration and production may be slowed significantly if MLPs are required in other sections of the Planning Area, or if the BLM identifies additional resources of concern in the three MLPs analyzed to date. Further, if either of those issues arises in the future and the BLM requires a MLP to be conducted, it is possible oil and gas companies will become discouraged and will not pursue leasing in the Planning Area. Please reevaluate these consequences before accepting Instruction Memo 2010-117 as permanent direction.	2014
10262	10262-143	The Alternative D GIS shapefile for Mineral Constraints does not include the standard constraint restriction category.	2015
10262	10262-144	The shapes on Map 20 closely, but not exactly, matched the resulting analysis performed by the LGCA for the standard constraints. The acreage reported in the RMP Table 2-5, record number 2024, of approximately 257, 000 acres did not match the resulting GIS acres of approximately 200,000.	2015
10262	10262-145	An issue with the definition query given to the LGCA by Mr. Hiner has arisen during the GIS data review and acreage analysis. The definition query provided by Mr. Hiner is Fed_Min = All, Oil-Gas, Oil-Gas-Coal, and Oil-Gas-Sand-Gravel. The Alternative D Mineral Constraints GIS shapefile was cut to the Federal Mineral Ownership GIS file to disclose acres of constraints only on BLM administered minerals for oil and gas development. The red outlines and blue highlights on the following map [Figure 2] are the federal mineral ownerships for the BLM. The green polygons are the Alternative D Mineral Constraints that were cut to the Federal Mineral Ownership according to Mr. Hiner. The map shows that the polygons are not coincidental and boundaries do not align. The Alternative D Mineral Constraints migrate in and out of the "Other" mineral ownership category in the Federal Mineral Ownership layer. The "Other" category was not included in Mr. Hiner's query for federal mineral ownership in relation to mineral constraints. The conclusion drawn is that the LGCA received an inaccurate Federal Mineral Ownership layer or that the layer has been edited in such a way that the edits are unbeknownst to anyone other than the BLM. Due to this issue, the LGCA will be unable to accurately verify any analysis related to federal mineral ownership or reporting of related acreages in the RMP.	2015
10262	10262-146	After review of the BLM-provided GIS data for Withdrawals, the LGCA has been unable to reproduce the acreage reported in Table 2-2 in the RMP. Several factors contribute to the irreproducible acreages reported in the RMP. The GIS attribute tables for both Alternative A and D GIS data are missing information. There are blank records in the attribute table. The selection process for identifying the lands carried forward as Withdrawals was not documented in the GIS data. Trial and error reviews of query selections and a review with Mr. Hiner, failed to resolve the issue of the selection process. The blank records contribute significantly to the difficulty of identifying the selection process and reconciling mismatching acreages. To date, Mr. Hiner at the BLM has not been able to resolve the Withdrawals issues. The LGCA will continue to seek resolution of these issues. The following screen shot [Figure 3] documents the missing attribute data in Alternative A Withdrawals. The highlighted column is the Withdrawal classifications.	2015

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10262	10262-154	Upon review of the constraints on leasing for geothermal development, the LGCA was unable to match the acreages of “open to geothermal leasing” and “administratively unavailable to geothermal leasing” for Alternative D. A dissolve process based on constraint designations was performed in an attempt to correct for any overlapping polygon or duplication of acres. This process failed to produce matching acreages between the GIS data and RMP Table 2-2.	2015
10262	10262-155	It appears that the geothermal leasing constraints still contain overlapping designations. Controlled Surface Use (CSU) designations overlap into areas with Timing Limited Stipulations (TLS), resulting in double counting of acreages.	2015
10262	10262-156	The GIS data presents 387,699 acres as unavailable to geothermal leasing, contradicting the 324,737 acres reported in RMP Table 2-2.	2015
10262	10262-157	Given the overlapping polygons for CSU and TLS stipulations, matching acres open to geothermal leasing between the RMP and GIS will be impossible without removing the overlapping constraints.	2015
10262	10262-158	It appears that in the BLM GIS data, CSU polygons were simply drawn on top of existing TLS polygons. By cutting the CSU polygon into the larger TLS polygons, the data would not show overlapping polygons and double counting of acreages.	2015
10262	10262-163	Review of the new Alternative A Withdrawals file has revealed blank records as well. This is not a solution to the problem of missing attribute data.	2015
10262	10262-164	The LGCA should have received the final GIS product which contains GIS documentation of the acreages presented in the RMP. It is the LGCA’s contention that the BLM should have sent the final product of ICF’s completed analyses of GIS data that yielded the numbers produced in the RMP. These files would have included the appropriate metadata describing how the files were produced from the original BLM files supplied to ICF. These files are required as part of the administrative record.	2015
10262	10262-165	Final analysis GIS files or specific definition queries had to be produced to accurately report RMP analysis acreages. If ICF performed the GIS analysis, then they must have final analysis files or definition queries.	2015
10262	10262-166	The updated file contains missing data in the attribute table. Caleb’s email discussed how to complete the GIS attribute table based on Table 3-40 in the RMP and how to clip the Withdrawals to the Federal mineral ownership layer. This should have been done by the BLM.	2015
10262	10262-167	The LGCA pointed out a 42-acre parcel of Withdrawals for Alternative A and D located on private surface and private subsurface. This should not have been included in the Withdrawals for either alternative. Forty-two acres does not seem significant on a 4.2 million acre Federal mineral ownership scale. When the bentonite industries current operations are only 1,200 acres (4% of their operations), 42 acres becomes more significant.	2015
10262	10262-245	Yet, the calculated percentages for each classification category (high, medium, and low) are not disclosed in the RMP/EIS. A review of Figure 40 (Potential for occurrence of oil and gas within the Bighorn Basin Planning Area) presented in the RDF shows that approximately 92 percent of the Planning Area is depicted as having high potential for oil and gas occurrence.	2015
10262	10262-257	On Page 3-42 under Management Challenges it is disclosed that “Approximately 30,000 acres of land has been disturbed in the Bighorn Basin due to bentonite mining, along with approximately 4,000 acres of road and haul-road disturbance (BLM 2008c).” These disturbance acres are in conflict with calculations provided	2015

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		by representatives from the bentonite industry (Scott pers. comm.). Please review for accuracy the 4,000 acres of reported road and haul-road disturbance in the RMP/EIS.	
10262	10262-52	Mineral Constraints: Alternative D Mineral Constraints is missing all records for the “Standard Constraints.”	2015
10262	10262-56	Geothermal Constraints: GIS files contain overlapping polygons resulting in conflicting management in those areas and double counting of acres in GIS.	2015
10262	10262-217	The RMP/EIS (pg. 3-43) states “Coal production in the Planning Area is generally not considered economically feasible due to the relative thinness of the coal beds, thickness of the overburden, and low quality of the coal.” Yet there is a record of historical mining activity in the Planning Area and the USGS named eight important coal fields within the Bighorn Basin (USDI 2009b). Please remove or modify the statement in the RMP/EIS in order to accurately portray the affected environment.	2017
10262	10262-252	The RMP/EIS (pg. 3-43) states “Coal production in the Planning Area is generally not considered economically feasible due to the relative thinness of the coalbeds, thickness of the overburden, and low quality of the coal.” However, there is a record of historical mining activity in the Planning Area and the USGS has named eight important coal fields within the Bighorn Basin (USDI 2009b). Therefore, the BLM shall remove or modify the statement in the RMP/EIS in order to accurately portray the affected environment.	2017
10262	10262-93	Predators, including gray wolves and grizzly bears, have adverse impacts to big game in the Bighorn Basin. The RMP/EIS states that management challenges to big game include (RMP/EIS pg. 3-98): habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species. Note that predators and predation are not listed as a management challenge for big game. The BLM must acknowledge, account for, and analyze the predation of big game species in the RMP/EIS.	2020
10262	10262-28	Descriptions of wildlife species and habitats are based on perceptions, not qualitative and quantitative data.	2025
10262	10262-91	if woody plant communities for pronghorn, mule deer, or moose have indeed declined, the Affected Environment should identify the key variables and provide quantifiable data to show baseline conditions compared against historic conditions (which are also not disclosed in the RMP/EIS) that would support such a contention. Under CEQ 1502.22 Incomplete or Unavailable Information, the BLM has a duty to provide relevant information unless it is proven to be unattainable or the agency would incur exorbitant costs to obtain the information. Neither of which are the case in this circumstance.	2025
10262	10262-92	Recognizing the mandate outlined in CEQ 1502.22, the LGCA requires that the BLM qualify and quantify the aforementioned management challenges for big game species prior to any management decision(s) that alter or minimize allotment management plans or allotments, road-use designations, oil and gas activities, or additional multiple-use activities. At present, the BLM could choose to alter grazing allotments, road designations, hunting units, etc. as a rationale for improving big game habitat based on exceedingly inadequate and incomplete information. The effects of such could have detrimental social, economic, and political impacts.	2025

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Table B-1. Individual Comments and BLM Response Index (Continued)

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10262	10262-109	When reviewed by the LGCA, skepticism arose about the wilderness characteristics, or lack thereof, contained within the areas. Given the vast local knowledge of the areas by LGCA members, there was skepticism of the designations based on roads and structures known to be present.	2027
10262	10262-11	The BLM did not identify structures within the LWCs that detract from wilderness characteristics. Using the BLM’s own GIS data the LGCA identified 634 miles of roads, of which 518 miles are two track, 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, eight oil fields, 68 miles of oil and gas pipeline, eight active oil and gas wells, 59 plugged and abandoned oil and gas wells, and 248,315 acres (43%) have oil and gas leases. Since the release of the preceding, the LGCA conducted a local stakeholder review. Likely, these totals will be increased based on the incorporation of stakeholder review data. The BLM is required to identify structures based on their own guidance in BLM Manual 6301 and summarize and analyze the cumulative effects of structures on wilderness characteristics. Clearly, the BLM did not do so. The LWC inventory must be entirely revised using LGCA input and data.	2027
10262	10262-110	The BLM ignored their data and other readily available data sources for structures when designating LWCs.	2027
10262	10262-111	The LGCA/ERG LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics. In the 3.2 million acres, the BLM has identified 56 LWC areas comprising a total of 571,000 acres. Within 571,000 acres there are 634 miles of roads, of which 518 miles are two-track, 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, eight oil fields, 68 miles of oil and gas pipeline, eight active oil and gas wells, and 59 plugged and abandoned oil and gas wells (248,315 acres (43%) have oil and gas leases).	2027
10262	10262-112	the LGCA has requested the BLM to initiate a new inventory process and postpone indefinitely the management of LWCs until a comprehensive and objective inventory is completed.	2027
10262	10262-48	Improper or incomplete inventory of LWCs as is illustrated in Appendix A. Note that the LWC inventory and maps have been presented during public meetings. There are numerous specific references to incorrect information provided by the BLM in Appendix A.	2027
10262	10262-49	The BLM LWC Inventory is flawed. The BLM did not include any GIS data for structures detracting from wilderness characteristics in inventory forms or on maps. Refer to Appendix A for more detail on this issue.	2027
10262	10262-59	Nevertheless, the BLM-preferred alternative in the RMP/EIS includes LWCs that potentially reduce or eliminate significant acreage available for oil and gas leasing even though the BLM LWC inventory included lands that contain significant development including roads, pipelines, oil and gas wells (active and abandoned), reservoirs, fences, and grazing improvements. The LGCA LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics.	2027
10262	10262-100	Should any expansion of wild horses occur, which is not mandated by the WFRHBA and thus unnecessary, this expansion must result in no reduction in livestock AUMs.	2030
10262	10262-102	Currently wild horses in the Planning Area are within the mandated appropriate	2030

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		management level (AML) range established in the Consent Decree. Yet, the LGCA’s stated position is that wild horse populations should be further reduced to a total head that is at or near the minimum AML.	
10262	10262-98	The Affected Environment discussion of wild horses states that population growth is expected at a 15% annual rate. But, in Environmental Consequences - Methods and Assumptions, it is stated that the number of wild horses would increase by 18% annually.	2030
10262	10262-99	As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the Wild Free-Roaming Horses and Burros Act (WFRHBA) are met.	2030
10262	10262-207	With the exception of the WEPP model, “assumptions and methods” section only includes assumptions, not methods.	2031
10262	10262-208	No actual water quality data is presented in Chapter 3. Although it is not expected that the RMP/EIS document the quality of surface water in all drainages throughout the Big Horn Basin, more data should be provided in the RMP to document baseline water quality.	2031
10262	10262-209	Indicators for water according to the Final AMS are chemical, physical, and biological characteristics (Page 2-19 of the AMS). No data are presented to provide a baseline for these indicators.	2031
10262	10262-78	First, the AMS listed three indicators for water: (1) chemical characteristics, (2) physical characteristics and (3) biological characteristics. Yet none of the indicators is mentioned in the RMP/EIS and no baseline information regarding the indicators is provided in Chapter 3 of the RMP/EIS.	2031
10262	10262-79	in order for there to be adverse impacts to water resources, there must be demonstrated negative impacts as measured by indicators. Without the presence of baseline data pertaining to chemical, physical, and biological characteristics, it cannot be demonstrated that adverse or positive impacts would occur as a result of any alternative action.	2031
10262	10262-105	Specifically unclear is the sensitivity levels in the inventory	2032
10262	10262-106	Why are several VRM classes were expanded from Alternative A to Alternative D (e.g. Sheep Mountain Anticline).	2032
10262	10262-25	It is unclear how Visual Inventory Classes and Visual Resource Management (VRM) classes were determined. Specifically, it is not clear how sensitivity levels were designated in the Inventory	2032
10262	10262-26	it is not stated why some VRM classes were expanded from Alternative A to Alternative D	2032
10262	10262-16	Acreage discrepancies are present within the RMP/EIS (e.g. vegetation resources).	2033
10262	10262-24	Vegetation inventories are deficient, particularly invasive species inventories.	2033
10262	10262-284	It is stated that Wyoming Gap data are suitable for RMP/EIS level planning. The LGCA argues that these data are not sufficient and other available vegetative datasets were not investigated or analyzed. Gap only provides cover type, and does not provide size/height or percent cover. LANDFIRE offers a nationally standardized and comprehensive dataset of vegetation cover types, canopy cover, canopy height, fuels, and fire regimes. The Bighorn Basin is covered by LANDFIRE version 1.1.0 that portrays the basin for 2008. Version 1.1.0 was released in early 2011. Besides presenting more current information than Gap	2033

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		data, the LANDFIRE data offers increased detail of the Planning Area’s vegetative components.	
10262	10262-285	Statewide Gap data was modified for the Worland Field Office during the planning process, but this modification was not identified in the Biological Resources section. The LGCA has compared statewide Gap data to the layer presented in the RMP/EIS revision, and the two datasets are inconsistent. The Cody Field Office matches the statewide Gap layer, but not in the Worland Field Office. It is misleading for the BLM to state that the Wyoming Gap Analysis data were used, when, in fact, it is a modified dataset. We request a discussion of the data used to update Gap, as well as an accuracy assessment of the modified data.	2033
10262	10262-286	The RMP/EIS mentions increases in bark beetle activity but provides no numbers to support this statement. The USFS, since 1994, has maintained an Aerial Detection Survey providing spatial data of insect damage by year. These aerial surveys extend past the USFS boundary to the lower tree line, thus covering a majority of the forested areas in the Bighorn Basin Planning Area. These data could have been incorporated to better illustrate the insect activity in the basin.	2033
10262	10262-287	The description of the existing conditions of forested communities is completely inadequate. Each of the three forest community descriptions are nearly identical and portray the communities in very broad and vague metrics. For example, the RMP/EIS states that lodgepole pine "stand ages are between 1 and 150 years." Not only is this statement vague, but it is contradictory to the best available science. The biophysical setting description for the Rocky Mountain Lodgepole Pine Forest presents fire return intervals of 100 to 200 years.	2033
10262	10262-288	The LGCA requests a breakdown of acres by early-, mid-, and late-successional stages, percent cover, and departure from historic fire regimes. The discussion of historic fire regimes is inadequate and no quantification of departure was provided. Table 4 below is an example of how LANDFIRE data can be used to quickly analyze forest conditions. LANDFIRE does not provide size (diameter breast height (DBH)) classes, but does provide canopy height, which can be used as a surrogate for age classes. A brief review of forest ages within the Planning Area shows that there are minuscule amount of early-seral forests when compared to mid- and late-seral stands.	2033
10262	10262-289	Similar to the Forest Communities section, this section has a lack of citing literature and no presentation of quality and quantity of the woodland communities located within the Planning Area.	2033
10262	10262-290	The LGCA requests that the BLM further address the decline in the forest products infrastructure in the Bighorn Basin and present the potential of new technologies to revive production at closed mill operations while providing forest health treatment opportunities. There is significant potential to use dead and dying forest products, combined with green woody material, for a myriad of uses. The economics of such activities improves with contribution from appropriated fuel reduction funding sources. Long term landscape scale contracts, such as stewardship contracting, can provide small business flexibility to meet changing market conditions and supply stability to obtain financing to make important capital investments	2033
10262	10262-291	This section speaks to the recent insect outbreak and provides no quantification. The USFS Rocky Mountain Region, in cooperation with the Wyoming State Forestry Division, conducts annual flights mapping insect	2033

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		damage (USDA 2008). These data are readily available online and cover a majority of the forested portions of the Planning Area. The LGCA requests that the BLM incorporate these data into the Forest Communities section of the RMP/EIS. [Table 5 Aerial Detection Survey Data for the Bighorn Basin 2008]	
10262	10262-292	The RMP/EIS states that shrublands represent approximately 2,690,284 acres of BLM administered land. Using BLM supplied Gap data and surface ownership GIS layers, the LGCA cannot recreate this number. BLM GIS files display 2,662,057 acres of shrublands. The LGCA requests that the BLM explain this discrepancy. The source of this inconsistency could be generated by the designations of shrublands and barren types. RMP/EIS Table 3-22 presents barren lands as 43,114 acres, and BLM-provided GIS files present 71,314 acres. This 28,000-acre discrepancy can be traced to a single Gap polygon located southwest of Burlington, which is attributed as Basin exposed rock/soil type in the Description field in the BLM Gap data, but is displayed as 'Shrubland-Sagebrush' on Map 29 of the RMP/EIS.	2033
10262	10262-293	Additionally, the BLM-supplied Gap data had three blank records, totaling 1,340 acres. These areas are classified as forests/woodlands and riparian/wetlands on Map 29. We request justification for these assignments.	2033
10262	10262-294	Table 6 presents successional classes for the Inter-Mountain Basins Big Sagebrush Shrubland - Wyoming Big Sagebrush biophysical setting. This analysis shows that there is a buildup of late-seral stands of sagebrush, uncharacteristic of historic plant communities (USDA and USDI 2010). [Table 6 Successional Classes in the Inter-Mountain Basins Big Sagebrush Shrubland - Wyoming Big Sagebrush Biophysical Setting (USDA and USDI 2010)] Reference conditions for the Wyoming Big Sagebrush type show a historical presence of 15% and 5% in Class A and B respectively (Barret et al. 2010). This distribution of early- and mid-seral stands was driven by the mean fire return interval of 54 years for the Wyoming Big Sagebrush type (Barret et al. 2010). The departure from historic conditions provided in Table 6 can be further examined by analyzing the fire regime condition classes (FRCC) in these shrubland habitats. Landscapes determined to fall within the category of FRCC 1 contain vegetation, fuels, and disturbances characteristic of the natural regime; FRCC 2 landscapes are those that are moderately departed from the natural regime (34-66% departure); and FRCC 3 landscapes reflect vegetation, fuels, and disturbances that are uncharacteristic of the natural regime (67-100% departure) (USDA 2007). Table 7, below, presents the FRCC of the major shrubland existing vegetation types. [Table 7 Fire Regime Condition Class by Existing Vegetation Type (USDA and USDI 2010)] The buildup in late-seral sagebrush stands, presented in Table 6, can be explained by the increase in FRCC 2 presented in Table 7. The major driver of this increase can be attributed to missing one or more burn cycles, or an increase in non-native vegetation. [Table 8 Fire Regime Condition Classes by Fire Regime Groups (USDA and USDI 2010)] Resource Condition The Resource Condition section presents differing descriptions of fire's role in the sagebrush/grassland communities. It is discussed that lack of fire has led to an increase in juniper and a loss of age class and structural diversity, and it is stated that areas experiencing multiple wildfires have been converted to cheatgrass monocultures. There needs to be a more in-depth discussion of the role of fire, which should be accompanied with tabular and spatial data.	2033
10262	10262-295	Riparian/Wetland Communities Existing conditions and acres are lacking.	2033
10262	10262-296	It is stated that, "Based on PFC assessments, many riparian/wetland areas in the	2033

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		planning area have improved over the last 15 to 20 years in response to implemented changes in grazing and other management actions." Table 3-23 presents a current PFC inventory for wetlands. Data to show the PFC ratings from 15-20 years ago are not presented. If the BLM cannot show two inventories with an improvement, the LGCA asks that the above-mentioned sentence be removed or rewritten.	
10262	10262-297	In the Management Challenges section it is stated that, "Allotments can fail standard #2 for many reasons. If failure to meet the standard is attributable to existing livestock grazing management or utilization level, then the BLM must make management changes to correct the issue." It is the assertion of the LGCA that the BLM have a minimum of two data points with a temporal range showing a downward trend before any grazing management decisions are made.	2033
10262	10262-301	Many of the vegetation goals and objectives deal with the desired plant community without adequate discussion of ecological sites or a breakdown of the existing conditions across the basin. The LGCA requests that a full description of ecological sites and the methods used to calculate percent similarity to historic climax plant community are provided.	2033
10262	10262-302	The figures presented in Record #4031, in Table 2-5, under the Alternative A column, need to specify if they are goals for percent composition by weight or by cover.	2033
10262	10262-303	Table 4-8 in this section does not present totals by alternative. Upon migrating these data into Excel and calculating totals by alternative, it was noted that very few of the totals matched the acreages provided in RMP/EIS Table 2-2. The LGCA requests that this table be reworked, with totals added, to match Table 2-2.	2033
10262	10262-306	The adverse and beneficial impacts need to be better explained. The RMP/EIS states that grazing and fire could be adverse or beneficial, and no reasoning or explanation is provided. Neither the role of fire in these vegetative systems nor a discussion of the benefits of proper grazing are presented.	2033
10262	10262-307	The RMP/EIS states, "Current trends in plant succession and vegetation health would continue." This does not account for the recent drought or the anticipated effects of climate change. The LGCA encourages the BLM to add a discussion with recent climatic and vegetative trends.	2033
10262	10262-308	The RMP/EIS states that disturbed shrublands will regain "pre-disturbance structure and density for more than 20 years." This statement is grossly underestimated, not referenced, and is in direct contradiction to the RMP/EIS. On page 3-87 the RMP/EIS states, "Many reclamation efforts performed 20 or more years ago still do not have shrubs established..." There is a wealth of research available concerning this issue. The LGCA requests that the following be incorporated into the RMP/EIS: removal of the 20-year figure, citation of literature, and reanalysis of the environmental consequences. Following intense fire or other disturbances that completely remove canopy cover, herbaceous species will dominate the ecological site, and recovery to 20% big sagebrush canopy cover may take 40 years (Young and Evans 1989) or longer (West and Yorks 2002). Canopy cover is defined as the percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants, including small openings within the canopy (Butler et al. 1997). Evidence of long-term stable grass communities for sagebrush sites in Wyoming are illustrated by models developed for the LANDFIRE project (USDA and USDI	2033

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		2010). Model R2SBWY is designed for a Wyoming big sagebrush semi-desert site and it estimates that it will take 20 years for natural succession after a fire for shrubs to achieve 10% cover. Model ROSBDW (Low sagebrush shrubland) estimates that following fire it will take 20 years for shrubs to have greater than 5% cover (USDA et al. 2011). Watts and Wambolt (1996) estimated that it will take approximately 30 years for big sagebrush cover to reach 13.5% in southwestern Montana after fire. In Montana, Eichhorn and Watts (1984) did not find seedling recruitment in a former Wyoming big sagebrush /bluebunch wheatgrass site 14 years post-fire. Similarly, Wambolt and Payne (1986) found less than 2% canopy cover of Wyoming big sagebrush 18 years post-fire (Watts and Wambolt 1996). Blaisdell et al. (1982) noted the effective use of prescribed fire could reduce cover for 25 to 50 years.	
10262	10262-309	The RMP/EIS states, "Grassland and shrubland communities would be maintained with a mix of species composition, cover, and age classes." The RMP/EIS does not disclose these data. The LGCA requests that the RMP/EIS present a table outlining the current cover type, cover, and age classes. LANDFIRE data suggest that the current conditions across the Bighorn Basin are not well distributed, but are instead dominated by late-seral stands of shrubs (USDA and USDI 2010).	2033
10262	10262-310	The LGCA appreciates the discussion of the benefits of grazing and fire to rangeland resources. This section presents the same discussion on reestablishing grassland and shrubland communities, stating that they "... would not reestablish to pre-disturbance structure and density for more than 20 years." The LGCA requests that this section be reworked to account for all relevant scientific research on this matter.	2033
10262	10262-311	The riparian/wetland resource section loosely describes the implications of management actions on this resource. This environmental consequences section lacks the quantity and distribution information needed to adequately portray the anticipated effects on this resource. As it presently stands, this environmental consequences section is inadequate for readers or decision makers to quantify effects or to compare alternatives.	2033
10262	10262-312	This section states, "In addition, efforts at conserving species, such [as] the Ute ladies-tresses (a wetland species), can directly benefit riparian condition." Section 3.4.7 of the RMP states that Ute ladies-tresses could occur, but are not known to occur within the Planning Area. It is unclear how management actions can focus on conserving species that are not known to occur in the Bighorn Basin. The LGCA requests that this section be reworked and updated to contain acres affected by alternative.	2033
10262	10262-314	1. Prior to any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area as a protective measure for vegetation protection, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates vegetation cover type, percent cover, age/size classes, structure, habitat quality and quantity, and the effects of livestock grazing in the Planning Area. At the conclusion of the study, the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.	2033
10262	10262-315	2. Prior to any proposed modification of AMPs, elimination of livestock grazing	2033

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		allotments, or adjustments to fire use plans in the Planning Area as a protective measure for vegetation protection, the BLM will design and implement a comprehensive noxious weed inventory. A complete awareness of the noxious weeds in the Bighorn Basin is necessary for proper management of the vegetative, and wildlife habitats, in the Bighorn Basin.	
10262	10262-316	3. The vegetation discussions will be updated by reviewing available science and incorporating the research, complete with citations, in the Final RMP/EIS. The vegetation discussions, as they stand now, do not offer the reader a full understanding of the resources, existing conditions, or how they differ from historic conditions. Prior to any project level NEPA analyses, the BLM shall update the vegetation dataset for the Bighorn Basin. This dataset will include vegetative components (vegetation cover type, percent cover, age/size classes, and structure), ecological site, fuels, and fire regime information. New LANDFIRE data that provides the aforementioned data requirements is available and is more detailed than GAP data, which is currently employed by the BLM.	2033
10262	10262-317	4. The BLM shall provide baseline data when disclosing sensitive plants, especially when sensitive plants are rationale for management actions. The BLM shall use the Wyoming Natural Diversity Database (WYNDD) GIS data for plant Species of Concern as baseline occurrence/presence data, but not as proof of absence. The BLM shall conduct a full inventory, providing field verified occurrences of sensitive plants to substantiate any future management actions.	2033
10262	10262-318	Overall, the vegetation discussion in the RMP/EIS is significantly flawed; there is insufficient data, incomplete inventories of existing conditions, generic effects analyses, and discrepancies in acreages both within the RMP/EIS and between the RMP/EIS and BLM provided GIS data. Throughout the RMP/EIS, there is a lack of best available science and citations are very scarce. The lacking disclosure of existing conditions adds to the confusion of how management will work to attain desired conditions. The effects analysis provided by the RMP/EIS is inadequate and filled with vague descriptions of how management action might or might not affect resources in a positive or negative manner.	2033
10262	10262-319	Before the RMP/EIS is finalized, the vegetation section must be substantially improved. The Affected Environment must compare historic and current vegetation conditions and habitat quality and quantity. The connection must be made from historic vegetation conditions to existing conditions, facilitating connections between desired conditions and management actions. Until a thorough vegetation NEPA analysis is constructed, the LGCA cannot support any management actions taken by the BLM for the protection of vegetation resources in the Bighorn Basin.	2033
10262	10262-87	The vegetation sections of the Draft Bighorn Basin RMP/EIS are consistently incomplete, contradictory, and unclear. An Affected Environment chapter should comprehensively disclose resources, spatially and tabularly, describe historic vegetative processes and conditions, and then make the case for management affecting current conditions. With this foundation set, the Environmental Consequences section can clearly describe how management will direct resources towards desired conditions. This is not the case with the Bighorn RMP/EIS. The LGCA feels very strongly that the RMP/EIS vegetation section is inadequate as a basis for making management decisions with far-reaching, both spatial and temporal, ramifications.	2033
10262	10262-107	Of particular concern in the RMP/EIS is the change in travel restrictions that would limit motorized use from the current management standard of “existing	2034

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		roads and trails” to the proposed “designated roads and trails,” which will have a significant adverse impact on energy development, grazing, and recreation uses by stifling access. While the issues that precipitate restrictions in renewable energy development, general rights-of-ways, or travel management are covered under the relevant resource sections, the LGCA requests that more information be included in the Land Resources section that cross-references the rationale for proposed change. With expanded descriptions of decisions which affect land resources, a fuller understanding can be reached concerning the variations between alternatives and, ultimately, the future actions undertaken in the Planning Area.	
10262	10262-132	Under Alternative A, Travel Management GIS data document 1,052 acres of “open to motorized use.” This figure does not match the 1,320 acres reported in Table 2-2 of the RMP.	2034
10262	10262-133	There is a second Alternative A Travel Management GIS file that the LGCA received from Mr. Caleb Hiner, BLM RMP Project Lead, named Travel Management A1. Based on cursory review it appears to be associated with Wild and Scenic Rivers designations. This data should have been incorporated into the Travel Management Alternative A file.	2034
10262	10262-134	Travel Management A1 reports 56,661 acres of “closed to motorized use.” This figure is inaccurate because acres were not recalculated when creating this file. The actual addition of “area closed to motorized use” under Travel Management Alternative A1 is 2,379 acres.	2034
10262	10262-135	The Travel Management GIS data documents 2,332,505 acres “limited to existing roads and trails” which does not match the reported 2,332,355 acres in the RMP.	2034
10262	10262-136	The TravelMngt column contains one blank record of 4,468 acres.	2034
10262	10262-137	The Alt_D column matches the “closed to motorized use” restriction for all records except one, where the “closed” designation in the TravelMngt column was not transferred to Alt_D column.	2034
10262	10262-138	There are four blank records in the Alt_D column totaling 13,908 acres with no direction as to their relevance in Alternative D Travel Management decisions.	2034
10262	10262-139	The total acreage of “closed” records in the TravelMngt column is 61,001 acres and the total of “closed” records in the Alt_D column is 53,396 acres. Neither description of closure matches the reported acres of “closed to motorized use” reported in Table 2-2 in the RMP of 60,681 acres.	2034
10262	10262-140	GIS data for areas where motorized use is “limited to designated roads and trails” covers 1,057,318 acres which does not match the 1,055,257 acres reported in Table 2-2 of the RMP.	2034
10262	10262-141	There is one blank record in the Alt_D column for the “designated roads and trails” designation that contains a designation under the TravelMngt column. When removing the blank record, the total is reduced to 1,054,942 acres, which still does not match the RMP reported acres.	2034
10262	10262-142	Seasonal restrictions on travel management are only briefly discussed in the Travel Management section of Chapter 3 and acres of changes to seasonal restrictions are not reported in Tables 2-2 or 2-5 in the RMP. A list of the areas in which the seasonal restrictions will apply is the only detail reported.	2034
10262	10262-159	Travel Management GIS data conflicts with RMP reported acreages. There are two GIS files for Travel Management Alternative A, an Alternative A file and an	2034

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		A1 file. Mr. Sanford posed the question as to whether or not A1 was incorporated into A. Mr. Hiner did not know if it was incorporated or why A1 was created. A1 appears to be travel restrictions associated with the Wild and Scenic Rivers exclusively based on an on screen review of polygon shapes.	
10262	10262-160	Some tables are missing attributes in the Travel Management Alternative D file which was acknowledged by Mr. Hiner to be a mistake. He noted that if the “seasonal” acres are added into the “designated” category, the acres should match for the category of “limited to designated” roads and trails. This solution is not a solution to the matter of the “closed to motorized use” GIS acres not matching the RMP acres and is involved in the missing attribute data problem.	2034
10262	10262-161	The LGCA tried the solutions posed by Mr. Hiner on June 9, 2011, adding seasonal designation into “limited to designated” designation. This solution did not correct the acreage differences between the GIS and RMP Table 2-2.	2034
10262	10262-51	Travel Management: Blank records in the GIS attribute table for Alternative D. RMP vs. GIS acres do not match.	2034
10262	10262-300	This affected environment section lacks the quantity and distribution information needed to adequately portray the existing condition for these species. Each of the 11 species is first discussed in a table and second in a short paragraph that describes general accounts of physiology, growth requirements, associated species, and occasionally a general locality of presence. The Wyoming Natural Diversity Database contains 252 presence locations for special status plants in the Bighorn Basin, this dataset could have been used to portray a generalized distribution of these species. As it presently stands, this affected environment section is inadequate for readers or decision makers to quantify effects described in Section 4.	2042
10262	10262-304	The RMP states, “No current forest or woodland inventory or age and species classifications are available for the Planning Area.” The LGCA argues that there are data sources readily available that would portray the current forest conditions. LANDFIRE data and the national inventory system called Forest Inventory and Analysis were not investigated.	2042
10262	10262-305	In this section it is stated that, “Aspens generally are declining due to advancement of ecological conditions and succession. The advancement of ecological conditions also leads to encroachment of evergreen species into aspen stands; for example, shade-tolerant conifers invade and eventually shade out aspen stands, contributing to their decline.” The LGCA argues that this statement is incorrect and not tied to best available science. Aspen are in decline due to lack of fire, which would equate to a degradation of ecological condition (Bradley et al. 1992). The LGCA requests that this section be rewritten to take into account best available science and to fully describe the ecological dynamics and fire regimes of these communities.	2042
10262	10262-10	Designation of LWCs could potentially erase \$1.9 billion of total potential output (gross present value) and 434 jobs annually during the drilling and completion process.	2046
10262	10262-118	The BLM failed to conduct the required economics workshop, which allows the public to “identify desired economic and social conditions” and to “collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions.” This failure has led to a disconnect between the concerns of the communities of the Planning Area and the BLMs socio-economic analysis.	2046

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10262	10262-119	The impact analysis does not satisfy Table D-3 of Appendix D. In particular, the impact analysis does not describe or quantify impacts to particular communities (the geographic dispersion of impacts).	2046
10262	10262-127	Economically, an underestimate at such a scale would have impacts that ripple throughout and beyond the Bighorn Basin. At minimum, the oil and gas development sections of the RMP/EIS must be updated to reflect true potential	2046
10262	10262-20	The BLM did not conduct a public Economic Strategies Workshop, which allows the public to “identify desired economic and social conditions” and to “collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions.”	2046
10262	10262-6	Beneficial economic impacts from Mowry Shale extraction would bring thousands of jobs and billions of dollars in revenue to the Bighorn Basin.	2046
10262	10262-210	Further, it is requested that additional mitigation measures be implemented for project-specific impacts when necessary, rather than an increase in stipulated restrictions across a larger area.	2047
10262	10262-227	Loss of leasing opportunities, closure to exploration, or NSO restrictions would effectively end future exploration of this possible significant shale gas and oil resource play.	2047
10262	10262-211	2007 - Any management decision implemented through the guidance outlined in record #2007 must be based on sound science and monitoring/field data at the project level. In addition, when considering drilling densities, please consider the projected timeline for each project activity.	2049
10262	10262-213	The RMP/EIS (pg. 3-40) discloses “Disturbed areas must be reclaimed after exploration and mining activities are completed.” Please clarify this statement by adding that comprehensive reclamation plans are required for all project-level activities that exceed casual use and result in surface disturbance.	2049
10262	10262-214	Additionally, include guidance from the BLM Solid Minerals Reclamation Handbook and state that reclamation plans will fulfill federal, state, county, and other local agencies requirements.	2049
10262	10262-216	It is stated in the RMP/EIS (pg. 3-42) that: Critical thresholds relevant to continued development of locatable minerals in the Planning Area have not been specifically determined under the existing management scenario. However, using the Geographic Information System (GIS), the BLM might be better able to determine threshold levels of disturbance in relation to locatable mineral (primarily bentonite) mining, and be better able to make future decisions because of these capabilities. The LGCA requests that if future thresholds are considered, that they are made available for review and discussion.	2049
10262	10262-222	In order to qualitatively understand how restrictions in the RMP/EIS would affect future development, and by using Alternative 4 as an example, the LGCA conducted a risk analysis for the total area of the USGS Mowry Shale/Muddy Frontier Sandstone AUs that do not directly correlate to the RMP/EIS mineral constraints.	2049
10262	10262-232	In order to accurately characterize oil and gas activity in the Planning Area, the LGCA requests that data and trends be provided for the following comments: The RMP/EIS states (pg. 3-47) “There are 82 operators actively exploring for or producing oil and gas resources in the Planning Area.” Please disclose the number of operators actively holding leases that are not conducting active	2049

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		operations in the Planning Area.	
10262	10262-233	The RMP/EIS discloses (pg. 3-48) "At the close of 2008, there were 4,544 active oil and gas wells in the Planning Area (BLM 2009c)." Provide the start date of operations for all active wells in the Planning Area in order to determine an increase or decrease in activity	2049
10262	10262-234	The RMP/EIS states (pg. 3-48) "There has been an overall upward trend in the number of APDs approved on federal oil and gas leases in the Planning Area since 2002, particularly after passage of the National Energy Policy of 2001 and the Energy Policy Act of 2005. However, starting in 2008 there was a decrease in APD submissions, which was primarily driven by market conditions for oil and natural gas." Provide data by year for these trends in order to portray how changes in policy and market conditions have affected oil and gas activity in the Planning Area.	2049
10262	10262-235	The above statement acknowledges that there are cycles when it comes to oil and gas production, yet the RMP/EIS completely dismisses the fact that there could be an upward trend in production during the 20-year planning period. Characterizing the affected environment to be in a constant decline or static state limits the impact analysis and prevents successful planning and management.	2049
10262	10262-253	In regards to interim and final reclamation, the BLM shall include guidance in the RMP/EIS from the Solid Minerals Reclamation Handbook H-3042-1 and state that reclamation plans will fulfill federal, state, county, and other local agencies requirements.	2049
10262	10262-256	The RMP/EIS states (pg. 3-41) "The six mines in the Bighorn Basin employ 132 persons, and another 360 persons are employed at the milling processing facilities at six different mills (one in the Worland area, two near Greybull, and three near Lovell, Wyoming)." The stated number of employees in the Bighorn Basin provided from the bentonite industry is higher than the number disclosed in the Plan. For example, Bentonite Performance Minerals, LLC has four full-time contractors (stripping overburden, hauling bentonite, drilling/blasting and conducting environmental activities) totaling over 60 employees (Scott pers. comm.). The number stated in the Plan is the number of employees who work "in-house" for the bentonite companies, i.e. not contractors. Please include the number of people employed as contractors for the bentonite industry in the RMP/EIS.	2049
10262	10262-260	Moreover, it is requested that BLM modify the description of Alternative C in Record # 2029 (Table 2-5) as follows: Delineate Oil and Gas Management Areas (Map 21) (592,983 acres) around intensively-developed existing fields and existing fields with potential for EOR, using a buffer zone of up to 2 miles from the outer boundary of the existing field and incorporating all Federal surface and minerals within the boundaries of ROZ Potential Sites. Within these areas, manage primarily for oil and gas exploration and development (including EOR) and carbon sequestration; consider all other surface uses secondary. The oil and gas management areas would be allowed to be developed at the well spacing and surface densities (for all surface disturbing activities) of the existing fields.	2049
10262	10262-267	It is also requested that the BLM modify Record # 6033 in Table 2-5 (p. 2-111) as follows: Designate ROW corridors as shown on Map 53. No limit will be placed on the width of these corridors as long as new linear facilities are constructed adjacent to existing linear facilities recognizing the need for adequate separation for operating system integrity, safety (construction and operations),	2049

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		appropriate federal, state and local statutes, regulations and policies, and land use constraints. Where BLM determines that a linear facility should be moved away from an adjacent utility to avoid a resource conflict, the new linear facility will still be considered to be within the RMP corridor.	
10262	10262-240	The LGCA agree with WEORI's position that large reserves of oil will be realized with the implementation of CO2 EOR in the Planning Area, and as such, the need for additional infrastructure. In agreement with the State of Wyoming, the LGCA request that the BLM fully evaluate the potential for significant EOR development in the Final EIS to facilitate and expedite EOR.	2051
10262	10262-241	It is anticipated that the Final RMP/EIS will provide sufficient analysis and candid public disclosure to allow EOR development to proceed using EAs, rather than lengthy EISs with significant Plan Amendments. Accordingly, the LGCA supports the proceeding statement provided by the State	2051
10262	10262-247	The LGCA believes this to be a flawed premise considering the probable advances in technology over the 20-year life of the plan; technological advances are a reasonable assumption that should have been used in forming the baseline unconstrained projection in the RMP/EIS.	2051
10262	10262-258	The LGCA agree with WEORI's position that large reserves of oil may be realized with the implementation of CO2 EOR in the Planning Area, and as such, the need for additional infrastructure, including additional wells, may have been greatly underestimated in the RMP/EIS. The LGCA agrees that this is a significant oversight and also encourages the BLM to develop a management plan that encourages and facilitates delivery, utilization, and sequestration of CO2 in the Planning Area related to EOR operations. Thus, please update and include information pertaining to EOR implementation, including the effects of ROW constraints on CO2 delivery, and incorporate those revised projections in the RMP/EIS.	2051
10262	10262-3	There is no treatment or consideration of enhanced oil recovery potential in the Bighorn Basin. New drilling techniques and the use of CO2 could significantly change the potential of the Basin to develop energy resources.	2051
10262	10262-81	The RMP/EIS should thoroughly address the likely increase in demand over the 20-year planning period and the increase in development that recent advances in technology will yield.	2051
10262	10262-83	Yet, recent oil and gas discoveries and comparisons of past assessments indicate that there needs to be an accounting of advances in technology.	2051
10262	10262-128	Realistically, the RMP/EIS should be entirely revised and impacts from increased development should be analyzed across all affected resources.	2054
10262	10262-31	In total, the key findings and issues identified lead the LGCA to firmly assert that the RMP/EIS is inadequate in its current form. Of great concern to the LGCA is the overwhelming lack of both historic and current condition quantitative data in the RMP/EIS. A common theme commented on by the LGCA throughout the revision process has been, and continues to be, that the BLM is proposing management actions with associated constraints and restrictions on domestic livestock grazing, oil and gas development, and the travel management infrastructure without demonstrating cause and/or need. If the BLM can substantiate management challenges via data collection and analysis, then the LGCA, stakeholders, and the general public will have an opportunity to evaluate the accuracy of findings and results. Should field data and corroborating research validate the need for an alteration of uses to protect the natural	2054

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		environment, the LGCA and stakeholders are willing to collaborate with the BLM to identify adaptive management strategies that are in the interest of all parties and Planning Area resources. Unfortunately, the BLM has largely ignored numerous requests by the LGCA, following review of previous iterations of the RMP/EIS and Analysis of the Management Situation (AMS), to increase the amount and use quantitative data and scientific literature in BLM-produced documents.	
10262	10262-32	Accordingly, the LGCA reached out to the BLM to strengthen the definition of stakeholder in the RMP/EIS. Presently, the definition of stakeholder in the RMP/EIS (Glossary-37) is as follows: An individual or group (such as local government) with a "stake" or interest in the success of delivering or maintaining the viability of a business's products and services. Stakeholders influence programs, products, and services (BLM 2009a). On August 19, 2011, Caleb Hiner (Bighorn Basin RMP/EIS Project Lead) corresponded with the LGCA and propositioned the inclusion of a second definition of stakeholder in the RMP/EIS. The addition, which will become part of the current definition, reads as follows: Federal, state, or local governments and agencies, or other entities where a Memorandum of Understanding, Cooperative Agreement, Interagency Agreement, or other such agreement has been executed with the BLM, or an applicant for a BLM authorization or permit.	2054
10262	10262-33	The LGCA supports the revised definition of stakeholder and finds that the BLM shall update the RMP/EIS with the new definition. Stakeholder is used throughout this comment document. Its use and meaning is compatible with Mr. Hiner's proposed revision with one exception. Record #6268, commensurate with Goals/Objectives LR:10.1 and LR:10.3, in the RMP/EIS (2-160) states the following: In cooperation, consultation, and coordination with permittees/lessees, cooperators, and other stakeholders, develop and implement appropriate livestock grazing management actions to enhance rangeland health, improve forage for livestock, and meet other multiple use objectives by using the Wyoming Guidelines for Livestock Grazing Management, other appropriate BMPs (see Appendices L and W), and development of appropriate range improvements. The LGCA strongly urges the BLM to delete the word "stakeholder" from this Record #6268 and add the words "interested public." Interested public is an established term used in the livestock grazing portions of the Code of Federal Regulations (CFR) and this RMP must be consistent with existing regulations. CFR 4100.0-5 includes a specific definition for interested publics. It is important to cite these regulations in the RMP: CFR 4100.0-5 Interested public means an individual, group, or organization that has:(1)(i) Submitted a written request to BLM to be provided an opportunity to be involved in the decision making process as to a specific allotment, and(ii) Followed up that request by submitting written comment as to management of a specific allotment, or otherwise participating in the decision making process as to a specific allotment, if BLM has provided them an opportunity for comment or other participation; or(2) Submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment. Even though there is a definition of stakeholders in the glossary, stakeholders are not included in the grazing portion of the regulations and cannot be used in this RMP. The definition of stakeholders in the glossary can include anyone holding U.S. citizenship. The CFR regulations cited above require U.S. citizens to actively request involvement before being consulted on grazing management decisions and allotment management plans (AMP).	2054

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10262	10262-67	It is our contention that the RMP/EIS in its present iteration is incomplete in numerous capacities. Chapter 3 - Affected Environment describes the current condition in such general terms it leaves the LGCA questioning the existing state of the natural environment. Is it above average with minor problems or below average condition with significant issues? The stated problem with Chapter 3 is that it lacks critical scientific substantiation through data and research. This is true for both current and historic conditions.	2054
10262	10262-70	A concurrent dilemma with having insufficient methods is that Chapter 4 does not divulge measurement indicators. Both methods and measurement indicators are indispensable in an EIS. Measurement indicators define the variable(s) most likely to impact, negatively or positively, a resource upon plan implementation. Sans methods and measurement indicators, an EIS is ineffectual.	2054
10262	10262-72	The RMP/EIS does not adequately describe the environment of the area. Baseline and historical condition descriptions are not found within the RMP/EIS.	2054
10262	10262-19	Measurement indicators are missing for all resources, making it infeasible to conduct an effects analysis.	2055
10262	10262-47	In reviewing the RMP/EIS, as well as maps and data disseminated by the BLM during the RMP revision process, it is clear that there are several issues with data and information presented as fact by the BLM. The hierarchy of federal requirements, as existing in statutes, rules and regulations, case law, and agency handbooks and manuals was reviewed and, in fact, corroborates that the BLM inaccurately used and presented data and information. It is for this reason that the LGCA asserts that the BLM must recognize and correct factual errors as required by the Data Quality Act (DQA) of 2000.	2055
10262	10262-57	It is for the highlighted examples of data quality issues in the RMP/EIS provided above that the LGCA asserts that the BLM must recognize and correct factual errors as required by the DQA. The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information. The BLM, in preparing the RMP/EIS, failed to abide by the provisions of the DQA.	2055
10262	10262-58	LGCA members believe that the BLM has ignored in the RMP/EIS numerous stated policies and goals included in the Big Horn, Hot Springs, Park, and Washakie Land Use Plans and Meeteetse, Cody, Hot Springs, Powell-Clarks Fork, Shoshone, South Big Horn, and Washakie County Conservation District Land Use Plans. In not addressing inconsistencies between the RMP/EIS and County and Conservation District Land Use Plans, the BLM is in violation of CEQ Section 1506.2 - Elimination of Duplication with State and Local Procedures. The counties and conservation districts have consistently stated that they favor continued multiple use and disfavor reducing access to public lands for a variety of purposes.	2055
10262	10262-60	Implementation of multiple uses through a combination of elements selected from Alternative A, B, C, and D, which would work to strike an appropriate balance between traditional and non-traditional resource uses and recreational use/conservation, is the goal of the LGCA. Alternative B and D, in particular, restrict certain multiple uses (e.g. resource extraction, grazing, and travel management designations) across much of the Planning Area, which is contradictory to the stated goals of the BLM, as well as the policies set forth in the county and conservation district land use plans.	2055
10262	10262-71	The previously identified issues regarding lack of data and analysis to support	2055

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		management actions in the RMP/EIS, which are based on lack of baseline or historical conditions, violate CEQ Section 1502.15 Affected Environment	
10262	10262-74	Information missing from the RMP/EIS is extensive and varying in degrees of absence (from wholesale nondisclosure of historic, baseline, and existing conditions and quantitative effects analysis to repeatedly not referencing with citation(s) what is portrayed as statement of fact). CEQ regulations speak directly to the inclusion or exclusion of “incomplete or unavailable information” in Section 1502.22	2055
10262	10262-75	Because cost to obtain a significant majority of the missing information in the RMP/EIS would not be exorbitant, Part A of CEQ 1502.22 is relevant. By violating CEQ1502.22, the BLM produced a NEPA document out of compliance and ineffectual in guiding management action in the Planning Area. As such, the LGCA is gravely concerned that management actions in the future will unduly restrict or prohibit multiple uses in the Planning Area for the next 20 years.	2055
10262	10262-130	Inconsistencies were found in GIS shapefiles related to the Recreation Management Areas (RMA), Travel Management, Withdrawals, Geothermal Constraints, Rights-of-Way (ROW) Avoidance and Exclusion Areas, and Mineral Constraints.	2057
10262	10262-131	When differences are in the hundreds and thousands of acres, these differences reflect mistakes and demonstrate that the results of the RMP/EIS cannot be duplicated.	2057
10262	10262-17	Historic and current condition data for the Planning Area are undisclosed and necessary for proper analysis of the alternatives.	2057
10262	10262-171	The analysis processes, shapes, and acreages contained within the RMP GIS data should be complete, accurate, and highly reproducible. They are not.	2057
10262	10262-172	The definition queries for selection processes should have been thoroughly tracked in GIS or in a text document. They were not.	2057
10262	10262-173	At least one of the two options for documenting GIS analysis should be included in the project’s administrative record.	2057
10262	10262-50	It is not possible to recreate maps and information based on information provided in the RMP/EIS. Therefore, the BLM must better describe and disclose methodologies and correct GIS data issues.	2057
10262	10262-62	It is disconcerting to see significant inconsistencies and inaccuracies in GIS data in an RMP/EIS that will guide management on 5.6 million acres for 20 years. The Bighorn Basin RMP will have major impacts to the local communities and stakeholders in the Bighorn Basin. Inaccuracies in the RMP/EIS need to be acknowledged and fixed prior to the release of the Final RMP/EIS.	2057
10262	10262-63	The analysis processes, shapes, and acreages contained within the RMP/EIS GIS data should be complete, accurate, and highly reproducible. The DQA (Public Law 106-554, Â§515) requires Federal agencies to ensure that influential information, such as that used in the preparation of resource management plans, be characterized by reproducibility and transparency. The RMP/EIS GIS data does not meet these requirements.	2057
10262	10262-64	A number of issues were resolved, but many major data issues remain unresolved. Coordination by ERG’s highly skilled GIS staff should not be required to use data to recreate acreages and analysis. The definition queries for selection processes should have been thoroughly tracked in GIS, or at the least in a text document. Again, this did not occur.	2057

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10262	10262-65	GIS data sets and methodologies should be in the administrative record for the RMP/EIS. GIS files that match the acreages in the RMP/EIS also need to be included in the administrative record. The files that the BLM supplied to ERG do not match information in the RMP/EIS. Proper documentation of GIS methodologies is required to recreate analyses and acreages reported in the RMP/EIS.	2057
10262	10262-66	Two options to document GIS analysis and definition query processes when conducting GIS analysis surrounding public land use policies and projects are as follows: A complete library of the original GIS data sets with completed geometry and attribute information is required. The library would be supplemented by a text document clearly outlining the definition queries and selection processes documented in order to recreate the analysis processes performed by ICF International (BLM contractor working on the RMP/EIS) to arrive at the acreages and conclusions reported in the RMP/EIS. Metadata for all GIS files should be complete according to the Federal Geographic Data Committee (FGDC) guidelines. A more common and simplistic approach is to set the definition queries or selection process, run the analysis processes, and export them into new, final analysis GIS files and disseminate those to the public or cooperating agencies. All appropriate metadata needs to be completed under the FGDC metadata guidelines for all original and final analysis files. At least one of the two options for documenting GIS analysis should be included in the project’s administrative record.	2057
10262	10262-8	Geographic Information Systems (GIS) files provided to the LGCA include blank attribute table records, overlapping polygons of disparate management actions, and datasets that cannot be used to reproduce numbers in the RMP/EIS.	2057
10262	10262-36	Regrettably, in the seven meetings held by the LGCA (attended by 360 individuals (meeting sign-in sheets available upon request)), beginning May 24th in Thermopolis and ending June 1st in Cody, at only one meeting (Worland May 25th) did one BLM employee (Caleb Hiner, Bighorn Basin RMP/EIS Project Lead) attend. Only recently has it come to the LGCA’s attention that BLM employees were instructed by the BLM Regional Director Eddie Bateson to not attend any of the meetings sponsored by the LGCA (pers. comm. Shockley Siggins). By intentionally not attending the cooperating agency public meetings on the Draft RMP/EIS review, the BLM has breached much of the inclusive guidance in the manuals and regulations (e.g. Federal Land Policy and Management Act (FLPMA), NEPA, CEQ, BLM Planning Handbook, Final Land Use Planning Rule in the Federal Register (Vol. 70, No. 55), and the BLM Contractor’s Public Participation Plan).	2060
10262	10262-37	The signed Cooperating Agency MOUs state under the “responsibilities of the BLM” (5) that: “the BLM will utilize the (County or Conservation District name) input and proposals to the maximum extent possible consistent with legal requirements and its responsibility as lead agency.” By intentionally ignoring the seven public meetings (Thermopolis, May 24th, 58 attendees; Ten Sleep, May 25th, 41 attendees; Worland, May 25th 32 attendees; Greybull 78 attendees; Powell May 31st, 51 attendees; Meeteetse, June 1st, 26 attendees; and Cody, June 1st, 74 attendees) sponsored by the LGCA to review the RMP/EIS, the BLM violated the intent if not the letter of the MOUs. Section 6 of the MOU states: parties will cooperate in the development and review (emphasis ours) of any operating guidelines or agreements between (County or Conservation District name) or BLM and other entities involved in the EIS for Bighorn Basin RMP	2060

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		effort which might affect the environmental analysis and writing of the EIS. BLM and (County or Conservation District name) agree to meet on issues concerning the EIS at the request of either party.	
10262	10262-38	By deliberately neglecting public concerns discussed at the local government sponsored meetings, the BLM violated the coordination, cooperation, consultation, and collaboration requirements.	2060
10262	10262-39	It would have been in the best interest of the agency and the public if the BLM would have attended, as the meetings were highly objective, informative, and civil. The 360 attendees of the LGCA meetings had and have valid interests and concerns unlikely captured in the BLM content and comment analysis. The fundamental planning concerns by interested attendees were dismissed by the BLM and clearly articulated by the Regional Director’s decision to forbid BLM from observing and listening to stakeholders in local meetings. The fact that the BLM sponsored meetings were round tables, without the benefit of presentations or available forums to publically comment, made the BLM meetings unnecessarily confusing. One participant in the Worland meeting, while waiting for BLM personnel to finish a non-stakeholder discussion, left a note which read “this is confusing.”	2060
10262	10262-126	In addition to the expressed concern the LGCA has with the primacy given to wildlife species and habitat protection (e.g. CSU, NSO, and TLS constraints and LWC and ACEC designations) is the apparent understated oil and gas development potential presented in both the RMP/EIS and RFD. Marathon Oil has stated that in their professional opinion the RFD is understated by a factor of 25 to 50. Using a conservative estimate that the RFD is understated by a factor of 10, well potential in the Mowry Shale currently under lease would increase exponentially. In the entire Mowry Shale formation, both leased and non-leased, the well potential would increase even more.	2061
10262	10262-215	If there are known commercially viable minerals associated with rare earth elements in the Planning Area, please provide an inventory per FLPMA Sec. 201. An evaluation of economically viable quantities should include fluvial placer deposits.	2061
10262	10262-218	it is thought that a review of the regional geology provides opportunities for discovering new oil and gas reserves along the western boundary of the basin that were not adequately evaluated or had understated potential (i.e. low to no potential) in the Bighorn Basin RFD.	2061
10262	10262-219	In at least 16 Bighorn Phosphoria fields, stratigraphic variation contributes greatly to the structure of the Phosphoria trap and is essential in at least three fields (Cottonwood Creek, Manderson, and Water Creek) (Stone 1967). Considering this stratigraphic variation and that one petroleum system in the basin is sourced from the Phosphoria Formation, it is probable that there are opportunities for discovering new reserves in this formation (USDI 2008a).	2061
10262	10262-220	Further, one of the understated areas that may have potential for new discoveries is the Mowry Fractured Shale as defined by the USGS (USDI 2008b).	2061
10262	10262-221	The USGS evaluated the Mowry Fractured Shale play in their recent assessment of undiscovered oil and gas resources of the Bighorn Basin (USDI 2008b). The Mowry Fractured Shale was included in the Cretaceous-Tertiary Composite Total Petroleum System Muddy-Frontier Sandstone and Mowry Fractured Shale Continuous Gas assessment unit (AU) and was also evaluated separately as the Mowry Fractured Shale Oil AU. The extents of the two assessment units are	2061

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		shown in Figure 5. Estimated undiscovered continuous oil and gas reserves were five million barrels of oil in the Mowry Fractured Shale AU and 348 billion cubic feet of gas in the Muddy-Frontier-Mowry AU. It is interesting to note that the Crosby 25-2, Crosby 25-3, and the Ainsworth 13-35 wells discussed above were drilled outside both AU boundaries, therefore indicating Mowry production throughout the basin cannot be overlooked.	
10262	10262-223	In further support of the RMP/EIS being understated, according to Marathon Oil Company (Marathon Oil Company 2010): Table 4 of the RFD (the U.S. Geological Survey's Undiscovered Reserve Estimates) understates the probability of significant discoveries in these resource plays.	2061
10262	10262-224	Upon there being a successful discovery of these gas plays, the recovery for each could easily be between 25 to 50 times the projected mean amounts. For planning purposes, it would be best to include the potential of each of these plays, since a successful discovery would generate activity and a significant positive economic impact on the affected county(ies) and the state.	2061
10262	10262-225	Another area that may have been overlooked in the RMP/EIS is the Sub-Absaroka play. The Sub-Absaroka play was evaluated by the USGS in their 1995 national assessment of oil and gas resources (Fox and Dolton 1995) but it was not included in their more recent 2008 assessment of undiscovered oil and gas potential for the Bighorn Basin. It was also not included in the 2009 draft BLM's Bighorn Basin RFD analysis.	2061
10262	10262-226	According to the 1995 USGS assessment, the Sub-Absaroka is a "demonstrated" oil play located along the western side of the basin beneath Eocene-age volcanic rocks. That study stated that the potential for significant new field discoveries was considered to be "good." Oil was predicted to be trapped in Laramide-age anticlines and domes, similar to producing structures successfully developed elsewhere in the basin. In the 2009 RFD, this area is considered to have low or no potential.	2061
10262	10262-228	The oil and gas potential within the Bighorn Basin Planning Area is shown in Figure 40 of the Bighorn Basin RFD. A similar projection for oil and gas potential in the western portion of the planning area was forecast in the Shoshone National Forest (Shoshone) RFD (Figure 9 of (USDA 2011)). Those two potential projections were overlain and discrepancies were observed. As shown in Map 1[BLM RFD Compared to Shoshone National Forest RFD], there are several areas where the Shoshone RFD projects a high potential for the occurrence of oil and gas and the Bighorn Basin RFD projects a very low to low potential. There are also areas where the Shoshone RFD projects moderate potential and the Bighorn Basin RFD projects very low potential. The BLM should reevaluate the discrepancies observed on overlapping areas of the Shoshone and BLM RFD and incorporate this information into the RMP/EIS if determined necessary.	2061
10262	10262-236	Table 3-16 in the RMP/EIS lists the projections of the amount of oil, gas and natural gas liquid resources in the Planning Area. The list does not include an estimate of the Sub-Absaroka play.	2061
10262	10262-238	Since the Bighorn Basin shares many geologic characteristics with these basins, it is thought that a number of stratigraphic and structural plays remain to be found in the under-explored central and far west portions of the Bighorn Basin (Herrod 2010a). As such, the future drilling activity may be much greater than that predicted in the RFD.	2061
10262	10262-239	Also, the methods used to calculate surface disturbance from projected new-	2061

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		well counts in the RFD are insufficiently described and the LGCA supports the following comment provided by the State of Wyoming: the BLM is not as clear on how impacts are treated and how disturbance is calculated from these well counts. It is my understanding that disturbance and impacts projected using the RFD well counts is also provided solely for the purposes of comparing impacts between alternatives and that it is not BLM's intention that any of the estimates of disturbance or impacts provided in the RMP or EIS represent "analysis thresholds" for determining what actions may require a plan amendment. The relationship between disturbance estimates and impacts and what constitutes an analysis threshold is not clear in the Draft RMP and DEIS and BLM needs to provide a clear statement that exceeding the estimates of disturbance or impacts in the EIS will not result in the need for an RMP amendment. For instance, in Appendix T of the draft RMP/EIS BLM calculates short- and long-term surface disturbance from leasable oil and gas for each of the alternatives. Short-term disturbance during the 20-year projection period ranges from 1,527 (Alternative B) to 3,771 acres (Alternative C) on public lands. The projection for fee and state surface is 1,533 acres for all alternatives. BLM needs to clarify in the Final RMP and EIS that these estimates are provided for analysis purposes only to demonstrate the difference between alternatives and that disturbance or impacts beyond the analysis assumptions does not require a plan amendment.	
10262	10262-246	This suggests that the impact analysis is based on an RFD that does not take into account the potential for high oil and gas occurrence and the known geologic and engineering assumptions associated with the Bighorn Basin. Please disclose the percent for high potential occurrence in the Planning Area in the RMP/EIS.	2061
10262	10262-250	The RMP/EIS (pg. 4-77) states "However, because sand and gravel are the principal salable minerals found in commercial quantities in the Planning Area, wherever possible, this analysis describes specific impacts to the disposal of sand and gravel. Acreages of occurrence potential of other mineral materials were not available at the time of analysis." There is a discrepancy between this statement and what has been included in the findings (ex. limestone occurrence potential) of the Bighorn Basin Solid Mineral Occurrence and Development Potential Report. Please disclose occurrence potential acreages when possible in order to ensure that the impacts analysis for salable minerals materials is correct.	2061
10262	10262-254	If there are known commercially viable minerals associated with rare earth elements in the Planning Area, please provide an inventory per FLPMA Sec. 201.	2061
10262	10262-261	The RMP/EIS understates unconventional oil and gas potential in the Mowry Shale and the Muddy Frontier Sandstone/Mowry Shale, and therefore, the potential reserves are not accurately depicted in the baseline development projections in the RMP/EIS. The BLM should include additional discussion in the RMP/EIS to accurately reflect unconventional oil and gas potential in the Mowry Shale and the Muddy Frontier Sandstone/Mowry Shale.	2061
10262	10262-262	The correlation between RFD surface disturbance estimates and what constitutes an impacts analysis threshold is not clear in the Draft RMP and DEIS. The BLM needs to provide a clear statement that exceeding the projected new-well counts and estimates of disturbance or impacts in the EIS will not result in the need for a Plan Amendment.	2061
10262	10262-263	Given the concern that the projected new-well numbers disclosed in the RMP/EIS could be perceived as a limit, the LGCA requests the following addition	2061

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		provided from the Wyoming Rawlins Field Office RMP Record of Decision: “The number of wells projected in the RFD scenario for oil and gas does not limit or cap the number of wells that can be drilled, nor the amount of surface disturbance that will be allowed during the period covered by the Proposed RMP/Final EIS. This clarification reaffirms that the RFD is intended for analysis purposes only. Individual implementation level project proposals will be subject to site-specific NEPA analysis to ensure conformance with the Approved RMP.”	
10262	10262-264	Given the importance of the baseline unconstrained projection for oil and gas in the Planning Area, the BLM should reevaluate the discrepancies observed on overlapping areas of the Shoshone and BLM RFD.	2061
10262	10262-271	It is of great importance to the LGCA that the aforementioned mitigations be implemented, because only an accurate prediction of likely energy development and exploration will lead to proper and effective management and planning. It is also essential that the impacts to mineral resources be analyzed thoroughly and accurately, especially since the disclosed impacts for many other resource areas are coupled with these results.	2061
10262	10262-4	Mineral potential in the Bighorn Basin is significantly underestimated in the RFD scenarios.	2061
10262	10262-5	Mowry Shale energy potential is not evaluated in the RMP/EIS.	2061
10262	10262-82	The RMP/EIS states under Section 4.2.5 Leasable Minerals - Oil and Gas (pg. 4-55) the following: The potential for oil and gas occurrence in the Planning Area ranges from high to low, depending on location, as documented in the Reasonable Foreseeable Development Scenario (RFD). The RFD for oil and gas in the Planning Area analyzed the potential for anticipated drilling activity over the next 20 years. Lands in the Planning Area are classified as having moderate to no potential for development of oil and gas resources, depending on location and based on projected drilling densities (BLM 2009u). Drilling in existing fields accounts for a large proportion of the growth, with a lesser share attributed to additional new discoveries in both conventional and unconventional reservoirs. However, it is documented in Figure 40 of the Draft Bighorn Basin RFD, and cited in the RMP/EIS, that 92 percent of the Planning Area is classified as high occurrence potential for oil and gas (USDI 2009a). While it is appropriate to use past drilling densities in part to establish a baseline for development potential, it is incorrect to disregard the high occurrence potential throughout the Planning Area.	2061
10262	10262-84	The RMP/EIS posits that management direction for oil and gas leasing be based on past drilling densities disclosed in the RFD and, in doing so, may significantly underestimate the development potential of recoverable oil and gas resources within the Bighorn Basin. Therefore, the impacts to oil and gas resources are most likely miscalculated, which in turn leads to insufficient analysis from many other resources listed in the RMP/EIS.	2061
10262	10262-149	The Alternative A and D GIS data supplied by the BLM for RMAs are incomplete. Shapes and records for Worland Caves Special Recreation Management Area (SRMA), Beck Lake Extensive Recreation Management Area (ERMA), and Newton Lake Ridge ERMA are missing from the Alternative A GIS data, but are listed in Table 4-15.	2062
10262	10262-150	The Bighorn Basin ERMA is accounted for in Alternative D but not in Alternative A, which is a misrepresentation of current management.	2062
10262	10262-151	The SRMA portion of the South Bighorn’s RMA, listed in Alternative D Table 4-15	2062

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		as containing 14,668 acres, is missing from the Alternative D RMAs GIS files.	
10262	10262-152	Maps 59-62 of the RMP do not display all SRMAs, ERMAs, and RMZs located on BLM lands in the Bighorn Basin. They only display selected RMAs, misrepresenting the on-the-ground management to the public. That may be due to the missing data in the RMA GIS Files.	2062
10262	10262-153	The Canyons RMZ is reported, in Table 4-15, as containing 141,793 acres. The GIS data reports the Canyons RMZ as containing 127,268 acres.	2062
10262	10262-162	The RMAs for both Alternative A and D are missing records and shapes for multiple RMA designations. Mr. Hiner acknowledged that in fact the files are incomplete and is attempting to track them down. He offered a solution as to how the LGCA can create the shapes and records. This is not the LGCA's responsibility. These shapes and records should have been completed before they were disclosed in the RMP and the RMP was released.	2062
10262	10262-55	Recreation Management Areas (RMAs): Both Alternative A and D GIS files do not show a complete data set of all RMAs included in the RMP.	2062
10262	10262-22	Rights-of-way (ROW) avoidance/mitigation areas are immense (941,778 acres - 2,717,617 acres), economically irresponsible, and not proven to be necessary or effective in protecting resources.	2066
10262	10262-147	The LGCA discovered that the BLM Rights-of-Way (ROW) GIS files for both Alternative A and D contained overlapping polygons resulting in a double counting of acreages. Also, the attribute table had multiple miss-spellings for both ROW categories.	2067
10262	10262-148	The ROW Avoidance Areas acreage for Alternative A reported in the RMP Table 2-2 is 941,778. The acres in GIS are 973,467. The ROW Avoidance Areas for Alternative D in Table 2-2 is 2,512,202 and the GIS acres are 2,536,211. These differences cannot be rectified with the GIS data supplied by the BLM.	2067
10262	10262-54	Rights-of-Way Avoidance and Exclusion: GIS file contained overlapping areas resulting in conflicting management in the same areas. This also results in incorrect acres.	2067
10262	10262-95	The discussion of greater sage-grouse in the RMP/EIS Affected Environment is deficient, rendering impossible proper analysis of impacts disclosed in Environmental Consequences. First, management challenges are not isolated, but amalgamated.	2071
10262	10262-96	Again, as with big game, the RMP/EIS does not include predation as a management challenge facing greater sage-grouse. Certainly predation is one of many factors affecting greater sage-grouse in the Bighorn Basin.	2071
10262	10262-97	Finally, as it pertains to greater sage-grouse, guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, not arbitrary Key Areas constructed by the BLM, and provides adaptive management principles for the species, shall be implemented by the BLM.	2071
10262	10262-113	according to the RMP/EIS, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations	2074
10262	10262-14	Reductions in animal unit months (AUMs) are a result of management actions that change AUM allocations or restrict livestock grazing. Yet, the only	2074

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		disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations.	
10262	10262-174	potential impacts on grazing that are not explicit in the RMP. The RMP states that the current AUMs of 305,887 will only be reduced by 1-2% over the life of the Plan. However, according to the Plan, direct impacts to livestock grazing will result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures.	2074
10262	10262-175	There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 - 162) that state management must be consistent with “other resource objectives,” but does not disclose which resources or objectives.	2074
10262	10262-122	the following mitigation/corrective action was devised by the LGCA for wildlife and grazing: Prior to any proposed modification of an AMP or elimination of livestock grazing allotments in the Planning Area as a protective measure for greater sage-grouse and/or other wildlife species, the BLM must design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of livestock grazing in the Planning Area. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.	2076
10262	10262-243	Therefore, the boundaries of the Alternative D VRM Class II encompassing the Sheep Mountain Anticline ACEC should be modified to provide an additional ¼-mile buffer of the adjacent Alternative D VRM Class IV to more fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.	2077
10262	10262-244	The RMP/EIS (pg.4-51) states “Under Alternative D, withdrawals are pursued on the second-fewest acres of ACECs, after Alternative C, but the alternative includes the most acreage that can be withdrawn in ACECs on a case-by-case basis for resource protection.” Yet it is unclear if the aforementioned ACEC acres are included in the already disclosed areas or if they would be additive. Please clarify this statement and identify proposed ACECs that would be withdrawn on a case-by-case basis.	2077
10262	10262-251	The RMP/EIS (pg. 4-75 to 4-76) states “As a result of specific stipulations for ferruginous hawks, lands where greater sage-grouse and raptor habitats overlap could be subject to development restrictions for most of the year (9 months).” Without population data on raptors, coupled with the fact that golden eagle and osprey “appear to be increasing throughout the Planning Area,” the TLS and CSU restrictions are too restrictive (see Wildlife Corrective Actions).	2077
10262	10262-255	Correct the boundaries of the Alternative D VRM Class II for the Sheep Mountain Anticline ACEC to provide a ¼-mile buffer of the adjacent VRM Class IV to fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.	2077
10262	10262-61	With respect to projections of oil and gas development in the RMP/EIS, the	2077

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		LGCA believes that the BLM significantly underestimated the potential for recent and upcoming technologies to develop existing resources. This position is backed up by letters and comments from those in the industry (see Mineral Resource discussion and comments). The number of acres administratively unavailable to oil and gas leasing increases from approximately 155,000 under current conditions (Alternative A) to over 290,000 acres under the BLM-preferred alternative (Alternative D). This is not consistent with the goals and policies of any of the county and conservation district land use plans.	
10262	10262-190	Names of Class I and Class II areas in or near the Planning Area are presented on page 3-19. Please provide a map of the Class I and Class II areas in or near the planning area.	2009_1
10262	10262-191	The RMP/EIS asserts that visibility conditions are excellent at the North Absaroka site, and standard visual range values are presented. Please provide the metric, in standard visual range or otherwise, for designating the visibility conditions as excellent.	2009_1
10262	10262-192	The USFS and NPS have established Level of Concerns for total deposition of nitrogen and sulfur compounds in Class I Wilderness Areas. These Level of Concerns are 1.5 kilograms per hectare per year of total nitrogen deposition and 5.0 kilograms per hectare per year of total sulfur deposition. Please include the USFS/NPS Level of Concern guidelines on the graphs in this section.	2009_1
10262	10262-193	The air quality environmental consequences section describes the expected impacts of each alternative using a qualitative analysis. In order to accurately determine impacts to air quality, comprehensive monitoring should be performed by the WDEQ. Limited monitoring data and inaccurate qualitative methods may result in decisions that negatively affect the Planning Area and management of its resources.	2009_1
10262	10262-194	If estimates for activity data change (for example, if the reasonably foreseeable development projections are updated), impact analysis should be revised.	2009_1
10262	10262-195	A method on page 4-6 states that “only emissions from permitted activities that would occur on federal lands within the Planning Area” are included in the analysis. Please provide a reference that, while only emissions from permitted activities that would occur on federal land within the planning area are included, the cumulative effects of activities occurring off federal land and outside of the planning area will be considered and incorporated into the appropriate planning documents and project-specific assessments.	2009_1
10262	10262-196	Please justify the exclusion of fugitive VOC and prescribed fire emissions from the analysis.	2009_1
10262	10262-197	Please justify the exclusion of activities related to the management of cultural resources, paleontology, recreation, and fish and wildlife.	2009_1
10262	10262-198	Please correlate the annual emissions summary presented in Table 4-2 to the applicable national and state primary air quality standards presented in Table 3-3. Quantitative air quality monitoring, by the WDEQ, using an expanded array of monitoring sites, is necessary to provide an accurate characterization of air quality impacts during the life of the Plan.	2009_1
10262	10262-178	On Page 2-12, the RMP/EIS states that Certain management actions specify conformance with Wyoming DEQ regulations (e.g., smoke management rules for prescribed burns and meeting water quality standards), or specify enforcement and remediation actions. Please include a statement that these nondiscretionary laws and regulations are presented in Table 2-5.	2009_2

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10262	10262-179	Within Table 2-5 Detailed Alternatives, Record 1000 states that Goal PR:1 is to “Minimize the impact of management actions in the Planning Area on air quality by complying with all applicable air quality laws rules, and regulations.” Please expand Goal PR:1 and its associated management actions to include basic descriptions of all applicable air quality laws, rules, and regulations, as well as how compliance will be achieved. Management actions that are currently presented only specify compliance with Wyoming DEQ Air Quality District smoke-management rules and regulations.	2009_2
10262 part2a	10262 part2a-10	Record #4055 - Alternative A uses the terms “intensively managed intermittent streams” on a “case by case” basis. Without defining “intensively” or the “case by case basis” decision criteria, any action might be proposed on an intermittent stream. The impact to intermittent streams and other uses could be substantial. Alternative B does define which streams might be chosen, but chooses to use the term “intensively manage” without specifics. Could this mean an exclusion of cattle or no stream crossings or other uses? Alternative C uses the same language as Alternative A. Alternative D references no surface occupancy within ¼ mile of a Class 1 or 2 fisheries and a 500-foot fisheries buffer elsewhere. Does this mean any intermittent stream contributing to a fishery could be deemed subject to a ¼ mile or 500-foot buffer? Would intermittent streams contributing to a class 1 or 2 fishery be subject to a ¼ mile avoidance of surface disturbing activities? Is the use of the term “avoid” meant as a guideline subject to interpretation as to how it would be applied or is it a NSO restriction similar to Alternative A? We propose that this language not be applied to Record #4055, but rather only to Record #4056.	2002
10262 part2a	10262 part2a-11	Record #4058 - Alternative A forms the basis for comparison of alternatives. Several commonly used techniques are listed including vegetation manipulation and planting, installing sediment and erosion control structures, fencing, and acquiring, developing, and maintaining water sources. However, there is little evidence in the document to support either the need for nor the benefit of the techniques listed. Alternative B indicates that there are implied management practices, but none are specifically listed. What management practices would be implemented in addition to those listed in Alternative A? Are there additional practices proposed in addition to “acquiring, developing, and maintaining land and water sources?” There are no references or assessments to determine where or if such acquisitions are necessary, nor beneficial for native fish or fish species of concern.	2002
10262 part2a	10262 part2a-12	Record #4059 - Alternative A is unclear as to whether existing reservoirs will be encouraged to have minimum pool depths. Please clarify as to whether the Bighorn Basin RMP encourages the establishment of minimum pool depths. Both Alternative B and D reference the term “managing existing reservoirs.” What is meant by “managing existing reservoirs,” as well as “encouraging minimum pools?”	2002
10262 part2a	10262 part2a-13	Record #4060 - Alternative B proposes to retrofit or design new culverts to “allow fish passage, both upstream and downstream.” Is this alternative proposing to retrofit or design new culverts that allow for fish species of all size classes to have passage? Will fish have passage at all potential streamflows (including bankfull)? Will fish passage be provided on ephemeral or intermittent streams? In most cases, culverts are not capable of passing all species and size classes of fish at any flow level. Bridges spanning bankfull width or fords would be required for such wide-ranging passage requirements. Bridges or fords are	2002

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		not mentioned in this alternative. Alternative C proposes to design culverts and crossings to current standards. What are current standards? What fish species and size classes are provided passage with the current standards? Why are such current standards not listed in Alternative A? Alternative D proposes to use Alternative B practices on a priority basis. What are the priorities? How extensive are the practices expected to be applied?	
10262 part2a	10262 part2a-14	"Campgrounds are not developed under Alternative B, resulting in less adverse impacts due to recreation access than Alternatives A and C." Does this statement apply only to land within ¼ mile or 500 feet of a stream or will no more campgrounds be built in the Bighorn Basin? Also, why would not well located and designed campgrounds be less impactful than dispersed camping that could occur on streambanks?	2002
10262 part2a	10262 part2a-15	Resources Paragraph four, page 4-163 of the Bighorn Basin RMP/EIS states that: Alternative B maintains natural flow regimes in streams supporting fish, providing the greatest beneficial impacts to water quantity compared to the other alternatives. Fencing of wetlands and riparian areas reduces potential bank degradation and sedimentation from other activities and resources uses, resulting in greater indirect beneficial impacts to fish than Alternative A. This paragraph implies that Alternative B maintains natural flow regimes. However, there are existing alterations due to water and diversion projects and acknowledgement that oil and gas development may provide produced water surface discharge, thereby changing natural flow regimes. Due to this, please clarify the term natural flow regimes.	2002
10262 part2a	10262 part2a-1	Within the Invasive Species and Pest Management section there is nearly nonexistent disclosure of relevant field-verified data. The most glaring deficient within this subject area is that only 10% of the Worland Field Office (WFO) has been inventoried for invasive nonnative annual bromes. Clearly an EIS cannot accurately analyze the impact of invasive species when only 10% of the WFO has been inventoried. Prior to finalization the BLM must conduct a new, expanded inventory and reanalyze impacts.	2012
10262 part2a	10262 part2a-2	In section 2.5 Alternatives Summary it states that the section describes only the key elements of the alternatives (those with the greatest potential to affect resources). This table should include invasive weeds and cheatgrass since this resource has the greatest potential to affect resources if not managed properly. Please include acres of invasive weeds and cheatgrass by alternative.	2012
10262 part2a	10262 part2a-3	The Affected Environment section for Invasive Species and Pest Management is inadequate and contradictory. Acreages are not consistent as explained below, there is no information provided on the species types and acres infested by species, nor is there a location map. Noxious weeds were identified as an issue early in the planning process, however they are given minimal treatment and there have been no indicators identified to compare the difference in alternatives.	2012
10262 part2a	10262 part2a-4	This section states that in 2007 "...the WFO estimated that approximately 57,000 acres in the field office were infested with nonnative annual bromes." This inventory is stated to only cover 10% of the Bighorn Basin so, "actual infested acreage might vary." We argue that the inventory is far too minimal and must be conducted at a much greater scale.	2012
10262 part2a	10262 part2a-5	The Environmental Consequences section does not disclose what the indicators are for measuring impacts. This section has very detailed information on surface disturbing activities, is it to be assumed that every acre of surface disturbing	2012

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		activity is going to be infested with weeds? Please identify what indicators were used to compare alternatives and provide a table that displays the differences between alternatives so that the impacts can be understood.	
10262 part2a	10262 part2a-6	There are no methods detailed on how environmental consequences of invasive species were analyzed. There is no quantitative information provided to assess impacts.	2012
10262 part2a	10262 part2a-107	Predators, including gray wolves and grizzly bears, have adverse impacts to big game in the Bighorn Basin. Note that predators and predation are not listed as a management challenge for big game. The BLM must acknowledge, account for, and analyze the predation of big game species in the RMP/EIS.	2020
10262 part2a	10262 part2a-128	METHOD/ASSUMPTION: Forest management actions replicating natural historical disturbance regimes and managing wildlife habitats instead of, or in addition to, managing forest products are anticipated to benefit wildlife habitats. COMMENT: Describe how forest management actions differentiate from managing forest products. The RMP/EIS frames the latter management regime as less ideal than the former.	2020
10262 part2a	10262 part2a-16	However, the Wildlife sections of the Draft Bighorn Basin RMP/EIS are consistently incomplete, contradictory, and unclear. An Affected Environment chapter should comprehensively disclose wildlife habitat needs and available habitat for all species analyzed in the EIS Planning Area. Additionally, when management challenges are noted for individual species (e.g. greater sage-grouse) or groups of species (big game), such challenges should be disclosed quantitatively with data and research. Rather than doing so, the Affected Environment chapter provides little to no historic, baseline, and/or current data on wildlife species, habitat availability and quality, and substantiation via data and research to document that the management challenges are in fact real and accurate as described.	2020
10262 part2a	10262 part2a-26	BR:6.1 “ In minimizing, avoiding, and mitigating environmental risks to fish and wildlife, all decisions and management actions must be substantiated with field-verified data and best science. The BLM is required, according to case law, to take a hard look at best science before implementation of management actions.	2020
10262 part2a	10262 part2a-31	4063 - Define as appropriate, casual use, and vegetation manipulation.	2021
10262 part2a	10262 part2a-100	What the RMP/EIS does not bring to the discussion is how the overpopulation of elk has negatively affected BLM permittees. As affected parties, the LGCA asks that the RMP/EIS qualify and quantify how the increase in elk has: Complicated grazing for BLM permittees; Compromised the economic viability of permittees; Disrupted attaining utilization standards	2025
10262 part2a	10262 part2a-103	Suggesting that elk have possibly fared better sans reference by footnote to the scientific and other sources relied upon for conclusions in the statement is an issue the BLM must correct before the publication of the Final RMP/EIS (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2025
10262 part2a	10262 part2a-104	To begin and end the Affected Environment discussion of moose, the RMP/EIS determines that moose are both distributed in low densities and below WGFD-objective numbers. In determining such statements, the LGCA is perplexed why the BLM does not provide causation for such, nor how the Agency proposes to improve moose prospects in the Planning Area. The Affect Environment should provide a setting for disclosing effects to moose from project activities in the	2025

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		Environmental Consequences. A cursory summary of moose needs and population numbers is contextually insufficient, which requires the LGCA to request additional information for moose so that in the future, if resource uses are restricted under the auspices of protecting moose they can be fairly assessed and justified (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	
10262 part2a	10262 part2a-105	Without question domestic sheep and goat interactions with bighorn sheep lead to population decreases in the species. Information disclosing such is readily available and at least one comprehensive review has been created with a five-plus page reference list of scientific research pertaining to disease-related conflicts between domestic sheep and goats and bighorn sheep (Schommer and Woolever 2008). It is the obligation of the BLM, in asserting the conflict between domestic sheep and goats and bighorn sheep, to provide basis for such statements. Yet, the RMP/EIS goes further in stating (pg. 3-97): Bighorn sheep populations in the Planning Area have increased due to the establishment of native core areas in occupied bighorn sheep habitat and because of habitat augmentation and improvement through burning and livestock permit changes. Does the preceding suggest that the elimination of domestic sheep and goat allotments in bighorn sheep habitat in the Bighorn Basin has increased population numbers? Presently, there are no domestic sheep or goat allotments in bighorn sheep designated habitat. In suggesting that “livestock permit changes” have facilitated an increase in bighorn sheep, please provide historic grazing allotment and bighorn sheep population data. Correlation between the reduction of domestic allotments and increases in bighorn sheep should be evident.	2025
10262 part2a	10262 part2a-106	The assertion is made that habitat augmentation is the other factor allowing for an increase in bighorn sheep. What does habitat augmentation entail? A definition of this term is requested by the LGCA. The literature does show a positive response to bighorns from prescribed burning (Bentz and Woodard 1988; Bleich et al. 2008; Dibb and Quinn 2008; Smith et al. 1999). Brown et al (2010) found that bighorn sheep exhibited increased vigilance around cattle and thus spent extra energy being alert rather than feeding, which could be interpreted to negatively impact sheep. Ganskopp and Vavra (1987), however, indicate that the overlap where bighorn sheep and cattle occur on the same site was only about 20% due to bighorn sheep's affinity for steep slopes. If the RMP/EIS is going to conclude that cattle use is incompatible with bighorn sheep, data on the distribution of steep versus gentle land and amount of land where cattle can physically interact with bighorn sheep is needed (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2025
10262 part2a	10262 part2a-108	The statement that habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species may be to varying degrees true. However, the preceding paragraphs, as well as the inadequate Affected Environment summaries of individual species, provide an egregious lack of data and research to support such conclusions. For instance, if woody plant communities for pronghorn, mule deer, or moose have indeed declined, the Affected Environment should identify the key variables and provide quantifiable data to show baseline conditions, compared against	2025

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		historic conditions, which support that contention and are comparable to historic conditions, which are also not disclosed in the RMP/EIS. Under CEQ 1502.22, the BLM has a duty to provide relevant information unless it is proven to be unattainable or the agency would incur exorbitant costs to obtain the information. Neither of those are the case in this circumstance.	
10262 part2a	10262 part2a-109	According to the RMP/EIS furbearing animals in the Planning Area have decline due to drought conditions (pg. 3-99): Beaver, mink, and muskrat populations have likely declined across much of the Planning Area due to drought conditions. Water volumes have decreased in many riparian systems from a loss of water storage capability and from a lack of precipitation. The distribution of mink and muskrat populations has shrunk due to a loss of water in some riparian systems. Beaver depend on aspen, willow, and cottonwood trees to build and maintain their dams and lodges. Conifer trees have invaded many riparian areas adjacent to streams due to drying of these sites from a drop in the water table. Conifers take up available water and space, both surface and subsurface, choking out aspen, willow, and cottonwood communities. The conclusion regarding the effect of conifer encroachment on the water table and riparian vegetation may in fact be accurate. Yet, the RMP/EIS fails to make that case with its lack of current and historic comparative data. A comparison could be made between present and past conditions through means as simple as aerial photos. It would seem that the BLM has conducted field surveys of riparian areas for decades. Why is that data not presented? Further, provide a temporal scale of drought conditions that has brought about this change in riparian corridors. Recognizing the mandate outlined in CEQ 1502.22, the LGCA requests that the BLM quantify the change in riparian vegetation structure that has presumably facilitated a decline in furbearing animals (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2025
10262 part2a	10262 part2a-120	Generally, the effects of alternatives upon individual species (e.g. elk) or species groups (e.g. special status species) are intuitive and comparative, rather than data- and science-based. For instance, note the conclusion under Alternative B regarding wildlife species (in particular big game) (p. 4-168): Under Alternative B, restricting motorized vehicle use and surface-disturbing activities in the Absaroka Front Management Area provides the greatest beneficial impacts to wildlife species, especially big game. The preceding may be true, but the conclusion for beneficial impacts to wildlife species, especially big game, for Alternative B is not supported by cited research, data on existing conditions, or identification of what variables affecting big game (e.g. hunting season security, habitat effectiveness, etc.) would be impacted beneficially.	2025
10262 part2a	10262 part2a-124	METHOD/ASSUMPTION: For each alternative, changes to vegetation types, either in quantity, quality, or increased fragmentation, are compared to baseline conditions. Adverse and beneficial impacts to vegetation types (i.e., wildlife habitats) are assumed to have a corresponding adverse or beneficial impact on wildlife species. COMMENT: Describe and disclose vegetation type quantity, quality, and baseline conditions. ☐ At what scale, temporally and spatially, and to what degree and how will adverse and beneficial impacts to wildlife habitats have equal and corresponding adverse/beneficial impacts to wildlife?	2025
10262 part2a	10262 part2a-125	METHOD/ASSUMPTION: Disturbance impacts to wildlife are evaluated by comparison to current management practices in the Planning Area; increased	2025

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		protection in time or space are beneficial, whereas reduced protection result in adverse impacts. COMMENT: Elaborate and provide measurable indicators for the statement increased protection in time or space is beneficial.	
10262 part2a	10262 part2a-126	METHOD/ASSUMPTION: Habitat fragmentation adversely affects wildlife. COMMENT: Describe if habitat fragmentation adversely affects all wildlife species equally, regardless the scale/type of fragmentation.	2025
10262 part2a	10262 part2a-127	METHOD/ASSUMPTION: Prescribed fire, where historical fire regimes occurred, is a tool used to manage vegetative communities and can result in short-term adverse impacts with long-term beneficial impacts to wildlife, certain wildlife habitats, and in some cases to forage productivity and availability. Explain if prescribed fire only causes short-term adverse impacts with long-term beneficial impacts to wildlife? Is this true for all wildlife species?	2025
10262 part2a	10262 part2a-129	METHOD/ASSUMPTION: Management actions aimed at benefiting specific wildlife species can have adverse or beneficial impacts to other wildlife species. COMMENT: Provide substantive examples in Chapters 3 and 4 and refer back to this assumption.	2025
10262 part2a	10262 part2a-130	METHOD/ASSUMPTION: Surface disturbance generally causes adverse impacts to wildlife habitats. Lesser amounts of surface disturbance in wildlife habitats have a corresponding lesser adverse impact to wildlife compared to more surface disturbance. The extent of adverse impacts due to surface disturbance depends on the precipitation zone. COMMENT: Mitigations are available to limit adverse surface disturbance effects to wildlife habitats. This assumption should include a statement in that regard. The extent of adverse impacts from surface disturbance does not depend solely on the precipitation zone. Include in this assumption all factors that affect the extent of adverse impacts from surface disturbance.	2025
10262 part2a	10262 part2a-131	METHOD/ASSUMPTION: Prohibiting surface disturbance or occupancy is more restrictive and provides more protection for wildlife than avoiding surface disturbance or occupancy. COMMENT: Mitigations are available to limit adverse surface disturbance effects to wildlife species and habitats. This assumption should include a statement in that regard. Prohibition of surface occupancy is not the only method of avoiding disturbance.	2025
10262 part2a	10262 part2a-132	METHOD/ASSUMPTION: The more surface disturbance that occurs on steep slopes or on highly erosive soils, the greater the potential for adverse impacts to wildlife habitats. Adverse impacts from surface disturbance also increase in areas that receive less precipitation. COMMENT: Mitigations are available to limit adverse surface disturbance effects to wildlife species and habitats on steep slopes or on highly erosive soils. This assumption should include a statement in that regard. The extent of adverse impacts from surface disturbance does not depend solely on the precipitation zone. Include in this assumption all factors that affect the extent of adverse impacts from surface disturbance.	2025
10262 part2a	10262 part2a-133	METHOD/ASSUMPTION: The higher the road density and the frequency of use in the Planning Area, the greater the potential to degrade adjacent wildlife habitat quality in the Planning Area. COMMENT: Define adjacent quantitatively.	2025
10262 part2a	10262 part2a-134	METHOD/ASSUMPTION: The BLM utilizes the best available information, management and conservation plans, and other research and related directives, as appropriate, to guide wildlife habitat management on BLM-administered lands. COMMENT: The LGCA agrees completely with this method/assumption.	2025

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		However, the RMP/EIS does not incorporate at an adequate level the mentioned methods. Additional information is needed throughout the RMP/EIS to substantiate BLM findings as they relate to wildlife.	
10262 part2a	10262 part2a-135	METHOD/ASSUMPTION: The quality and quantity of seasonal ranges and migration corridors are generally considered to be the limiting factors on big game populations in the Planning Area. The ability of these areas to support populations is a factor in determining population levels. COMMENT: Provide historic and current vegetation data that validate the claim that quality and quantity of seasonal ranges and migration corridors are generally considered to be the limiting factors on big game populations in the Planning Area.	2025
10262 part2a	10262 part2a-136	METHOD/ASSUMPTION: Wildlife habitats being protected are generally in desired natural condition and those being managed are being managed toward a more desirable condition. COMMENT: Define qualitatively and quantitatively generally in desired natural condition.	2025
10262 part2a	10262 part2a-137	As noted in comments for Chapter 3 “ Big Game, the LGCA ardently disagrees that the challenges facing big game were properly described. While it may be true that the BLM does identify the aforementioned challenges, the RMP/EIS fails to disclose, both qualitatively and quantitatively, poor habitat conditions, habitat fragmentation, disease, increased development and urbanization, hunter access, and impacts to key forage species from livestock and wild horse grazing. ¶ For proper analysis in Chapter 4, the variables must be segregated and measurement indicators constructed for each variable so that effects can be properly analyzed. Merely identifying challenges is inadequate. As the RMP/EIS is currently written, the LGCA cannot find a means of understanding and evaluating current big game challenges, how they differ from historic conditions, or how if any of the alternatives will work to make conditions better or worse for big game.	2025
10262 part2a	10262 part2a-138	the LGCA can find no science-based rationale to support the RMP/EIS conclusion that big game behavior or populations may be altered in the long term at some level of development given that winter disturbance is precluded in all alternatives by a TLS or a NSO (Alternative C).	2025
10262 part2a	10262 part2a-141	Unlike the Bighorn RMP, most management agencies in the west do not spatially allocate elk parturition areas. So, a logical question is whether those (few) elk populations in which calving areas were protected performed better than other populations? The LGCA sincerely doubts that the BLM will find any strong data-based correlation. Data from most western states indicated elk populations increased substantially in the 1990s through the early 2000s. While biologists from the state wildlife management agencies do not necessarily agree upon the reasons for the increase, the only variable common across the west that might best explain those increases is milder-than-normal winter weather. As wolves have re-colonized the west, elk and other big game behavior seems to no longer follow predictable patterns, including well-published seasonal use preferences. One thing biologists, ranchers, and hunters all agree upon is that elk and other big game do not react as they have for the past century. If wolves are pushing elk and other big game into unusual areas at different times of the year, how will allocating elk and other big game parturition areas provide improved protection to cows and calves if wolves do not allow animals to use the areas for extended periods? Consequently, the inference that parturition areas are somehow at risk in Alternative A is without scientific merit. More importantly, even if there is a relationship between calf survival and TLSs in	2025

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		parturition areas (that has not been disclosed in the RMP/EIS), the TLSs in Alternative A preclude disturbance during the late spring on parturition areas. Thus, the RMP/EIS has no basis for inferring that ungulate parturition will be affected by Alternative A.	
10262 part2a	10262 part2a-142	Given that elk herds have been substantially above WGFD population goals for many years, it is difficult to conclude that existing levels of motorized disturbance (as allowed in Alternative A) has had any demonstrated effect on elk populations. There is research connecting winter disturbance to impacts on elk populations (Toweill and Thomas 2002), but no citations were proffered in Chapter 3 or in the aforementioned RMP/EIS discussion. It is suggested that the BLM add the relevant scientific references and conclude something to the effect that although the current high elk populations show no obvious adverse effects from road-related disturbance, the literature does suggest that negative effects from road use in the winter are possible.	2025
10262 part2a	10262 part2a-143	Additionally, no research suggesting vehicle disturbance in elk parturition areas has any documented effect on elk calving success or calf survival. We suggest that unless the BLM offers some pertinent research that the BLM should remove the conclusion that unrestricted roads may affect elk parturition.	2025
10262 part2a	10262 part2a-25	BR:6 - Please define environmental risks and associated impacts and describe how they are measured temporally and spatially.	2025
10262 part2a	10262 part2a-42	4074 - Define appropriate wildlife needs.	2025
10262 part2a	10262 part2a-44	4077 - Alternative A, B, and D "There is no scientific research that suggests that livestock grazing affects parturition areas during the birthing season. Further, the parturition area concept is archaic due to predatory expansion. The LGCA does not support livestock grazing restrictions in parturition areas. Alternative C "The LGCA supports livestock grazing in parturition areas.	2025
10262 part2a	10262 part2a-45	If Record #4077 was developed to address potential brucellosis impacts, the LGCA recommends the following language, "BLM would consider implementation, on a case by case basis, management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."	2025
10262 part2a	10262 part2a-50	4083 - The LGCA strongly disagrees with Alternative B restrictions. Alternative A and D - Define case-by-case basis.	2025
10262 part2a	10262 part2a-51	4084 - The LGCA disagrees with any parturition habitat designations. However, if Record #4084 was developed to address potential brucellosis impacts, I recommend the following language, "BLM would consider implementation, on a case by case basis, management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."	2025
10262 part2a	10262 part2a-92	The discussion in the RMP/EIS on habitat fragmentation is overly simplified and explicitly claims that (pg. 3-70): a contiguous 100,000-acre block of sagebrush habitat is considered fragmented when a major highway is constructed within the habitat, thereby bisecting the block. If, in this example, the highway bisects the 100,000-acre block in half, the result of this fragmentation is two 50,000-acre blocks of sagebrush habitat bisected by a highway. In making such a statement, the RMP/EIS fails to provide a single reference that the construction of a major highway through a 100,000 acre block will result in two separate parcels of wildlife habitat. Additionally, the RMP/EIS could have cited many	2025

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		pieces of literature that cogently discuss the effects of fragmentation on wildlife (Dobkin 1994; Faaborg et al. 1993). Instead, the RMP/EIS has not one citation regarding fragmentation.	
10262 part2a	10262 part2a-93	The RMP/EIS needs to quantify the degree to which the preceding statement is true (what percentage of wildlife populations in the Planning Area are supported by private land). While it is true that wildlife is affected by management of these non-BLM-administered lands, the inverse is also true that habitat on private lands is affected by BLM actions. Interestingly, while the RMP/EIS discloses that when large working ranches are convert(ed) to subdivisions to smaller ranchettes wildlife suffer habitat fragmentation and loss of habitat, the RMP/EIS makes no attempt to quantify how BLM actions affect the economic viability of working ranches. The BLM must disclose all connected actions of how changes in grazing management plans affect the viability of working ranches (Map 2).	2025
10262 part2a	10262 part2a-95	The tone of the pronghorn discussion is typified by sweeping generalizations, identification of problems without supporting data, and viability characteristics in the Planning Area without supporting data. An example of such is found on pg. 3-96 of the RMP/EIS: Population projections for pronghorn generally have been below objectives for several years, except where herds have access to large areas of irrigated fields. This is partly due to adverse effects on the quality of the shrub component of their pronghorn habitat in many ranges. Habitat condition of many of the Wyoming big sagebrush communities associated with pronghorn winter ranges is declining due to poor productivity, plant recruitment, old age, and cheatgrass invasion that has out-competed native herbaceous and sagebrush species. Declines in habitat quality also have affected the reproduction and survival rates for pronghorn. Lower reproduction and lower recruitment of young into populations has inhibited the ability of herd populations to recover from declining numbers. The statement that pronghorn have done well “where herds have access to large areas of irrigated fields” lacks supporting data derived from field-verified surveys and monitoring. For how long has this been occurring? Since the conversion of native land to farmland? In the last 10, 20, or 30 years?	2025
10262 part2a	10262 part2a-96	Further, the RMP/EIS must disclose where, how many acres, and to what degree pronghorn populations are thriving as a result of irrigated private lands. It is also necessary to describe if this phenomenon is exclusive to the Planning Area or occurring throughout the West and why it is occurring. The statement that the “(h)abitat condition of many of the Wyoming big sagebrush communities associated with pronghorn winter ranges is declining due to poor productivity, plant recruitment, old age, and cheatgrass invasion that has out-competed sagebrush species” needs to be substantiated with data gathered in a scientifically-accepted manner to support the conclusion. Specific data needed, both historic and existing, include: How many acres of sagebrush have been lost to dry and irrigated farming? Of lands still in sagebrush, how has the coverage and age class distribution of sagebrush changed due to fire suppression?	2025
10262 part2a	10262 part2a-98	The BLM, in their discussion of mule deer in the RMP/EIS, states the following (pg. 3-97): (b)ecause of seasonal dependence on woody plant communities, mule deer are generally declining in numbers due to a decline in habitat quality and quantity. It is unclear how the BLM can make a statement such as the preceding without providing evidence? Not only does the statement need supporting data and scientific literature, but an explanation that this is the only	2025

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		variable negatively affecting mule deer. Data requested for inclusion in the final RMP/EIS include: How many acres of sagebrush have been lost to dry and irrigated farming? Of lands still in sagebrush, how has the coverage and age class distribution of sagebrush changed due to fire suppression?	
10262 part2a	10262 part2a-99	it is unclear how the RMP/EIS can conclude with certainty that mule deer are generally declining in numbers due to a decline in habitat quality and quantity, particularly without providing any data on habitat conditions (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).	2025
10262 part2a	10262 part2a-119	While it is appreciated that the BLM is in compliance with the Consent Decree, the LGCA’s stated position is that wild horse populations should be further reduced to a total head that is at or near the minimum AML.	2030
10262 part2a	10262 part2a-82	4124 - Alternative B - The LGCA does not support 1- and 2-mile TLS restrictions to protect raptors. There is no available science/research to suggest such a buffer is necessary. Alternative D - The LGCA does not support a 1-mile buffer around ferruginous hawk nests. Recognized science does not support such a restrictive buffer as well. The BLM must provide and take a “hard look” at scientific research before implementing such an extensive buffer zone.	2036
10262 part2a	10262 part2a-116	On May 11, 2011, the USFWS determined that the mountain plover does not warrant listing as a threatened or endangered species throughout all or a significant portion of its range. The RMP/EIS was compiled prior to the determination and states (pg. 3-113): The mountain plover inhabits shortgrass prairies and shrub-steppe habitats, both for breeding and wintering. This species prefers areas with little vegetative cover for nesting, particularly prairie dog towns. The species is now included on the BLM sensitive species list and is a proposed threatened species under the ESA.	2041
10262 part2a	10262 part2a-117	In describing the vegetative nesting cover required, the dependency of mountain plovers on disturbance including prairie dogs and grazing (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001) is understated in the document. As a disturbance-dependent species, the RMP/EIS should acknowledge that mountain plover co-evolved with heavy grazing by large bison and prairie dog populations. The RMP/EIS should propose to promote heavy grazing regimes and to maintain or enhance prairie dog populations, in areas identified as appropriate, to encourage mountain plover sustainability (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2041
10262 part2a	10262 part2a-83	4125 - The BLM has failed to recognize that the mountain plover co-evolved with grazing ungulates. Mountain plovers are dependent on over-grazed environments. Acknowledgment of such is requested by the LGCA and programs should be implemented that incorporate grazing methods to promote mountain plover.	2041
10262 part2a	10262 part2a-118	Where a position is taken is in the fact that the BLM fails to sufficiently describe white- and black-tailed prairie dog life history in the Bighorn Basin. Due to this failing, the LGCA declares that the BLM must revise the white- and black-tailed prairie dog section with the following information and data: Current habitat condition and population density; Historic habitat condition and population density; National distribution; Plague and predation and its effects on white- and black-tailed prairie dog; Relationship to obligate species (e.g. burrowing owls and black-footed ferrets); Distribution and connectivity of prairie dog towns in the Bighorn Basin; Relationship with grazing (positive and negative) To	2042

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		address the white- and black-tailed prairie dog issue, the LGCA has developed a mitigation that instructs the BLM on how to proceed going forward in consideration of these two species met (see White- and Black-tailed Prairie Dog Mitigation - Grazing).	
10262 part2a	10262 part2a-121	Again, the conclusion may be true, but no supporting data showing existing conditions, desired conditions, measurement indicators, or site-specific actions to be taken are disclosed in 2.5 - Alternatives Summary, 2.6 - Detailed Descriptions of Alternatives by Resource, and/or Chapter 3 - Affected Environment.	2042
10262 part2a	10262 part2a-122	As with big game and greater sage-grouse, there is no discussion of predation and predators.	2042
10262 part2a	10262 part2a-57	BR:7.3 - Define “environmental hazards, risks, and impacts.” Management should be compatible with multiple uses and stakeholder interests.	2042
10262 part2a	10262 part2a-58	BR:7.4 - The LGCA fully supports “providing multiple use management.” Define “sufficient undisturbed” and “minimally disturbed” habitats.	2042
10262 part2a	10262 part2a-77	4114 - Describe and define activities that will “promote the maintenance and improvement of habitat quantity and quality.”	2042
10262 part2a	10262 part2a-9	3. The BLM will change the definition of surface-disturbing activity to remove disturbance of endemic vegetation. Surface-disturbing activities should only include uses that remove non-renewable resources such as top soil, sand and gravel etc. This definition implies that use of herbivory is a surface disturbing activity. Ecosystems evolved with herbivory use which is a renewable resource and its use should not be considered surface-disturbing activities. Surface Disturbing Activities: These are Public Land resource uses/activities that disturb remove the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface-disturbing activities include: construction of well pads and roads, pits and reservoirs, pipelines and power lines. and most types of vegetation treatments (e.g., prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., No Surface Disturbing Activities), this phrase prohibits all resource use or activity, except those uses and activities that are specifically authorized, likely to disturb the endemic vegetation, surface geologic features, and surface/near surface soils.	2054
10262 part2a	10262 part2a-115	Additionally, as it pertains to greater sage-grouse, guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas and provides adaptive management principles for the species, shall be implemented by the BLM. Unequivocally, the LGCA supports Executive Order 2011-5. It is the firm opinion of the LGCA that the BLM will adopt Executive Order 2011-5 as management guidance for greater sage-grouse in the Bighorn Basin.	2069
10262 part2a	10262 part2a-74	4107 - The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.	2069
10262 part2a	10262 part2a-79	4120 - Alternative A - The lek buffer should be extended to 0.6 mile. Alternative D - The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June	2069

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		2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.	
10262 part2a	10262 part2a-80	4121 - Alternative D - The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.	2069
10262 part2a	10262 part2a-81	4123 - Alternative B - The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM. Further, the LGCA does not support restrictions of motorized access. Alternative C and D - The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.	2069
10262 part2a	10262 part2a-113	The discussion of greater sage-grouse in the RMP/EIS Affected Environment is deficient, rendering impossible proper analysis of impacts disclosed in Environmental Consequences. Again, as with big game, the RMP/EIS does not include predation as a management challenge facing greater sage-grouse. Certainly predation is one of many factors affecting greater sage-grouse in the Bighorn Basin. In the opinion of the LGCA it is disingenuous of the BLM to not include predation in the list of stressors affecting greater sage-grouse. The contention of the LGCA is that failing to segregate the variables and identify data-based quantifiable outputs makes it unattainable to quantitatively identify effects.	2071
10262 part2a	10262 part2a-114	Also, please disclose that greater sage-grouse co-evolved with intensive and extensive grazing from bison and that greater sage-grouse populations were high during the 1950s and 1960s, a period when domestic livestock were grazed at much higher stocking levels and under less-restrictive (season-long) grazing systems than those applied in the Planning Area today. Thus, attributing declines in greater sage-grouse to grazing is disingenuous. Failing to disclose the ecological relationship between greater sage-grouse and natural disturbance processes (bison grazing) severely biases the analysis for assessing effects on greater sage-grouse from grazing (see Wildlife Mitigations - Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).	2071
10262 part2a	10262 part2a-68	4096 - Define restore and the effects to multiple uses and permittees	2071
10262 part2a	10262 part2a-69	4098 - Define "manage." Describe in detail the method used in determining "ecological site descriptions."	2071
10262 part2a	10262 part2a-70	4101 - Disclose those areas with less than 5% sagebrush cover that will be restored. What temporal scale is being used to determine historic levels?	2071
10262 part2a	10262 part2a-75	4109 - Disclose where strategic locations are in the Bighorn Basin. How are strategic locations determined?	2071
10262	10262-18	Resource management challenges identified by the BLM are subjective and overly qualitative. Consequently, groundless management challenges may lead to unnecessary constraints that adversely impact local governments, stakeholders, and multiple uses.	2054
10262	10262-69	To be factual and accurate, the RMP/EIS should title the sections Assumptions and remove Methods. The term method suggests that it is a standard operating procedure carried out numerous times previously in the biological, physical, and social sciences for deriving an endpoint. As such, the method has	2054

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		been published, tested by researchers and scientists, and substantiated as a best method. In the case of the RMP/EIS, the endpoint should be an effects conclusion. Yet, the supposed methods in the RMP/EIS are not clear, referenced, or appreciably used to make effects determinations.	
10263	10263-37	With respect to Carter Mountain ACEC, management proposed under Alternative D is confusing, inconsistent and unnecessary. On one hand, surface disturbing activities would be allowed provided they can be mitigated under Record 7054 while the area would be administratively unavailable to oil and gas leasing under Record 7058. Given the fact that surface activities would be allowed provided the alpine tundra can be protected and mitigated, there is no justification for withdrawing the area from mineral leasing	2001
10263	10263-19	The DEIS improperly reflects a single reference point, monitoring Yellowstone National Park Carbon Monoxide (CO) levels, during 2005. (Ref. Chapter 3, Table 3-3). It is incongruous that Yellowstone National Park was chosen to monitor CO emissions for the Bighorn Basin because conditions couldn't be more dissimilar	2009
10263	10263-20	Additional questions that arise from the use of Yellowstone National Park for this data point: What time of year did this monitoring occur? Was it during winter time when automobile exhaust is nearly non-existent? Was it during the summer months when the Park has an estimated 3 million visitors and their associated transportations visit the park? Future air standards, alternatives, or future applications of monitoring must be based on actual science that includes statistically relevant, quantitative data obtained within the planning area itself	2009
10263	10263-1	Page ES-1, 1.2.2 Purpose, et al., the DEIS indicates in that valid existing rights will be recognized. Comment: We are concerned that no explanation of what constitutes valid existing lease rights and how they relate to new land use decisions has been provided. We recommend that BLM clearly state in the Final EIS that the new restrictions proposed in the Preferred Alternative will not apply to lands already under oil and gas lease. Moreover, it must be made clear that BLM has no authority to impose these new restrictions through Conditions of Approval (COA) on applications for permit to drill (APD) if they would abrogate the valid existing lease rights. These principles are particularly important given the fact that discussions about new protections for national historic trails and expansion of Areas of Critical Environmental Concern (ACEC) could very much impose significant limitations on existing leases that were not anticipated at the time the leases were acquired from the federal government in good faith. Such qualifiers are consistent with current rules and policies of the BLM and must be clearly disclosed in the planning documents. An acceptable example of appropriate language is included in the Rawlins RMP adopted in 2008, page 20.	2013
10263	10263-2	Page 4, Chapter 4, Assumptions Common to All Analyses - An oil and gas lease grants the lessee the "right and privilege to drill for, mine, extract, remove and dispose of all oil and gas deposits" in the leased lands, subject to the terms and conditions incorporated in the lease (BLM Form 3100-11, Lease for Oil and Gas). Because the Secretary of the Interior has the authority and responsibility to protect the environment within federal oil and gas leases, the BLM imposes restrictions on the lease terms. Comment: We recommend clarification of this language to recognize the fact that lease stipulations are only subject to change prior to lease issuance. Once a lease has been issued, stipulations may not be legally modified absent voluntary agreement by the lessee. Therefore, in accordance with 43 CFR 3101 and federal court case law, we recommend that BLM clearly disclose its limited authority to add conditions of approval to a	2013

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		drilling permit, i.e., conditions must remain consistent with the terms of the issued lease.	
10263	10263-3	The DEIS ignores BLM policy that states "the least restrictive stipulation that effectively accomplished the resource objectives or uses for a given alternative should be used." Therefore, it is necessary to demonstrate that less restrictive measures were considered but found insufficient to protect the resources identified. A statement that there are conflicting resource values or uses does not justify the application of restrictions. Discussion of the specific requirements of a resource to be safeguarded, along with a discussion of the perceived conflicts between it and oil and gas activities must be provided. Clearly, an examination of less restrictive measures must be a fundamental element of a balanced analysis and documented accordingly in the draft EIS.	2013
10263	10263-38	Page 2-54, Record 2014, "On lands with an NSO restriction, allow only casual use geophysical exploration." Comment: Acknowledging the fact that geophysical operations have very low to zero impacts on the environment, in August 2007 the Department of Interior included in its NEPA Manual a categorical exclusion (CX) for geophysical operations that do not involve road construction. All such geophysical activities are categorized as "casual use." This distinction should be clarified in the FEIS and provision should be made to grant CXs in these circumstances.	2013
10263	10263-15	Record #4082 allows BLM to apply discretionary seasonal wildlife protections on a case-by-case basis. As discussed above, some maintenance and operation of developed projects must not be subject to seasonal wildlife protections under any circumstances. The term case-by-case basis is used throughout the DEIS pertaining to the application of additional conditions or restrictions. As previously explained, under some circumstances (e.g. certain areas or certain activities) the application of conditions or limitations is not appropriate (e.g. Record #4082). As such, we recommend BLM specifically identify areas where BLM will be able to apply seasonal wildlife protections on a case-by-case basis, and limit the use of case-by-case determinations to areas where application of protections is warranted and appropriate	2020
10263	10263-12	A comparison of big game crucial winter range and parturition habitat identified in the RMP to WGFD Big Game CHPAs reveals that the BLM's habitat areas are much more expansive throughout the Project Area, especially along the eastern, western (including the Absaroka Front Management Area), and southern boundaries of the Project Area. We understand the value of protecting crucial wildlife habitat. However, in light of this discrepancy it is difficult to justify the extent of big game crucial winter range and parturition habitat under all alternatives in the BHB RMP. As such, we suggest BLM re-evaluate the designation of big game crucial winter range and parturition habitat locations, and reduce the size of these areas such that they are consistent with WGFD Big Game CHPA's. A map and narrative description of WGFD Habitat Priority Areas in the Cody Region is available on-line at: http://gf.state.wy.us/habitat/PriorityAreas/Cody/index.asp	2022
10263	10263-31	All references to Wild Lands must be removed from the planning documents in view of Congress's 2011 Continuing Resolution which prohibited BLM from moving forward with designations of any Wild Lands	2027
10263	10263-26	BLM fails to recognize the beneficial impact of produced water discharges in stabilizing ephemeral and intermittent stream channels through creation of riparian zones, thus reducing natural erosion. Good examples of this	2031

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		phenomenon are very evident in the Cottonwood, Gooseberry, Kirby Creek, and Dry Creek drainages. We believe BLM has overemphasized the potential erosion problems in ephemeral drainages caused by produced water. BLM has omitted the fact that, in most instances, the presence of produced water has actually stabilized stream banks on ephemeral and intermittent waters by creating and enhancing riparian zones and wetlands. Surface water discharges create thousands of acres of wetlands in the Bighorn Basin. These wetlands and riparian zones provide tremendous benefits to wildlife and waterfowl in the arid interior of the Basin.	
10263	10263-27	The WEPP model estimate that with no disturbance there would only be trace amounts of runoff, seems to disregard the amount of natural runoff experienced in the interior of the basin during snow melt or precipitation events. The badland topography and the clay content of soils in the Bighorn Basin can result in significant amounts of natural runoff and erosion from areas like McCullough Peaks, 15 Mile and other badland areas of the basin, which have very minimal human disturbance.	2031
10263	10263-28	Chapter 4, Part 4.1.4.3, Page 4-30 “Water management plans for surface discharges of produced water would include reclamation strategies, mitigation, and monitoring to track changes in receiving channels and to minimize adverse impacts to watershed health.” COMMENT: Does this statement mean that the BLM intends to start requiring Water Management Plans for WPDES discharges in the Bighorn Basin? If so, would this requirement be for existing surface discharges, or only for proposed new surface discharges?	2031
10263	10263-29	Chapter 4, Part 4.1.4.3 Page 4-31 “Adverse impacts on surface water quality from the introduction of these components of produced water would be minimized, but not eliminated, under all alternatives by following standard practices, BMPs, and guidelines for surface disturbing activities. The properties of produced water can vary depending on the location of the producing well and the oil and gas formation, which will influence the application of BMPs and other measures intended to safeguard water quality.” COMMENT: How does the BLM plan to minimize impacts on surface water quality from components of produced water? As previously stated the Wyoming DEQ permits WPDES discharges and promulgates and enforces water quality standards. It is not the duty, nor the legal authority of the BLM to set water quality standards or to issue WPDES permits	2031
10263	10263-30	Chapter 4, Part 4.1.4.3 Page 4-32 “Stormwater Discharge Plans to reduce impacts; restoring healthy plant communities and vegetative cover after surface disturbance in a timely fashion; conforming BLM actions to Wyoming DEQ water quality standards, enforcement, and remediation; and participating in the development and implementation of local watershed management plans and/or total maximum daily loads (TMDLs) with interested stakeholders and the Wyoming DEQ.” COMMENT: What is meant by “conforming BLM actions to Wyoming DEQ water quality standards, enforcement, and remediation?” As previously stated the Wyoming DEQ permits WPDES discharges and promulgates and enforces water quality standards.	2031
10263	10263-36	Page 3-139, Types of Intrusions The DEIS points out, “Visual intrusions on BLM-administered lands in the Planning Area include oil and gas fields, bentonite mining, the network of roads and highways, powerlines and various facilities needed to support mineral development, recreation, range improvements, and other facilities and infrastructure. Overall, development in the Planning Area	2032

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		has left a small footprint and has not substantially changed the visual character of the area.” Page 2-103, Records 5052Comment: Despite the “small footprint” left by the variety of development activities that have occurred within the planning area, BLM proposes to substantially revise its Visual Resource Management (VRM) categories to be excessively restrictive under Alternatives B and D. However, none of these proposed management changes are warranted as evidenced by BLM’s analysis summary noted above.	
10263	10263-13	Based on the USFWS’s recent findings and determination regarding the mountain plover, the stipulations and protections imposed for the mountain plover under the Management Action #4125 and the Chapman Bench ACEC is no longer warranted or scientifically justified. The USFWS has determined that the mountain plover is not threatened or endangered, has widespread habitats, has adapted to many human activities, and likely will not be impacted by human land use changes in the foreseeable future. The common occurrence of mountain plover in existing oil fields indicates that this species has adapted well to oil field conditions. As a result, special management and protection of the mountain plover under Alternative D (implement conservation measures and manage for the retention and success of mountain plover), Alternative C (apply TLS to protect mountain plover habitat), Alternative B (implement conservation measures and manage Chapman Bench ACEC to protect mountain plover), and Alternative A (implement conservation measures for mountain plover) is not justified. Therefore, we advocate the elimination of special management and protection for the mountain plover as currently proposed under Management Action #4125 and the Chapman Bench ACEC.	2041
10263	10263-14	By definition the sensitive species designation includes species that could easily become endangered or extinct in the state (BLM Manual 6840). Criteria for designating sensitive species include species: under status review, numbers are declining so rapidly that Federal listing may be necessary, populations are small or widely dispersed, or that inhabit ecological refugia or other specialized or unique habitats (BLM Manual 6840). The mountain plover does not meet any of these criteria. As such, it is essential for BLM to remove the mountain plover from the sensitive species list and eliminate protections afforded to the mountain plover in the BHB RMP based on its status as a sensitive species.	2041
10263	10263-23	Chapter 4, Part 4.1.3.1, Page 4-14 Both the Disturbed WEPP and WEPP Road modules are limited to four soil textures (clay loam, silt loam, sandy loam, and loam). The WEPP analysis used a loam soil texture for all erosion predictions. COMMENT: Is loam soil the best soil texture to use for WEPPP modeling in the Bighorn Basin (BHB). Since most soils in the interior of the BHB contain a lot of clay (bentonite), should clay loam be used for modeling purposes rather than a loam soil?	2045
10263	10263-24	It is unclear whether the WEPP model, which is used to predict erosion rates and runoffs, is calibrated to account for installation and implementation of Best Management Practices required by the Wyoming DEQ under the Stormwater Construction Permitting Program, which essentially requires no discharge of pollutants (including soil) from the construction site.	2045
10263	10263-34	The Impact Analysis for Planning Model (IMPLAN) is a model using regional analysis. However, the Bighorn Basin would be better analyzed using a more geographic specific approach. For example, in Table X-1, IMPLAN identifies regional oil and gas well numbers including coalbed natural gas. There has been very limited exploration and marketable sales from coalbed natural gas	2046

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		development in the Bighorn Basin. It appears the model may be using the entire state of Wyoming for a regional model. It is precisely because of the use of data like this that has no bearing on oil and gas development in the Bighorn Basin and makes the reported information and findings flawed.	
10263	10263-5	Alternative C exempts OGMAs from discretionary wildlife seasonal stipulations, including big game and sage grouse stipulations. However, under Alternative D, OGMAs are only exempt from discretionary big game seasonal stipulations. Other wildlife stipulations (i.e. non-big game stipulations), such as sage grouse stipulations will still apply within OGMAs. As a result, under Alternative D, OGMAs located within Key Habitat Areas (KHA) will still be subject to KHA stipulations for sage grouse protection and other non-big game stipulations, which may be very limiting on existing oil and gas units. This is inconsistent with BLM's intent to manage OGMAs primarily for exploration and development of oil and gas resources	2050
10263	10263-6	BLM defines OGMAs as areas containing existing fields that are already disturbed by development. EO 2011- 5 states that "areas already disturbed or approved for development within Core Population Areas prior to August 1, 2008 are not subject to new sage-grouse stipulations with the exception existing operations may not initiate activities resulting in new surface occupancy within 0.6 mile perimeter of a sage-grouse lek (EO 2011-5, Attachment B, paragraph 11)." EO 2011-5 further states that "[i]t is assumed that activities existing in Core Population Areas prior to August 1, 2008 will not be managed under Core Population Area stipulations. Examples of existing activities include oil and gas, mining, agriculture" and other uses that were in place prior to the development of the Core Population Areas. Provided these activities are within a defined project boundary (such as a recognized federal oil and gas unit, drilling and spacing unit, etc.) they should be allowed to continue within the existing boundary, even if the use exceeds recommended stipulations recognizing that all applicable federal actions shall continue (EO 2011-5, pg. 2, Item 2). As such, existing fields within the BHB Plan Area (including those within KHAs) that were disturbed or approved for development prior to August 1, 2008, must not be subject to sage grouse stipulations if BLM desires to achieve consistency with EO 2011-5. Application of KHA sage grouse stipulations to pre-2008 fields conflicts with EO 2011-5.	2050
10263	10263-11	Based on the statistics quoted above, there are 136,433 more acres administratively unavailable for oil and gas leasing under Alternative D than Alternative A (i.e. under current management). However, no discussion or justification has been provided in the DEIS for this discrepancy. Increasing the acreage administratively unavailable will decrease management flexibility in the Plan Area.	2054
10263	10263-16	BLM cites the West Tavaputs Plateau Natural Gas Full Field Development Plan Draft EIS (2008), Glossary for the definition of disruptive activity in the BHB Draft RMP. However, disruptive activity is not defined in this document.	2054
10263	10263-32	For nearly a century, oil and gas has a favorable history of responsible environmental operations that have been well-managed by both industry and the BLM - something in which the oil and gas community takes pride. Despite these efforts, the four alternatives for the RMP could result in moderate to drastic changes socially and economically. The Bighorn Basin Resource Alliance (BHBRA), an affiliate of the Natural Resource Growth Coalition (NRGC), as part of this coalition compiled detailed information to assist with determining the	2054

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		best alternative. The information produced by the BHBRA is contained in the Bighorn Basin Resource Alliance Economic Revenue Report (BHBRA-ERR) and comes mostly from the Wyoming Department of Revenue, the Wyoming Department of Employment and the U. S. Bureau of Labor Statistics. This report can be accessed here: Bighorn Basin Resource Alliance Economic Revenue Report. By way of this letter, we formally incorporate the report in our comments by reference, and further request that the BLM review the report as part of the comments analysis process	
10263	10263-33	The quality of life for all citizens in the Bighorn Basin is enhanced by employment opportunities, many of which are found from public land use. The Coalbed Natural Gas Alliance (NRGC’s predecessor) hired Moore Information in November of 2008 to better understand how Wyoming viewed oil and gas development. 400 registered Wyoming voters were sampled with a 95 percent confidence interval and a plus or minus 5 percent confidence ratio. Please click here to access the CBNGA poll. By way of this letter, we formally incorporate the poll results in our comments by reference, and further request that the BLM review the poll results as part of the comments analysis process.	2054
10263	10263-35	Alternative D is not much of an improvement in that it proposes to limit surface disturbing activities within either three or five miles of cultural sites. The DEIS provides no information to justify the need for the excessive management proposed, especially since the BLM’s proposal greatly exceeds the ¼ mile buffers required by federal law.	2054
10263	10263-25	It appears reclamation plans will be required under Alternative D for surface disturbing activities associated with minerals development. Will this require submission and approval of a reclamation plan, prior to APD approval? If so, we question the need for a reclamation plan for all oil and gas wells. Moreover, if a reclamation plan is necessary in certain areas with highly erosive soils and limited reclamation potential; it is necessary for BLM to have consistent standards and a formal review period with a mandatory approval/rejection timeline.	2060
10263	10263-4	The RFD also fails to contemplate and plan for the utilization of Enhanced Oil Recovery (EOR) via CO2 injection that is anticipated to occur in existing oil fields within the BHB. The use of EOR/CO2 injection is expected to occur in existing oil fields within the BHB over the next several years as some fields initiate tertiary recovery. Consequently, oil production in existing fields within the BHB is also anticipated to increase due to the efficiency of EOR. EOR is, and will be an important element of oil production in the BHB and should be properly accounted for in the BHB RMP.	2061
10263	10263-10	EO 2011-5“ For activities outside of Core Population Areas, no more than a ¼ mile NSO standard and a 2-mile seasonal buffer should be applied to occupied leks. Additionally, incentives to enable development of all types outside Core Population Areas should be established, including stipulation waivers, even if it results in reduced numbers of sage grouse outside of Core Population Areas (EO 2011-5, pg. 3, Item 7). As such, EO 2011-5 merely establishes a maximum NSO standard and seasonal buffer for occupied leks that may be applied outside of Core Areas. It does not mandate the application of any stipulations outside of Core Areas. Alternative D “ BLM applies much more restrictive stipulations outside of Key Habitat Areas, including: CSU within ¼ mile of leks, TLS within ¼ mile of leks March 1 to May 15, and TLS in connectivity habitat or within 2-miles of any lek in nesting/early brood rearing habitat (Table 2-5, pg. 2-84, 2-85).	2069

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10263	10263-7	KHAs designated by BLM are inconsistent with the State of Wyoming’s Core Areas. If the intent of BLM is to obtain and maintain consistency between KHAs and the State of Wyoming’s Core Areas, then why are KHAs identified in this RMP different than Core Areas provided for in Wyoming EO 2011-5, Attachment A (Sage-Grouse Core Breeding Areas Version 3)? Figure Q-1 of the RMP clearly illustrates the discrepancies between Sage-Grouse Core Breeding Areas Version 3 and KHAs.	2069
10263	10263-8	there are 71,241 more acres of KHA (1,857,485) than acres of Core Areas (1,786,244) located within the total planning area. What are the justification and scientific reasoning for expanding KHAs and changing KHA boundaries from Core Area boundaries?	2069
10263	10263-9	sage grouse stipulations Under Alternative D are not consistent with stipulations provided for under EO 2011-5: Core Areas/Key Habitat Areas - Seasonal Use: Leks. Under EO 2011-5 - Activity will be allowed from July 1 to March 14 (i.e. not be allowed from March 15 to June 30) outside of the 0.6 mile perimeter of a lek in Core Population Areas where breeding, nesting and early brood-rearing habitat is present (EO 2011-5, pg. 9, Item 3). Alternative D - BLM extends this seasonal use restriction by two weeks, placing TLS on surface disturbing activities on nesting/early brood rearing habitat from March 1 to June 30 (Table 2-5, pg. 2-84).	2071
10263	10263-18	Finally, as also recognized by the AQ MOU, the CEQ regulations implementing NEPA do not require agencies to develop information that is not reasonably available; see 40 C.F.R. § 1502.22. Rather, when faced with a situation where there is incomplete information, the agency is only required to inform the public of the unavailability of these data and explain why it would not be practical to develop such data as part of the planning process. Given the lack of emissions data or other information regarding air quality in the Planning Area, we recommend that BLM provide the public with the reasons it would not be appropriate to develop an air quality model at this time.	2009_1
10263	10263-21	There are no scientific data compendiums in the form of graphs, tables, or otherwise within the proposed RMP/EIS to quantify or substantiate any data regarding HAPs in the planning area. The air pollution emissions listed therein are regulated by the WDEQ for oil and gas operators within the planning area.	2009_1
10263	10263-22	The air quality analysis implied in Alternatives B and D requires quantitative air quality modeling. However, the RMP used methods and assumptions regarding impacts for all alternatives using a qualitative emission comparison approach for this assessment (Appendix U, page 9).	2009_1
10264	10264-1	Page 2-29, 2-34, Table 2-5, Page 2-73, etc. Throughout this document, BLM refers to Class I and Class 2 trout fisheries for added protection. We support these proposals for added protection, but need to clarify our trout ranking system. A class number ranking is no longer used by the WGFD and is sometime confused with a numbering system used by the WDEQ. Our department ranks streams using a color system. Blue and Red ribbon streams are those that produce the highest quality trout fishery based upon biomass. These blue and red ribbon trout waters are considered of National and Regional importance, respectively. We suggest changing all references to Class I fisheries to blue and all class 2 fisheries to red ribbon trout fisheries.	2002
10264	10264-20	Page 3-90In paragraph 2, the reference to focused management on "Snake River Cutthroat" should be deleted. Our management of Snake River Cutthroat	2002

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		in BLM waters is very limited in the Cody Region.	
10264	10264-21	Page 3-92(top of page) "The effects of drought can be quickly reversed in streams with a return to more normal weather patterns, but higher flows will not remedy the continued siltation of reservoirs." We recommend changing the sentence to read "The effects of drought can be quickly reversed in streams with a return to more normal weather patterns, however higher stream flows may improve stream pool habitat but will not remedy the continued siltation of reservoirs."	2002
10264	10264-26	Page 4-159In the first bullet near the end of the sentence, we recommend adding the words "deep pools" after the word streamflows.	2002
10264	10264-27	Page 4-164Under Special Designations, reference is made to benefits to water quality by restricting surface-disturbing activities and pesticide applications for the Spanish Point Karst. We would like clarification as to the broad use of the word pesticide in this case. If pesticide application is to mean restricting the use of piscicides on streams with similar stream features, this action could greatly reduce our ability to remove non-native fish species for Yellowstone Cutthroat restoration. We suggest this be clarified by adding the words "(excluding fish piscicides) after the word "application" in the first sentence.	2002
10264	10264-4	Page 2-68, Record # 4036In alternative D we recommend changing "fishery" to "aquatic".	2002
10264	10264-17	Page 2-162, Record # 6281Appendix WĀ is an important component of the livestock grazing section of the RMP. We suggest adding the following language to this management action: "Grazing plans should use the utilization levels specified in Appendix W.	2011
10264	10264-29	Appx P Appendix P seems to show that no allotments failed Standards P and Guidelines (no "N" in the "Progress" column). This is not our understanding.	2011
10264	10264-5	Spatial habitat designations such as crucial ranges, migration routes, raptor nests, and sage grouse winter concentration areas are periodically reviewed and, if necessary, modified in response to changing wildlife use patterns or better data becoming available. We recommend that the RMP describe that management actions relating to areas within these designations will apply to modifications to crucial habitat designations made after the Final EIS.	2020
10264	10264-6	Page 2-76, Record # 4076, 4077If Record # 4077, Alternative D, was developed to address disruptive activities resulting from grazing in delineated elk parturition habitat, we are unaware of data that supports these restrictions. Therefore, we would not support restricting cattle grazing in parturition areas based on the premise of disturbance. However, if Record # 4077 was developed to address potential brucellosis impacts, we recommend the following language, "BLM would consider implementation, on a case by case basis, management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."	2020
10264	10264-8	Page 2-77, Record # 4080We remain committed to our recommendation for the Absaroka Front Management Area, provided to BLM as agreed upon under the previous Governor's Administration. Our recommendation differs from Alternative 0 in having the following constraints on federal mineral estate: 149,335 acres unavailable for leasing, 65,366 acres NSO, 40,703 acres CSU, and 0 acres TLS) (see attached map).	2020
10264	10264-9	Page 2-79, Record # 4087Any seasonal closures should take into account that	2020

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		many big game hunting seasons extend beyond November 15. Some road closures could limit access and not allow for adequate harvest. The RMP should allow for this flexibility to effectively manage wildlife through harvest.	
10264	10264-2	Page 2-56, Record # 2024 Under the Leasable Oil and Gas - Map 20 shows three small polygons on the divide between Rose Creek and Rawhide (T48, R103, sec. 3,4,10 & 11) that are classified as producing O/G fields. To the best of our knowledge, there are no active, producing wells in that area. Also, the area is identified as leasable with only standard constraints, yet it is very important crucial elk winter range, borders the proposed Absaroka Front Management Area, and is adjacent to the Carter Mtn ACEC. We recommend that these areas be changed to leasable with major constraints, due to their importance to wintering wildlife.	2022
10264	10264-7	Page 2-77, Record # 4079 Under alternative 0 - Map 21 (2 mile buffers) is referenced as the oil and gas management areas being exempt from discretionary big game seasonal stipulations. This is a map reference error, and should reference Map 22.	2022
10264	10264-22	Page 3-99 Skunks are not classified as furbearing wildlife in Wyoming, they are predatory.	2025
10264	10264-23	Page 3-100 Quail and ptarmigan have not been documented in the planning area.	2025
10264	10264-3	We request that at least an NSO constraint be placed on the Medicine Lodge and Renner WHMA to protect wintering big game. Both of these WHMAs were acquired with federal funds for the purpose of providing habitat for wintering big game.	2025
10264	10264-14	Page 2-92, Record # 4144, 4145 Why are there two upper limits for each HMA when the objective (100) is the same?	2030
10264	10264-15	Page 2-114, Record # 6045 The Medicine Lodge WHMA closure is June 30, not July 1.	2034
10264	10264-28	Page 4-214 Under Methods and Assumptions, second bullet, we have concerns with the statement that Production water from CBNG activities will have negligible influence on surface water quantity and quality. It very much depends on the amount of salts and other minerals that may be harmful to fish contained in the production water and where this effluent production water is released. If it is released in high quality habitat for special status fish species it could be very detrimental. We suggest a rewording of this bullet to read the following: "Production water from CBNG drilling that is low in salts and other chemicals that may be detrimental to aquatic life forms is assumed to have negligible influence on surface water quantity and quality in the Bighorn River and the Clarks Fork of the Yellowstone River watershed due to the low likelihood that CBNG activities would occur at high levels in the Bighorn Basin. However, if CBNG activities are located near important habitat for special status fish species, it can be assumed there will be adverse impacts."	2042
10264	10264-16	6128, 6138, 6150, and other similar MAs The management actions related to Worland's RMZs are stated in a way that surface-disturbing activities will not be allowed if they are related to wildlife habitat or recreational facilities. This wording should be changed to be consistent with Cody's RMZs, which allows for surface disturbing activities related to wildlife habitat or recreational facilities.	2062
10264	10264-13	Page 2-86, Record # 4122 We recommend re-writing this alternative to clarify its intent to the following, "Limit new noise levels, as measured at the perimeter of	2068

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		a lek, to 10 dBA above ambient noise ...from 6 PM to 8 AM.	
10264	10264-10	Page 2-82, Record # 4103: If this action is meant to protect springs and riparian areas in greater sage-grouse habitats it should also apply to activities that may alter or disturb those areas, beyond mining and mineral development. If this action is to address impacts of mining, other important habitats (e.g. winter, breeding, and nesting) should also be included along with springs and riparian habitat.	2071
10264	10264-11	Page 2-84, Record # 4120Although BLM's sage-grouse Key Habitat Areas provide more extensive protections, we recommend the BLM use sagegrouse Core Areas (version 3) as defined by the Governor's Sage-grouse Implementation Team. BLM's Instruction Memorandum No WY-2010- 012 stated that "WY BLM Sagegrouse Key Habitat Areas correspond to the State of Wyoming's Core Population Areas (Core Areas)." BLM personnel at the local, regional and state levels have had input on those Core Areas. Version 3 of the Core Areas was completed in 2010 and should have been included in this analysis.	2071
10264	10264-12	Page 2-84, Record # 4120"Undetermined leks" should not be provided the same protections as Occupied leks. As a result of the most recent Sage Grouse Executive Order, only Occupied leks should be stipulated. Therefore, Undetermined leks should receive priority to be accurately delineated and placed on the WGFD lek database, as necessary.	2071
10264	10264-25	Page 4-84Salable Minerals, Alternative D, Resources - Alternative D should include sage-grouse leks as sites that receive TLS or other restrictions from surface-disturbing activities.	2077
10262 2b	10262 2b-1	The conclusion that such designations would result in beneficial impacts to big game is purely speculative. The RMP/EIS has not sufficiently identified the research connection between human disturbance and elk, has not provided any baseline data on existing levels of human disturbance related to roads or road density, and has not identified any future disturbance levels that might be expected under Alternative A. It is recognized that anticipating levels of future disturbance from oil and gas is speculative, however, the RMP/EIS should have provided some range of possible disturbance levels in miles of road per square mile, pads per square mile, or other measurement indicators that would provide units for comparing effects by alternative.	2020
10262 2b	10262 2b-10	As written, the conclusions are purely speculative. The RMP/EIS has not identified any research connection between livestock grazing in parturition areas and adverse impacts to elk or any research connection between wind energy developments and adverse effects to elk. In fact, the papers cited in the RMP/EIS (Frisina 1992 and Anderson and Scherzinger 1975) only describe beneficial effects from grazing livestock on elk summer range, including parturition periods. Thus, the RMP/EIS provides no reason why "avoiding livestock grazing in elk parturition habitat" would be beneficial. The RMP/EIS conclusion that "avoid(ing) wind-energy projects in big game crucial winter range and parturition habitat under Alternative D would minimize the potential for disturbance and displacement" is without any supporting data, scientific citations linking wind energy projects with declining elk populations, or anticipated levels of disturbance that might accompany wind-energy projects (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2025
10262 2b	10262 2b-	METHOD/ASSUMPTION: Impacts to special status wildlife species are based primarily on potential impacts to habitats managed by the BLM. COMMENT:	2039

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	12	Within the Planning Area, sagebrush and grassland obligate species use habitat on 730,321 acres of private and state land. The importance of private and state land must be considered, as well as how BLM management actions	
10262 2b	10262 2b-13	METHOD/ASSUMPTION: Precise quantitative estimates of impacts generally are not possible because the exact locations of future actions are unknown, population data for special status wildlife species are often lacking other environmental variables, or habitat types affected by surface-disturbing activities cannot be predicted. COMMENT: Oil and gas production and livestock grazing activities are common across BLM and other federal agency lands. At the least, the BLM must provide a comparative analysis using other similar projects to assess predicted effects. Prior to the development of the EIS/RMP, the BLM had an obligation to conduct comprehensive population surveys. In doing so, the accumulation of “other environmental variables” should have occurred. It is impossible, without population data and other environmental variables, to analyze Planning Area management actions undertaken by the BLM.	2039
10262 2b	10262 2b-14	METHOD/ASSUMPTION: Prohibiting all surface-disturbing and disruptive activities in greater sage-grouse seasonal habitats is more beneficial to greater sage-grouse than avoiding these activities, as avoidance provides discretion for each proposed activity and applies mitigations, where prohibition precludes all activity. COMMENT: The BLM must define qualitatively and quantitatively what “all surface-disturbing and disruptive activities” entail. Asserting that there are no mitigations available that are as effective as prohibiting activities is biasing.	2042
10262 2b	10262 2b-15	METHOD/ASSUMPTION: Within historical fire regimes, prescribed fire is used to manage vegetative communities and can result in short-term adverse impacts with long-term beneficial impacts to wildlife, certain desirable wildlife habitats, and in some cases to forage productivity and availability. COMMENT: Explain if prescribed fire only causes short-term adverse impacts with long-term beneficial impacts to wildlife? Is this true for all wildlife species?	2042
10262 2b	10262 2b-16	METHOD/ASSUMPTION: Measures to protect one species generally result in long-term benefits to other species in that habitat. COMMENT: Much greater detail is needed for this assumption. For instance, measures to protect a species that uses overgrazed or bare areas (e.g. mountain plover) would have detrimental effects to greater sage-grouse.	2042
10262 2b	10262 2b-17	METHOD/ASSUMPTION: Short- and long-term surface disturbance are assumed to occur in vegetation types in proportion to the availability of these vegetation types in the Planning Area. Impact acreage for vegetation types are not absolute, but serve as a relative comparison among alternatives. COMMENT: Clarify. As written, the assumption is unclear.	2042
10262 2b	10262 2b-18	METHOD/ASSUMPTION: Because of the migratory nature and relative mobility of some special status wildlife species (e.g., waterfowl, neotropical migrants, and raptors), these species are affected by actions on non BLM-administered land more so than other species. In the case of migratory species, impacts to winter and migration habitats could adversely impact the viability of some species. Winter and migration habitats are assumed to be at least as important to long-term viability of these species as breeding and nesting habitats. COMMENT: The assumption ignores the migratory nature of big game species that are significantly affected by actions on non-BLM land. Further, actions on BLM land can affect private land, thus displacing or disturbing wildlife.	2042

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10262 2b	10262 2b-2	According to BLM GIS data, black-footed ferret essential habitat occurs on 35,323 acres, representing only 0.6% of the Planning Area. The RMP/EIS provides no data on suitable habitat (occupied white-tailed and black-tailed prairie dog towns). Upon request, the LGCA received a BLM GIS data file for black-tailed prairie dogs that discloses 72,636 acres of suitable habitat. Significantly greater, the Wyoming Natural Diversity Database (WNDD) suggests there is approximately 200,000 acres of occupied prairie dog towns Basin-wide (Map 3). This may represent 3%-4% of the Bighorn Basin (depending upon how individual prairie dog towns were buffered by the WNDD) and compares with a range-wide occurrence of ~2% (Miller et al. 1994).	2042
10262 2b	10262 2b-20	The findings of Holloran et al. (2010) are pertinent to the aforementioned conclusion if future oil and gas activities were to be conducted in a conventional manner. The oil and gas industry, however, has endorsed measures, including directional drilling and seasonal constraints, in cooperation with the BLM that make future drilling activity anything but conventional. Thus, we argue that the conclusion that surface disturbance in sagebrush habitats under Alternative A is anticipated to result in adverse impacts to greater sage-grouse in the short and long term, be reevaluated to include state-of-the-art measures currently applied.	2071
10262 2b	10262 2b-21	The ¼ mile protective measure is no longer state-of-the-art and is obviously, based on the latest research (Holloran et al. 2010), insufficient to protect greater sage-grouse and avoid the risk of federal listing. In our estimation, limiting the standard to an archaic ¼ mile lek buffer makes Alternative A unfairly un-selectable. The LGCA recommends modifying Alternative A to extend the CSU stipulation to 0.6 miles to recognize the state-of-the-art mitigation	2071
10262 2b	10262 2b-22	No data on the amount of invasive weeds by species, spatial distribution, or infestation intensity is provided in the Affected Environment. The aforementioned discussion makes no reference to measures applied during oil and gas exploration, vegetation manipulation, or grazing to minimize the spread of invasive weeds. Without a more rigorous evaluation of the effectiveness of those measures, or lack thereof, we find no basis for concluding that continued expansion and spread of invasive species under Alternative A would result in adverse impacts to greater sage-grouse and sagebrush habitats.	2068
10262 2b	10262 2b-23	No data is provided in the Affected Environment on the availability of nest cover at any scale (e.g. by grazing allotment, Basin-wide, etc.). No scientific references are provided that correlate declines in greater sage-grouse specifically to limited nesting cover, without segregating that variable from other possible variables (weather, changes in sagebrush coverage, distribution of sagebrush size classes, invasive weeds, and oil and gas disturbance). Thus, the conclusion that management of livestock grazing under Alternative A may not improve the quality or quantity of habitats for greater sage-grouse, but should maintain current habitats is speculative and sans supporting data.	2068
10262 2b	10262 2b-24	Research (Connelly et al. 2000; Gregg et al. 1994; Wallestad and Pyrah 1974) does show a positive correlation between greater sage-grouse nest success and nest cover. If the RMP/EIS is going to suggest, as it does, that changes in grazing may or may not improve greater sage-grouse nest success, the conclusion must be based on Basin-wide allotment-by-allotment data that summarizes nest cover in a statistically meaningful manner that isolates the effects of limited nest cover from other variables. If data concludes that modifications to grazing in some allotments are warranted to recover greater sage-grouse, the BLM	2071

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		should engage stakeholders and permittees with a proposed solution. Making conclusions regarding the effects of grazing on greater sage-grouse without data, however, is improper. Management decisions based not on data but perceptions could have significant negative economic impacts on permittees and stakeholders. The LGCA strongly objects to Basin-wide modifications to grazing under the auspices of greater sage-grouse recovery that are not allotment-specific or based on field data and scientifically-sound analyses (see Wildlife Mitigations“ Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).	
10262 2b	10262 2b-25	We challenge the conclusion that measures to protect greater sage-grouse as discussed under Game Birds (Greater Sage-grouse) would benefit all sagebrush and shrubland species. Brewer’s sparrows, sage sparrows, and sage thrashers clearly prefer large tracts of late seral big sagebrush (Buseck et al. 2004; Hansley and Beauvais 2004a; Hansley and Beauvais 2004b; Wiens and Rotenberry 1981). Greater sage-grouse prefer a mosaic of young and old sagebrush interspersed with open grassy areas (Connelly et al. 2000; Connelly et al. 2004; Rowland 2004). Thus, the biological requirements for species in the sagebrush and shrubland species differ by species.	2042
10262 2b	10262 2b-26	it is unclear how the BLM concludes that current conditions are limiting to greater sage-grouse or if future conditions will be better or worse. Thus, the RMP/EIS conclusion (pg.4-181) that species that utilize or depend on sagebrush habitats (will) benefit from management actions for greater sage-grouse may or may not be accurate and reflect current conditions in the Planning Area.	2042
10262 2b	10262 2b-27	The conclusion that direction in Alternative A provided by Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming, may not create the vegetation heterogeneity needed for neotropical migrants is speculative. The RMP/EIS needs to determine whether grazing management does or not meet the needs of Neotropical migrants. If, grazing as currently conducted does not provide the needs for some species (e.g. heavily-grazed lands needed by mountain plovers), then the alternatives should be modified to meet those biological needs.	2042
10262 2b	10262 2b-28	The relationship between sagebrush-associated species and grassland-associated species needs to be segregated. First, the wildlife effects discussion needs to acknowledge that according to BLM biophysical setting data, most grasslands are the result of disturbance that removed sagebrush (fire, mechanical, herbicides, etc). Similarly, most sagebrush-dominated areas are the result of an absence of disturbance (e.g. long-term fire suppression). Secondly, the effects analysis needs to acknowledge that actions that benefit/favor sagebrush obligates (e.g. sage sparrows) will be detrimental to grassland obligates (Baird’s sparrows) and contrariwise. Lastly, the degree to which alternatives provide for both sagebrush- and grassland-associated species must be based on comprehensive data that discloses the current mix of sagebrush and grasslands and changes in that mix that will occur by alternative. Referring simply to greater sage-grouse measures (Section 4.4.9 Special Status Species - Wildlife and Standards for Healthy Rangelands) or domestic livestock grazing measures (Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming) does not answer the fundamental questions of how Alternative A will affect sagebrush- and grassland-associated species in terms of how the Planning Area will be managed	2039

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		in either sagebrush or grassland coverage (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	
10262 2b	10262 2b-29	Where there is agreement with the preceding narrative is that appropriate grazing intensity and duration maintains suitable greater sage-grouse habitat (WGFD and BLM 2007). The following should be addressed under Alternative B: Greater sage-grouse co-evolved with bison and are therefore, generally tolerant of or benefit from livestock grazing; Some allotment-specific problems with limited nesting cover may exist, but issues can be resolved at the allotment-scale regardless of alternative selected; Removing 1.1 million acres of livestock is based on a perception that grazing is a major problem for greater sage-grouse, but that opinion is generally not validated by research. Removing livestock on 1.1 million acres will have greater negative effects on greater sage-grouse from increased fire severities, resulting in a loss of big sagebrush to a greater degree than any minor site-specific benefits from improved nesting cover. Elimination of 1.1 million acres of grazing allotments will have significant adverse impacts on permittees in the Planning Area. The BLM has an obligation to disclose the economic effects of removing 1.1 million acres of grazing.	2068
10262 2b	10262 2b-3	No analysis is found in the RMP/EIS that demonstrates that sustaining black-footed ferrets on 0.6% habitat is sufficient to recover black-footed ferrets to non-listed status. Nor, can we find any objectives for prairie dog towns that are needed to sustain black-footed ferrets, even though the WNDD data suggests prairie dog towns are reasonably abundant. Consequently, concluding that “adverse impacts from BLM actions to prairie dog populations are not anticipated under Alternative A” may be technically true, but it is not clear if Alternative A meets the ESA in terms of providing sufficient habitat over time.	2042
10262 2b	10262 2b-30	Mountain plovers require intensively grazed areas, either from domestic livestock, wild ungulates, or prairie dogs (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001). Removing 1.98 million acres of grazing allotments will drastically inhibit the ability of the BLM to provide suitable habitat for mountain plover. Consequently, concluding that “Alternative B may result in adverse effect to mountain plover(s)” is a gross inaccuracy.	2041
10262 2b	10262 2b-31	Furthermore, the conclusion that “managing areas to create preferred habitat for the mountain plover, would likely provide a net benefit for this species” lacks the essential discussion of “how” that activity would occur. Given that mountain plovers require intensively-grazed areas, how will non-disclosed management activities benefit mountain plovers when Alternative B removes grazing on 1.98 million acres? Will BLM crews be out mowing areas to create mountain plover habitat? Without some specific details on what those plover management actions will entail, the conclusion is baseless (see Wildlife Mitigations “Grazing, Travel Management, and Mining and Energy Development).	2041
10262 2b	10262 2b-32	As stated in comments for the effects of Alternative A, no data is provided in the Affected Environment on the availability of nest cover at any scale (e.g. grazing allotment, landscape, Basin-wide). No scientific references are provided that correlate declines in greater sage-grouse specifically to limited nest cover, without segregating that variable from other possible variables (weather, changes in sagebrush coverage, distribution of sagebrush size classes, invasive weeds, oil and gas disturbance). Thus, the conclusion that there may be more beneficial impacts to greater sage-grouse (from Alternative D), is speculative	2068

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		(see Wildlife Mitigations " Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).	
10262 2b	10262 2b-33	Based on previous comments regarding the effects of Alternative A, there is no data on existing acres of sagebrush age class distribution. While Alternative D infers there will be less acres lost to minerals extraction, there is no quantitative comparison of existing acres of habitat compared to acres remaining under Alternative A. It is understood there is uncertainty involved with minerals extraction, yet a general comparison is necessary to validate the conclusion advanced by the BLM.	2036
10262 2b	10262 2b-6	The RMP/EIS makes no disclosure of the amount of summer range acres withdrawn from oil and gas development, nor does it identify any benefits to summering ungulates on that winter range from withdrawal.	2022
10262 2b	10262 2b-42	Energy extraction activities can compromise hunting season security by adding roads that can reduce security or by creating a high level of noise and human disturbance during the hunting season that makes existing security areas unusable to elk. Generally, leasing with CSU would fully mitigate impacts on security. If, however, security areas overlap with crucial winter range, the combined seasonal restrictions (e.g. fall through late spring) might not leave a sufficiently reasonable operating season for energy extraction. In that situation, special security areas, not to exceed 30% of the AFMA (Edge et al. 1988), should be designated NSO..	2025
10262 2b	10262 2b-43	Bighorn sheep do not exhibit the same sensitivity to human disturbance that elk do (Papouchis et al. 2001). Bighorn sheep will routinely occupy habitat along freeways and other areas of high disturbance. Because of areas of de facto NSO (see previous paragraph) that comprise sheep habitat, it is unlikely that disturbance from energy extraction would have measurable effects upon sheep populations; therefore, no mitigation measures are necessary.	2025
10262 2b	10262 2b-44	Mitigation measures needed to protect wintering moose are assumed to be the same as for elk (e.g. minimizing the footprint of physical disturbance, aggressively controlling invasive weeds, and restricting activity during critical use periods). As important, prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders	2025
10262 2b	10262 2b-45	Disturbance associated with roads probably outweighs all other threats. CSUs have the potential to fully mitigate impacts upon grizzly bears; however, determinations regarding the level of energy extraction activity allowed, number of roads to be temporarily constructed, and season of use allowed for drilling need to be carefully crafted to fit the needs of locally-studied bear populations. In areas with an absence of reliable data, NSOs may be warranted. Prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders.	2025
10262 2b	10262 2b-5	The Affected Environment did not demonstrate with either data or scientific literature how making Carter Mountain and Little Mountain expansion unavailable to oil and gas leasing and withdrawn from locatable mineral entry would benefit big game. It is disclosed that the ACECs include 246,064 acres of crucial winter range. Those areas, however, are already protected from wintertime ungulate disturbance by a TLS. The RMP/EIS infers there will be a	2025

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		temporary loss of habitat from surface-disturbing activities, but no estimate of acreage lost is provided. Low to moderate intensity oil and gas development has a relatively tiny footprint (pad surfaces, access roads, pumping stations, etc). High intensity oil and gas developments (e.g. Jonah or Pinedale Anticline) have larger footprints. However, the percentage of habitat temporarily lost is still in the single digits. For the RMP/EIS to conclude that withdrawing lands from oil and gas will benefit big game, some estimate of lands temporarily lost as habitat to pads, roads, and pumping stations should be provided and a science-based assessment of the significance of that loss to wintering ungulates should be made.	
10262 2b	10262 2b-7	The LGCA strongly disagrees with the removal of domestic sheep grazing from crucial pronghorn winter range. In the RMP/EIS, the BLM fails to disclose, with peer-reviewed scientific studies or BLM field data, that cattle grazing has adverse effects on wintering pronghorn.	2025
10262 2b	10262 2b-8	Additionally, the conclusion that eliminating livestock grazing on crucial winter range for elk (Table 4-9) to increase forage availability, reduce forage competition, and prevent possible displacement of these wildlife populations (Scolvin et al. 1968; Coe et al. 2004; Stewart et al. 2002) has not been demonstrated as fact. Two critical variables discussed in two of the three aforementioned citations (Skovlin et al. 1968, Coe et al. 2004) are the level of utilization and season of use. Known conflicts between livestock and elk include these two variables. No data is provided in the RMP/EIS, however, that discloses season of use or level of utilization in the areas where benefits to ungulates are anticipated under Alternative B. Thus, the conclusion is groundless. The third citation (Stewart et al. 2002) makes no specific correlation between livestock grazing and elk.	2025
10262 2b	10262 2b-9	Furthermore, the RMP/EIS is using research indiscriminately to make the case that elk will benefit by removing livestock in Alternative B. The RMP/EIS earlier cited Anderson and Scherzinger (1975), which showed that summer livestock grazing benefitted elk on winter range when done in certain seasons and intensities. Yet, that finding is ignored in the effects on elk in Alternative B. If the RMP/EIS is going to disclose beneficial effects upon elk from Alternative B, it needs to demonstrate with allotment-by-allotment data that utilization is excessive (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2025
10262 2b	10262 2b-35	METHOD/ASSUMPTION: The number of wild horses would increase by about 18 percent annually and be maintained by periodic removals. COMMENT: As an exotic species, the LGCA posits that an increase of 18% annually will be detrimental to the native vegetation and the economic interest of permittees and stakeholders in the Planning Area. If required by the WFRHBA, annual increases in wild horses in the Planning Area should be at the minimal allowable level allowed for under the WFRHBA.	2030
10262 2b	10262 2b-36	METHOD/ASSUMPTION: Wild horse removals (gathers) would occur about every 3 to 5 years in each HMA. COMMENT: Gathers must occur annually to decrease the environmental devastation wrought by wild horses in the Planning Area.	2030
10262 2b	10262 2b-37	METHOD/ASSUMPTION: Maintenance of wild horse populations at initial appropriate management levels in existing HMAs would be accomplished through removals and selected application of other population control practices. COMMENT: Define "appropriate management levels."	2030

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10262 2b	10262 2b-38	The overall stocking level for both livestock and wild horses in the Fifteen Mile HMA is 5,670 AUMs (RMP/EIS pg. 3-120). Overall stocking levels for both wild horses and livestock in the McCullough Peaks HMA are not discussed in the RMP/EIS. Additions to Section 3.4.10, McCullough Peaks Wild HMA, should include the overall stock level AUMs.	2030
10262 2b	10262 2b-39	Until a comprehensive study of the affects of wild horses in the Fifteen Mile and McCullough Peaks Wild HMA areas is complete, and included in the RMP/EIS, there should be no reduction in livestock AUMs (see Wild Horses Mitigation - Grazing). The BLM must consider reducing wild horse numbers and wild horse AUMs in the McCullough Peaks and Fifteen Mile HMAs to restore rangeland health until drought conditions have receded. The reduction in excess wild horses and AUMs would be consistent with the WFRHBA, Section 2 Subpart (f) which states: excess animals" means wild free-roaming horses or burros (1) which have been removed from an area by the Secretary pursuant to application law or, (2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.	2030
10262 2b	10262 2b-40	In Section 3.4.10, Management Challenges, McCullough Peaks HMA, fertility controls are used to control population growth to an expected 15% annual rate. Section 4.4.10.1, Methods and Assumptions, states that the number of wild horses would increase by 18% annually. The percentages do not match, obviously. The Methods and Assumptions percentage of annual growth should be changed to match the fertility control method percentage annual growth rate or clarify the differences in the percentages. Wild horse HMAs should be managed according to the contraceptive measures delineated previously in this comment section.	2030
10262 2b	10262 2b-41	The agency-preferred alternative (D) in this analysis withdraws leasing from much of the AFMA and allocates the remainder to a mix of NSO and CSU. While the alternative takes a no risk approach to protecting wildlife, the alternative goes beyond what the science (Holloran and Anderson 2005; Sawyer et al. 2007a; Sawyer et al. 2007b) says is needed to protect wildlife from energy extraction activities.	2036
10262 2b	10262 2b-4	Additionally, is it not clear that measures taken in Alternative A will provide sufficient acres of occupied prairie dog towns to maintain burrowing owls (and other prairie dog obligates) at a level sufficient to preclude federal listing. The RMP/EIS needs to provide information (goals, objectives, minimum acreages of suitable habitat, monitoring strategies, stakeholder involvement, etc) on a Basin-wide scale to demonstrate that Alternative A (and other alternatives) are indeed compatible with maintaining prairie dog populations to support black-footed ferret recovery and the ESA (see Wildlife Mitigations - Grazing, Travel Management, and Mining and Energy Development).	2039
10262 2c	10262 2c-19	Page 2-97, Record 5020 mentions avoiding surface disturbing activities and ROW authorizations in view within 5 miles of important cultural sites where integrity of setting is a contributing element of NRHP significance (Alternative B). Alternative D mentions a three-mile buffer. It seems that mitigation measures described in Appendix L could go a long way to mitigating impacts of surface disturbing activities within these three- to five-mile buffers. Stipulating significant restrictions in these buffers could potentially remove a 78 square mile (five-mile buffer) and 28 square mile area (three-mile buffer) from surface disturbing activities for a single cultural site.	2004

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10262 2c	10262 2c-20	The management prescriptions under Alternative D, as outlined in Record # 5020, 5022, and 5023 (pp. 2-97 and 2-98), use the word “avoid.” The common legal definition of “avoid” is “to make void or of no effect; invalidate.” The average person may be led to the conclusion that surface-disturbing activities are precluded within 3 miles of important cultural sites throughout the Planning Area. Rather, it should be interpreted “as a term used to address mitigation of some activity” consistent with the definition provided in the Draft RMP and DEIS (p. Glossary-4). Although the use of the word “avoid” seems a poor choice, given the definition provided in the Draft RMP and DEIS it seems reasonable to include “(see Glossary)” following “avoid” in each of the Record #s referenced above.	2004
10262 2c	10262 2c-22	Page 2-97, Record 5021 describes an NSO for leasable minerals within 3 miles and a CSU stipulation within 5 miles of important cultural sites for Alternative B. For Alternative D, the buffer would be 3 miles to protect the visual integrity of important cultural sites. Again, the mitigation measures described in Appendix L and others described under 5.0 mitigation measures could reduce or eliminate impacts associated with surface disturbing activities.	2004
10262 2c	10262 2c-23	Page 2-97, Records 5020 and 5021. Mike Beis, BLM cultural specialist, and the SHPO representative in the February, 2010 meetings in Cody said they have identified up to 500 cultural sites that deserve protection. If 500 sites need to be protected by these three- and five-mile buffers, thousands of acres of land within the planning area could be removed from potential development.	2004
10262 2c	10262 2c-30	The LGCA is concerned about the nebulous nature of “setting” of a NRHP-eligible cultural site with respect to viewshed criteria. It is implied in the above text that a five-mile viewshed buffer might not be sufficient on a case-by-case basis if the development were a wind farm. There needs to be more explicit direction from the BLM in the plan with respect to buffers for protecting the setting of NRHP-eligible cultural resources.	2004
10262 2c	10262 2c-31	Page 4-265, 2nd paragraph - Clarify if limiting motorized use to designated roads and trails allows for dispersed camping and game retrieval off of roads.	2004
10262 2c	10262 2c-32	Again, the BLM and SHPO have stated in meetings that there may be 500 important cultural sites that need protected under the buffers proposed in Alternatives B and D. It should be noted that management of cultural resources for setting is only intended to apply to those properties where setting is an important aspect of the integrity of the site. As noted in the comments from the State Historic Preservation Office the majority of cultural resources (approximately 98%) recorded in the Planning Area are archaeological in nature and thus the integrity of setting is not an issue of importance. In fact, less than 1% of cultural resource properties in the Planning Area meet the criteria for the management of setting.	2004
10262 2c	10262 2c-38	The LGCA has several concerns with the treatment of cultural resources in the RMP. Most importantly, the LGCA is concerned about three- and five-mile buffers around important cultural resources within which NSO or CSU restrictions would apply under Alternatives B and D. Given that there may be as many as 500 important cultural sites in the planning area; these buffers could potentially preclude activities on thousands and thousands of acres within the planning area. The LGCA believes that mitigation measures in Appendix L of the RMP and additional measures described above can be applied that would protect these resources but still allow surface disturbing activities within the buffer zones.	2004

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10262 2c	10262 2c-21	This language would require mitigation of visual impacts for projects that impact the integrity of the subject cultural site or historic trails within the buffer but if the project does not impact the visual integrity of the subject cultural site or feature (is not within view of the site even though it is within the buffer), no mitigation would be necessary. According to the Wyoming State Historic Preservation Office (SHPO), the intact portions of the Bridger Trail comprise less than 1.5% of the length of the trail across the planning area as shown on BLM maps. The BLM should publish in the DEIS the known intact portions of the Bridger Trail as documented by Wyoming SHPO.	2010
10262 2c	10262 2c-39	Page 3-143 states that the small size of scattered parcels can result in increased difficulties in management. Please specify the acreages that correspond to these difficulties in management.	2013
10262 2c	10262 2c-47	Include reference citations for the assertion that land tenure adjustments and land use authorizations will increase over the life of the plan.	2013
10262 2c	10262 2c-48	Include more information about the metrics used in determining the priority or urgency associated with acquisitions benefiting varied resource programs.	2013
10262 2c	10262 2c-49	Include reference citations for the assertion that the number of land use authorizations will increase over the life of the plan.	2013
10262 2c	10262 2c-50	Include more information about the process of determining mineral development potential prior to a potential land disposal.	2013
10262 2c	10262 2c-51	Define “voluntary approaches” used to increase access to lands.	2013
10262 2c	10262 2c-52	Include reference citations for the assertion that consolidation of public lands would decrease the cost of public land administration in the Planning Area and enhance efficiency in management of the remaining public lands.	2013
10262 2c	10262 2c-53	Provide a description of the types of special designations that may qualify an acquisition area for a higher or lower priority.	2013
10262 2c	10262 2c-54	Please detail or reference the resource issues that drive differences in impacts between alternatives. Throughout the lands resource section of the RMP/EIS, effects from land designations on the operation of the lands and realty, renewable energy, rights-of-way, and comprehensive travel and transportation management resource areas. However, the resource issues that have precipitated those land designations are often not discussed in sufficient detail. In order to fully understand the implications of difference between alternatives for the land resources section of the document, more information must be included.	2013
10262 2c	10262 2c-55	Please clarify the methods used to identify parcels available for disposal. Areas considered for disposal due to difficulties in management but retained due to other resource concerns should be detailed under each alternative. For example, under Alternative D, 4,633 acres of BLM ownership in parcels of 160 acres or less are not considered for disposal under zones 1C, 2, 2A, 2B, or W.	2013
10262 2c	10262 2c-56	Please detail or reference the resource issues that drive differences in withdrawals, classifications, and segregations between each alternative.	2013
10262 2c	10262 2c-14	The preceding comments clearly illustrate that the BLM has failed to adequately describe historic wildlife habitat quality and quantity, population density, and viability of species analyzed in the RMP/EIS. In the Affected Environment chapter, the RMP/EIS insufficiently discloses the aforementioned variables. Given that the current condition does not properly disclose the population	2025

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		density and area of use of many species in the Planning Area, it is indiscernible to what degree a species or group of species is challenged by habitat conditions or availability.	
10262 2c	10262 2c-15	Complicating the wildlife section is the fact that the RMP/EIS does not provide measurement indicators for species. An EIS must provide measurement indicators so that management planning action effects can be applied to wildlife species and habitats. Only then can the action alternatives be accurately assessed and compared.	2025
10262 2c	10262 2c-16	Management challenges are provided for the Planning Area that describe in very nebulous terms adversities facing wildlife species. However, the management challenges are not substantiated with data gathered from the Planning Area. In fact, very little data is provided for either wildlife species or habitats. In addition, the RMP/EIS incorporation of recognized research and field studies on Planning Area species that were conducted outside the Bighorn Basin, but still relevant, are mostly absent.	2025
10262 2c	10262 2c-18	Before the RMP/EIS is finalized, the wildlife section must be substantially improved. The Affected Environment must compare historic and current wildlife species populations and habitat quality and quantity. Next, a description of how management actions and resource uses in the Planning Area, over the life of the current RMP(s), have impacted wildlife either beneficially or adversely should be provided. With a solid Affected Environment chapter, the Environmental Consequences chapter can effectively analyze proposed action alternatives. For proper evaluation, measurement indicators must be devised for each species.	2025
10262 2c	10262 2c-2	Alternative A takes the mitigation measures recommended in various publications and applies them where they overlap with key wildlife habitats. Alternative A assumes that wildlife populations are at some risk from energy extraction activities, but that the published mitigation measures will be sufficient to avoid any significant adverse effects. Alternative D, and to a greater extent Alternative B, largely ignore the current level of over-performance that elk populations are exhibiting. As noted previously, before constraints are placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders.	2025
10262 2c	10262 2c-71	Inventory and subsequent confirmation inventory of LWCs performed by the LGCA, it is apparent that the BLM did not follow Manual 6301 procedural guidelines when conducting the inventory. The LGCA believes that the lack of confirmation of procedural guidelines has led the BLM to publically release an inaccurate LWC inventory, leading to erroneous LWC designations.	2027
10262 2c	10262 2c-72	The BLM Cody Field Office did not produce maps of the inventoried LWCs. Section 1, Subsection 13, Part A, Subpart 2a, on page 6 of BLM Manual 6301 requires the BLM to produce a map of each LWC by stating: "a map of sufficient detail to determine specific boundaries of the area in question." The Manual refers to this as a minimum standard in the inventory. The Cody Field Office is in direct violation of this section of BLM Manual 6301.	2027
10262 2c	10262 2c-73	The BLM proposed multiple LWCs of roaded areas less than 5,000 acres in size. Section 1, Subsection 14, Part B, Subpart 1, on page 8 of BLM Manual 6301, discusses the size requirements of LWCs. Determination of the size criteria requirements is two-part: 1) a roadless area of 5,000 contiguous BLM acres or 2) a roadless area of less than 5,000 acres if it is contiguous with lands such as	2027

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		wilderness, WSAs, etc. Some of the multiple BLM LWCs less than 5,000 acres are not adjacent to wilderness or WSAs. The LWCs that are adjacent to WSAs are not contiguous (Appendix A), containing roads separating the boundaries of the LWCs from the WSAs.	
10262 2c	10262 2c-74	The BLM did not inventory for man-made structures within LWCs. The BLM LWC Inventory occasionally refers to roads or structures on their inventory by hand drawing dots on LWC maps or drawing in roads with a highlighter. The BLM GIS library contains complete data sets for roads, range improvements, oil and gas fields, and other structures such as communication towers. It is clear that the BLM ignored their GIS data when preparing the LWC inventory.	2027
10262 2c	10262 2c-75	Other readily available GIS data sets ignored by the BLM are Wyoming Pipeline Authority oil and gas pipelines and Wyoming Oil and Gas Commission data for oil and gas wells. All of these structures are contained, to varying degrees, within all the BLM identified LWCs (Appendix A). Section 1, Subsection 14, Part B, Subpart 2, on page 9 of BLM Manual 6301, discusses naturalness, allowable structures, and cumulative effects of multiple structures on apparent naturalness. The BLM did not document in their inventory the structures that exist within the LWCs, nor did they document the cumulative effects of those structures on the apparent naturalness of the LWCs. This is a direct violation of the guidance set forth in BLM Manual 6301.	2027
10262 2c	10262 2c-76	Thresholds for the amount of allowable structures in LWCs should be set to create a measureable baseline. For example, a threshold should be established for the number of structures allowed per 1,000 or 5,000 acres. A second threshold may be setting minimum distance criteria between allowable structures. The process should take in account the Wilderness Act, which is quoted in BLM Manual 6301 as: A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value. The first sentence of the preceding quote and points one, two, and three are violated on a continual basis in the BLM LWC Inventory as determined by the LGCA LWC Confirmation Inventory (Appendix A). The definition of a road has the most potential to impact LWC designations. Almost all LWCs contain roads (Appendix A).	2027
10262 2c	10262 2c-77	The inconsistencies in road terminology and classifications should require the BLM to adopt a standardized road classification methodology. The BLM Road and Terminology Report contain the most comprehensive attempt at this process. It contains a chart depicting route status levels and terminologies associated. Figure 17 clearly depicts single track as trails and high clearance (commonly associated with two-tracks) as primitive roads. This terminology	2027

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		should be adapted to the LWC inventory procedures. Therefore, two-tracks would be considered roads in an LWC inventory.	
10262 2c	10262 2c-13	Wild horses are a non-native species in the Bighorn Basin that deplete and denigrate native vegetation and water sources. If the BLM proposes to increase wild horse AUMs, which would result in the alteration, reduction, or loss of domestic livestock grazing AUMs, it will be preceded by the BLM designing and implementing a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, as well as the impacts of wild horses on native vegetation, water quality/quantity, and domestic livestock grazing in the Planning Area. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area.	2030
10262 2c	10262 2c-24	Page 3-136, paragraph 2 - Explain how sensitivity levels were determined.	2032
10262 2c	10262 2c-25	Page 3-136, 3rd paragraph - It would be helpful to the reader if a table or diagram was provided to show how inventory classes are determined. For example, a Scenic Class A rating and a Low sensitivity rating results in a ___ Scenic Class.	2032
10262 2c	10262 2c-26	Page 3-136 - Explain why foreground and background are lumped into one distance category (Foreground/Middleground). Seems the scenic class would be different for each distance zone.	2032
10262 2c	10262 2c-27	Table 3-35 - Table footnote 1 in the Foreground/Middle Ground cell is mislabeled. Footnote one refers to scenic classes on the previous page. Suggest including a footnote on Foreground/Middle Ground that would describe the distance zones for each. For example, foreground would be 0-1/4 mile from a travel route and middleground would be 1/4 - 2-3 miles. Also visibility should be verified at the project level. This also could be considered a mitigation measure included later in the document.	2032
10262 2c	10262 2c-28	Page 3-139 - Explain how the VRM Classes in Table 3-36 was determined or what they are based on. The Source at the bottom of the Table only says "BLM 2009a" which is the GIS data base. Are these classes based on the existing RMP?	2032
10262 2c	10262 2c-29	Page 3-139 - Cite the "policy direction for renewable energy production on public lands" mentioned in the last paragraph.	2032
10262 2c	10262 2c-33	Page 4-283, 2nd paragraph under Visual Resources - The discussion about direct and indirect effects does not match the definition of direct and indirect effects on Page 4-1. Suggest that indirect effects for visual resources would be related to recreation use and economics as a result of diminished scenic quality.	2032
10262 2c	10262 2c-34	Page 4-286 - The effects analysis is written as if the impacts "would" occur as opposed to "could occur" if development were to take place. This may be a clarification needed for all resource effects.	2032
10262 2c	10262 2c-35	Page 4-288, Last sentence before Table 4-12 - Clarify why "applying VRM that is incompatible with an area's visual value would eventually alter these areas toward a higher visual inventory class." The visual inventory class is determined using the scenic quality rating (Classes A, B, and C) and the visual sensitivity level. The Forest Service visual inventory process uses inherent scenic attractiveness (Class A, B, and C) instead of scenic quality and it would not change as a result of management allocations or management actions. Alternative D.	2032

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10262 2c	10262 2c-36	Table 4-11 and Map 41: As an example of the concern raised on Page 3-139, why was the Sheep Mountain Anticline VRM Class expanded from Alternative A to Alternative D?	2032
10262 2c	10262 2c-37	1. With respect to visual inventory classes, the BLM will display in the RMP/EIS an appendix or cite the project file that explains how the visual resource inventory was completed. 2. Regarding Table 3-36 of the RMP/EIS, the BLM will explain the basis and determination of VRM Classes. It is also suggested that indirect effects for visual resources would be related to recreation use and economics as a result of diminished scenic quality. 3. The BLM will include in the RMP/EIS an appendix (or in the project file/administrative record) the process used to determine the Scenic Quality Rating.	2032
10262 2c	10262 2c-45	The RMP/EIS states that there are two fundamental tasks associated with comprehensive travel and transportation management. Both of these tasks require an accurate inventory of the existing transportation network. Please ensure that spatial inventories of the transportation network in the Planning Area accurately reflect current conditions prior to making decisions that would affect comprehensive travel and transportation management.	2034
10262 2c	10262 2c-46	Page 3-156 briefly describes five travel management plans that are currently implemented. Please include a more detailed description of these existing travel management plans, including their location, extent, goals, range of designations, and resource issues driving those designations.	2034
10262 2c	10262 2c-68	Please include reference citations for the assertion that demand for new rights-of-way or access is expected to decrease.	2034
10262 2c	10262 2c-69	Please detail or reference the resource issues that drive differences in travel management between each alternative. Inclusion of this information would be appropriate in Table R-1 as well.	2034
10262 2c	10262 2c-57	Please include reference citations for the assertion that wind energy is the most likely type of renewable energy to be developed in the Planning Area.	2065
10262 2c	10262 2c-58	Please include reference citations for the assertion that wind energy demand and development is expected to increase during the life of the plan..	2065
10262 2c	10262 2c-59	Please include reference citations for the assertion that increased development of wind energy turbines would increase the demand for ROW authorizations for transmission lines.	2065
10262 2c	10262 2c-60	Please detail or reference the resource issues that drive differences in management that limits or prohibits renewable energy development between each alternative.	2065
10262 2c	10262 2c-64	The RMP/EIS states that, overall, Alternative C has the lowest level of constraints applied to ROW authorizations. The RMP/EIS also states that Alternative A includes the fewest combined avoidance/mitigation and exclusion areas, as well as the most area of ROW corridors. These two factors would indicate that Alternative A has lowest level of constraints applied to ROW authorizations. Please clarify these apparently contradictory statements.	2066
10262 2c	10262 2c-65	Please detail or reference the resource issues that drive differences in management that limits or prohibits ROW corridors between each alternative. The process for identifying areas of designated ROW corridor is unclear. Please provide information concerning the process of designating ROW corridors.	2066
10262 2c	10262 2c-66	Please include discussion of the differences in ROW acquisition between designated ROW corridors, avoidance/mitigation areas, and areas with neither	2066

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		designation. The impact of expansion of avoidance/mitigation areas and reduction of designated ROW corridors on ROW applicants is unclear.	
10262 2c	10262 2c-70	Mitigations 1. The BLM shall ensure that spatial inventories of the transportation network in the Planning Area accurately reflect current conditions in the Final RMP/EIS. 2. In the Final RMP/EIS, the BLM shall include a more detailed description of the existing travel management plans. 3. In the Final RMP/EIS, the BLM shall detail the resource issues that drive differences in impact between alternatives for Lands and Realty, Renewable Energy, Rights-of-Way and Corridors, and Comprehensive Travel and Transportation Management. If the detailed information is included elsewhere in the RMP/EIS, a reference to that location would be sufficient. 4. In the Final RMP/EIS, the BLM shall assess the percentage of ROW corridor capacity that is currently in use, and use that information to revise ROW corridor designations for all alternatives. 5. In the Final RMP/EIS, the BLM shall provide description of the methods used to designate ROW corridors, and detail the differences between alternatives. 6. In the Final RMP/EIS, the BLM shall provide discussion of the differences ROW acquisition between designated ROW corridors, avoidance/mitigation areas, and areas with neither designation. 7. In the Final RMP/EIS, the BLM shall clarify the assertion that Alternative C includes the lowest level of restrictions on ROW authorization, and revise if applicable.	2066
10262 2c	10262 2c-40	The RMP/EIS asserts that "If the current rate of development continues and current management remains in place, designated ROW corridors should adequately meet future needs over the next 10 to 20 years." Please provide supporting information for this statement, and assess the percentage of current ROW corridor capacity in use.	2067
10262 2c	10262 2c-41	Please reference the source of oil and gas production estimates, assumptions concerning their distribution, and include provisions should activity data from these sources.	2067
10262 2c	10262 2c-42	Please provide supporting information for the assertion that demand for public land for access roads and electrical or pipeline ROWs will remain moderate over 10-20 years.	2067
10262 2c	10262 2c-44	Given the potential of the Mowry Shale Formation and EOR and unconventional gas plays elsewhere in the Bighorn Basin, the proposed ROWs in Alternative D will not allow for necessary infrastructure to develop and produce these important resources. Upon comparison of Alternative A and Alternative D ROW corridors, it was discovered that a large majority of the corridors in Alternative A are removed in Alternative D. Certain oil and gas management areas (intensely developed oil fields) were no longer being served by ROW corridors. This results in an inability to expand operations and apply new extraction techniques, such as EOR. Appropriately, as public servants with the best interest of the citizenry in mind, the LGCA has designed and developed an Alternative D ROW corridors GIS polygon and accompanying map (Map 9) and GIS shapefile. Energy producers in the Bighorn Basin met with the LGCA to discuss their needs for ROW corridors. Being able to provide corridors for CO2 pipelines into oil and gas management areas and additional space in ROW corridors for removal and transportation of oil and gas is a necessity for energy producers. The proposed ROW corridors would allow for EOR and unconventional gas plays in the Bighorn Basin. Access to oil and gas previously unattainable is not only prudent in meeting the nation's energy demands, but will provide economic and employment benefits to the Bighorn Basin, Wyoming, and the U.S.	2067

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10262 2c	10262 2c-61	Please include reference citations for the assertion that ROW grants will be directly proportional to the development of other resources and resource uses in the Planning Area.	2067
10262 2c	10262 2c-62	Please include reference citations for the assertion that companies would focus first on the maintenance and upgrading of existing lines before undertaking new construction of major utility lines in the Planning Area.	2067
10262 2c	10262 2c-63	Please include reference citations for the assertion that if the current rate of ROW development continues designated corridors should adequately meet future needs over the life of the plan.	2067
10262 2c	10262 2c-9	BLM greater sage-grouse Key Habitat Areas in the Planning Area are arbitrarily designated and incompatible with the January 2010 Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands including the Federal Mineral Estate memorandum authored by the Wyoming BLM State Director (State Director). The memorandum states that "WY BLM sage-grouse Key Habitat Areas correspond to the State of Wyoming's Core Population Areas (Core Areas)." Greater sage-grouse Key Habitat Areas (1,857,477 acres) do not correspond with Core Areas (1,786,237 acres) in the Planning Area. To comply with the order of the BLM State Director, the agency-designated Key Habitat Areas in the Planning Area shall not be recognized, only the Core Population Areas designated by the State of Wyoming as described in Executive Order 2011-5.	2069
10262 2c	10262 2c-10	Management by state agencies should focus on the maintenance and enhancement of Greater Sage-Grouse habitats, populations and connectivity areas identified in Attachment A. Absent substantial and compelling information, these Core Population Areas should not be altered for at least five (5) years. Constraints on domestic livestock grazing, oil, gas, and mining development projects, and the travel management infrastructure due to the presence of greater sage-grouse core areas can be onerous to economic endeavors and recreational uses. In partnership with local governments and stakeholders, the BLM shall form an interdisciplinary team to review all greater sage-grouse core areas within the Planning Area every five years. In the event of "substantial and compelling information" that would include but is not limited to a considerable population increase or decrease, abandonment or deviation in use of one or more delineated core areas, and/or an alternation of vegetation (e.g. large-scale fire, invasive weed encroachment, plant disease) that removes minimum composition and cover requirements of greater sage-grouse, the interdisciplinary team shall convene within six months to review the core area(s) suitability and validity. Mitigations - Special Designations and Other Management Areas.	2071
10262 2c	10262 2c-17	As noted above, stated management challenges for greater sage-grouse are tantamount to a laundry list of problems facing the species throughout its range, not just the Planning Area. Challenges for the greater sage-grouse include: industrial development, livestock and wildlife grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects, power lines and towers, and other activities. One or more of the preceding challenges may indeed be factual for greater sage-grouse. Without field-verified data it cannot be ascertained which are real or merely perceived challenges.	2071
10262 2d	10262 2d-1	The last paragraph on page 3-167 of the RMP/EIS, and continued on page 3-168, discusses Secretarial Order 3310. Revision is required in this paragraph by	2027

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		discussing the memorandum released on June 1, 2011 by Secretary of the Interior Ken Salazar, which states that there will be no public funding for Wild Lands. The memorandum directs the BLM to not designate any lands as Wild Lands. Either include the policy changes per the June 1 memorandum or remove all Wild Lands discussion from the entire RMP/EIS.	
10262 2d	10262 2d-10	The BLM shall cite the acreage difference used to calculate the percentage reported for long-term surface disturbance and the data and source of the acreage noted in the first paragraph of this section on page 4-359 of the RMP/EIS.	2027
10262 2d	10262 2d-11	The BLM shall cite the data source and methodology for determining the acres of long-term surface disturbance noted in the first paragraph of this section on page 4-361 of the RMP/EIS.	2027
10262 2d	10262 2d-12	Page 4-361 of the RMP/EIS uses the general term "management areas." The BLM shall replace this generic term with the specific names of management areas.	2027
10262 2d	10262 2d-13	The BLM shall cite the acreage difference used to calculate the percentage reported for long-term surface disturbance noted in the first paragraph on page 4-362 of the RMP/EIS.	2027
10262 2d	10262 2d-14	As cooperating agencies, the LGCA respectfully requests direct involvement in the BLM's re-inventory process of LWCs. The request is based on CEQ 1501.6 (a) 2., FLPMA Section 20, and the Federal Register (FR) Vol. 70, No. 55 from March 23, 2005 that amends 43 Code of Federal Regulations Part 1610.4-3 (pg. 14562): Section 1610.4-3 Inventory Data and Information Collection We revised the first sentence of this section to instruct Field Managers to collaborate with cooperating agencies in arranging for the collection of data and information. Other changes for this section are editorial, and do not affect the substance of this rule. Other than a minor word change (deleting "participating" from "participating cooperating agencies"), this section remains as proposed. The amended language is as follows (FR Vol. 70, No. 55, pg. 14566): 1610.4-3 Inventory data and information collection. The Field Manager in collaboration with any cooperating agencies, will arrange for resource, environmental, social, economic, and institutional data and information to be collected, or assembled if already available.*** Direct involvement of the LGCA in the BLM LWC re-inventory process of will be a two part process. Part one will involve a webinar review between the LGCA and Caleb Hiner (BLM Project Lead) of all 56 LWC GIS polygons to compare the BLM LWC Inventory to the LGCA LWC Inventory. Inclusion of additional BLM specialists designated by Mr. Hiner as essential to this review process will be welcomed. The comparison will consist of a detailed review of all GIS data sets available and the structures found in each LWC. Review discussions will focus on structures found within LWCs that detract from wilderness characteristics. Re-designation of LWCs by the BLM, derived from the review process, will be evaluated in part two of the process. Part two will include webinar reviews of the BLM re-designated LWCs with a Bighorn Basin county commissioner and/or conservation district representative from the county in which the LWC is located. The BLM will provide their methodology and cause of re-designation for discussion with the LGCA representatives. Based on local knowledge and input of the LGCA, the BLM shall be open to further re-designations. The LGCA asserts that the two-part process would conform to the laws set forth by the Federal Register Vol. 70, No. 55 Section 1610.4-3 from March 23, 2005. All discussions and re-designations shall conform to the BLM	2027

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		LWC inventory guidelines and the Wilderness Act of 1964.	
10262 2d	10262 2d-2	The second paragraph on page 3-168 of the RMP/EIS states that the inventory processes performed by the BLM is consistent with the process for conducting such inventories and the paragraph describes three points concerning the steps involved in the process. The LWC inventory performed is in conflict with this protocol and this is supported by the fact that the BLM did not inventory for roads and the Cody Field Office did not produce maps of the LWCs. Please remove these statements unless the inventory is corrected to reflect the guidelines set forth by BLM Manual 6301.	2027
10262 2d	10262 2d-3	The fourth paragraph on page 4-168 of the RMP/EIS discusses resource values including naturalness, solitude, and primitive recreation. Add the word “apparent” to read “apparent naturalness.” The BLM inventory guidelines use “apparent naturalness,” not “natural integrity.”	2027
10262 2d	10262 2d-4	Further, the BLM does not assess naturalness from a biological, vegetative, or scientific standpoint. The BLM version of naturalness for their wilderness characteristics inventory is essentially defined by whether or not an area looks natural to someone who may not have knowledge of the difference between natural and human-affected ecosystems. This should not be the basis for any land use planning or scientific inventory. In the same paragraph it is stated that some smaller LWCs, less than 5,000 acres, are contiguous with WSAs or are of sufficient size to manage for wilderness characteristics. That is not the case. Most LWCs adjacent to WSAs are separated from the WSAs by a road, making them noncontiguous.	2027
10262 2d	10262 2d-5	Also, several LWCs are less than 1,000 acres, which likely make them unmanageable in size (See Appendix A).	2027
10262 2d	10262 2d-6	This paragraph also discusses that impairing wilderness characteristics is appropriate within applicable requirements. The BLM must add additional language concerning lawful valid existing oil and gas leases and mining claims and rights to clarify this statement.	2027
10262 2d	10262 2d-7	The second full paragraph on page 4-355 of the RMP/EIS states “adverse impacts to LWCs occur when natural conditions are compromised.” The BLM shall add “apparent” in front of naturalness and remove the word “conditions.”	2027
10262 2d	10262 2d-8	The first paragraph of this section discusses how motorized vehicle use disturbs vegetation and contributes to the spread of noxious weeds, resulting in the degradation of native vegetation and diminishment of wilderness characteristics. That statement is true. However, the BLM guidelines do not reference native vegetation in assessing apparent naturalness for the determination of wilderness characteristics. In fact, the BLM advises against it. The LGCA LWC Inventory did account for noxious weeds and their effects on naturalness in the inventory (Appendix A). It is contradictory for the BLM LWC Inventory to assess naturalness on a non-scientific basis and the RMP/EIS to discuss native vegetation effects on wilderness characteristics. The BLM should correct their LWC inventory and inventory procedures to reflect inventories based on ecological naturalness, not apparent naturalness.	2027
10262 2d	10262 2d-9	The BLM shall cite the data source and methodology for determining the acres of long-term surface disturbance noted in the first paragraph of this section on page 4-356 of the RMP/EIS.	2027
10262 2d	10262 2d-16	Absaroka Mountain Foothills SRMA - If the goal of the management in this area is for semi-primitive motorized and non-motorized recreation, the RMP/EIS	2062

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		should provide more access in Travel Management designations from “limited to designated roads and trails” to “limited to existing roads and trails” in areas outside special designations such as Wilderness Study Areas and ACECs. This will provide for a more balanced approach to management.	
10262 2d	10262 2d-17	Bighorn River SRMA - Provide the names and numbers of river access sites that are available to the public. Also include whether or not undeveloped access is available.	2062
10262 2d	10262 2d-18	The last paragraph of this section lists the ERMAs located in the Planning Area. Include the Bighorn Basin ERMA in this list. It is listed in the Alternative D GIS file but not in the Alternative A GIS file. According to Caleb Hiner, BLM RMP Lead, the Bighorn Basin ERMA is all the lands left over after the current designations have been made.	2062
10262 2d	10262 2d-19	On page 4-332 of the RMP/EIS in the second bullet, there is no citation listed to support the statement. Corrective Action: Please provide a reference that supports the statement “because of less interest by younger generations, the number of hunters will decrease.”	2062
10262 2d	10262 2d-20	The last sentence on page 4-332 of the RMP/EIS states: Although Alternative D manages less acreage in SRMAs than Alternative A, by managing these areas for the realization of benefits by maintaining the desired RSCC, SRMAs under Alternative D would result in more beneficial impacts to recreation experiences than under Alternative A. A result in beneficial impacts to recreation is not clarified. Please clarify benefits. Do these changes benefit primitive or motorized recreationists? If primitive recreationists are benefitted by closing roads for example, then motorized recreationists are impacted, not benefitted, and vice versa. Change this sentence to clarify which type of recreation is benefitted or state how both forms of recreation is benefitted.	2062
10262 2d	10262 2d-21	Impacts Common to All Alternatives On page 4-333 of the RMP/EIS in the first paragraph under Resource Uses, there is no citation listed to support the statement. Please provide a reference to research that supports the second sentence, “The industrialized character”	2062
10262 2d	10262 2d-22	On page 4-333 of the RMP/EIS, the last sentence under Resource Uses states that mineral development would cause mostly adverse impacts to recreation. Please discuss the increase in access that may be provided by mineral production and the beneficial impacts to motorized recreation and access.	2062
10262 2d	10262 2d-23	The last paragraph on page 4-333 of the RMP/EIS under Resource Uses discusses the negative short-term impacts of mining on recreation and wildlife. There is no discussion of the long-term benefits of reclamation, post mining. Reclamation can provide renewed biodiversity. Reclamation can establish a native and natural setting that is superior, in some cases, to the surrounding landscapes. Please discuss the long-term benefits of reclamation to habitat and recreation.	2062
10262 2d	10262 2d-24	On page 4-334 of the RMP/EIS in the first sentence of the third paragraph, this statement could imply that only non-motorized recreation users are seeking solitude and allowing motorized use “degrades” the setting. Corrective Action: Edit last part of sentence. “while impairing those recreation users seeking a non-motorized recreation experience” at the end of the sentence.	2062
10262 2d	10262 2d-26	The paragraph further states that off-road motorized use for livestock support would create new trails causing new conflicts, contrast elements to the scenic characteristics, and would interfere with recreationists goals, experience, and	2062

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		benefits. The paragraph does not discuss the benefits of new trails to motorized recreationists. Clarify these impacts are to primitive recreationists and further, support the benefits of new trails to motorized recreationists.	
10262 2d	10262 2d-27	The third paragraph on page 4-335 of the RMP/EIS under Resources discusses the impacts of fire to recreation. It states that long-term wildland fire impacts may degrade and displace recreation but would also create new recreation opportunities. Please name these new opportunities resulting from wildland fires and cite references documenting these opportunities.	2062
10262 2d	10262 2d-28	The first paragraph on page 4-336 of the RMP/EIS discusses that the modification of the natural environment in VRM class III and IV may detract from recreational activities for the primitive recreationists. Please add discussion on how these alterations may benefit motorized recreationists from a new road and trail and access perspective.	2062
10262 2d	10262 2d-30	The first paragraph on page 4-340 of the RMP/EIS discusses the recreational use of the Spirit Mountain cave and the managing of cave and karst resources under the Worland Caves SRMA to provide recreation opportunities. According to Caleb Hiner, BLM RMP Lead, the Worland Caves SRMA location is sensitive information. The LGCA discovered this during a phone conversation with Mr. Hiner in an attempt to gather accurate, complete RMA GIS files. If the location of the Worland Caves SRMA is sensitive information and not divulged to the cooperating agencies, let alone the public, how does this area provide recreational opportunities? This needs to be clarified. If the Worland Caves SRMA is providing recreational opportunities then the location should be divulged and the GIS file provided to the LGCA or if the location is indeed sensitive then the Worland Cave SRMA would not provide for recreational opportunities and the statements should be removed.	2062
10262 2d	10262 2d-31	The third paragraph on page 4-340 of the RMP/EIS discloses that 30,000 acres will be affected from projected timber harvest. The BLM will cite the source and data for which this information was derived.	2062
10262 2d	10262 2d-32	On page 4-341 of the RMP/EIS, Table 4-15 in the first paragraph under RMAs identifies seven SRMAs rather than eight as noted in the text. Corrective Action: Please edit text to the correct number.	2062
10262 2d	10262 2d-33	On page 4-341 of the RMP/EIS, the second paragraph in the SRMAs section discusses applying NSOs on all or part of the listed SRMAs. The BLM will correct the paragraph by adding discussion of which SRMAs are all NSO and which are partially NSO, as well as list the acres or percentages of NSO for each SRMA.	2062
10262 2d	10262 2d-34	In the first paragraph on page 4-342 of the RMP/EIS, the last sentence discusses Rattlesnake Ridge health risks from high levels of H2S gas potential from OHV use in the area. The BLM will cite the data source of this information and what exposure ranges are considered high risk. Also the BLM must discuss the levels of H2S gas currently in the area.	2062
10262 2d	10262 2d-35	The first paragraph on page 4-342 of the RMP/EIS states 10,882 acres of long term disturbance. The BLM will cite the data and source of these acres.	2062
10262 2d	10262 2d-36	The first paragraph in this section, on page 4-342 of the RMP/EIS, states 5,000 acres of long term projected surface disturbance from mining. The BLM will cite the data and source of these acres.	2062
10262 2d	10262 2d-37	The second paragraph on page 4-345 of the RMP/EIS states a projected timber harvest of 20,000 acres. The BLM will cite the data and source of these acres.	2062
10262 2d	10262 2d-	The third paragraph on page 4-345 of the RMP/EIS discusses using vegetation	2062

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	38	treatments to manage towards 75% Historical Climax Plant Community (HCPC). The BLM will cite the source of why 75% HCPC is desired. Also see vegetation comments concerning this issue.	
10262 2d	10262 2d-39	The fifth paragraph on page 4-345 of the RMP/EIS discusses how impacts of cultural sites are similar to Common to All Alternatives, but to a greater extent. The BLM will rewrite this sentence because the impacts from cultural sites by alternative would not be similar given the buffer for protection of cultural sites varies greatly by alternative	2062
10262 2d	10262 2d-15	2. In the Final RMP/EIS, the BLM shall assess the percentage of ROW corridor capacity that is currently in use, and use that information to revise ROW corridor designations for all alternatives. The LGCA will provide a map and GIS shapefile of proposed new Alternative D ROW corridors.	2067
10262 part 2a	10262 part2a-7	On page 5-514 it states that surface-disturbing activities (e.g., construction of well pads and roads, pits and reservoirs, pipelines and power lines, mining, and vegetation treatments), OHV use, fire and fuels management, some recreational activities, concentrated herbivory, and operation and maintenance of existing facilities and infrastructure in the Planning Area would cause fugitive dust, exhaust emissions, and smoke, thereby adversely affecting air quality through the release of HAPs, VOCs, CO, SO ₂ , NO, and PM ₁₀ into the atmosphere. In addition, these activities would release CO ₂ , CH ₄ (primarily from livestock grazing), and other GHGs into the atmosphere.	2009
10262 part 2a	10262 part2a-8	Additionally, please remove concentrated herbivory and (primarily from livestock grazing) as these activities are not considered surface-disturbing activities.	2011
10265	10265-2	The Draft RMP fails to sufficiently describe the width of the preferred ROW corridors. Each of the alternatives in the Draft RMP describes acreage available for ROW corridors. However there is no accompanying narrative that describes the actual width of any specific corridor. The calculation of the acreage available in the ROW corridors necessarily included an assumption of width and length of the ROW corridors but those assumptions are not stated. The WPA is concerned that without an explicit discussion of the width of the corridors that it is impossible for the WPA or other interested parties to analyze whether any given corridor is “used up” by existing infrastructure.	2066
10265	10265-3	The Draft RMP fails to include a ROW corridor along an existing large diameter natural gas pipeline currently providing critical service within and through the basin There is currently a 16-inch diameter interstate natural gas pipeline operated by Colorado Interstate Gas Company that trends along a north south axis through the middle of the Bighorn Basin. This existing line and ROW is acknowledged on Map 51. The Draft RMP states that at renewal, existing ROW agreements will be preserved and “allowed to continue without cost prohibitive restrictions where appropriate.” (Emphasis added). 3(Footnote: 3“Draft”RMP,“Volume”II,“p.”45311”). However, in spite of the recognition that activity will continue along that existing 16-inch diameter interstate natural gas transmission line, the ROW corridor associated with that existing 16-inch line is absent from alternatives B, C and D and maps 52, 53 and 54 respectively. No discussion is provided in the Draft RMP to account for the elimination of this specific existing ROW corridor from consideration as a corridor for future ROW demands.	2066
10265	10265-1	1. The Draft RMP fails to account for ROW that will be required for a carbon dioxide pipeline in the Bighorn Basin The analysis of the ROW requirements	2067

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		under the four alternatives is focused on the movement of oil and gas out of the Bighorn Basin. The focus of the Draft RMP on the movement of products out of the Bighorn Basin is evident from the statement in the Draft RMP: "Oil and gas production in the Planning Area is expected to continue to come from established fields that already have adequate infrastructure such as roads, power lines, and gathering/transmission lines" 1. The addition of a carbon dioxide pipeline to the Bighorn Basin requires an analysis of the ability of the ROW corridors in the various alternatives to support the addition of a carbon dioxide pipeline and the necessary lateral lines that would move carbon dioxide from a trunk carbon dioxide pipeline system to individual areas suitable for enhanced oil recovery activity. The development of a carbon dioxide pipeline in the Bighorn Basin is supported by an abundance of recent commercial activity related to carbon dioxide supply and pipelines in Wyoming. Denbury Resources Inc. ("Denbury") is currently constructing approximately 230 miles of 20-inch diameter pipeline to move carbon dioxide from the Lost Cabin Gas Treating Plant (the "Lost Cabin Plant") in Fremont County, Wyoming to locations in the Powder River Basin and beyond. The supply of carbon dioxide at the Lost Cabin Plant is approximately 50,000 thousand cubic feet ("mcf") per day.	
10262_part 3	10262_part 3-43	Chapter 3, in the Draft RMP/EIS needs to provide specific data in the existing condition section to support ACEC designation. The Chapter 3 information on ACECs is not adequate to justify the need for special management nor does it describe the detail noted in the CEQ requirements for the affected environment (Sec. 1502.15 Affected environment. "Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced." The LGCA believes that the ACEC designation is very important and the BLM needs the best data available to make these decisions. The BLM Planning Handbook notes: Designate ACECs and identify goals, standards, and objectives for each area, as well as general management practices and uses, including necessary constraints and mitigation measures (also see BLM Manual 1613). This direction should be specific enough to minimize the need for subsequent ACEC management plans. ACECs must meet the relevance and importance criteria in 43 CFR 1610.7-2(a) and must require special management (43 CFR 1601.0-5(a)) to: a) Protect the area and prevent irreparable damage to resources or natural systems; and, b) Protect life and promote safety in areas where natural hazards exist. Given the long term history of use of resources in the Bighorn Basin, we have not seen compelling rationale that these areas "require special management" as noted in the special area designation section of the BLM Planning Handbook.	2001
10262_part 3	10262_part 3-44	The first paragraph under the Big Cedar Ridge section lacks citations for the fossilized plants found within the area. The BLM will provide citations for the research documenting the fossilized plant communities found, and the rationale for, preservation of these plant communities.	2001
10262_part 3	10262_part 3-45	This paragraph also states that fossilized plant communities are very rare. The BLM must cite the source that discloses that the plant communities are very rare.	2001
10262_part 3	10262_part 3-46	The second paragraph, under the Big Cedar Ridge section, discusses the popular recreational activity of fossil collecting within this ACEC. It seems contradictory that the ACEC is designated to protect the intact fossil record but the public is allowed to collect and remove fossils. The BLM should either protect this area, with substantiated documentation, or remove the ACEC designation to allow for	2001

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		recreational fossil collecting.	
10262_part 3	10262_part 3-47	The first paragraph under the Red Gulch Dinosaur Tracksite section states that the tracksites are one of only a few found in the world. This is the first of three similar statements. Are the few that are found in the world all in Wyoming? The BLM shall cite the source of this information and identify the other known areas of dinosaur track occurrences in or outside of Wyoming.	2001
10262_part 3	10262_part 3-48	The Spanish Point Karst ACEC designation is proclaimed as needed because the area is an important recharge source for the Madison Aquifer. The Madison Aquifer is found beneath eight states in the U.S. and Canada: Montana, North Dakota, Wyoming, South Dakota, Nebraska, Alberta, Saskatchewan, and Manitoba. Limestone, Madison limestone in particular, rims the western flank of the Big Horn Mountains where Spanish Point Karst ACEC is found. Substantiate this ACEC designation by citing research that validates this area as of greater importance than other areas in the Big Horn Mountains with similar geologic and hydrologic settings or remove the ACEC designation.	2001
10262_part 3	10262_part 3-49	The Carter Mountain ACEC designation cites protecting fragile soils and alpine tundra. Why are these soils deemed fragile? Alpine tundra exists throughout the Beartooth Plateau and Absaroka Mountains. What makes this area of tundra more important and deserved of protection than other areas of alpine tundra? Cite the research that delineates these soils as fragile and the research separating the alpine tundra on Carter Mountain as more important than other areas of alpine tundra.	2001
10262_part 3	10262_part 3-50	The BLM cites the scenic value as well, as elk and mule deer winter ranges, for proposed expansion of the Carter Mountain ACEC. Scenic areas and winter ranges exist throughout the entire Absaroka Front. Cite the research that separates this area of scenic beauty from other beautiful areas on the Absaroka Front.	2001
10262_part 3	10262_part 3-51	Also, cite the research substantiating that this area of crucial winter range is more important than other crucial winter ranges. If the BLM cannot substantiate the scientific facts presented to expand the Carter Mountain ACEC, then the ACEC designation should be removed.	2001
10262_part 3	10262_part 3-52	The Carter Mountain ACEC proposed expansion cites the same fragile soils, alpine tundra, and crucial winter range without any references to validate this information. It also states that raptors, a BLM special status species, and special status species plants are found in the area. There is not a list of raptors or plants, or reference to data to support this claim. Provide the references to this information or remove the ACEC designation.	2001
10262_part 3	10262_part 3-53	The Five Springs Falls ACEC designation is based on four nearby endemic rare and sensitive plant species. The plant species are not listed and neither is a data source(s) for this information. Cite the source of the information used in the ACEC designation or remove the ACEC designation.	2001
10262_part 3	10262_part 3-54	The Little Mountain ACEC is proposed for expansion in part to protect potential lynx habitat. The area contains six lynx analysis units (LAU), three of which contain very little forested vegetation (2009 NAIP aerial photo review); one of which is an island of forested vegetation surrounded by open sage/grasslands, removing connectivity to other forested areas. The three forested LAUs appear to have multi-storied hare habitat on the northern and eastern aspects indicative of the thick coarse texture of the forest vegetation disclosed on the 2009 NAIP aerial photos. All forested areas within the LAUs are narrow stringers	2001

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		of forest, not large expansive forested areas typical of potential/suitable lynx habitat. Only 6,821 out of 89,145 acres are in LAUs, half of which are at best questionable. There are no known occurrences of lynx or critical lynx habitat in the Planning Area. Removal of the potential lynx habitat as one criterion for the ACEC expansion nomination must occur by the BLM. The BLM should consider reviewing expansion, only incorporating within the ACEC the curl-leaf mountain mahogany area for protection. Greater sage-grouse habitat and winter range can be found throughout the entire Planning Area, making the remaining motives for this ACEC expansion dubious. The BLM should either provide a solid science-based justification for this expansion or remove the expansion altogether.	
10262_part 3	10262_part 3-55	The Chapman Bench proposed ACEC rationale cites sagebrush habitat used by sensitive bird species and other wildlife. Sage grouse, mountain plover, and long-billed curlew are cited to use the area. The sensitive bird species have evolved over time to thrive in disturbed areas (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001). Why protect this area from surface disturbance when the sensitive species in the area thrive on surface disturbance? Remove the NSO and replace the constraint with a TLS for breeding/rearing seasons on Chapman Bench ACEC to allow surface disturbance commensurate with the disturbance regimes needed by these sensitive species.	2001
10262_part 3	10262_part 3-56	Also, there is no map, data, or references to show where the Audubon Society important bird area actually is located. The BLM must cite this information, as it is a rationale component for designating Chapman Bench an ACEC.	2001
10262_part 3	10262_part 3-57	The Rainbow Canyon is proposed for ACEC status due to the Cloverly Formation and scenic badlands. This designation seem arbitrary as there are large areas of badlands in the Bighorn Basin that are scenic, and the Cloverly Formation rims a significant portion of the foothills of the Big Horn Mountains (GIS Bedrock 500K map review). What makes this area outstanding compared to other areas of scenic beauty within the Cloverly Formation along the foothills of the Big Horn Mountains? There is no substantive rationale for this designation and the BLM should remove the proposed ACEC designation.	2001
10262_part 3	10262_part 3-58	Rattlesnake Mountain is proposed for ACEC designation by the BLM. Yet, the agency rationale for designation is generalized, without any supporting documentation. Winter ranges occur throughout the Absaroka Front, while elk parturition areas are an out of date concept. Parturition areas are ever changing with the reintroduction of wolves and an expanding grizzly bear population. The cold water fishery of the North Fork of the Shoshone River is misrepresented when considering that no reach of the river flows through the proposed ACEC. Sensitive plants species, cited as a portion of the designation, are not identified. Either cite the research, data, and analysis of these designation rationales or remove the ACEC designation.	2001
10262_part 3	10262_part 3-59	As with Rattlesnake Mountain, the criteria disclosed by the BLM for proposing Sheep Mountain as an ACEC is generalized and sans research, data, or analysis citations. Winter ranges are found up and down the Absaroka Front and parturition areas for elk are an out of date designation. Parturition areas are ever changing with the re-introduction of the wolves and the thriving grizzly bear population. The existence of potential lynx habitat is misleading since there are no LAUs within the area, it is almost completely lacking of forested vegetation, there is no defined lynx habitat, and no critical lynx habitat in the	2001

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		area. Are the visual alignments of the solstice not available in the Rattlesnake Mountain ACEC, which is only 3.5 miles away? Are there not other areas providing visual alignment of the solstice? The BLM shall remove the ACEC designation or properly substantiate the designations with research, data, and analysis.	
10262_part 3	10262_part 3-60	However, each proposed ACEC lacks references, data, and analysis to substantiate the claims extended by the BLM. CEQ Section 1502.15 mandates that data and analysis in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Along with ACEC designation, come major management actions or restrictions on multiple uses and resource development. Restrictions on resource development cause major socioeconomic impacts. CEQ Section 1502.15 states less important material are at the least referenced. ACEC designations are far beyond “less important,” yet the BLM fails to cite or reference data or analysis for the ACEC designations. The BLM will cite all research, data, and analyses used for the ACEC designations or remove them from potential nomination.	2001
10262_part 3	10262_part 3-16	There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 - 162) that states management must be consistent with “other resource objectives,” but does not disclose which resources or objectives. These other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. If management actions cannot be identified or disclosed that is not “consistent with other resource objectives” then this statement should be removed from all management actions.	2011
10262_part 3	10262_part 3-18	In Table 2-5 Objective LR10.2 provides for the establishment of voluntary reserve common allotments but they are not defined or locatable on any maps. Please provide a definition of reserve common allotments, where they are located, the AUMs available on these allotments, the management actions associated with these areas, who will qualify to use them, what are the impacts to AUMs and will grazing preference be maintained for these allotments?	2011
10262_part 3	10262_part 3-19	Record 6281 of Table 2-5 references Appendix W in Alternative A and carries this management action to Alternative D. However, Appendix W is Utilization Levels which is one component of an AMP. Change Alternative D to Same as Alternative C. This is more appropriate because it ties forage availability to Appendix W.	2011
10262_part 3	10262_part 3-20	Record 6283 Alternative D management action is confusing. Is livestock utilization not an appropriate use of produced water because of other resources? Please clarify what other resources would be considered or change the management action to the same as Alternative A.	2011
10262_part 3	10262_part 3-21	In Table 2-6 Summary of Environmental Consequences by Alternative it displays impacts to AUMs by closures or surface disturbing activities. There is no disclosure of impacts due to conflicts, inconsistencies or whether livestock grazing is compatible with other resource uses or changes in utilization levels. For example, on page 2-80 in Table 2-5 the Sage Grouse Objective BR: 9.1 states “Maintain large patches of high quality sagebrush habitats, with emphasis on patches occupied by greater sage-grouse.” Is this objective compatible with livestock grazing? With 1.8 million acres identified as key sage-grouse habitat, the public needs to know what uses are in conflict, inconsistent or incompatible with livestock grazing in order to understand the impact this objective will have on livestock grazing.	2011

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10262_part 3	10262_part 3-22	In addition, in Appendix W - Utilization there is a footnote one to Table W-1 which states in part that where extensive wildlife use occurs utilization levels may need to be adjusted downward to ensure that total utilization of current year's growth following the use period of wildlife does not exceed the prescribed level of dormant use. Why is wildlife use being given priority over grazing? What are the impacts of this policy? Additionally, why did the BLM not analyze changing levels of utilization by alternative?	2011
10262_part 3	10262_part 3-23	Prior to any reduction in AUMs or adjustments in utilization levels due to wildlife use the RMP should direct the BLM to provide multiple year monitoring data to support the reductions and provide reasonable alternative areas to graze to replace the AUMs lost due to excess wildlife use. No AUMs will be reduced due to excessive wildlife use in areas where wildlife population objectives have been met or exceeded.	2011
10262_part 3	10262_part 3-25	Prior to any changes in grazing management because rangeland objectives are not being met the BLM must provide multiple year monitoring data (3 of 5 years) to document that grazing is the cause. If other resource uses are the cause of rangeland objectives not being met then that resource use will be changed. No changes in grazing management will be implemented as a result of other resources not meeting rangeland standards. Or if the resource has been used to a degree where livestock grazing is not available other reasonable areas will be provided to replace lost AUMs as a result of other resource use.	2011
10262_part 3	10262_part 3-26	Animal Unit Month Allocations The use of the terms active use, permitted use and authorized use are confusing. Is active and authorized use the same? For long-term planning purposes which use can operators plan on and why is there no mention of grazing preference and those AUMs? Please include a description of these terms, include grazing preference and AUMs held in suspension in the existing conditions so it is clear what is potentially allowed for grazing.	2011
10262_part 3	10262_part 3-27	In Appendix P the AUMs in column 7 are labeled Active Use however there should also be a column for Preference which includes active use and use held in suspension. This will disclose the total number of animal unit months on public lands apportioned and attached to base property owned or controlled by a permittee, lessee, or an applicant for a permit or lease.	2011
10262_part 3	10262_part 3-31	Please provide the AUMs that could be affected due to maintenance of sagebrush and understory diversity in crucial seasonal greater sage-grouse habitat. If DPC is going to be used to regulate livestock grazing please provide the number of acres that have achieved DPC (or not) and the impacts to grazing as a result of DPC.	2011
10262_part 3	10262_part 3-33	Please provide the policy, law, or regulation that allows preferential use by wildlife over livestock.	2011
10262_part 3	10262_part 3-34	Provide the impacts for management action that limit, reduce, or prohibit AUMs.	2011
10262_part 3	10262_part 3-35	Please provide the data and best available science to support the designation of elk parturition habitat to justify no grazing in these areas.	2011
10262_part 3	10262_part 3-36	Please provide information on reserve common allotments and the environmental consequences they will have on livestock grazing.	2011
10262_part 3	10262_part 3-39	1. The BLM must remove footnote 1 from Table W-1 in Appendix W.	2011
10262_part	10262_part	However, there are a few topics which are not yet adequately addressed. In particular, the communities of place, under social organization and institution,	2046

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
3	3-62	states that “Local and regional population centers relative to planning area effects may differ by community.”	
10262_part 3	10262_part 3-63	However, there are a few aspects which are not yet adequately addressed. The space aspect, for example, indicates that impact analysis should address impacts across multiple geographic scales. In particular, the impact analysis should assess how alternatives will affect individual communities within the Planning Area. However, the RMP/EIS describes impacts across the region as a whole, with no analysis of impacts to individual communities.	2046
10262_part 3	10262_part 3-64	The current alternatives of Chapter 2 contain little socioeconomic information. Section 2.3.7 Socioeconomic Resources in the RMP/EIS states that “None of the alternatives considered and subsequently eliminated from detailed analysis dealt with this resource.” However, in Section 2.3 Alternatives Considered but not Carried Forward for Further Analysis, these alternatives include topics such as: No new oil and gas leasing; Emphasize the protection of resources by removing human resources; Prohibit or exclude wind energy, oil and gas leasing, off-highway vehicle use, and livestock grazing; Suspend or eliminate all existing federal minerals leasing Each of these has the potential to affect the local communities. As the alternatives described in this section were not carried forward for detailed analysis the inclusion of these under socioeconomics should not substantially alter the preferred alternative. However, we felt it was important to highlight the lack of effort applied to the topic of socioeconomics.	2046
10262_part 3	10262_part 3-65	Table 2-4 in the RMP/EIS Key Terms and Concepts by Resource Area also highlights the lack of socioeconomic consideration. The only term or concept that pertains to socioeconomics is mitigation. This carries the implication that socioeconomics will not be considered until after all other decisions are made and then the effects to the local communities will be mitigated. Socioeconomics should also be listed for the following concepts or terms: Cooperation with agencies/government/landowners/stakeholders; Geothermal; Livestock grazing; Migration corridors; Mineral Leasing/Lease; Motorized vehicles concepts and terms; Oil and gas; Public Access; Rangeland; Recreation; Renewable energy (wind, biomass, solar); Timber harvest/firewood (personal use)/poles; Well (oil and gas); Withdrawal; Wyoming Standards for Health Rangelands Each of these resource topics has a potential effect of the human communities of the planning area. Alternatives dealing with these concepts should be considered from a socioeconomic viewpoint.	2046
10262_part 3	10262_part 3-66	On page 3-204, this section states that it “concerns the custom, culture, and history of the area as it relates to human settlement, as well as current social conditions.” However, the relevant sections simply refer the reader to a different section of the document, the Visual and Cultural Resources section. This referenced section does not contain economic and social history. This information is crucial to understanding the interconnectedness of the communities of the planning area to the lands under BLM management.	2046
10262_part 3	10262_part 3-67	On page 3-207, this section states that “at the local level, an aging population does not necessarily create substantial problems.” This statement does not consider the implications of a smaller portion of the population being of working age. The smaller portion of people working, coupled with the wage disparity between jobs in the mining industries and those in service industries, create a situation in which it is often difficult for employers to find workers at a wage they can pay. This can become a challenge for communities, particularly if the mining industry experiences a boom.	2046

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10262_part 3	10262_part 3-68	Transient populations in the oil and gas industry, particularly during boom years, are difficult to quantify. Also, many oil and gas workers live in a population center in one county, but work in another county. This is an important aspect of the population and the analysis would benefit from a more detailed description of these occurrences.	2046
10262_part 3	10262_part 3-69	On page 3-211, this section refers the reader the Cultural and Visual Resources Section. However, the referenced section contains no history of how the communities in the planning region developed. The role that mining and ranching had in developing and shaping the communities of the communities, and the importance of the multiple-use aspect of public lands, is vital to understanding how the communities are affected by policies of the RMP/EIS. For instance, in part due to revenues obtained from activities on federal lands, Wyoming residents pay no personal, state income tax. In addition, the growing role of recreation and amenity ranches is also important to understand the present conflicts.	2046
10262_part 3	10262_part 3-71	On page 3-217, this section states that “Because the BLM manages subsurface minerals in excess of the surface lands it administers, its decisions can have a potentially large effect on mining in the Planning Area. From an economic perspective, mining is a key contributor to the economic well-being of the Planning Area and therefore the BLM’s management decisions in this area could have a potentially large effect on economic conditions.” For this reason, it is imperative that the RMP/EIS adequately describes and quantifies that mining industry.	2046
10262_part 3	10262_part 3-72	The communities of the Planning Area value the multiple-use characteristic of the public lands. The majority of their public infrastructure is funded by oil and gas development, but they realize that sustainable use is important to the future recreational enjoyment of the lands. It is important to the LGCA that the costs and benefits of oil and gas exploration and development under each alternative are presented as accurately as possible to decision-makers. In order to accomplish this, economic benefits from oil and gas and costs of stipulations and mitigation should be provided in the highest level of detail possible.	2046
10262_part 3	10262_part 3-73	This section would benefit from data on travel and tourism in Park County that is attributable to Yellowstone National Park. This would help the reader to assess recreation attributable to BLM.	2046
10262_part 3	10262_part 3-74	Table 3-62 on page 3-220 details the trend in the increase in number of farms, accompanied by a decrease in the acres. A narrative describing this trend, subdividing large commercial ranches into small amenity based ranchettes, would help the reader understand the current state of ranching.	2046
10262_part 3	10262_part 3-75	The impacts by alternative described in the Environmental Consequences section are based on the data inputs described in Appendix X of the RMP/EIS, Economic Impact Analysis Methodology. Unfortunately, the input data for oil and gas is considered vastly underestimated by the LGCA and those in the oil and gas industry. Also, the ambiguity surrounding the possible reductions in AUMs by alternative has created inaccurate input data and impacts for ranching. By vastly underestimating the potential output of oil and gas in the Planning Region during the next twenty years, the RMP/EIS fails to accurately capture the impacts on the social and economic resources of the planning region. Table 4-5 and 4-7 of the RMP/EIS provide that projections for oil and gas wells and production during the 20 years of the plan based on the RFD. Alternative C, the highest production alternative, is projected to have 1,257	2046

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		wells drilled and decreasing production amounts each year of the plan for both oil and gas. An analysis conducted on the 571,278 acres of Lands with Wilderness Characteristics in the BLM’s original inventory, indicated the potential for 569 wells. These lands compose 18% of the surface area managed by BLM and 14% of the Federal Mineral Estate acres in the Planning Area. Carrying the potential to the remaining acres, our analysis indicates that the number of potential wells could be as high as 4,064 wells drilled.	
10262_part 3	10262_part 3-76	On the impact side, according to Table 4-23 of the RMP/EIS, the impacts on annual employment from oil and gas range from 505 jobs to 1,263 jobs. The LWC analysis indicated that the 14% of federal mineral lands have the potential to create 434 jobs annually from drilling and completion of wells (see Appendix C to this comment document - Economic Analysis of Lands with Wilderness Characteristics). If this is applied to the entire planning region the potential annual employment could be as high as 3,100 annual jobs. This is a vast difference from the RMP/EIS and according to industry experts may still be an underestimation.	2046
10262_part 3	10262_part 3-77	Neither the RFD nor the RMP/EIS analyzes the economic and employment potential of unconventional oil and gas plays in the Mowry Shale Formation of the Bighorn Basin. Additionally, the RMP/EIS does not adequately disclose the constraints associated with resources protections in the Mowry Shale Formation. To accurately assess constraints in the Mowry Shale Formation, the LGCA conducted a risk assessment (Map 1) (see Mineral Resources comments). Further, the LGCA used IMPLAN, an economic input-output model, to determine potential employment and tax revenue from the Mowry Shale Formation over the 20-year life of the RMP. The end product of modeling discloses that the Mowry Shale Formation could generate, depending on the level of constraints, from 1.2 million to 2.3 billion dollars in tax revenues (Table 16) and 632 to 11,499 direct employment opportunities (Table 17) over the estimated 20-year life of the RMP. The data included in Table 16 and Table 17 are estimates. Depending upon the actual volume of minerals in the Mowry Shale Formation, projections below could be lesser or greater. [Table 16 Potential Taxes Generated from the Mowry Shale Formation over the Life of the RMP] [Table 17 Employment Potential in Leased Acres of the Mowry Shale Formation over the Life of the RMP]	2046
10262_part 3	10262_part 3-79	2. The BLM will ensure that the data used from other resource areas is accurate. The BLM will consider an oil and gas boom scenario (based on new information such as Enhanced Oil Recovery) in the planning region and assist in the development of mitigation measures for oil and gas to follow should a boom occur. In addition, the BLM shall address the issue of the interconnectedness of large-scale ranches and BLM lands and how to mitigate should policies that result in reduction of useful AUMs occur.	2046
10262_part 3	10262_part 3-80	3. The BLM will include the social and economic history of the Bighorn Basin, in particular the interconnectedness of communities and public lands. This information is important to assess the social and economic role that the decisions of the BLM have on the communities.	2046
10262_part 3	10262_part 3-81	4. The BLM shall complete impact analyses for individual communities within the Planning Area. Each community is socioeconomically unique. Action alternative will have different impacts on individual communities.	2046
10262_part 3	10262_part 3-38	Upon review of the glossary definitions of surface disturbing activities, inconsistencies were discovered in the definitions between RMPs. According to	2054

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		<p>Keith Grant and Dan Rice (LGCA members), Mr. Hiner reported that the definitions found within the glossary are policy and are consistent with the definitions of other RMPs. James K. Murkin, Acting Associate Wyoming State Director of the BLM, released Information Bulletin No. WY-2007-029 on September 4, 2007. The Information Bulletin, with the subject line "Guidance for Use of Standardized Surface Use Definitions," is germane to the incorrect definition of "surface disturbing activities" in the Draft RMP/EIS. As a guidance tool based on requests from field managers, Mr. Murkin prepared the bulletin to standardize the definitions of commonly used terms in RMPs and EISs. Clearly, by reviewing the five definitions below, the BLM has failed to implement the Information Bulletin. The following discloses the differences in definitions of surface disturbing activities between RMPs for Rawlins, Casper, Kemmerer, Grass Creek, and Bighorn Basin planning areas. Rawlins RMP: Surface Disturbance: Any action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lot and tanks). Casper RMP: Surface-disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of land surface and vegetation. These activities range from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit, and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction. Kemmerer RMP: Surface-disturbing Activity: An action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lot and tanks). Grass Creek RMP: Surface-Disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of the land surface and vegetation. It ranges from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction. Bighorn Basin RMP Revision: Surface Disturbing Activities: These are Public Land resource uses/activities that disturb the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface disturbing activities include: construction of well pads and</p>	

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		roads, pits and reservoirs, pipelines and power lines, and most types of vegetation treatments (e.g., prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., No Surface Disturbing Activities), this phrase prohibits all resource use or activity, except those uses and activities that are specifically authorized, likely to disturb the endemic vegetation, surface geologic features, and surface/near surface soils. Review of the preceding definitions revealed that only the Draft Bighorn Basin RMP is considering livestock grazing, wildlife browsing, and surface fire disturbance activities. This inclusion is inconsistent with other surface disturbing activities RMP glossary definitions. Surface disturbing activities should be limited to mechanical means, especially when there is a change in soil composition. This would remain consistent with other RMP definitions. The BLM must remove livestock grazing, wildlife browsing, and fire from the definition of surface disturbing activities to remain consistent with other RMP definitions. The Grass Creek RMP definition is very clear and should be used in the Big Horn Basin RMP. It does not consider livestock grazing and wildlife browsing as surface disturbing activities as is implied in the Big Horn Basin Draft RMP definition. The implication in the definition that unless “authorized” grazing and wildlife browsing is considered surface disturbing needs to be supported by some research or the best available science for this determination.	
10262_part 3	10262_part 3-1	The first paragraph in this section on page 4-347 of the RMP/EIS states 41,545 acres of long-term surface disturbance is projected. The BLM will cite the data and source of this information.	2062
10262_part 3	10262_part 3-10	The last paragraph on page 4-352 of the RMP/EIS discusses forest management and silviculture techniques. Previous sections for each alternative have disclosed the amount of projected timber harvest acres. The BLM will disclose timber harvest acres for Alternative D and cite the data and source of the information.	2062
10262_part 3	10262_part 3-11	The first paragraph on page 4-353 of the RMP/EIS discusses vegetation treatments managing toward a 65% HCPC. The BLM will cite the data and source for this information. Also, see vegetation section for comments regarding this issue.	2062
10262_part 3	10262_part 3-12	The second paragraph under the RMA section on page 4-353 of the RMP/EIS discusses the 12 SRMAs are substantially smaller in Alternative D than A. What is substantially smaller? The BLM will cite the acreage difference.	2062
10262_part 3	10262_part 3-13	2. The Recreation sections of this RMP/EIS mentions in several places the Recreation Setting Characteristics Condition (RSCC). It discusses maintaining the RSCC and retaining the RSCC. The document does not describe what the RSCC is for any of the areas where the BLM will be maintaining or retaining the RSCC. The BLM will describe the desired RSCC for all areas in which the RSCC is mentioned and not explained. The BLM will relate the desired RSCC to the mineral constraints or surface occupancy restrictions within each SRMA, ERMA, and RMZ. In addition, the BLM will provide the data and research conducted to rationalize the decisions on surface occupancy restrictions. If the BLM cannot provide the data and research rationale of the surface constraints in relation to the RSCC then they shall not impose those restraints specific to the SRMAs,	2062

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		ERMAs, and RMZs.	
10262_part 3	10262_part 3-2	The first paragraph of this section states 10,000 acres of long-term disturbance are projected from mining. The BLM will cite the data and source of this information.	2062
10262_part 3	10262_part 3-3	The last paragraph on page 4-348 of the RMP/EIS discusses adverse impacts to local tourism from the lack of WSR designations. The BLM will cite the number of tourists that visited the WSRs and the revenue generated from these tourists. Also, cite the anticipated loss of revenue from the tourists that will not visit these river reaches due to loss of WSR designation. If this cannot be quantified, then remove the statement.	2062
10262_part 3	10262_part 3-4	The fourth paragraph of this section on page 4-349 of the RMP/EIS states that there will be 40,000 acres of timber harvest throughout the planning period. The BLM will cite the data and source of this information.	2062
10262_part 3	10262_part 3-6	The first paragraph of this section on page 4-351 of the RMP/EIS states 28,079 acres of long-term surface disturbance is projected. The BLM will cite the data and source of this information.	2062
10262_part 3	10262_part 3-7	The first paragraph of this section on page 4-351 of the RMP/EIS discusses mineral entry and mining. Previous sections of Resource Uses states the acres available for mineral entry and long-term surface disturbance. This paragraph does not. The BLM will provide those acreages and cite the data and sources of this information.	2062
10262_part 3	10262_part 3-8	The third paragraph of this section on page 4-351 of the RMP/EIS discusses the qualitative differences in ROWs between alternatives. The BLM will add acreages to this discussion to quantify the differences.	2062
10262_part 3	10262_part 3-9	The first paragraph of this section on page 4-352 of the RMP/EIS states that three new ACECs with recreation values have been added in Alternative D. State the names of them in this paragraph.	2062
10262_part 3	10262_part 3-15	The plan states that the current AUMs of 305,887 will only be reduced by 1-2% over the life of the Plan. However, according to the Plan, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that “when rangelands are not meeting resource objectives, the BLM implements changes in grazing management.” The utilization levels have changed from the last RMP to the current draft yet there is no disclosure of impacts as a result of decreased utilization levels. Specifically for the allotments not meeting or not making acceptable progress towards meeting rangeland health standard where utilization levels have gone from 50% of current year’s growth to 35% and from 60% of dormant to 40% of dormant.	2074
10262_part 3	10262_part 3-42	The plan states that the current AUMs of 305,887 will only be reduced by 1-2% over the life of the Plan. However, according to the Plan, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts disclosed for management actions relating to wildlife	2074

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		habitat, special status species, special designations, etc., although it states that “when rangelands are not meeting resource objectives, the BLM implements changes in grazing management.” There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 - 162) that states management must be consistent with “other resource objectives,” but does not disclose which resources or objectives. These other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. These statements should be removed from management actions if the impacts cannot be disclosed.	
10262_part 3	10262_part 3-24	On page 3-176 it states that “When rangelands are not meeting resource objectives, the BLM implements changes in grazing management.” However, the Wyoming Standards for Healthy Rangelands applies to all resource uses on public land, therefore if resource objectives are not being met due to a use other than livestock grazing then that use should be changed, not grazing. This policy could have significant impacts on the lessee because they have no control over other resource uses and cannot adjust their operations nor should they have to because of poor management of other resource uses.	2076
10262_part 3	10262_part 3-28	Despite the fact that livestock grazing has existed in the Big Horn Basin for over 100 years it appears to be the first resource use that gets eliminated or AUMs reduced in favor of other resources (i.e. wildlife, special status species). If these areas are worthy of special designation or listing they most likely evolved with the livestock grazing and therefore grazing should not be penalized due to these designations. Please include the following in methods and assumptions: “If livestock grazing has historically existed prior to wildlife management areas, special use areas or listing of special status plants or animals then the management for these species or within these areas will not affect livestock grazing allocations.”	2076
10268	10268-1	[Cedar Mountain WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 20,407 be increased to upwards of 26,975 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above.	2019
10268	10268-10	â€¢ [McCullough Peaks WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 24,531 be increased to upwards of 37,359 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above. This additional acreage includes a major fossil site and breaks along the Shoshone River. Boundaries of the area are set by the Shoshone River on the west, a powerline on the north, and ways, private land, and topographic features on the south and east.	2019
10268	10268-11	â€¢ We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 688 be increased to upwards of 8,985 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above. The Wyoming Game and Fish Department has identified the Castle Rocks section as a potential bighorn sheep reintroduction site. Therefore, BLM should maintain the required habitat.	2019
10268	10268-2	[Honeycombs WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 20,156 be increased to upwards of 52,764 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above.	2019

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10268	10268-4	[Alkali Creek WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 9,475 be increased to upwards of 17,117 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above.	2019
10268	10268-5	The citizens' proposed additions, including the Dry Medicine Lodge Canyon, would further protect and enhance the complete ecosystem and alter a two-track to a trail.	2019
10268	10268-6	â€¢ [Medicine Lodge WSA] We recommend, per record 7217, that in addition to management under the current RMP, current management acreage of 7,182 be increased to upwards of 16,654 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above.	2019
10268	10268-7	[Bobcat Draw Badlands WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 16,967 be increased to the BLM recommendation acreage of 18,540 acres or further 29,706 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above.	2019
10268	10268-8	[Sheep Mountain WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 23,258 be increased to upwards of 24,615 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above. This expansion would form more manageable boundaries, and result in the Sheep Mountain area being adjacent to the Red Butte area.	2019
10268	10268-9	â€¢ [Red Butte WSA] We recommend, per record 7217, that in addition to management under the current IMP, current management acreage of 10,805 be increased to upwards of 23,685 acres in order to capture and protect through adaptive management the unique wilderness qualities listed above. 'This provision 'expansion, per record 7228, allows the Red Butte area to adjoin the Sheep Mountain area. The BLM should, in turn, acquire the split estate land in Section 16 and small state acreage on the northern border for uniform management of the area.	2019
10268	10268-14	By recognizing the lands with wilderness characteristics in the 15-Mile Basin area, the BLM could ensure a unified management approach that links the three WSAs in this area (Sheep, Mountain, Red Butte and Bobcat Draw), which would have many benefits (Maps 63 and 72). The same is true of the three WSAs on the Bighorn Front (Trapper Creek, Alkali Creek and Medicine Lodge) - linkages among these areas can and should be created by recognizing the wilderness character of nearby lands in this area. Recognizing the wilderness character of these lands could also compliment and improve the management of many of these areas as special recreation management areas and zones, and as ACECs. Protection of the wilderness characteristics of these lands would complement the recreational and important resource values goals reflected by the designation of many of these areas as special recreation management areas or ACECs. Of the 16 LWCs inventoried in the 15-Mile Basin (see Table 1), the BLM has recommended that no special management prescriptions be made for any.	2027
10268	10268-15	Protecting the wilderness qualities of all LWCs on the Absaroka-Beartooth Front would complement the management of the McCullough Peaks WSA, existing Carter Mountain ACEC and its proposed expansion, Rattlesnake Mountain ACEC, Sheep Mountain ACEC and Upper Owl Creek/Absaroka existing ACEC and proposed expansion.	2027

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10268	10268-17	We believe that only by managing to protect the wilderness and natural characteristics of all eight LWCs on the Bighorn Front, the values currently provided by Trapper Creek WSA, Alkali Creek WSA, Medicine Lodge WSA, Paint Rock Creek Canyon CWP, Brown/Howe Dinosaur ACEC and Spanish Point Karst ACEC will be adequately preserved. In order to keep these areas intact as full ecological systems, these LWC additions are essential; otherwise not only will the critical winter range and habitat be lost, but the opportunity for management of a contiguous ecological unit along the Bighorn Front will be lost.	2027
10270	10270-2	Appendix R -10 2.0 Known Road and Trail Network maps do not define and document known Motorcycle Trails and also does not include the input from the public OHV riders.	2034
10270	10270-3	The Trail Definition is not defined in the BLM RMP document. I propose the definition to read as follows. "Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high clearance vehicles."	2034
10270	10270-1	The high soil erosion rates of 53,758 tons per year for Alternative C is incorrect per page 33, 4-22 Table X-11 estimates a 2011 OHV RVD's of 33,687 with 75% being utilized on approximately 14,873 Open OHV riding acres. This calculates out to a 2.3 RVD / Open OHV riding acre. Alternative D has 5,941 Acres of Open OHV Riding which equals a 5.7 RVD / Open OHV riding acre. This is a 148% increase in usage per acre which equates to much higher erosion rates than Alternative C.	2045
10274	10274-1	Real Estate: BLM has identified areas of "low value" to exchange for lands of "higher value." BLM has unilaterally-established a concept of "value" to the public without accountability. An example is the area to the west of the town of Greybull, which is used by locals for mountain-biking, 4-wheeling, and other recreational opportunities, but is considered to be of "low value" and suitable for disposal. I could not tell from the documents how the determination was made.	2013
10281	10281-5	The WGFD recently updated their Strategic Wildlife Action Plans along with their Strategic Habitat Plan (April 2010) and TU suggests that the BLM incorporate the new information. Currently, the DRMP references the 2001 Strategic Habitat Plan (Table 1-3, page 1-15).	2002
10281	10281-2	The list is outdated (2008) and the since the Wyoming Department of Environmental Quality updates these lists every 2 years, a 2010 update should be included.	2031
10281	10281-3	The assumption that coal bed methane produced water is expected to be the same quality and quantity as produced water from conventional or deep oil and gas wells is unfounded in the DRMP (Ch. 4, page 4-31). If there exists data that confirms this statement, TU would like the Final RMP to include that data analysis and a discussion on how to manage such produced waters.	2031
10281	10281-6	However, the DRMP states that economic analysis from recreation use is limited to nonresident only. Limiting the economic discussion while expanding the use discussion does not make sense and diminished the importance of resident's contributions to local businesses, outfitters, guides, tourism, etc. In addition, the WGFD fish and game licenses depend on both resident and nonresident license sales as economic input to their budget.	2046

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10281	10281-4	Table 4-7 (Ch. 4, page 4-6) illustrates the acreages for oil and gas development potential but limits the potential development list to “moderate to none”. Yet, in Chapter 3, (see 3.2.5, page 3-46) there is a discussion on the two new areas that are actively being pursued in future oil and gas development plans (Southeastern Beartooth Front and Deep Basin-Centered Gas). New unconventional gas fields that include the potential for gas development include tight sands, shale gas and under-pressured gas. These areas are discussed in terms of gas recovery in large amounts for all three types of natural gas within the Bighorn Basin area. We feel the Table (and consequent baseline drilling analysis discussion under leasable minerals) is an inaccurate account of potential development scenarios and should be amended to include the discussion in Chapter 3.	2061
10283	10283-5	2. The BLM should add “in compliance with Wyoming water laws” within the management action record #1037 dealing with natural flow regimes in priority streams supporting fisheries.	2002
10283	10283-1	Research has shown that timing limitations do not achieve their desired results when development occurs on lands with anything more than four pads per section in crucial ranges for both mule deer and pronghorn. This level of development constitutes “high” or “extreme” impacts to these habitats requiring mitigation measures in addition to seasonal/timing restrictions (WGFD Recommendations for Oil & Gas Resources within Crucial & Important Wildlife Habitats (2009) at 11).	2025
10283	10283-2	WWF suggests avoiding development or surface disturbing activities within migration corridors and stopover points “this includes roads, well pads and support facilities. Limiting the ability of migrating big game to access critical habitats reduces their chances to survive and thrive (Sawyer and Kaufmann 2009, Sawyer and Nielson 2011).	2025
10283	10283-3	The BLM should not focus solely on timing limitations in crucial winter ranges as the primary mitigation measure for big game (Sawyer et al. 2010). The results of the Sublette Mule Deer Study, assessing development under the standard timing stipulations indicate that it is inappropriate to rely on prior assumptions that timing limitation stipulations alone will prevent significant changes in big game abundance.	2025
10283	10283-4	Detrimental actions are listed within Appendix H - Wyoming BLM Mitigation Guidelines, but it isn’t exactly clear which actions the BLM is referring to in Chapter 2 with the language in Appendix H. This needs clarified within the final RMP.	2054
10283	10283-6	14. The WGFD recently updated their Strategic Wildlife Action Plans along with their Strategic Habitat Plan (April 2010). The BLM should incorporate the new information. Currently, the DRMP references the 2001 Strategic Habitat Plan (Table 1-3, page 1-15).	2055
10285	10285-1	3. Livestock grazing is an integral part of Washakie County’s agricultural base. The only disclosure of impacts disclosed is for surface disturbing activities and closures. There are no direct impacts disclosed that would warrant a reduction in animal unit months. The RMP/EIS states that the current AUMs of 305,887 acres will only be reduced by 1-2% over the life of the RMP. However, according to the RMP/EIS, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are	2074

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		no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that “when rangelands are not meeting resource objectives, the BLM implements changes in grazing management.” There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160-162) that state management must be consistent with “other resource objectives,” but does not disclose which resources or objectives. The other resource management actions could have significant impacts to livestock grazing, but are not disclosed in the RMP/EIS.	
10286	10286-46	The BLM indicates that the soil erosion from disturbed areas and fugitive dust has the potential to contribute to climate change because soils may darken snow cover and cause faster snow melt. Bighorn RMP/DEIS, pg. 3-8. Although fugitive dust has been shown to cause faster snow melt, it is inaccurate and misleading to suggest that this is a factor in global climate change. Local impacts such as snow melting are simply not comparable to global climate change issues. The BLM should clarify this statement in the final EIS.	2003
10286	10286-36	The BLM needs to significantly revise and clarify its proposed management action under Alternatives Band D that would “implement projects for the investment of maximum cultural resources protection.” Bighorn RMP, Record No. 5025, pg. 2-98. As currently drafted, the BLM’s management action suggests that the protection of cultural resources is the highest and best use of BLM lands. Such a requirement is not consistent with the BLM’s multiple use mandate and inconsistent with Devon’s existing lease rights.	2004
10286	10286-73	The BLM indicates that under Alternative B, the BLM would prohibit surface disturbing activities within potential cultural sites for ground buffers that may be up to 3 miles wide. The BLM does not, however, identify how or when setting would be important to a site’s integrity. Bighorn RMP/DEIS, pg. 4-274. The BLM must identify and disclose to the public specific criterion that would be used when and if surface disturbing activity would be prohibited in a specific area in order to protect a site’s integrity.	2004
10286	10286-14	“The Secretary of the Interior, through the Interior Board of Land Appeals (“IBLA”), has unequivocally determined that, in Wyoming, the State and not the BLM, has authority over air emissions: In Wyoming, ensuring compliance with Federal and State air quality standards, setting maximum allowable limits (NAAQS and WAAQS) for six criteria pollutants CO (carbon monoxide), SO ₂ (sulfur dioxide), NO _x , ozone and particulate matter (PM ₁₀ and PM _{2.5}), and setting maximum allowable increases (PSD Increments) above legal baseline concentrations for three of these pollutants (SO ₂ , NO _x , and PM ₁₀) in Class I and Class II areas is the responsibility of WDEQ [Wyoming Department of Environmental Quality], subject to EPA oversight. Wyoming Outdoor Council, et al., 176 IBLA 15, 26 (2008). Decisions of the IBLA are binding upon the BLM and have the same force and effect of a Secretarial decision. 43 C.F.R. § 4.1 (2010) (noting that the Office of Hearings and Appeals, which includes the IBLA may decide matters as fully and finally as the Secretary of the Interior); see also IMC Kalium Carlsbad, Inc. v. Interior Bd. of Land Appeals, 206 F.3d 1003, 1009 (10th Cir. 2000) (holding that IBLA has de novo review authority over the decisions of subordinate agencies such as the BLM). Devon encourages the BLM to add a statement in the Bighorn Basin RMPs clarifying the scope of the BLM’s authority as defined by the IBLA. The BLM does not have the authority to impose	2009

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		regulations or control measures on emission sources, including oil and gas operations, within Wyoming.	
10286	10286-16	Devon additionally believes that the BLM's goals to "improve air quality in the Planning Area as practicable" are unnecessary given the authority of the EPA and WDEQ over air quality. Bighorn RMP/DEIS, Record No. 1000, pg. 2-42. Congress has already directed the EPA to develop new and revised national ambient air quality standards based on the latest scientific knowledge. 42 U.S.C. 7408(a)(2), 7409(b)(1).	2009
10286	10286-48	To the extent possible, and even if the data is not considered "official" the BLM should include information from the newly installed monitoring site near Worland in the final EIS as the information will likely be far more accurate than information gathered from the Powder River Basin.	2009
10286	10286-43	Devon also objects to the BLM's proposal under Alternative B and Alternative D to prohibit surface disturbing activities within 5 miles or 2 miles of other historic trails. Bighorn RMP/DEIS, Record No. 7192, pg. 2-204. The BLM has not justified the necessity of protecting the trails to such an extent. Notably under the BLM's proposed management under Alternative D, the BLM would effectively place 1,047,962 acres off limits to oil and gas development because they are within approximately 3 miles of the identified trails. The proposed management is unreasonable and would effectively prohibit development in currently existing significant oil and gas areas including the Worland Unit. Incredibly, the BLM's proposed management under Alternatives D and B would significantly limit surface disturbing operations within heavily populated areas in the Bighorn Basin including Cody, Powell, and Worland as well as smaller towns such as Kirby, Manderson, Burlington, Deaver and Frannie, which are all located in a few miles of the trails. The BLM's radical departure from its previous management, which only protected areas within one-quarter mile of these historic trails, is unnecessary, unjustified, and inconsistent with Devon's existing lease rights.	2010
10286	10286-44	The only currently Congressionally designated trail within the planning area is the Nez Peirce Trail. As such, it is the only trail that necessitates significant protection. The BLM must ensure it is only attempting to protect contributing segments of trails. Further, the BLM should only attempt to protect areas outside of the trail when setting is an important component. According to the State Historic Preservation Office, setting is an important criterion in very few parts of the Planning Area. Historic trails such as the Bridger Trail should not be protected with the same restrictions as those Congressionally designated trails because they do not have the same status and are not entitled to equivalent protections. Finally, it is important for the BLM to recognize that only contributing segments of trails are entitled to or deserving of any protection. Non-contributing segments should be utilized for all multiple use activities without restrictions.	2010
10286	10286-25	The BLM should ensure that it does not place unnecessary requirements, limitations, or procedures on seismic and geophysical surveys. The BLM indicates that under the revised RMP geophysical exploration will be allowed within the "constraints necessary to protect other resources." Bighorn RMP/DEIS, Record No. 2034, pg. 2-58. On a national scale, the BLM has recognized that geophysical exploration is the type of activity that does not individually have a significant effect on the human environment because geophysical exploration has been identified as a Department-wide categorical	2016

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		exclusion. "Approval of Notices of Intent to conduct geophysical exploration of oil, gas, or geothermal exploration of oil, gas, or geothermal, pursuant to 43 C.F.R. 3150 or 3250, when no temporary or new roads construction is proposed." DOI Manual - 516 DM 11.9.B.6., 72 Fed. Reg. 45504, 45539 (Aug. 14, 2007); see also BLM NEPA Handbook, H-1790-1, Appendix 4, B.6 (Ret. 1-1710, 01/30/2008); 40 C.F.R. Â§ 1508.4(2010) (defining categorical exclusions).	
10286	10286-49	The BLM should clarify the language in the first sentence under the heading "Exploration" in Section 3.2.5 so that the public understands a federal oil and gas lessee is not required to conduct geophysical or seismic activities on BLM administered lands. 43 C.F.R_ subpart 3150. As currently drafted, the language in the Bighorn RMP may suggest that a lessee is required to conduct geophysical or seismic operations on BLM lands.	2016
10286	10286-29	The BLM's proposed management for the Absaroka Front under Alternative D is poorly drafted and confusing. Although BLM suggests Alternative D will be managed the same as Alternative B with a few exceptions, Bighorn RMP/DEIS, Record No. 4080, pg. 2-77, the BLM indicates the entire area will be closed to leasing under Alternative B, but suggests that portions of the area will be open to oil and gas leasing with CSU and NSO restrictions under Alternative D. The BLM should clearly indicate which areas are open and closed to leasing under each alternative. Further, Alternative B suggests the area will be managed as a ROW avoidance area, but Alternative D makes no reference to ROWs. Id. The BLM should clarify how ROWs will be treated under each alternative.	2020
10286	10286-13	Record No. 0003, pg. 2-42, states that BLM will utilize recommendations found in Wyoming Game and Fish Department (WGFD) Recommendations for Development Oil and Gas Resources within Crucial and Important Wildlife Habitats (WGFD 2009). The BLM makes a similar statement in Record No, 4061. The BLM must revise these statements to clarify that it will consider, not necessarily "utilize" all of the WGFD's recommendations. The BLM alone has primacy and the responsibility to manage federal lands under its jurisdiction in Wyoming.	2025
10286	10286-28	The proposed language under Alternative B that would prohibit all surface use within big game crucial winter range. Bighorn RMP/DEIS, Record No. 4079, pg. 2-77. As the BLM is aware, current seasonal stipulations in the existing Bighorn Basin RMPs prohibit construction and drilling activities in specific crucial winter ranges, but do not prohibit routine production operations necessary to safely maintain facilities. It would be inappropriate for the BLM to preclude all production operations in crucial winter range areas. Such a decision would essentially preclude year-round production operations and would lead to a significant decrease in domestic energy production. Moreover, many species such as pronghorn and mule deer have been found to habituate to increased traffic so long as the movement remains predictable. See Reeve, A.F. 1984. Environmental Influences on Male Pronghorn Home Range and Pronghorn Behavior. PhD. Dissertation; Irby, L.R. et al., 1984; "Management of Mule Deer in Relation to Oil and Gas Development in Montana's Overthrust Belt" Proceedings III: Issues and Technology in the Management of Impacted Wildlife. To the extent the BLM intends to apply the new restriction on existing leases, the BLM could be violating existing lease or taking private property without just compensation. The BLM must ensure that existing lease rights will be maintained and that production operations are allowed to continue throughout the year.	2025

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10286	10286-30	Devon is strenuously opposed to the BLM's proposed management action under Alternative B or D that would allow the BLM to apply wildlife seasonal "protections for surface-disturbing and disruptive" activities on the maintenance and operations of developed projects. Bighorn RMP/DEIS, Record No. 4082, pg. 2-78. As the BLM is aware, current seasonal stipulations in the existing Bighorn Basin RMPs prohibit construction and drilling activities in specific crucial winter ranges, but do not prohibit routine production operations necessary to safely maintain facilities. It would be inappropriate for the BLM to preclude all production operations in crucial winter range areas. Such a decision would essentially preclude year-round production operations and would lead to a significant decrease in domestic energy production. Moreover, many species such as pronghorn and mule deer have been found to habituate to increased traffic so long as the movement remains predictable. See Reeve, A.F. 1984. Environmental Influences on Male Pronghorn Home Range and Pronghorn Behavior. PhD. Dissertation; Irby, L.R. et al., 1984; "Management of Mule Deer in Relation to Oil and Gas Development in Montana's Overthrust Belt" Proceedings III: Issues and Technology in the Management of Impacted Wildlife.	2025
10286	10286-54	The BLM indicates in Chapter 3 that mule deer populations have declined because of decline in habitat quality and quantity. Bighorn RMP/DEIS, pg. 3-97. The BLM has not, however, provided sufficient data to support this analysis. Researchers in Colorado have attributed decline in Colorado mule deer populations primarily to competition from increased populations, loss of vegetation by overgrazing by deer in the 20 th Century, and the loss of habitat due to farmland conversion. R. Bruce Gill, Colorado Division of Wildlife. 1999. Declining Mule Deer Populations in Colorado: Reasons and Responses. The Oregon Department of Fish and Wildlife has also concluded that declines in the mule deer populations in Oregon are attributable to multiple natural changes in habitat including severe winters and droughts, changing predator-prey relationships, and changing grazing enforced management practices. The BLM should consider all of these factors and not simply assume oil and gas development is causing the decline in mule deer populations	2025
10286	10286-55	The Bighorn RMP/DEIS imposes significant restrictions in big game parturition (calving) area, but has not provided sufficient data to justify these restrictions. The BLM should review existing literature and determine whether such restrictions are actually justified. Based on the demonstrated success for avoiding adverse effects on wandering elk within crucial winter range, there are no major adverse energy extraction-related effects that cannot be mitigated with a combination of controlled surface use and other timing restrictions. Elk populations within the Bighorn Basin are well above WGF's herd objectives and the BLM has not justified additional restrictions in these areas.	2025
10286	10286-72	The BLM describes the potential impacts from oil and gas operations to big game species in the Bighorn RMP/DEIS. Bighorn RMP/DEIS, pg. 4-170. The BLM does not, however, include information regarding how species habituate to oil and gas activities. See Reeve, A.F. 1984, Environmental Influences on Pronghorn Range and Pronghorn Habitat, PhD Dissertations, Erv, Irby, L.R., et al., 1984; "Management of Mule Deer in Relation to Oil and Gas Development in Montana" proceedings III: Issues in Technology in the Management of the Impact to Wildlife.	2025
10286	10286-42	Devon is particularly concerned that the BLM's analysis of land with wilderness characteristic is not accurate. Several local governments involved in the	2027

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		planning process have identified flaws with the BLM's inventory and analysis process. Given this information, the BLM needs to re-inventory and correct its information regarding the approximately 571,000 acres of lands it believes to have wilderness characteristics using the characteristics outlined above and in the BLM policies.	
10286	10286-68	The BLM indicates in Section 4.2.5.2 that the BLM will manage Wild Lands as administratively unavailable for oil and gas leasing under Alternatives Band D. Given recent changes in the Department of the Interior's administration of lands with wilderness characteristics and "Wild Lands" the BLM should reassess and inform the public how Wild Lands will be treated and whether or not they will be made available for oil and gas development in the Bighorn planning area.	2027
10286	10286-7	The BLM should clarify its intention and authority to designate Wild Lands in the Bighorn RMPs and explain to the public how the law and the Secretary's memorandum will impact modifications to the Preferred Alternative.	2027
10286	10286-26	The BLM suggests it will manage intermittent streams on a watershed scale basis and will attempt to acquire perennial flow rights for streams under both Alternative B and the Preferred Alternative. Bighorn RMP/DEIS, Record No. 4055, pg. 273. In Wyoming, the allocation and adjudication of water rights are administered solely and exclusively by the State Engineer and Board of Control. Wyo.Const. art. 8, Â§ 5; WYO. STAT. ANN. Â§Â§ 41-101 - 1014 (LexisNexis 2011). All water within the State of Wyoming is owned by the State of Wyoming. Wyo. Const. art. 8, Â§ 1. Although certain water rights may be reserved to the federal government under very specific, narrow exceptions, the BLM does not have the right to manage water rights in Wyoming. The BLM should refrain from attempting to administer any water rights within the State. Further, under Wyoming law, only the state of Wyoming has the right to seek and hold a water right for instream flows for either wildlife or recreational purposes. WYO. STAT. ANN. Â§Â§ 41-1001 - 1014 (LexisNexis 2011); In re the General Adjudication of All Rights to Use Water in the Big Horn River Water System, 835 P.2d 273, 279 (Wyo. 1992).	2031
10286	10286-64	The BLM also suggests that impacts under Alternative D may result in fewer long-term adverse impacts to water resources due to increased reclamation standards and the requirements for mitigation under this Alternative. Bighorn RMP/DEIS, pg. 4-29. As explained earlier, reclamation plans are currently required for all oil and gas operations under Onshore Order No.1. The BLM should quantify or explain how or why it believes the reclamation plan is required under Alternative D will increase reclamation success over that already required on federal lands.	2031
10286	10286-37	As currently drafted, maps 38, 39, 40, and 41 appear to impose BLM visual resource management ("VRM") restrictions on BLM, private, and State of Wyoming lands without regard to ownership. The BLM has no right or authority to impose VRM restrictions on either State of Wyoming or private lands. As the BLM should be aware, one of the reasons the BLM Director remanded portions of the Rawlins RMP in 2008 was the BLM's apparent attempt to impose VRM restrictions on State of Wyoming and private lands. See Director's Protest Resolution Report, Rawlins Resource Management Plan, December 24, 2008, pgs. 139 - 140. See also Rawlins RMP pg. 1-1. The BLM must prepare new maps for the Bighorn RMP Final EIS that excludes State of Wyoming and private lands within the Bighorn Basin.	2032
10286	10286-38	Under Alternatives Band D, the BLM proposes to substantially increase the	2032

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		number of acres subject to Class II VRM restrictions. Bighorn RMP, Record No. 5052, pg. 2-103. Much of the area is not currently subject to VRM Class II restrictions. When proposing VRM restrictions in areas already leased for oil and gas development, the BLM cannot attempt to impose new VRM objectives or operations on existing leases. The IBLA has clearly recognized that BLM cannot impose visual resource objectives inconsistent with lease rights, and the BLM must consider the impacts of oil and gas operations and existing leases when developing VRM objectives during the planning process. See Southern Utah Wilderness Alliance, et. al., 144 IBLA 70, 84-88 (1998). The BLM cannot impose VRM objectives without considering existing leases and ongoing oil and gas operations.	
10286	10286-39	The proposed VRM Class II designation for lands covered by leases may be in conflict with, and provide confusion about, prior decisions made to lease the same lands without restrictions for visual resources under the current RMP. The IBLA has addressed a similar situation in the past. In Southern Utah Wilderness Alliance, 144 IBLA 70 (1998) ("SUWA") a resource management plan designated certain lands as VRM Class II. The BLM had leased the same lands for oil and gas development under the existing RMP. The IBLA found this improper, and it criticized the San Juan, Utah Resource Area BLM office for applying VRM Class II restrictions to lands where it had previously approved oil and gas leases. The IBLA stated that where the BLM has made the decision to issue oil and gas leases, the BLM should not put the same lands in VRM Class II because it is "inherently contradictory" and creates a "conflict." Southern Utah Wilderness Alliance, 144 IBLA 70, 87 (1998).	2032
10286	10286-40	Placing VRM Class I or II restrictions on a significant portion of the planning area would significantly restrict oil and gas development, potentially even on existing leases. Bighorn RMP/DEIS, Record No. 5052, pg. 2-103. Based on past experience, and even language in the Bighorn RMP/DEIS itself, the BLM will essentially preclude oil and gas development in VRM Class I and Class II areas. Devon is concerned it may not be able to develop its existing leases if the BLM is precluded from proving rights-of-way or facility locations across newly created VRM I and II areas that did not exist at the time its leases were issued. The imposition of unreasonable restrictions on existing leases or federal units may result in an illegal taking of Devon's contractual and property rights. Finally, the BLM has not adequately studied the potential economic or socio-economic impacts the creation of new VRM Class I and II areas may have upon the public or the human environment as required by FLPMA and NEPA.	2032
10286	10286-74	When proposing visual resource management restrictions in areas already leased for oil and gas development, the BLM cannot attempt to impose new VRM objectives on operations on existing leases. The IBLA has clearly recognized that the BLM cannot impose VRM objectives inconsistent with lease rights, and that BLM must consider the impacts of oil and gas operations and existing leases when developing VRM objectives during the planning process. Southern Utah Wilderness Alliance, et al., 144 IBLA 70, 84 - 88 (1998). The BLM cannot impose VRM objectives without considering existing leases and ongoing oil and gas operations. Because the BLM failed to consider the number and nature of existing leases when preparing its visual resource assessment for the Bighorn planning area, the BLM must revise and redo its analyses. The BLM must correctly account for all oil and gas developments and, as recognized by the IBLA in the Southern Utah Wilderness case cited above, the BLM must not	2032

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		impose VRM restrictions higher than VRM Class III on existing leases.	
10286	10286-57	The BLM suggests that the mountain plover is still a proposed threatened species in the Bighorn RMP/DEIS. Bighorn RMP/DEIS, pg. 3-108. The United States Fish and Wildlife Service ("USFS") published a withdrawal of the proposed listing of the mountain plover on May 12, 2011. 76 Fed. Reg. 27756 (May 12, 2011). The BLM should update this information in the final EIS for the Bighorn Basin. The BLM also needs to correct the information regarding the mountain plover on page 3-113 of the Bighorn RMP.	2041
10286	10286-27	The BLM states that under all alternatives, it will limit access to crucial habitat and sensitive species habitat. Bighorn RMP/DEIS, Record No. 4071, pg. 2-75. The BLM should rephrase this statement by adding the language "to the extent consistent with existing rights." Although the BLM retains substantial authority to prohibit access to designated critical habitat under the Endangered Species Act, 43 C.F.R. 3101.1-2 (noting that the BLM can restrict access to surface leasehold to comply with nondiscretionary statutes), the BLM does not have the right to prohibit access to a leasehold to protect crucial habitat in a manner inconsistent with the lease rights conveyed. See, e.g., National Wildlife Federation, et al., 150 IBLA 385, 403 (1999). The BLM cannot, for example, limit access to crucial winter habitat for Pronghorn in a manner inconsistent with existing rights.	2042
10286	10286-33	The BLM should, however, revise DR Goal 9.1 to make it clear the BLM will maintain large patches of high quality sage brush habitat, while still providing for multiple use management. Although preserving the sage-grouse is of paramount importance to the State of Wyoming, the BLM, and operators like Devon, management for the species must be considered in the larger multiple-use mandate requirements for the BLM.	2042
10286	10286-56	On page 3-103 of the Bighorn RMP/DEIS the BLM suggests that special status wildlife species are governed under BLM Manual 68-40 (BLM 2001 (a)). The BLM should be aware that its special species management manual was updated and reissued in 2008 and that the 2001 version was replaced. See BLM Manual 68-40 Rel. 6-125 (12/12/2008). All references to the 2001 special status species manual or any requirements therein should be replaced with references to the 2008 manual.	2042
10286	10286-18	Devon is particularly opposed to the requirement under Alternative B to require 50 percent pre-disturbance of desired vegetation within three growing seasons and 80 percent cover within five years of initial seeding. Bighorn RMP/DEIS, Record No. 1018, pg. 2-45. Such a requirement is not consistent with the existing BLM policy as expressed in Wyoming Instruction Memorandum 2009-022.	2045
10286	10286-32	It also appears the BLM failed to consider the significant detrimental impact to the local economy the seasonal prohibition on oil and gas operations would have upon the local economy. By precluding production during several months of the year, the BLM would force operators to significantly reduce their workforces on an annual basis. The management action would create a seasonal boom and bust cycle with routine maintenance workers and pumpers being laid off annually. The inconsistent nature of the work would almost certainly reduce the number of local employees lessees are able to hire, which would restrict or eliminate the long-term beneficial impacts of the oil and gas development to the local economy. The BLM's current socio-economic analysis does not account for this cycle.	2046

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10286	10286-10	In particular, Alternative B is not a reasonable alternative because it virtually eliminates oil and gas development from the public lands contrary to the BLM's multiple use mandate. Under FLPMA, the BLM is required to manage the public lands on the basis of multiple use and sustained yield. 43 U.S.C. Â§ 1701 (a)(7) (2010). "'Multiple use management' is a deceptively simple term that describes the enormously complicated task of striking a balance among the many competing uses to which land can be put, 'including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values.'" Norton v. Sothorn Utah Wilderness Alliance, 542 U.S. at 58 (quoting 43 U.S.C. Â§ 1702(c)). Further, under FLPMA, mineral exploration and development is specifically defined as a principal or major use of the public lands. 43 U.S.C. Â§ 1702(1). Under FLPMA BLM is required to foster and develop mineral development, not stifle and prohibit such development. Alternative B does not comply with the BLM's multiple use mandate and must be eliminated.	2047
10286	10286-11	The adoption of Alternative B, and to a lesser extent Alternative D, would significantly curtail domestic production compared to both the baseline scenario and any of the other alternatives analyzed by the BLM. Bighorn RMP/DEIS, pg. 4-57. The loss of such an enormous energy supply is contrary to the best interests of the nation, and inconsistent with the Energy Policy Act of 2005.	2047
10286	10286-5	When revising the Bighorn RMPs, the BLM should ensure that stipulations developed for future oil and gas leasing are the least restrictive necessary to adequately protect other resource values. Since the BLM issued the Washakie RMP in 1988, the Cody RMP in 1990, and the Grass Creek RMP 1998, Congress passed the Energy Policy Act of 2005. Section 363 of that Act required the Secretary of the Interior and the Secretary of Agriculture to enter into a Memorandum of Understanding (MOU) regarding oil and gas leasing and to ensure that lease stipulations are applied consistently, coordinated between agencies, and "only as restrictive as necessary to protect the resources for which the stipulations are applied." Energy Policy Act of 2005, Pub. L. No. 109-58, Â§ 363(b)(3), 119 Stat. 594, 722 (2005). The Memorandum of Understanding required by Â§ 363 of the Energy Policy Act of 2005 was finalized in April of 2006 as BLM MOU W0300-2006-07. The stipulations for oil and gas leases within the revised Bighorn RMPs should not be onerous or more restrictive than necessary. Based on Devon's review of the proposed alternatives in the Bighorn RMP/DEIS, the BLM did not follow the guidance in this MOU or the express direction in the Energy Policy Act of 2005. In almost every circumstance, the BLM proposes to adopt stipulations that are overly restrictive and unduly limiting. The BLM must consider the MOU when selecting the agency's Preferred Alternative or adopting the Bighorn RMPs.	2047
10286	10286-65	The BLM improperly suggests on page 4-58 that a VRM Class II restriction is only a moderate constraint on oil and gas development. Bighorn RMP/DEIS, pg. 4-58. The BLM more appropriately recognizes later in the Bighorn RMP/DEIS that "oil and gas exploration and development activities may be restricted or limited in VRM Class II areas. VRM objectives in Class II areas may limit the development of [oil and gas] facilities." Bighorn RMP/DEIS, pg. 466. Given the extreme restrictions on oil and gas development within VRM Class II areas, Devon urges the BLM to treat VRM Class II restrictions as a major restriction on oil and gas development, not a moderate restriction.	2047

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10286	10286-70	Devon further remains opposed to the BLM's proposition under Alternative B to manage big game crucial winter range and parturition habitat with and NSO restriction that would prevent surface occupancy for all oil and gas activities. Bighorn RMP/DEIS, pg. 4-70. Devon does not, however, believe the BLM has adequately described the potential adverse impacts such a restriction would have on oil and gas operations. The BLM merely notes that the mitigation measures may "increase project costs." Closing almost 1.4 million acres to surface occupancy would do far more than merely increasing project costs or making some areas inaccessible to oil and gas development. It would effectively eliminate all oil and gas development within a huge portion of the Bighorn Basin planning area. Such a closure would additionally lead to significant losses of revenue for the local, state and federal treasuries as well as significant losses in regional jobs.	2047
10286	10286-8	Further, the BLM should inform the public that only the Secretary of the Interior could withdraw the entire planning area from oil and gas leasing under FLPMA and that withdrawals can only be made using specific procedures mandated by FLPMA. 43 U.S.C. Â§ 1714(a), (b) (2010) (requiring withdrawals to be made by the Secretary of the Interior, or a person in the Secretary's office who has been appointed by the President with the advice and consent of the Senate and listing the requirements necessary for the Secretary to withdraw public lands).	2047
10286	10286-9	Under all four alternatives, the BLM proposes to make large areas of land unavailable to oil and gas leasing. Withholding an area from leasing constitutes a withdrawal under FLPMA. Unbelievably, under Alternative B, the BLM proposes to close almost 2,300,000 acres and render them unavailable for oil and gas leasing. Because closing areas to oil and gas leasing constitutes a withdrawal, the Department of the Interior will be required to comply with the procedural provisions of section 204 of FLPMA. 43 U.S.C. Â§ 1714 (2010). The BLM effectively admits that areas administratively unavailable to oil and gas development would "prohibit oil and gas exploration and subsequent development and exploration." Bighorn RMP/DEIS, pg. 4-62. This language confirms Devon's position that closing areas to leasing is effectively a withdrawal under FLPMA.	2047
10286	10286-19	The BLM should clarify that under all of the alternatives reclamation plans are required for all oil and gas drilling operations under Onshore Order Number 1, Section III, 4, j, 72 Fed. Reg. 10308, 10333 (Mar. 7, 2007). As currently described under Record No. 1019, the public may have the impression that reclamation plans are not always required for oil and gas development activities.	2049
10286	10286-31	Further, the BLM has not analyzed or apparently even considered the damage that could be done to oil and gas wells if they are shut-in on an annual basis. Nor has the BLM analyzed the very real threat that federal minerals would be effectively drained by offsetting wells on State of Wyoming and private lands if federal wells are annually shut-in. The BLM must prepare this analysis in order to disclose the significant adverse impacts that would be associated with the closure of oil and gas development on a seasonal basis, including the potential loss of federal reserves and royalties.	2049
10286	10286-76	Section 2.1 of Appendix A should also be revised to eliminate references to the 1983 Oil and Gas Onshore Order No. 1 and replace it with the revised version issued in 2005.	2049
10286	10286-24	Devon additionally encourages the BLM to adopt language similar to that contained in the Pinedale RMP that allows for the modification and expansion	2050

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		of Oil and Gas Management Areas in the event oil and gas development extends beyond the currently identified Oil and Gas Management Areas. The Pinedale RMP authorized the expansion of "Intensively Developed Fields" in two situations. First, an expansion of an existing oil and gas field without the need to amend the Pinedale RMP when bottom-hole density reached a specific level and when geology and reservoir analysis determined additional bottom-hole development is necessary to effectively drain a resource. See Record of Decision and Approved Pinedale RMP, pg. 2-22 (2008). Second, the Pinedale RMP authorizes the creation of new Intensively Developed Fields through an amendment to the Pinedale RMP if the above referenced geologic criteria are met, but the new field is not located adjacent to an existing Intensively Developed Field.	
10286	10286-66	The BLM describes areas of having high oil and gas potential if there is a potential for more than 100 wells per township. The BLM describes areas of moderate potential as having between 20 and 100 wells per township. Bighorn RMP/DEIS, pg. 4-59. Although such descriptions were generally true for traditional vertical oil and gas development, the same is not true for more recent horizontal development. As discussed earlier, oil and gas operators are often drilling long horizontal well bores capable of developing a single 640 acre section with a single well bore. As such, an extremely prolific area may have only 36 oil and gas wells within an entire township, yet it will be fully and effectively developed. The BLM should recognize that its traditional analysis regarding oil and gas development potential by wells per township is not, necessarily, accurate given recent advances in technology.	2051
10286	10286-12	Further, as described in more detail in Devon's comments regarding Chapter 4, the BLM has not analyzed or disclosed the potential impacts the restrictions on future leasing may have upon operations on existing leases. As the BLM acknowledges in Chapter 3 and Map 7, a significant extent of the Bighorn planning area is currently leased for oil and gas development. Some leases, however, are isolated making them virtually impossible and not economically feasible to develop in their current state. Any responsible oil and gas producer who decides to take the risk of exploring by drilling a wildcat area must do so only after assembling a large enough block of leasehold acreage so that, if the drilling is successful, it can obtain an adequate return on the high risk dollars invested. The BLM has, in another context, recognized the need for control of a reasonable acreage block. See <i>Prima Oil 8: Gas Co.</i> , 148 IBLA 45, 51, (1999) (BLM policy to suspend leases when "a lessee is unable to explore, develop, and produce leases due to the proximity, or comingling of other adjacent Federal lands needed for logical exploration and development that are currently not available for leasing"). The BLM must recognize, study, and report the economic impact of its decision to close significant portions of the planning area to leasing, or to make significant portions of the planning area only available with major constraints will have upon future exploration and development in the area. It is not enough for the BLM to simply assert that existing lease rights will be protected, the BLM must analyze further how existing lease rights will be impacted by future limitations on leasing and development and what protection it will afford existing leases in the above-described scenario.	2052
10286	10286-20	BLM should, however, clarify the language in Record No. 1019 of the Preferred Alternative that suggests "stipulations" will be required prior to the approval of surface disturbing operations. As discussed above, the BLM does not have the	2052

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		authority to modify stipulations on existing leases. Leases are valid, existing rights that cannot be modified by a newly developed RMP. The IBLA recently confirmed the fact that the BLM cannot add additional stipulations to a lease after it has been issued. Dejour Energy (USA) Corp., IBLA No 2010-175 (April 29, 2010).	
10286	10286-21	Further, the BLM has not analyzed or disclosed the potential impacts the restrictions on future leasing under Alternative B may have upon operations on existing leases. Devon owns numerous leases within the planning area, but to the extent such of these leases are isolated, they are virtually impossible and not economically feasible to develop. Any responsible oil and gas producer who decides to take the risk of exploring by drilling a wildcat area must do so only after assembling a large enough block of leasehold acreage so that, if the drilling is successful, it can obtain an adequate return on the high risk dollars invested. The BLM has, in other contexts, recognized this need for control of a reasonable acreage block. See Prima Oil Ei: Gas Co., 148 IBLA 45,51 (1999) (BLM policy to suspend leases when "a lessee is unable to explore, develop, and produce leases due to the proximity, or commingling of other adjacent Federal lands needed for logical exploration and development that are currently not available for leasing").	2052
10286	10286-22	Similarly, in Record No. 2011 the BLM suggests that under all alternatives it will include new stipulations on leases or restriction on existing leases when determined necessary. Bighorn RMP/DEIS, Record No. 2011, pg. 2-54. The BLM cannot impose stipulations or new restrictions on existing leases and particularly cannot impose new NSO restrictions on existing leases. Courts have recognized that once the BLM has issued an oil and gas lease conveying the right to access and develop the leasehold, the BLM cannot later impose unreasonable mitigation measures that take away those rights. See Conner v. Burford, 84 F.2d 1441, 1449-50 (9th Cir. 1988); 43 C.F.R. Â§ 3101.1-2 (2006) (BLM can impose only "reasonable mitigation measures ... to minimize adverse impacts ... to the extent consistent with lease rights granted").	2052
10286	10286-23	Devon is vehemently opposed to the proposed management actions under Alternative B and Alternative D that would allow the BLM to prohibit suspension of existing leases, even on a case-by-case basis. Bighorn RMP/DEIS, Record No. 2028, pg. 2-57. The terms of the Mineral Leasing Act of 1920 clearly and unequivocally allow the BLM to grant lease suspensions for a variety of reasons, the most important of which is when a suspension is in the interest of conservation. 30 U.S.C. § 209 (2010); 43 C.F.R. Â§§ 3103.4-4 and 3165.1. The BLM should not attempt to modify, alter, or curtail aspects of the Mineral Leasing Act and the BLM's regulations and manuals. Requesting and receiving suspensions is critical to oil and gas operators, particularly when the delays associated with oil and gas development are caused by the BLM. More often than not, oil and gas operations are delayed for years and years while the BLM completes the analysis and processes required by laws such as NEPA. Under IBLA guidance, the BLM's manual, and decisions of the Solicitor of the Department of the Interior, lessees are entitled to suspensions in the interest of conservation during the preparation of such analysis. See, e.g., River Gas Corp. et al., 149 IBLA 239,245 (1999); BLM Manual, 316010.2.21. A.1, 3160-10.2.21.B.1. (Rel. 3-150, 3/13/1987); see also BLM Manual, 3160-10, Appendix 1 Solicitor's Memorandum dated July 14, 1975	2052
10286	10286-3	The BLM's Land Use Planning Handbook also specifically recognizes that existing	2052

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		rights must be honored. BLM Land Use Planning Handbook H-1601-1, III.A.3, pg. 19 (Rel. 1-1693 3/11 IDS). The BLM must comply with its planning handbook and recognize existing rights. The authority conferred in FLPMA is expressly made subject to valid existing rights. 43 U.S.C. § 1701. Thus, an RMP prepared pursuant to FLPMA, after lease execution and after drilling and production has commenced, is likewise subject to existing rights. See Colorado Environmental Coal, et al., 165 IBLA 221, 228 (2005). The Bighorn RMPs, when revised, cannot defeat or materially restrain Devon's valid and existing rights to develop its leases through conditions of approval or other means. See Colorado Environmental Coal, et al., 165 IBLA 221,228 (2005) (citing Colorado Environmental Coal., 135 IBLA 356, 360 (1996) aft'd, Colorado Environmental Coal. v. Bureau of Land Management, 932 F.supp. 1247 (D. Colo. 1996). The BLM partially recognizes that it cannot modify existing lease rights in the Bighorn RMP/DEIS, but the agency negates this statement by suggesting that it will impose conditions of approval on operations that will, effectively, impose new limitations on leases. Bighorn RMP/DEIS, pg. 4-57. The BLM cannot use conditions of approval ("COAs") to modify or take existing lease rights.	
10286	10286-4	In the revised Bighorn RMPs and accompanying environmental impact statement ("EIS"), the BLM should state clearly that an oil and gas lease is a contract between the federal government and the lessee, and that the lessee has certain rights thereunder. See Mobil Oil Exploration & Producing Southeast, Inc. v. United States, 530 U.S. 604, 620 (2000) (recognizing that lease contracts under the Outer Continental Shelf Lands Act gives lessees the right to explore for and develop oil and gas); Oxy USA, Inc. v. Babbitt, 268 F.3d 1001, 1006-7 (10th Cir. 2001) (noting that the Tenth Circuit has long held that federal oil and gas leases are contracts) rev'd on other grounds, BP America Production Co. v. Burton, 549 U.S. 84 (2006). Although the BLM may revise the existing RMPs for the Bighorn Basin, the BLM-and the public-should be reminded that the BLM cannot unilaterally alter or modify the terms of existing leases. The BLM recently recognized the nature of existing oil and gas lease rights in the Pinedale RMP issued by the BLM in November of 2000. "Existing oil and gas or other mineral lease rights will be honored. When an oil and gas lease is issued, it constitutes a valid existing right; BLM cannot unilaterally change the terms and conditions of the lease ... Surface use and timing restrictions from this RMP cannot be applied to existing leases." Pinedale RMP, pg. 2-19. Similar language exists in the December of 2008 Rawlins RMP. Rawlins RMP, pg. 20. Devon encourages the BLM to include similar language in the Bighorn Basin RMPs.	2052
10286	10286-59	The BLM needs to clarify the language on page 4-4 of the Bighorn RMP/DEIS. In the third bullet point on page 4-4, the BLM suggests that the Secretary of the Interior has the authority to impose restrictions on lease terms. Bighorn RMP/DEIS, pg. 4-4. To the extent the BLM is suggesting it can impose restrictions on existing leases, the BLM's statement is factually and legally incorrect. As discussed in detail above, once the BLM has issued a federal oil and gas lease without no surface occupancy stipulations, and in the absence of non-discretionary statutory prohibition against development, the BLM cannot completely deny development on a federal leasehold. National Wildlife Federation, et al., 150 IBLA 385, 403 (1999).	2052
10286	10286-69	The BLM again suggests through Chapter 4 it intends to impose additional mitigation measures on exploration and development activities, or COA on operations in areas that have been designated unavailable for leasing in the	2052

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		revised RMP in order to exclude surface occupancy and restrict surface disturbance. As discussed above, the BLM has no authority to impose conditions of approval or other mitigation measures on valid existing rights. Even in areas where the BLM has determined that lands should not be available for leasing in the revised Bighorn RMPs, the BLM cannot limit surface use and occupancy. Doing so constitutes a taking of valid property rights in contravention of federal law and the Constitution of the United States.	
10286	10286-75	Devon vehemently opposes the language in Section 2.0 that suggests, however, the contract can be changed with the express consent of the authorized officer. Because the lease is a contract, it can only be modified by the mutual agreement of both the lessee and the lessor, the BLM does not have the authority to change the contract unilaterally. The BLM should revise the language in Section 2.0 of Appendix A in the final EIS.	2052
10286	10286-51	Devon believes that the BLM has significantly underestimated the oil and gas potential of the Planning Area. According to the Wyoming Oil and Gas Conservation Commission, the Bighorn Basin is the biggest oil and gas producing area in the Rocky Mountains and 78% of the Basin has never been developed. Several oil and gas operators in the Basin are currently setting significant new and previously undevelopable oil and gas reserves within the Bighorn Basin. In particular, the BLM has underestimated the potential of the Phosphoria formation in the Bighorn Basin. Existing Phosphoria formation traps likely contain significant oil and gas reserves that can be economically developed given appropriate price conditions and recent advances in technology. Additionally, the BLM has underestimated the potential for development from the Mowry Shale formation within the planning area. Interest in the Mowry Shale formation in the Bighorn Basin has increased due to the recent boom in production from the Bakken Shale formation in the Williston Basin of North Dakota. Success in the Bakken came from the analyses of geologic data from decades-old producing areas which identified untapped resources that, with the application of new development and drilling technology, have made the area the nation's largest oil producing region. The Mowry Shale shares many of the same characteristics of the Bakken Shale and other successful shale reservoirs within the United States. These characteristics include a significant thickness of hydrocarbon bearing shales, eticquette naturation, and the capacity to maintain open fractures, and susceptibility to fracture stimulation. To date, only limited production has been reported from the Mowry Shale in the Bighorn Basin because exploration and development are in the earliest stages. There has, however, been recent success in drilling development within the Mowry Shale in the Bighorn Basin. The United States Geologic Survey recently evaluated the Mowry Shale in the Bighorn Basin and estimated that undiscovered continuous oil and gas reserves included over 5 million barrels of oil and 348 billion cubic feet of natural gas. There is significant potential in the Planning Area that BLM should protect. Other operators in the Basin have estimated that the potential of the Mowry Shale is so significant the BLM's Reasonably Foreseeable Development Scenario ("RFD Scenario") may be twenty-five to fifty times understated. The BLM needs to reconsider its RFD Scenario for the entire Planning Area given the significant potential of Mowry development in this region.	2061
10286	10286-52	The BLM should also consider the increased potential of oil and gas development in the region using carbon dioxide (CO2) flooding procedures. The	2061

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		Wyoming Enhanced Oil Recovery Institute ("WEORI") estimates that an additional 800 million to 2.25 billion barrels can be recovered from the Bighorn Basin as a result of enhanced oil recovery operations using carbon dioxide to displace stranded oil. Enhanced oil recovery is particularly important for the Bighorn Basin because, in many cases, existing infrastructures such as roads and well pads can be utilized to unlock this important domestic energy reserve. The sequestration of CO2 provides another important benefit. The BLM needs to reconsider its RFD Scenario given the extreme potential for enhanced oil recovery in this region.	
10286	10286-53	Thus, the BLM must carefully explain to the public that the RFD Scenario is not a cap or limitation on future development. In the most recent published decision from the IBLA regarding the RFD Scenario, the IBLA unequivocally determined that the RFD Scenario is not, and cannot be used as, a limitation on future oil and gas development. "While an important tool in the land use planning process, RFD scenarios do not constitute fixed or maximum limits on development under FLPMA such that exceeding them constitutes a violation of that statute." Biodiversity Conservation Alliance, et al., 1741BLA 1, 11 (2008). In order to prevent future litigation and appeals, the BLM must include language in the Record of Decision and the Bighorn RMPs describing the purpose of the RFD Scenario and the fact that the RFD Scenario is not a planning decision or limitation on future oil and gas development. Instruction Memorandum 2004-089, Policy for Reasonably Foreseeable Development (RFD) Scenario for Oil and Gas (Jan. 16, 2004).	2061
10286	10286-67	Devon questions whether the BLM has provided for adequate surface disturbance in Table 4.2 for the RFD Scenario. Bighorn RMP/DEIS, pg. 4-487. As the BLM is aware, oil and gas operators are currently utilizing horizontal development techniques in Wyoming, in particular, in the Bighorn Basin to develop and produce oil and gas from shale or other formations that previously could not be developed. The use of horizontal drilling techniques, however, requires the creation of much larger individual well pads than traditional vertical or directional development. Although the number of actual wellbores maybe less and, as noted above, as little as one well pad per section, individual well pads are often significantly larger-as large as ten or twelve acres in size prior to interim reclamation. The larger well pad size is necessary to accommodate larger drilling rigs utilized for horizontal development and to accommodate the significant amount of equipment necessary for large stimulation and hydraulic fracturing processes necessary to develop these resources. As many as 100 individual tanks may be necessary to store the water, sand, and other materials necessary to hydraulically fracture a single horizontal well. The BLM should account for this additional disturbance in its RFD Scenario to ensure that it has adequately and properly analyzed potential impacts on oil and gas development in the Bighorn Basin RMP/EIS.	2061
10286	10286-41	BLM's proposal under Alternative B, Alternative C, or Alternative D to substantially increase the number of acres subject to ROW exclusion and avoidance areas in the proposed Bighorn RMPs. Bighorn RMP, Record No. 6034, pg. 2-111. The BLM has not justified this substantial increase in the number of acres subject to ROW exclusion and avoidance areas. Devon is particularly concerned that the ROW excludance and avoidance areas will be utilized to significantly hamper or decrease oil and gas operations. The BLM must be willing to work with oil and gas lessees and operators to design access routes	2066

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		for proposed oil and gas development projects. Future limitations on road construction could impact Devon's valid and existing lease rights or its rights as the operator of a unit such as the Worland Unit. While the issuance of an oil and gas lease does not guarantee access to the leasehold, a federal lessee is entitled to use such part of the surface as may be necessary to produce the leased substance. 43 C.F.R. Â§ 3101.1-2.	
10286	10286-34	For reasons that are not sufficiently explained in the Bighorn RMP Draft EIS, the BLM proposes to create management areas for sage-grouse that are very different from the Sage-grouse Core Areas developed by the State of Wyoming. See State of Wyoming Executive Order No. 2011-5 (June 2, 2011) (Footnote 3: Although Devon does not fully support the sage grouse core strategy developed by the State of Wyoming, Devon was an active participant in the process and believes the policy provides for an important tool to both protect the sage grouse and foster continued oil and gas development. Although the Wyoming sage grouse core policy is far from perfect, it is a vast improvement from the sage grouse policy and protections developed by the BLM in the Bighorn RMP (DEIS). It is imperative that the BLM and the State of Wyoming recognize and develop similar management objectives for sage-grouse core areas. Absent virtually identical management areas and mitigation measures, operators will be placed in a very difficult and precarious position of complying with different and potentially inconsistent management approaches.	2069
10286	10286-58	Further, the BLM's decision to create Key Habitat Areas in the Planning Area is incompatible with the State of Wyoming Sage-Grouse Core Areas and, thus, contrary to the January 2010 Greater Sage-Grouse Habitat Management Policy on the Wyoming Bureau of Land Management administered public lands including the federal mineral estate instruction memorandum authored by Wyoming BLM State Director, Don Simpson, that specifically requires and indicates the BLM will adopt the State of Wyoming's Sage-Grouse policy. See Instruction Memorandum No. WY-2010-012 (December 29, 2009). In the Instruction Memorandum, the BLM specifically and unequivocally indicates that Wyoming BLM sage-grouse "Key Habitat Areas correspond to the State of Wyoming's Core Population Areas (Core Areas)." Instruction Memorandum No. WY-2010-012, pg. 1.	2069
10286	10286-71	Additionally, the BLM has not adequately described the potential impacts the protective restrictions for Greater Sage-Grouse would have upon oil and gas development. The significant timing in NSO limitations proposed under Alternative B would effectively eliminate oil and gas development across large portions of the planning area. The BLM's extremely unreasonable noise restrictions may also have significant detrimental impacts to oil and gas development. The prohibition on additional noises beyond ambient levels in the majority of the planning area would effectively eliminate oil and gas development across the planning area. The BLM must more accurately describe these impacts in the RMP so the public is aware of the significant losses of revenue and jobs caused by the BLM's proposed management activities.	2071
10286	10286-45	In Section 2.7 the BLM suggests that under Alternative C, there is potential to exceed the NAAQS or WAAQs if the Alternative is adopted. Given the fact the BLM has not performed any air quality modeling for the Bighorn RMPs, and given the fact the State of Wyoming DEQ has recently implemented significant and comprehensive control requirements on all oil and gas operations within the State of Wyoming, the BLM has not sufficiently justified this assumption.	2009_1

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		Devon encourages the BLM to work with the WDEQ to determine if, given these new regulations, there is any potential for an exceedance of the NAAQS and WAAQS.	
10286	10286-47	In Table 3-3, the BLM indicates that a representative concentration for ozone is 62 parts per billion ("ppb"). The Bighorn RMP/DEIS, pg. 3-9. The text on page 3-13 of the Bighorn RMP/DEIS, however, suggests a slightly higher 66 ppb measurement, albeit that measurement was taken from a site on the other side of the Bighorn Mountains. Bighorn RMP/DEIS, pg. 3-13. The BLM should explain this apparent inconsistency.	2009_1
10286	10286-60	The BLM indicates in Section 4.1.1.1 that emission factors used to measure proposed emissions within the Bighorn planning area were obtained using WDEQ best available control technology ("BACT") levels for natural gas fired engines. The BLM should clarify whether it utilized BACT standards from 2011 or earlier standards. The WDEQ recently completed a rule making significantly modifying and reducing BACT standards in Wyoming. These new standards will undoubtedly reduce emissions from oil and gas projects. To the extent the BLM has not utilized the most recent BACT information the information contained in Chapter 4 and in Appendix U will not be accurate	2009_1
10286	10286-61	On page 4-9 of the draft RMP, the BLM indicates that as a result of higher levels of mineral development CH4 emissions are anticipated to be highest under Alternative C, followed by Alternatives A, D, and B, respectively. Bighorn RMP/DEIS, pg. 4-9. On page 4-7 of the document, however, the BLM indicates that as a result of mineral development, CO2 emissions will be highest under Alternative C followed by Alternatives D, A, and B, respectively. Given the fact oil and gas development would be higher under Alternative C followed by Alternatives A, and then D, it seems likely that this should be the order for emissions as well. Bighorn RMP/DEIS, pg. 4-57. The BLM should explain this inconsistency.	2009_1
10286	10286-62	The BLM discussed that air quality impacts would primarily result from minerals development and production, and oil and gas activities. Bighorn RMP/DEIS, pg. 4-6. In fact, previous modeling performed by the State of Wyoming, EPA, and the Forest Service suggested that 90% of the air quality impacts at the Bridger Wilderness Area is attributable to distant forces outside of Wyoming, and not local sources within Wyoming. See The Southwest Wyoming Regional Calpuitt Air Quality Modeling Study: Final Report (SWWYTAF) (February 2001).	2009_2
10286	10286-63	In general, the BLM seems to assume, without analyses or support, that oil and gas development will necessarily cause greater impacts from fugitive dust and construction emissions than other types of energy development. Possibly this underestimation is simply a result of BLM's greater familiarity with potential impacts of oil and gas development given the long history of oil and gas development within the State of Wyoming. Devon encourages the BLM to review carefully its emissions analyses as contained in Appendix U to ensure it is adequately and accurately capturing potential construction and future dust emissions related renewable energy development. If BLM does not have adequate information to support its analyses that oil and gas development, rather than renewable energy development or other uses of the public lands, then BLM should not imply that oil and gas development necessarily causes more emissions from fugitive dust and construction emissions. The BLM also should ensure it has adequately captured the motor vehicle emissions associated with maintaining renewable energy infrastructure, including wind	2009_2

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		turbines. Just like oil and gas wells must be visited on a near-daily basis, wind turbines must be similarly inspected and maintained on an on-going basis.	
10288	10288-5	Based on WGFD Big Game Crucial Habitat identification, the area identified as Big Game Crucial Winter Range by the BLM within the Plan Area is much larger (almost double) than necessary for the maintenance of populations at objective levels. Consequently, we request BLM re-evaluate areas identified as Big Game Crucial Winter Range in the BHB Draft RMP and limit the designation of such areas to those necessary for the maintenance of populations at objective levels (i.e. to be consistent with WGFD Big Game Crucial Habitats).	2022
10288	10288-6	Based on the USFWS's recent findings and determination regarding the mountain plover, the stipulations and protections afforded to the mountain plover under the BHB RPM in Management Action #4125 and the Chapman Bench ACEC (Page 2-88, Table 2-5, Record #4125) is no longer warranted or scientifically justified.	2041
10288	10288-2	The Impact Analysis for Planning Model (IMPLAN) is a model using regional analysis. It appears the Big Horn Basin would be better analyzed with a more geographic specific approach. For example, in Table X-1, IMPLAN identifies regional oil and gas well numbers including coalbed natural gas. There has been very limited exploration and not any marketable sales from coalbed natural gas development in the Big Horn Basin. It appears the model may be using the entire state of Wyoming for a regional model. It is precisely because of the use of data like this that has no bearing on oil and gas development in the BHB makes the reported information and findings questionable.	2046
10288	10288-9	Discrepancy between Cooperating and Coordinating Agencies in the Scoping Process of the RMP and EIS. County Commissioners, certain conservation districts, the State of Wyoming, and certain agencies of the State of Wyoming applied for and were granted "cooperator" status during the scoping process of the RMP/EIS as provided for in the National Environmental Policy Act (NEPA) and BLM regulations. However, it does not appear that state and local governments were accorded "coordinating" status as required by FLPMA.	2060
10288	10288-3	Devon questions whether the BLM has provided for adequate surface disturbance in Table 4.2 for the RFD Scenario. Bighorn RMP/DEIS, pg. 4-487. As the BLM is aware, oil and gas operators are currently utilizing horizontal development techniques in Wyoming, in particular, in the Bighorn Basin to develop and produce oil and gas from shale or other formations that previously could not be developed. The use of horizontal drilling techniques, however, requires the creation of much larger individual well pads than traditional vertical or directional development. Although the number of actual wellbores maybe less and, as noted above, as little as one well pad per section, individual well pads are often significantly larger-as large as ten or twelve acres in size prior to interim reclamation. The larger well pad size is necessary to accommodate larger drilling rigs utilized for horizontal development and to accommodate the significant amount of equipment necessary for large stimulation and hydraulic fracturing processes necessary to develop these resources. As many as 100 individual tanks may be necessary to store the water, sand, and other materials necessary to hydraulically fracture a single horizontal well. The BLM should account for this additional disturbance in its RFD Scenario to ensure that it has adequately and properly analyzed potential impacts on oil and gas development in the Bighorn Basin RMP/EIS.	2061
10288	10288-7	Conversely, A multitude of tables in the RMP Air Quality Technical Support	2009_1

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		Document, Appendix U, were labeled "Summary of ROW and Corridors Emissions" for Alternatives A, B, C, and D - tabled for the years 2005, 2015, and 2024, respectively. Activities included, for total purported emissions (PM10, PM2.5, NOx, SO2, CO, VOC, HAPs): "Heavy Equipment - Fugitive Dust; Heavy Equipment - Vehicle Exhaust; Commuting Vehicles - Fugitive Dust; Commuting Vehicles - Vehicle Exhaust." Emission levels were an order of magnitude lower in these tables, for similar vehicle operations, as compared to the tables labeled "Total Annual Emissions from Oil Wells." Source locations of the variables to generate emission figures - are questionable. It is not clear if emission figures were generated from data gathered within the Planning Area. On a similar note - Regarding motor vehicle operations/emissions/fugitive dust and Yellowstone National Park -visitation was down 5 percent, with 2,383,614 visitors, this year to date (Cody Enterprise - 08/08/2011). However, vehicle emissions from tourism and air quality effects were not addressed in the RMP - albeit air quality monitoring data from "oil wells" were.	
10289	10289-1	Designate all HMAs and HAs in the planning area as wild horse ranges to be managed principally for wild horse herds pursuant to 43 C.F.R. 4710.3-2. Wild horses should be allocated a minimum of 51 percent of forage and water resources in the HMAs.	2030
10299	10299-3	One of the most upsetting parts is the reasonable foreseeable development. According to the Wyoming Enhanced Oil Recovery Commission, there are great possibilities with CO2 flooding and enhanced oil recovery. Additionally, the BLM fails to include reasonably foreseeable development which addresses horizontal and directional drilling - technologies happening in our neighbor communities.	2005
10299	10299-2	Research shows that BLM dependent ranch operations use of one AUM of BLM grazing would support 2.46 AUMs of livestock production. These numbers equate to the following: (all numbers are Millions of \$)Value of Livestock Value of BLM AUMs Value of Total Production Value to Ranch Viability Production \$10.9 \$15.8 \$26.9Earnings \$3.5 \$5.0 \$12.4Employment 107 155 382.	2011
10299	10299-6	There is a discrepancy in the Big Game Winter Range area identified by the BLM and also by the WGFD. BLM Big Game Crucial Range covers nearly twice the area as WGFD Big Game Crucial Habitat, nearly 649,246 acres.	2022
10299	10299-9	The BLM did not conduct a study of special designations and other management areas and the economic impact on stakeholders and locals governments from the associated constraints and restrictions.	2046
10299	10299-7	As for Sage grouse conservation / protection, the BLM should defer to the USDA, State of Wyoming's Executive Order 2011-5 and local ranchers and farmers for the best management practices. The USDA is providing 21.8 million dollars to encourage ranchers and farmers in Wyoming to conserve habitat for the greater sage grouse, according to Agriculture Secretary Tom Vilsack.	2071
10329	10329-2	There are 687 grazing allotments in the planning area. Of those, 203 are either completely or partially in LWCs. The inventoried LWCs cover 569,277 acres or approximately 27% of the allotments. The following numbers are provided by Van Tassel and Richardson (1998) and Taylor (2004). Research shows that BLM dependent ranch operations use of one AUM of BLM grazing would support 2.46 AUMs of livestock production. These numbers equate to the following: (all numbers are Millions of \$) Value of BLM AUMs Value of Total Production Value to Ranch Viability Value of Livestock Production \$10.9 \$15.8 \$26.9Earnings \$3.5 \$5.0 \$12.4Employment 107 155 382	2011

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Table B-1. Individual Comments and BLM Response Index (Continued)

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10329	10329-1	The plan states oil & gas development would result in adverse impacts to wildlife habitat. As quoted in the plan: "As the number of wells, roads, and facilities increase, habitat in and near well fields, due to degradation, invasive species spread, and fragmentation, may become less suitable until most animals no longer use these areas". I ask what scientific study was done in the basin to prove this statement as true? As an outdoors person I have found antelope and deer in habitats with oil pads, drilling rigs, and roads hauling equipment.	2025
10329	10329-5	You state in the plan "reducing the number of biological entities in a system or making some of them less abundant reduces diversity", Yet nowhere in the plan do you address, using sound science, the decrease in this diversity having negatively affected the planning area,	2025
10329	10329-3	According to the Dean Runyan Report 2007, 80% of our Big Horn Basin tourist activities are outdoor activities. According to Wyoming Travel & Tourism; tourism spending reached \$350 million dollars in 2010 in the Big Horn Basin and supported 4660 jobs with earnings of over \$97 million dollars. This generates \$35 million dollars in sales tax collections for the Basin.	2046
10329	10329-4	Sage grouse conservation / protection, The BLM, in their plan, should defer to the USDA, State of Wyoming's Executive Order 2011-5 and local ranchers and farmers for the best management practices,	2071
10331	10331-1	4) Interior Secretary Ken Salazar has directed the BLM to "take no action under the Wild Lands Order," which Alternatives B & D were written for. Even if the term "wild lands" is changed to a new term, they are still illegal because the new term would merely be a synonym with the same intent.	2027
10332	10332-1	7. Western's transmission lines are likely already designated as ROW corridors within the two field offices. Please confirm this, as well as whether other linear features, such as pipelines, other transmission lines or distribution lines, will be required to locate adjacent to Western's transmission lines. If that is the case, then Western will work with the new proponent to ensure the continued safe and reliable operation of its facilities.	2066
10333	10333-2	the RMP is inadequate and understates the future potential of oil and gas development and recovery of existing reserves. Marathon recommends that the document be updated to include the concerns of industry and the State of Wyoming Joint Minerals, Business and Economic Development Committee, as stated in their letter to the BLM dated June 27, 2011.	2061
10336	10336-1	Designate all HMAs and HAs in the planning area as wild horse ranges to be managed principally for wild horse herds pursuant to 43 C.F.R. 4710.3-2. Wild horses should be allocated a minimum of 51 percent of forage and water resources in the HMAs.	2030
10340	10340-2	Please explain on the record, in the response to public comments on the DEIS, how BLM has determined that reaching an agreement on the final plan in advance of analyzing public comments or even completing the public comment period aligns with its obligations under NEPA, How does BLM maintain credibility with the public when a decision is apparently reached in violation of the intent of the NEPA public comment process?	2054
10361	10361-1	The efficient and effective operation of the power delivery system is fundamental to Tri-State and its member entity operations. The power delivery infrastructure encompasses the construction of new transmission facilities to support electricity demand and load, and maintaining existing transmission facilities to ensure reliable supply of electricity. What specific management	2066

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		prescriptions (mitigation requirements) is BLM considering for construction and operation of new transmission lines in the areas mapped on Map 54 as "Right-of-way Avoidance and Mitigation Areas"? Will these new management prescriptions be applied to existing facilities now or in the future when these facilities are upgraded or improved?	
10362	10362-2	The Big Horn is the first, with studies this year for its potential for CO2 sequestration and "transitional sequestration" sites, new sources for CO2, and Rare Earth Elements and new gas and oil. We believe the final RMP and EIS should address these and other private and public explorations which will certainly continue into the twenty year time period of the RMP.	2015
10362	10362-1	We feel the draft RMP and draft EIS do not adequately address the application of Enhanced Oil Recovery (EOR). All of the known oil fields in the Big Horn Basin have been identified as residual oil zones (ROZ) by the University of Wyoming's Enhanced Oil Recovery Institute (EORI). Success by the Institute working with private oil field owners in recovering quantities of oil from similar old fields through the application of CO2 flooding is prompting private industry to look for CO2 sources in the Basin and to plan for pipelines into the Basin which will transport CO2 from western Wyoming, all of which will generate income. Within the last 60 days a pipeline/gas company has discussed their desire to place a pipeline into the Big Horn Basin for delivery of CO2. The Big Horn Basin ROZ will almost certainly be subject to CO2 flooding during the twenty-year RMP period. The final RMP and EIS should certainly take into account the reality of the potential for EOR activities.	2051
10364	10364-2	Record # 4055 (p. 2-73), under Alternative B and D, indicates that the BLM will "[i]ntensively manage intermittent streams judged as having potential to become, or return to being, perennial streams with fish on a watershed scale to perennial flows." This seems both inappropriate and unrealistic, if not contrary to Wyoming law. Only the State of Wyoming is able to obtain and hold a right for instream fisheries purposes.	2002
10364	10364-16	The management prescriptions under Alternative D, as outlined in Record # 5020, 5022, and 5023 (pp. 2-97 and 2-98), use the word "avoid." The common legal definition of "avoid" is "to make void or of no effect; invalidate." One may be led to the conclusion that surface-disturbing activities are precluded within 3 miles of important cultural sites throughout the Planning Area. Rather, it should be interpreted "as a term used to address mitigation of some activity" consistent with the definition provided in the Draft RMP and DEIS (p. Glossary-4). Although the use of the word "avoid" seems a poor choice, given the definition provided in the Draft RMP and DEIS it seems reasonable to include "(see Glossary)" following "avoid" in each of the Record #s referenced above.	2004
10364	10364-15	It appears as if Record #4077, Alternative D, was developed to address disruptive activities associated with grazing in delineated elk parturition habitat. I and others are concerned with the accuracy of current parturition habitat lines and further believe that those lines vary from year-to-year based on predator pressure and weather patterns. Consistent with comments outlined in letters from the Wyoming Game and Fish Department and the Wyoming Department of Agriculture, I cannot support this Alternative and would not support restricting cattle grazing in parturition areas based on the premise of disturbance. However, if Record #4077 was developed to address potential brucellosis impacts, I recommend the following language, "BLM would consider implementation, on a case by case basis, management actions jointly	2020

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		recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis.”	
10364	10364-18	For example, on July 25, 2011 Bob Abbey, BLM Director, issued IM No. 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans. As stated in the IM, “[t]his IM placed Bureau of Land Management (BLM) Manuals 6301, 6302, and 6303 into abeyance until further notice.” But still, portions of the Draft RMP and EIS refer to Manuals 6301, 6302, and 6303. The Final RMP and EIS, when released, should apply current law and guidance and thus remove all references and narrative relating to Secretarial Order 3310 and its associated manuals. (See for instance: Executive Summary and Chapters 1 through 4.)	2027
10364	10364-19	The BLM’s analysis of lands with wilderness characteristics done in conjunction with the development of the Draft RMP and DEIS is of particular concern. As you are aware, local cooperators have presented information that appears to identify flaws with the BLM’s inventory and analysis. Local cooperators identified that almost 20% of BLM lands were erroneously identified as having wilderness characteristics. In this area, the BLM identified 56 areas comprising a total of 571,000 acres. This area includes 634 miles of roads (of which 518 are two track), 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, 8 oil fields, 68 miles of oil and gas pipeline, 8 active oil and gas wells, 59 plugged and abandoned oil and gas wells, and 248,315 acres (43%) which have oil and gas leases. Based on a review of the BLM and local cooperator findings, I cannot support the designation of any lands with wilderness characteristics in the Bighorn Basin. Further, the BLM should, in conjunction with local cooperators, initiate a new inventory process in order to correct what otherwise appears to be a misclassification of approximately 571,000 acres of land as lands with wilderness characteristics.	2027
10364	10364-8	The BLM intends to designate oil and gas management areas in the Bighorn Basin where the priority use is oil and gas development. For each of the ROZ Potential Sites listed in Table 1 (see Attachment A), the State requests that the BLM adopt (and spatially expand where necessary) the oil and gas management areas identified in Alternative C. The oil and gas management areas identified in Alternative D are insufficient to accommodate EOR development in all of the ROZs. In addition, the State requests BLM expand the Alternative C oil and gas management areas by 24,819 acres to encompass all federal surface and minerals within each ROZ Potential Site. The State requests that all Federal surface and minerals within the ROZ Potential Sites shown on Figure 1 (see Attachment A) be designated as oil and gas management areas as defined for Alternative C. A summary of the additional sections of federal surface and minerals that should be added to the Alternative C oil and gas management areas for each ROZ Potential Site is provided in Table 2 (see Attachment A). The primary resource use in the areas designated as oil and gas management areas will be oil and gas development. The BLM should clearly state in the RMP that development will be allowed to proceed within oil and gas management areas without amending the RMP so long as new well spacing does not exceed current well spacing in the fields. As stated previously, the State requests BLM adopt Alternative C for oil and gas management areas. In addition, the state requests BLM modify the description of Alternative C in Record # 2029 (Table 2-	2050

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		5) as follows: "Delineate Oil and Gas Management Areas (Map 21) (568,164 592,983 acres) around intensively-developed existing fields and existing fields with potential for enhanced oil recovery, using a buffer zone of up to 2 miles from the outer boundary of the existing field (Map 23), and incorporating all Federal surface and minerals within the boundaries of ROZ Potential Sites. Within these areas, manage primarily for oil and gas exploration and development (including EOR) and carbon sequestration; consider all other surface uses secondary." The oil and gas management areas would be allowed to be developed at the well spacing and surface densities (for all surface disturbing activities) of the existing fields.	
10364	10364-12	The description of CO2 sequestration (Record # 2035, p. 2-58) for Alternatives B and D are unrealistic. BLM needs to recognize that at some point in time EOR projects may qualify as sequestration projects for myriad federal and state laws and regulations. In fact, many now agree that the only currently-economic mechanism for geologic sequestration of CO2 is EOR. Alternative B would prohibit CO2 sequestration and Alternative D would allow sequestration only where it does "not detract" from other resource objectives. BLM needs to consider the link between EOR and sequestration when evaluating the feasibility of these alternatives. BLM should not and likely cannot adopt Alternative B. Further, the standard established by Alternative D is arbitrary and capricious. I request that the BLM adopt Alternative C for CO2 sequestration and dismiss Alternatives B and D from the Final EIS.	2051
10364	10364-3	The Draft RMP and DEIS fails to discuss advances in horizontal drilling and hydraulic fracturing technologies that are unlocking commercial oil rates from tight oil sands in the Turner, Parkman, and Sussex formations and shale oil from the Niobrara and other Cretaceous shales in other basins of the state.	2051
10364	10364-5	Recent advances in EOR, particularly using carbon dioxide (CO2) have proven economically effective in producing large quantities below the oil-water contact in similar (but with lower oil saturations) reservoirs in the Permian Basin in Texas. Based on recent studies completed in the Bighorn Basin by EORI and discussion with operators, it is reasonable to conclude that historically produced MPZs and previously uneconomic ROZs in the Bighorn Basin will be the target of EOR projects during the RMP projection period. The Wyoming Pipeline Authority has completed work that projects that the CO2 necessary to support EOR could reasonably be delivered to the Bighorn Basin as early as 2016. Current and projected oil prices indicate that EOR in the Bighorn Basin will be economically viable. The State of Wyoming has initiated and will continue to support significant efforts to accelerate potential EOR development in the Bighorn Basin and local governments in the Planning Area strongly support these efforts. EOR potential in the Bighorn Basin needs to be more fully described in the Final RMP and Final EIS.	2051
10364	10364-6	If the CO2 network is implemented as stated above, oil production would mimic the curve shown on Figure 2 (see Attachment A) and production could rise to over 20 million barrels per year by 2028 (the BLM RFD Scenario projects 4.2 million barrels per year). Obviously, such a significant increase in production would positively affect the forecasted annual earnings for all the alternatives contained in the Draft RMP and DEIS (p. 2-226). Not only would an increase in oil production from the basin benefit the Federal coffers and the State of Wyoming, significant increases would be expected in local revenues and would change for the better the dismal annual employment forecasted in the Draft	2051

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		RMP and DEIS (p. 2-226). I request that the BLM fully evaluate the potential for significant EOR development in the Bighorn Basin during the projection period in the Final EIS and revise the Draft RMP as necessary to facilitate and expedite EOR. I will expect the Final RMP and EIS to provide sufficient analysis and candid public disclosure to allow EOR development in the ROZs to proceed using Environmental Assessments rather than lengthy Environmental Impact Statements with significant plan amendments.	
10364	10364-20	The definition for surface-disturbing activities provided in the Draft RMP and DEIS (p. Glossary-38) is not the agreed upon definition by the BLM and cooperators, nor is it consistent with any other RMP in the state. I recommend that the BLM apply the definition for surface disturbing activities outlined in Information Bulletin No. WY-2007-029, Guidance for Use of Standardized Surface Use Definitions.	2054
10364	10364-4	In particular, I believe that additional discussion of production potential from the Mowry Shale should be addressed in the Final EIS and RMP.	2061
10364	10364-7	However, the BLM is not as clear on how impacts are treated and how disturbance is calculated from these well counts. It is my understanding that disturbance and impacts projected using the RFD well counts is also provided solely for the purposes of comparing impacts between Alternatives and that it is not BLM's intention that any of the estimates of disturbance or impacts provided in the RMP or EIS represent "analysis thresholds" for determining what actions may require a plan amendment. The relationship between disturbance estimates and impacts and what constitutes an analysis threshold is not clear in the Draft RMP and DEIS and BLM needs to provide a clear statement that exceeding the estimates of disturbance or impacts in the EIS will not result in the need for an RMP amendment. For instance, in Appendix T of the Draft RMP and DEIS BLM calculates short- and long-term surface disturbance from leasable oil and gas for each of the alternatives. Short-term disturbance during the 20-year projection period ranges from 1,527 (Alternative B) to 3,771 acres (Alternative C) on public lands. The projection for fee and state surface is 1,533 acres for all alternatives. BLM needs to clarify in the Final RMP and EIS that these estimates are provided for analysis purposes only to demonstrate the difference between alternatives and that disturbance or impacts beyond the analysis assumptions does not require a plan amendment.	2061
10364	10364-11	In addition, it is questionable that over 60 percent of the federal minerals and 80 percent of the BLM managed surface in the planning area needs to be subjected to "stringent terms and conditions" associated with ROW avoidance/mitigation areas. I request that the BLM reevaluate the criteria used to delineate ROW avoidance/mitigation areas with a goal toward balancing other resource uses of public lands. It may be beneficial to segregate avoidance and mitigation areas into two separate analyses so that it is clear to the public which areas should be avoided and which areas will require mitigation.	2066
10364	10364-10	While none of the ROW exclusion areas under either Alternative C or D appear to conflict with development of the ROZ Potential Sites, my staff did locate numerous areas during review of the BLM shapefiles where ROW exclusion areas overlap corridors for Alternative D. Where such overlap occurs regardless of Alternative, I request the BLM clearly document in the RMP that the ROW corridors take precedence over the ROW exclusion areas. Record # 6034 (p. 2-111) addresses ROW avoidance/mitigation areas. Under Alternative D BLM proposes to manage 2,512,202 acres within the planning area as ROW	2067

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		avoidance/mitigation areas. Under Alternative C 1,174,335 acres would be managed as ROW avoidance/mitigation areas. The draft RMP/EIS defines "avoidance areas" as they pertain to ROW as follows: "ROWs either will not be granted in these areas, or if granted will be subject to stringent terms and conditions." (p. Glossary-4)[Footnote 5: Each polygon is attributed with a width in the shapefile, but we were unable to discern whether that width represented a width limit for the corridor or whether the attribute was used for mapping purposes.] In many cases, these ROW avoidance/mitigation areas are located within or overlap oil and gas management areas and corridors identified for both Alternatives C and D. It is inconsistent to identify an area where development will be the priority use while at the same time designating the same area as a ROW avoidance/mitigation area. I request that ROW avoidance/mitigation areas be removed from areas designated as oil and gas management areas and corridors under all alternatives.	
10364	10364-9	Right-of-Way Corridors and Right-of-Way Avoidance/Mitigation Areas The right-of-way (ROW) corridors identified in Alternative D will "strand" several of the ROZ Potential Sites from cost effective CO2 delivery and product shipment and may result in a disproportionate impact to private lands. I request that the BLM adopt the ROW corridors identified in Alternative C and shown on Map 53. If Alternative C is selected, all the ROZ Potential Sites can be accommodated using RMP corridors. I have been unable to locate in the Draft RMP and DEIS a specific description of the width of these ROW corridors and the ROW corridor polygons in the GIS shapefile provided by BLM for review by my staff appears to vary depending on location [Footnote 5]. Discussions with BLM staff have suggested that the width of these ROW corridors would be left to the discretion of the authorized officer. I believe that discretionary decisions will lead to confusion and may undermine the benefits to the environment intended by the ROW corridor designations. Consequently, I request that the BLM adopt corridors identified in Alternative C and modify Record # 6033 in Table 2-5 (p. 2-111) as follows: "Designate ROW corridors as shown on Map (Map 53). No limit will be placed on the width of these corridors as long as new linear facilities are constructed adjacent to existing linear facilities recognizing the need for adequate separation for operating system integrity, safety (construction and operations), appropriate federal, state and local statutes, regulations and policies, and land use constraints. Where BLM determines that a linear facility should be moved away from an adjacent utility to avoid a resource conflict, the new linear facility will still be considered to be within the RMP corridor."	2067
10364	10364-14	As noted in the Draft RMP and DEIS, Key Habitat Areas established by the BLM are not consistent with the Core Areas identified in Governor's Executive Order 2011-5 (71,241 acres larger). It is critical and is my expectation that the BLM's Key Habitat Areas remain consistent with the Core Areas (version 3). Deviation is one thing that will undermine support for the greater sage-grouse conservation strategy embodied in the Executive Order. BLM's Instruction Memorandum (IM) No. WY-2010-12 states that "WY BLM sage-grouse Key Habitat Areas correspond to the State of Wyoming's Core Population Areas (Core Areas)." The U.S. Fish and Wildlife Service consider the Core Population Area Strategy "a sound framework for a policy by which to conserve greater sage-grouse in Wyoming." BLM has served as a member of the Sage-Grouse Implementation Team with equal opportunity for input into the development of Core Areas. The Key Habitat Areas and associated protections identified in the Draft RMP and DEIS should be changed to reflect Core Areas (version 3) and	2069

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		stipulations outlined in Governor’s Executive Order 2011-5.	
10364	10364-13	The Draft RMP and DEIS references the “Wyoming Office of the Governor 2008” (pp. 3-111 4-497, and 6-29), a reference to Governor’s Executive Order 2008-2 Greater Sage-Grouse Core Area Protection. This is inaccurate. Governor’s Executive Order 2008-2 was replaced by Governor’s Executive Order 2010-4 and subsequently replaced by Governor’s Executive Order 2011-5 Greater Sage-Grouse Core Area Protection, which I signed on June 2, 2011. To the extent necessary these references and associated language should be corrected to reflect the most up to date information. Further, the references - e.g., “WGFD has identified core areas” (p. 3-111) or “core areas identified by the WGFD” - should instead note that the established or identified core areas are by virtue of my Executive Order 2011-5.	2071
10366	10366-1	Comment #3: The above referenced table (Table 4-25 Bighorn Basin Draft Resource Management Plan/Draft Environmental Impact Statement) reflects a dramatic difference in local ad valorem production taxes when compared with the below information: (See Figure 35, Ecosystem Research Group (ERG)). The BLM/RMP Alternative C estimates a total collection of royalties, state severance taxes and local ad valorem production taxes of \$93.5 million of 2008 dollars. The ERG group, when estimating tax revenue dollars generated from potential development from the Mowry Shale Formation could reach \$2.3 billion over the life of the plan. COMMENT THIS RESOURCE MUST BE RECOGNIZED AND DEVELOPMENT OF THIS POTENTIAL RESOURCE MUST BE ENCOURAGED WITHIN THE BLM/RMP!!!	2046
10368	10368-8	Page 2-34, third paragraph: the restriction limiting surface disturbing activities within 500 feet and up to 1/4 mile of riparian wetland areas may eliminate the ability of the Company to serve customers who are located near or adjacent to these areas because distribution lines generally cannot span such long distances. The Company recommends that a site-specific exemption process for such instances be incorporated under Alternative D,	2033
10368	10368-9	Same location as above: the NSO restriction on wetland areas greater than 20 acres is arbitrary and requires further rationale to support the use of that specific acreage,	2033
10368	10368-11	In Table 2-5, Management Action 4113, the Company would like the BLM to clarify what is intended by the statement regarding retrofitting of existing lines. The Company has coordinated extensively with the U.S. Fish and Wildlife Service to develop and enact an Avian Protection Plan. It is not feasible to make all existing power lines and structures avian-safe all at once. Retrofitting is done according to a risk analysis which prioritizes higher risk lines and structures first. All new lines are built avian-safe. Furthermore, the Company has done extensive research regarding the use of anti-perch devices which demonstrate that they are not effective, in many cases are counter-productive, and lastly have no basis in scientific findings.	2042
10368	10368-12	Page 4-319, third paragraph: The Company seeks clarification regarding the use of the term 'aboveground'. Specifically, the Company is adverse to 'underground' powerlines as a form of mitigation given the general lack of understanding regarding the complications, high levels of disturbance, and limitations of underground transmission.	2066
10368	10368-2	The Company also requests that the BLM disclose what is meant by the term 'crowding' especially as it relates to electrical facilities. Similarly, the statement in the first paragraph on page 4-314 regarding 'maximum safe density of	2066

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		existing powerlines' requires further explanation. As stated above, the Company has a legal and regulatory obligation to plan and provide electricity and transmission service in a safe, reliable, adequate, and efficient manner to its customers. In the Company's experience as well as that of many utilities, concentrating transmission lines in a single ROW is counter to good planning and professional practice in that doing so can compromise system reliability and decrease system efficiency.	
10368	10368-4	The Company also suggests that the BLM modify its assumption on page 4-311 under Section 4.6.3.1 which states 'In terms of major utility lines, companies would focus first on the maintenance and upgrading of existing lines before undertaking new construction of major utility lines in the Planning Area.' As a starting point, the BLM should define what it means by 'major utility lines.' The Company suggests that the BLM base its definition on those used by the agencies under which electrical utilities are regulated, namely the Federal Energy Regulatory Commission (FERC) and the Western Electricity Coordinating Council (WECC). More importantly, the BLM needs to better understand the complexities and limitations behind the Company's ability to upgrade existing facilities because in many cases doing so may conflict with the Company's regulatory obligations to its customers. For example, existing lines may not be located in areas with increased load demand; upgrading an existing line may not provide the necessary benefit nor be the most prudent solution; and/or it may not be possible to take extended outages on fully-utilized existing lines in order to complete upgrades. It is important for the BLM to recognize that the capability of an electrical sub-transmission and distribution system is limited by the distance of the line. If only existing ROWs are used, then the ability to serve load using existing facilities may be greatly reduced by the additional line miles realized. Therefore, effectively reducing the capacity of sub-transmission and distribution systems may actually result in an increased transmission presence in the Basin due to the Company's regulatory need to build more transmission facilities to meet customer demand. Other restrictions, such as major re-routes (detours that increase line mileage by greater than 15%) could also have similar affects. Therefore, the BLM should assume that new ROWs will be needed within the planning horizon outside those currently occupied by existing lines.	2066
10368	10368-6	The Company is concerned about the dramatic decrease in areas available for new ROWs (from 788,275 acres down to 132,219 acres) and increase in areas identified as ROW avoidance/mitigation areas (from 1,003,194 acres up to 2,551,205 acres). These changes seem disproportionate to the need for future ROWs in the Planning Area.	2066
10368	10368-7	The Company would also like the BLM to explain its rationale to use the criteria for ROW avoidance/mitigation areas identified in the first bullet on page 4-313 as 'areas having a 25 percent or greater slope.' In fact, the Company has extensive ROW in such areas and is concerned that making such a blanket assumption will result in unnecessary complications to process new ROW in such areas. The Company recommends that the BLM identify an exemption process that will not preclude development of future ROWs due to the wholesale application of this criteria.	2066
10368	10368-1	With this in mind, the Company respectfully disagrees with the statement in the last paragraph on page 3-154 which states 'If the current rate of development continues and current management remains in place, designated ROW corridors should adequately meet future needs over the next 10 to 20 years. At this rate	2067

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		of development, corridors could eventually be more intensely used, but the BLM does not anticipate crowding. This statement is mostly reiterated in Section 4.6.3.1 on page 4-312 as an assumption used by the BLM in analyzing impacts to rights-of-way (ROW). In addition, the Company disagrees with the statement in the first paragraph on page 3-155 which implies that oil and gas production in the Planning Area is expected to come mostly from established fields that already have adequate infrastructure in place as well as the statement in the subsequent paragraph that the demand for electric ROWs in the Planning area will remain moderate over the next 10 to 20 years. In fact, the Company expects that its electrical facilities in the Big Horn Basin are not adequate to serve load in the next 10-15 years. For example, the Oregon Basin substation is currently seeking approval to expand in support of oil development that is occurring over the next two years. Furthermore, current load requests will require substantial subtransmission additions by 2014. If these trends continue the electrical system in the area will be substantially larger than today's system. Therefore, the impacts of implementing alternative D are not accurately portrayed in the document because the designated corridors will not adequately meet the future needs over the short term, let alone the planning horizon of the Project. Additionally, the current rate of development as defined by the BLM is not an accurate metric and should be updated to anticipate an increased rate of development which the Company would gladly collaborate with the BLM to help develop.	
10368	10368-3	Finally, the Company disagrees with and requests further clarification as to the origins of the statement in the sixth paragraph on page 3-155 that the development of transmission lines on public lands can create 'perceived threats to safety.'	2067
10368	10368-5	The Company has recognized that some of its existing transmission facilities should be represented in Map 54 (Land Resources Rights-of-Way and Corridors under Alternative D) and identified as ROWs that are not located in avoidance/mitigation areas. Attachment 1 is a low resolution map depicting the Company's existing facilities in the Planning Area; a better map can be provided upon BLM's request. Some of the facilities that need to be identified (demarcated in the red bubbles in Attachment 1) include: the 115kV transmission line between Thermopolis and the Hilltop Substation near Worland, the 115kV transmission lines extending to the west interconnecting with a Western Area Power Authority line as well as serving the Curly Creek pumping station (Express Tap), the 69kV transmission line between the Oregon Basin Substation and the South Cody Tap (not represented on Attachment 1).	2067
10368	10368-10	Page 3-111, third paragraph: abandonment of habitat by Greater Sage -grouse due to powerlines is not supported by scientific studies.	2071
10369	10369-12	This discretionary authority must be limited. In order to conduct safe and effective oil and gas operations, it is imperative for operators to have, at a minimum, limited access to well locations year-round to perform inspections, maintenance and other obligatory operations. BLM must recognize that certain inspection and maintenance activities must be conducted regularly and cannot be delayed. We recognize that limitation on some disruptive activities and access to well locations during critical seasons may be necessary, such as prohibiting construction activities (e.g. well pads, roads, pits) or limiting the number of trips allowed in the winter on big game crucial winter range when warranted. Therefore, we strongly recommend that BLM modify this proposal	2020

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		under Alternative D such that BLM will allow reasonable access to existing well locations year-round for maintenance and operation of developed projects, even in wildlife sensitive habitats; basic maintenance and operation activities necessary to maintain safe, effective, and environmentally sound operations should not be subject to wildlife seasonal restrictions.	
10369	10369-13	As such, we recommend BLM specifically identify areas where BLM will be able to apply seasonal wildlife protections on a case-by-case basis, and limit the use of case-by-case determinations to areas where application of protections is warranted and appropriate.	2020
10369	10369-10	Implementing a 4 ½ month TLS for crucial winter range and a 2 month TLS for parturition habitat will significantly, but unnecessarily, limit oil and gas development in these large areas. Consequently, we recommend that BLM limit the expanse of these habitat areas to the amount necessary for big game sustainability. We further recommend that BLM utilize WGFD Big Game Crucial Habitat Priority Areas (CHPA) as a guide for identification of these areas. Big Game CHPAs include crucial winter ranges, parturition areas, and migration routes with a ½-mile buffer for big horn sheep, elk, mule deer, pronghorn, moose, and mountain goat. Consequently, consistency with CHPAs will provide adequate protection of these important habitat areas. A comparison of big game crucial winter range and parturition habitat identified in the RMP (Map 35) to WGFD Big Game CHPAs reveals that the BLM's habitat areas are inexplicably much more expansive throughout the planning area, especially along its eastern, western (including the Absaroka Front Management Area), and southern boundaries. In light of this major discrepancy, it is necessary for BLM to re-evaluate its designation of big game crucial winter range and parturition habitat locations, and make them consistent with WGFD Big Game CHPA's.	2022
10369	10369-11	Based upon the identification of Big Game Crucial Habitat Priority Areas (CHPA) within the MA by the WGFD, the MA is much larger than necessary to protect big game populations. The total area defined as Big Game Crucial Habitat within the MA by the WGFD is significantly smaller than BLM's. In fact, the WGFD has only identified relatively small pockets of Big Game Crucial Habitat within the MA. In light of this discrepancy, we urge BLM re-evaluate the size and boundaries of the Absaroka Front Management Area such to include only habitat areas actually in need of special management, as indicated by WGFD Big Game Crucial Habitat designations. Additionally, this discrepancy clearly demonstrates that subjecting 130,984 surface acres to MA restrictions (e.g. CSU, NSO, and unavailable for leasing) is not justified.	2022
10369	10369-8	Big game crucial winter range and parturition habitat acreage for all alternatives (Map 35) is inexplicably much greater than Big Game Crucial Habitat Priority Areas (CHPA) defined by the Wyoming Game and Fish Department (WGFD). WGFD Big Game CHPAs include "crucial winter ranges, parturition areas, and migration routes with a ½ mile buffer for big horn sheep, elk, mule deer, pronghorn, moose, and mountain goat." A comparison of big game crucial winter range and parturition habitat identified in the RMP to WGFD Big Game CHPAs reveals that the BLM's habitat areas are much more expansive throughout the Project Area, especially along the eastern, western (including the Absaroka Front Management Area), and southern boundaries of the Project Area. I understand the value of protecting crucial wildlife habitat. However, in light of this discrepancy it is difficult to justify the extent of big game crucial	2022

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		winter range and parturition habitat under all alternatives in the BHB RMP. As such, I suggest BLM re-evaluate the designation of big game crucial winter range and parturition habitat locations, and reduce the size of these areas such that they are consistent with WGFD Big Game CHPAs.	
10369	10369-31	I request BLM remove the language concerning designation of 52,485 acres of LWCs as wildlands. As you are aware, the 2011 Continuing Resolution does not allow the BLM to move forward with designations of any wildlands.	2027
10369	10369-32	I also object to the adoption of seasonal restrictions on activities in both McCullough Peaks and Fifteen Mile Herd Management Areas from February 1 to July 31 because no scientific justification has been provided to show that oil and gas development is detrimental to wild horse populations.	2030
10369	10369-20	However, the BLM fails to recognize the beneficial impact of produced water discharges in stabilizing ephemeral and intermittent stream channels through creation of riparian zones, thus reducing natural erosion.	2031
10369	10369-21	Discharges of produced water can increase the total dissolved solids concentration in surface water. However, BLM fails to recognize that most of the streams receiving produced water discharges are naturally ephemeral or intermittent. Water users in the Big Horn Basin would rather have water with elevated levels of total dissolved solids that can be put to beneficial use, than no water at all.	2031
10369	10369-22	Mineral development is one of many human activities as well as natural events that have the potential to impact shallow groundwater quality and quantity. There are many other activities which can impact shallow groundwater quality and quantity. To single out mineral development as the principal activity impacting ground water, is a biased assumption, particularly if the BLM has no scientific justification or data for making this assumption.	2031
10369	10369-23	The WEPP model estimate that with no disturbance there would only be trace amounts of runoff, seems to disregard the amount of natural runoff experienced in the interior of the basin during snow melt or precipitation events. The badland topography and the clay content of soils in the Big Horn Basin can result in significant amounts of natural runoff and erosion from areas like McCullough Peaks, 15 Mile and other badland areas of the basin, which have very minimal human disturbance.	2031
10369	10369-24	While it is true that more surface disturbance can result in more impact to water, it does not hold true in many cases. Many surface disturbing activities associated with oil and gas are very far away from any live water and runoff from these disturbed areas would typically never reach live water, particularly with the BMP requirements mandated in Storm Water Construction permits. In some instances, BMPs installed at disturbed sites can actually decrease the rate of natural erosion from a site and promote stable vegetation establishment.	2031
10369	10369-25	Does this statement mean that the BLM intends to start requiring Water Management Plans for WPDES discharges in the Big horn Basin? If so, would this requirement be for existing surface discharges, or only for proposed new surface discharges.	2031
10369	10369-26	Produced water discharged from oil and gas operations is generally hotter than the naturally occurring surface water. However, most produced water discharges first enter a naturally ephemeral drainage that would otherwise not contain surface water. By the time the produced water does reach a perennial water, the temperature has cooled dramatically and there is little if any impact	2031

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		on the perennial water. One benefit of the increased water temperature in those ephemeral drainages is that it typically provides an unfrozen year round water source for wildlife and livestock. Also, in many cases the organic component of the produced water has naturally attenuated by the time it reaches live water	
10369	10369-27	How does the BLM plan minimize impacts on surface water quality from components of produced water? As previously stated the Wyoming DEQ permits WPDES discharges and promulgates and enforces water quality standards. It is not the duty, nor the legal authority of the BLM to set water quality standards or to issue WPDES permits.	2031
10369	10369-28	However, the BLM fails to recognize the beneficial impact of produced water discharges in stabilizing ephemeral and intermittent stream channels through creation of riparian zones, thus reducing natural erosion.	2031
10369	10369-29	It cannot be expected that produced water from coalbed CBNG will be of the same quality and quantity as produced water from conventional or deep oil and gas wells.	2031
10369	10369-30	What is meant by “conforming BLM actions to Wyoming DEQ water quality standards, enforcement, and remediation?” As previously stated the Wyoming DEQ permits WPDES discharges and promulgates and enforces water quality standards.	2031
10369	10369-16	Although surface discharge of produced water may increase runoff and erode soils if BMPs are not applied; likewise discharge of produced water can decrease the erosion of soils due to development of riparian zones and wetlands associated with surface discharge of produced waters. Discharge of produced water in the Big Horn Basin has resulted in the creation of hundreds of miles of riparian zones and thousands of acres of wetlands. These riparian zones have stabilized stream banks on otherwise natural highly erosive ephemeral and intermittent drainages, thus reducing erosion of soils. Wetlands, created by produced water discharges, slow and filter natural runoff, thus reducing soil transport and improving water quality. There are many examples of this in the Big Horn Basin, including Cottonwood Creek, Dry Creek Kirby Creek, and Gooseberry Creek to name a few.	2045
10369	10369-17	Is loam soil the best soil texture to use for WEPPP modeling in the Big Horn Basin (BHB)? Since most soils in the interior of the BHB contain a lot of clay (bentonite), should clay loam be used for modeling purposes rather than a loam soil? Also, clay loam may not be the correct soil type to use in this model, “clay soils” is probably a better soil type to reflect actual soil conditions here in the Big Horn Basin (especially on BLM lands in the interior of the Big Horn Basin). If the WEPP model is limited to use for soil types that are not the primary soil type in the Big Horn Basin (i.e. model limited to loam type soils), then this model should not be utilized to predict erosion rates in the Big Horn Basin, because it will be inherently inaccurate.	2045
10369	10369-18	If the WEPP model predicts little or no erosion on undisturbed rangelands and forestlands, then it will dramatically underestimate the amount of natural soil erosion in the BHB.	2045
10369	10369-19	Is the WEPP model, which was used to predict erosion rates and runoffs, calibrated to account for installation and implementation of Best Management Practices required by the Wyoming DEQ under the Stormwater Construction Permitting Program, which essentially requires no discharge of pollutants	2045

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		(including soil) from the construction site?	
10369	10369-7	Based on the statistics quoted above, there are 136,433 more acres administratively unavailable for oil and gas leasing under Alternative D than Alternative A (i.e. under current management). However, no discussion or justification has been provided in the DEIS. Increasing the acreage administratively unavailable will decrease management flexibility in the Plan Area. We strongly recommend that BLM re-evaluate the number of acres administratively unavailable for oil and gas leasing and consider opening these areas to potential leasing subject to the standard lease form and moderate/major constraints.	2047
10369	10369-14	BLM cites the West Tavaputs Plateau Natural Gas Full Field Development Plan Draft EIS (2008), Glossary for the definition of disruptive activity in the BHB Draft RMP. However, disruptive activity is not defined in the West Tavaputs Plateau Natural Gas Full Field Development Draft EIS document. What is the explanation for this incorrect citation?	2054
10369	10369-15	The definitions for surface-disturbing activities and disruptive activity in the BHB RMP are overly broad in application. When used as a land use restriction (e.g. Table 2-5, Record #4082) these terms may be interpreted to completely limit all activities within an area. For example, the definition of disruptive activity includes "activities that disrupt or alter wildlife actions." This language may be interpreted to include almost any minimal activity occurring on the land, including activities that do not have a negative impact on the energy reserves, health, or population of a species. I am not opposed to limiting surface-disturbing and disruptive activities to a reasonable degree provided it can be scientifically justified. For example, prohibiting construction activities (e.g. well pads, roads, pits) or reducing the number of trips allowed in the winter on big game crucial winter range is reasonable. However, we are concerned BLM may endeavor to completely restrict all minimally disruptive activities under these definitions. Therefore, we call upon BLM to modify the definitions of surface-disturbing and disruptive activities to expressly exclude access to locations for the maintenance and operation of developed projects.	2054
10369	10369-1	COMMENT: KHAs designated by BLM are inconsistent with the State of Wyoming's Core Areas. If the intent of BLM is to obtain and maintain consistency between KHAs and the State of Wyoming's Core Areas, then why are KHAs identified in this RMP different than Core Areas provided for in Wyoming EO 2011-5, Attachment A (Sage-Grouse Core Breeding Areas Version 3)? Figure Q-1 of the RMP clearly illustrates the discrepancies between Sage-Grouse Core Breeding Areas Version 3 and KHAs.	2069
10369	10369-2	Furthermore, there are 71,241 more acres of KHA (1,857,485) than acres of Core Areas (1,786,244) located within the total planning area. What are the justification and scientific reasoning for expanding KHAs and changing KHA boundaries from Core Area boundaries? The Wyoming Sage Grouse Implementation Team (SGIT) conducted an extensive public process supported by the best available science to develop the Core Area strategy and the Core Population Areas provided for in EO 2011-5.	2069
10369	10369-3	Within these OGMA's I support waiver of all sage grouse stipulations where the OGMA does not overlap with a State of Wyoming Core Habitat Area. In areas where the OGMA does overlap with a State of Wyoming Core Area, I support incorporation of only non-core area stipulations with the exception that no new surface disturbances will be allowed within 0.6 miles of a lek. For "existing	2069

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		activities” waivers of all sage grouse stipulations outside of core areas, and relaxation of core are stipulations to non-core stipulations is consistent with Governor Mead’s Executive Order (EO) 2011-5 (Part 2 page 2 and Part 7 page 3 of EO 2011-5). BLM needs to ensure that the Big Horn Basin Resource Management Plan matches exactly with the State of Wyoming Core Area management plan, and Governor Mead’s EO, as was committed to by the BLM representative on the Sage Grouse Implementation Team.	
10369	10369-4	However, sage grouse stipulations Under Alternative D are not consistent with stipulations provided for under EO 2011-5: Core Areas/Key Habitat Areas - Seasonal Use: Leks: Under EO 2011-5 - Activity will be allowed from July 1 to March 14 (i.e. not be allowed from March 15 to June 30) outside of the 0.6 mile perimeter of a lek in Core Population Areas where breeding, nesting and early brood-rearing habitat is present (EO 2011-5, pg. 9, Item 3). Alternative D - BLM extends this seasonal use restriction by two weeks, placing TLS on surface disturbing activities on nesting/early brood rearing habitat from March 1 to June 30 (Table 2-5, pg. 2-84). It is my understanding that BLM has chosen to start the TLS on surface disturbing activities on nesting/early brood rearing habitat two weeks earlier under the RMP than EO 2011-5 because sage grouse in the lower elevations of the BHB tend to start mating approximately two weeks earlier than leks at higher elevations in the BHB and other leks across Wyoming. I am not opposed to starting the TLS two weeks earlier to account for geographic differences in sage grouse behavior. A one-size-fits-all approach is not always preferred in wildlife management, and EO 2011-5 states that “adjustments to the stipulations may be necessary based upon local conditions and limitations.” However, in these low elevation areas we request that BLM also end the TLS two weeks earlier to maintain consistency of overall TLS duration. If sage grouse mating starts two weeks earlier in lower elevations, then it should also end two weeks earlier in these areas. If the Wyoming Sage Grouse Implementation Team (SGIT) has determined that a 3 ½ month TLS for nesting/early brood rearing is adequate throughout Wyoming, then it should also be adequate in the BHB. An overall expansion of TLS duration is not necessary to protect breeding sage grouse.	2071
10369	10369-5	Again, I am not opposed to starting the TLS two weeks earlier to account for geographic differences in sage grouse behavior and biological requirements, if it is scientifically justified. However, if BLM is starting the TLS on winter concentration areas two weeks earlier to account for geographic differences, we request BLM end the TLS two weeks earlier to maintain consistency of overall TLS duration. If the SGIT has determined that a 3 ½ month TLS for winter areas is adequate throughout Wyoming, then it should also be adequate in the BHB.	2071
10369	10369-6	I request BLM limit sage grouse stipulations outside of KHAs and OGMAs to, at a maximum, ¼ mile CSU and a 2-mile seasonal buffer to occupied leks, to achieve consistency with EO 2011-5. In OGMAs located outside of Core Population Areas/KHA, sage grouse stipulations should be waived to encourage development of hydrocarbon resources in these. This would be consistent with EO 2011-5.	2071
10370	10370-3	The DEIS appears to argue that its “Lands with Wilderness Characteristics” are not WSAs, and FLPMA allows management for certain resources associated with Wilderness (opportunities for solitude, outstanding opportunities for primitive and unconfined recreation etc.). Thus BLM argues, the Non Wilderness Study	2027

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		Area Lands with Wilderness Characteristics designation is legal. But, in certain alternatives, BLM is proposing to manage these areas to protect Wilderness Character, just like the IMP. The BLM is simply calling these new WSAs by a different name. The agency is claiming Federal Land Policy and Management Act (FLPMA) Section 201 is the legal foundation for designating Non Wilderness Study Area We note this section does refer to a continuing inventory, but for "all public lands and their resource and other values...." BRC acknowledges that the agency can inventory to its heart's delight. This includes inventorying for resources or values associated with Wilderness. It is improper to make decisions based upon an inventory for a single resource value, in this case "Wilderness character."	
10370	10370-4	As noted above, the BLM has no authorization to engage in inventories for a small segment (Wilderness) of only part of the spectrum of "resources and other values" (recreation). Table 3- 46 is an example of how the DEIS has unlawfully excluded recreational uses and values that are incompatible with Wilderness management in its analysis.	2027
10370	10370-1	(H-1601-1 Appendix C, pages 18-20) BLM's directives seem clear. At least insofar as Off Highway Vehicle based recreation. Except in "Closed" and "Open" areas, each BLM office is required to develop a specific travel management plan, limiting all motorized vehicles to designated roads, primitive roads and trails. However, your Land Resources Travel management Maps (Map 55 - 58) indicate that "travel limited to existing roads and trails" is a management option. Ditto for Appendix R and other sections in the DEIS. The DEIS appears to state that except where we identify areas that will be limited to designated roads and trails, travel will be limited to existing roads and trails (unless we identify a specific reason or resource concern that mandates a travel management plan designating roads and trails). Travel limited to "existing" roads and trail is not consistent with the agency's planning criteria number 8.8. For program-specific guidance regarding land use planning-level decisions, the process will follow Land Use Planning Manual 1601 and Handbook H-1601-1, Appendix C. This appears to be a serious flaw in the DEIS. It is difficult to see how the agency can remedy this without issuing a supplemental analysis disclosing the agency's direction for travel management.	2034
10370	10370-6	The BLM needs to include a site specific and up to date review of the Oil and Gas potential identified by the most current USGS Resource Assessment. The DEIS uses a regional analysis when a more accurate geographic specific approach is required.	2061
10371	10371-2	Appendix P contains only the "active use" column. Therefore, the MCD requests that Appendix P of the Draft RMP also include a "permitted use" column in order to express in AUM's, what is formally allocated and recognized by the RMP.	2074
10372	10372-7	Through personal conversation with Dick Loper, Wyoming State Grazing Board, the use of "Wyoming Standards for Healthy Rangelands", Appendix N is outdated. I would request BLM update their rangeland monitoring information.	2011
10372	10372-8	Mr. Loper suggested to me that the BLM should get rid of the entire Appendix W as well as Table W-1.	2011
10372	10372-3	Please remove Appendix S, Lands with Wilderness Characteristics from the RMP document as Secretary of the Interior, Ken Salazar has rescinded Secretarial Order No. 3310. (Record #6255, Obj. LR:9.1 Prefer Alt. C.)	2027

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10372	10372-1	The RMP is sorely lacking in all aspects of the socioeconomic analysis of the alternatives. This oversight needs to be corrected before an accurate review of the alternatives can be conducted. In particular, the oil and gas potential in the RMP and the effects of reduced livestock grazing are not clearly addressed. Nearly all the alternatives could include a reduction in AUMs but this reduction is not accounted for in the socioeconomic analysis. Any reduction in AUMs will have a direct impact on livestock producers as well as county revenues.	2046
10374	10374-2	Since the Draft Plan acknowledges that “Climate change is likely to combine with other human-induced stress to further increase the vulnerability of ecosystems to “loss of native species”, affecting “breeding patterns, water and food supply, and habitat availability” (3-257), we suggest that it would be prudent to err on the side of caution by minimizing other human-caused stressors that are well understood. This conservative approach is especially important in large areas of intact, relatively undeveloped habitat, which provide the best sanctuary for wildlife, and in critical habitat areas such as breeding grounds, wintering grounds, and migration routes. The 2010 Wyoming Wildlife Action Plan recognized the necessity of incorporating planning for a changing climate into all wildlife and habitat management activities. That Plan explicitly acknowledged that the effects of a rapidly changing climate will profoundly affect Wyoming’s wildlife and the habitats on which it depends. We strongly urge the BLM to fully incorporate climate change planning into the final decision on this Resource Management Plan, and to adopt a conservative, precautionary approach to ensure that wildlife has the best chance of surviving in a changing climate.	2003
10377	10377-3	The draft RMP should be re-written utilizing the best, most complete available scientific data. It should shown 5 year historical trends in each of the resource areas and provide alternative goals for these resources.	2054
10378	10378-25	I could find no mention of the abandoned town and mines of Gebo north of Thermopolis in the Heritage and other sections of the plan.	2004
10378	10378-6	Heart Mountain is the only NHL in the Big Horn Basin. I found no acreage given to protect the view shed. But it has been established on BLM administered mineral estate, with BLM administered surface in view of the site. After being there August 25, I do not believe that the 5-Mile buffer zone should apply. As I understand it, the housing for the 12,000 Japanese was located to the north of the present designated site. The view of the fields north to Heart Mountain enhances the idea that those Japanese who farmed for the camp excelled at it. The many photographs on view in various forms are sufficient to show the vastness of the camp itself. If a buffer zone outside the present landmark is deemed necessary, could it not consist of tree plantings instead of acreage?	2004
10378	10378-26	Most helpful would be a pullout-to-be-copied INDEX. Specific areas of interest could then be studied without having to search for items such as Mountain Plover. Who of the general bird-watching public would have thought to look up Mountain Plover under Vol. 3 “Appendix G, Exception, Modification, and Waiver Criteria Table G-1?” All the information that Vol. 3, Appendix K - Biological Resources, Table K-2 Appendix K-14 gave me was Mountain plover and the scientific name. No reference to the listing in Appendix G.	2006
10378	10378-28	Another example of the need for a pullout Index: In Vol. 3, Appendix G, Table G-1, Oil and Gas Lease Stipulations Appendix G-5. Scenic and Recreational Resources the 28 entries are mostly non-specific. Areas within the Bighorn River ERMA [Extensive Recreation Management Area] and Bighorn River SRMA	2006

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		[Special Recreation Management Area.] In order to understand the initials I had to finger through Volume 1 for the first 17 pages before I found the guide to them.	
10378	10378-29	The summary should be laid out in the same order as the explanatory text. The “catalogs” are confusing in that the summary doesn’t necessarily follow the outline or language of the subjects in the main bodies of text. Eg. The summary, on pages ES-8 to ES-9 is devoted to Mineral Resources and is divided into locatable, leasable, and salable minerals. On pages 4-53, 54 and 55 of Vol. 2, some detailed information is given under “Leasable Minerals - Geothermal.”	2006
10378	10378-31	What is SRMA? “Special Recreation Management Area” Not listed in Vol 1 SRMAs on page 3-364 or 3-165. Oh, yes. Here it is – it’s in that 6160 South Bighorns RMZ (back to ACRONYMS “Recreation Management Zones.”)	2006
10378	10378-16	NATIONAL BACK COUNTRY BY WAY: Special Designations I do not like Alternatives B or D, because B, “considers additional designations on a case-by-case basis” while already proposing two other roads, the Hyatville Logging Road and the Hazelton (33-Mile) road. Alt. D proposes the same two roads. My concern is that there is no acreage given. Is there viewshed or buffer zone acreage attached to these roads? Also, will this lead to closing of other area roads and forcing people to only use these two roads? Since tourism is an essential part of the Big Horn Basin economy, will these roads lead to tourists stopping in towns along the way?	2034
10378	10378-17	NATIONAL HISTORIC TRAILS: Special Designations None of these alternatives gives an acreage amount.	2010
10378	10378-8	There are three additional unspecified Paleontological resources under “Special Designations “Question: I assume that the field work for Prehistoric, Historic and Other Trails has been done otherwise STIPULATIONS affecting them cannot be applied?	2010
10378	10378-27	And, should the alfalfa weevil really be lumped in with wildlife instead of there being a table for Insects?	2025
10378	10378-11	The first column in the LWC chart is labeled - Lands with Wilderness Characteristics Area Name. The first entries were numbers, which did not relate to anything I could find, nor could I find duplicate acreages for Cedar Ridge and Upper Owl Creek in other information on LWCs.	2027
10378	10378-24	These VRM Classes should have been defined in the Summary.	2032
10378	10378-18	Vegetation: The EIS states “long-term surface disturbance contributes to the decline in abundance, distribution, or health of vegetation communities. Conversely, short-term surface disturbance from vegetation treatments would improve vegetation communities.” What is considered short-term and long-term? What length of time has to be passed to determine whether surface disturbance is beneficial?	2033
10378	10378-19	Alt. C (no acreage given) has the most long-term surface disturbance and most activities that would adversely affect forests and woodlands.	2033
10378	10378-20	ALT. D, A, and B respectively allow the greatest use of silviculture treatments resulting in the greatest beneficial impacts to the harvest of forest products. Does the BLM have long-term scientific proof of this?	2033
10378	10378-30	Oil and Gas Stipulation. Middle Fork of the Powder River??? The Powder River is on the east side of the Big Horns in the Powder River Basin. But there it is, Middle Fork of the Powder Rive SRMA. Vol 3, Table G-1, Appendix p. G - 23.	2049

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		Bighorn Basin Resources Management Plan Revision Project. Stipulation Description is as follows: Apply a CSU stipulation on the Middle Fork of the Power River SRMA Exception: EC-011 Modification: MC-014 Waiver: NONE. There is no Middle Fork of the Powder River under “Middle Fork” or “Powder River” listed in any of the counties within the bounds of the Big Horn Basin plan,	
10378	10378-32	Yes, if I’m not on your mailing list please put me on it.	2060
10378	10378-1	In the RECREATION Appendix there are three pages of information related to the entire Big Horn Basin. There are NO Alternatives A and C in this Appendix.	2062
10379	10379-15	In order to comply with the secretarial order and the AGO initiative, the final RMP must incorporate management direction for responding to climate change impacts in the planning area. In particular, wildlife management direction must take into account the added detrimental effects that climate change is and will continue to have on wildlife, including special status species, in the planning area. The unique threats of climate change must be considered in developing monitoring and evaluation criteria so that information gathering in the future helps inform smart planning. Finally, better use can be made of the Rapid Ecoregional Assessment process and Landscape Conservation Cooperatives. These tools are alluded to in the DEIS but should be more effectively engaged to solved the difficult challenges faced.	2003
10379	10379-22	The NEPA process requires the consideration of climate change as part of the cumulative effects analysis. The cumulative impacts principles described above demonstrate that the effects of climate change on individual resources in the planning area must be considered cumulatively with the effects of the proposed RMP. A failure to look at climate change is a failure to take a “hard look” and impacts that will occur in the planning area. While there is no national direction for analyzing the impacts of climate change on BLM planning area, the Oregon BLM office has provided a useful resource to guide the development of this analysis. Instruction Memorandum OR-2010-112 provides direction and information regarding analysis of greenhouse gas emissions and consideration of changing climate conditions in NEPA documents. For example, the IM states that “[a] predicted change in climate conditions would be relevant to NEPA analysis if it would alter baseline conditions related to an issue identified for analysis or would alter the effectiveness of the proposed action.” Based on this guidance, the final DEIS must analyze the effect of proposed management on special status species and wildlife resources in the context of climate change impacts.	2003
10379	10379-21	The DEIS cumulative impacts analysis shares the same flaws discussed above with regard to wildlife and special status species. While the impacts are correctly identified, especially in terms of outside activities that will affect the planning area, the analysis does not go beyond placing the alternatives on a spectrum. Alternative B is identified as having the lowest level of impacts throughout the DEIS so it follows that it would contribute the least to cumulative impacts from other sources. The final DEIS should go deeper in its analysis, especially of impacts to wildlife, to analyze the capacity of the resources in the planning area to absorb the additional effects of the proposed alternatives on top of those cumulative effects already known to occur.	2005
10379	10379-16	The BLM put in place oil and gas leasing reforms through IM 2010-117. These reforms, among other things, established a “Master Leasing Plan” process with the intent to fully consider important natural resource values before making a decision on oil and gas leasing and development, especially in areas with heavy	2014

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		leasing. The oil and gas management approach in the preferred alternative, which would establish oil and gas management areas to be managed primarily for exploration and development, is inconsistent with this BLM policy. Instead of focusing on providing sufficient analysis and mitigation for biological resources in areas with heavy oil and gas development, the preferred alternative would completely ignore biological resources in these newly established management areas. This opposite approach would go from full analysis and consideration of wildlife, as required by BLM reforms, to none. The final RMP should not establish oil and gas management areas because of their inconsistency with BLM policy direction on oil and gas leasing and development.	
10379	10379-2	The preferred alternative adopts a case-by-case approach to wildlife management that runs counter to BLM wildlife policy. There are a number of plan components in which Alternative B lays out a specific benchmark or standard, but Alternative D takes a step back from that standard to a case-by-case or as opportunities arise management model. For example, in record #4073, Alternative B requires that habitat enhancement for big game be completed on at least 200 acres of land in the planning area each year. The preferred alternative shirks this specific guideline for management for enhancement as opportunities and funding allow. DEIS at 2-76. While either option could lead to more habitat enhancement, the preferred alternative leaves the door open for no habitat treatments to occur at all, notwithstanding the fact that 200 acres may not even be sufficient to provide benefits for big game.	2020
10379	10379-3	In record #4082, Alternative B requires the plan to Apply wildlife seasonal protections for surface- disturbing and disruptive activities to maintenance and operation of developed projects when the actions are determined to be detrimental to wildlife. (Appendix H lists detrimental actions). DEIS at 2-78. This references Wyoming state BLM guidelines for wildlife management, which provide some specific mitigation guidelines for a few species. The approach in the preferred alternative, however, gets rid of the clear-cut guidance for wildlife management and provides only for protections to be applied on a case-by-case basis. While arguably the standards in the state BLM guidelines should be enhanced to meet the needs in the planning area, the preferred alternative abandons guidelines altogether, leaving us with no idea what standards might be imposed to protect wildlife for any given surface disturbing activity. At a minimum, the final RMP must meet obligations under 6500 by implementing clear management actions to support wildlife case-by-case management is not sufficient. Management actions should be measurable so that their achievement can be monitored and sideboards should provide directions for how on the ground application of objectives should work. Defenders recommend that Alternative B management direction be enhanced and adopted or that Alternative D management direction be modified to adopt actual standards, instead of leaving wildlife management to chance.	2020
10379	10379-10	Wildlife and Fish Monitoring protocols in the appendix are not sufficient, even if they are fully implemented as designed. While indicators are set for each resource, and action triggers are identified for each indicator, it is unclear what action is required once a trigger has been reached. For example, Greater Sage-grouse is an indicator for Wildlife, and action is triggered if annual lek site visits indicate a declining trend in the number of males and females. DEIS at C-8. Presumably, this monitoring would occur considering the importance of the	2025

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		species, but what is unclear is what response is required, and on what timeline with what resources, in the event that a declining trend is identified. Without these parameters for action, the plan cannot guarantee successful responses to negative monitoring data.	
10379	10379-11	Another key problem with the monitoring and evaluation protocol is the lack of a clear pathway for public involvement. While information is available to the public, it is unclear whether the public will have an opportunity to influence the responses being made to monitoring and evaluation, except for during NEPA processes where involvement is mandated. The implementation plan provides for working groups for monitoring and other areas of the plan, but it is unclear how the public would be involved in these groups moving forward. DEIS at D-1.	2025
10379	10379-13	This DEIS lays out at the outset that one of the main purposes of this RMP is retaining flexibility to adapt to new and emerging issues and opportunities and to provide for adjustments to decisions over time based on new information and monitoring. DEIS at ES-2. Defenders supports the careful use of adaptive management as a tool to reach wildlife management objectives, especially in cases where monitoring indicates that objectives are not being met. However, without clear objectives, reliable monitoring information and analysis, and direction for appropriate ways to respond in an adaptive management context, this approach is at best ineffective, and at worst reckless. The final RMP must resolve issues with wildlife and special status species objectives, remedy deficiencies in the monitoring program, and provide clear direction for land use managers on how to respond in an adaptive capacity.	2025
10379	10379-9	First, the DEIS makes clear that the “BLM will rely upon cooperating agencies for the funding, facilities, and labor to assist in or perform this data analysis.” DEIS at C-1. This fails to guarantee that monitoring and evaluation to ensure that goals are being met will even occur, let alone that it will be effective. If state agencies doing monitoring have different priorities than the BLM, indicators on the list found in Appendix C may not be monitored effectively, or even at all.	2025
10379	10379-5	What is missing, again, is any discussion of whether either Alternative B or D present methods capable of protecting raptors in the planning area from future development. The DEIS points out helpfully that Alternative B is the most protective option for raptors and that Alternative D is less protective, but in justifying the selection of D the DEIS does not demonstrate what the long term impacts of either the larger or smaller buffer areas. DEIS at 4-222. Without that information it is unclear what the impact of the preferred alternative will be on raptors and there is no way to compare alternatives based on BLMs special status criteria to ensure protection of raptors under the new RMP.	2036
10379	10379-6	It is unclear what the exception to the prohibition provided for in the preferred alternative means because the DEIS does not define how the human health and safety exception would be applied. DEIS at 2-89. In addition, it is unclear whether the exception is even necessary, considering that more effective options than poisoning prairie dogs are available for dealing with plague.	2042
10379	10379-7	We also have concerns that there is insufficient active management to protect prairie dogs in the planning area. As the DEIS states, Black-footed ferrets are associated with and depend on prairie dog colonies in the Planning Area. DEIS at 4-231. Prairie dogs are especially important in the Bighorn Basin planning area, where the black-footed ferret was rediscovered in 1981. The RMP would allow for new areas to be protected for prairie dogs in the future if they are	2042

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		identified by the Fish and Wildlife Service or by the Wyoming Game and Fish Department as having potential for ferret reintroduction. DEIS at 2-88. We recommend that, instead of waiting for other agencies, areas be identified in this RMP and that, in addition to no surface occupancy protections, these areas have management direction in place to protect prairie dogs from shooting, disease, and other threats, and to restore prairie dogs through translocation and habitat enhancement.	
10379	10379-19	The fundamental problem with the analysis of oil and gas development in the DEIS is that, while the impacts of each alternative on the amount of oil and gas production is included, the impacts of various levels of oil and gas production on other resources, including wildlife, are not examined. This analysis could occur as part of the discussion of oil and gas development or as part of the discussion of biological resources. The final RMP must go beyond listing the amount of acres available for oil and gas development under each alternative to analyzing the effects of these different levels of development on biological resources in the planning area. This is especially important considering the clear indication that oil and gas development is likely to have the largest impact on these sensitive resources.	2054
10379	10379-1	The DEIS states that Alternative B, described as having an emphasis on conservation, is “less focused on supporting resource uses than the other alternatives.” DEIS at 2-29. However, a number of emerging issues that this new RMP is required to respond to indicate increasing demands on BLM lands, like “increasing conflicts between resource uses and protection of specific wildlife and wildlife habitat” and “cumulative increase in surface disturbance.” DEIS at 1-5. These emerging issues call for a conservation based approach that can support multiple uses by providing for resource extraction while also conserving biological resources. Some components for this type of approach were developed as part of Alternative B, but are then abandoned in the preferred alternative. Other components necessary for conserving biological resources are missing. The lack of clear management standards in the preferred alternative provides no guarantee that wildlife and other biological resources will receive necessary protection in the face of intensive resource development. A more balanced approach must be found.	2055
10379	10379-17	While placing the alternatives on a spectrum is certainly an important step in providing decision makers with the information they need to make a choice, it is not enough to be considered a “hard look.” The final EIS should provide an analysis of the outcomes of each alternative’s wildlife management approach. For example, does current science indicate that a no surface occupancy restriction in big game crucial winter range and parturition habitat is necessary to avoid declines in big game numbers? Answering this and similar questions would allow decision makers to determine whether the preferred alternative is sufficient in its wildlife management, or if additional protections need to be in the final RMP. Without such an analysis they are left to guess.	2055
10379	10379-20	Defenders would also like to point out that an alternative offering another approach to oil and gas development was left out of the analysis. The DEIS indicates that a phased oil and gas development approach was looked at, but ultimately was not considered. DEIS at 2-7. A phased approach could offer an additional option for decision makers to meet obligations for protecting biological resources and allowing for oil and gas development as a multiple use. Defenders urge BLM to reconsider analyzing a phased oil and gas development	2055

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		alternative.	
10379	10379-4	However, the DEIS and draft RMP fail to demonstrate that this approach is biologically consistent with BLM objectives under 6840. Without this analysis, it is impossible to establish this GSG management approach with any confidence that listing can be avoided. We recommend that additional analysis be completed, and in the meantime, we recommend erring on the side of caution and selecting the most protective measures feasible for the Greater Sage-grouse.	2071
10381	10381-1	The section on air quality is very disturbing. How can the BLM analyze emissions with no baseline? Using data from other areas doesn't allow for accurate accounts, either.	2009
10381	10381-2	The socioeconomic section was also poorly analyzed. The IMPLAN model used is a regional model and a more local model would more accurately address the issue. The BLM doesn't mention how oil and gas is the lifeblood of the communities, and provides many programs and services like water, sewer, roads, hospitals and schools.	2046
10382	10382-2	Big Game Crucial Winter Range acreage identified by BLM for all alternatives (Map 35 - Biological Resources, Fish and Wildlife Resources, All Alternatives) is much greater than Big Game Crucial Habitat Areas identified by the Wyoming Game and Fish Department.	2022
10382	10382-1	Enhanced oil recovery (EOR) research that my company is pursuing that may allow us to develop additional oil and gas fields and extend the life of current fields. As well, directional and horizontal drilling may cause additional resources to become profitable to develop. Both of these reasonably foreseeable technologies are not considered in the Reasonably Foreseeable Development section of the RMP.	2051
10382	10382-3	Emissions from oil and gas activity are incomplete and are inconsistent with nonoil and gas activity emissions. Tables labeled "Total Annual Emissions from Oil Wells" failed to include any actual emissions from oil wells. Tables labeled "Summary of ROW and Corridors Emissions" were much lower for the same activities as were listed in the tables labeled "Total Annual Emissions from Oil Wells." Tourism related vehicle emissions and air quality effects were not considered in the RMP.	2009_1
10383	10383-11	Relevance and importance criteria used in the analysis of Areas of Critical Environmental Concern (ACEC) is generic and does not include data sets to confirm or deny the four noted importance criteria and the five relevance criteria.	2001
10383	10383-10	There is an indiscriminate selection of air quality monitoring sites to properly evaluate alternative impacts. Thunder Basin Special Purpose Monitoring (SPM) and Interagency Monitoring of Protected Visual Environments (IMPROVE) sites are included in the analysis, but Boulder and Bridger Wilderness IMPROVE air monitoring sites are not used for analysis purposes although they are closer to the Planning Area (100 miles vs. 70 and 58 miles, respectively).	2009
10383	10383-17	Prior to any proposed modification of AMP or elimination of livestock grazing allotments in the Planning Area as a protective measure for greater sage-grouse and/or other wildlife species, the BLM must follow the grazing regulations set forth in Section 4100 of the BLM's public land grazing regulations. Changes must and can be made through using solid data, professional range and wildlife expertise of the BLM, range consultants when needed/contracted by the	2011

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		permittee and the permittee’s own knowledge and historical insights.	
10383	10383-14	Avoiding weed invasions generally requires a number of aggressive actions to be successful. Those actions include: Rapid re-establishment of desired vegetation; Timely weed surveys; Aggressive weed control where needed; Periodic monitoring; Prompt re-treatment where warranted. Nowhere does this draft EIS embrace the above common sense, adaptive management scenarios. Why?	2012
10383	10383-4	Recognition of elk parturition areas are not contained in current elk scientific literature. If there is such new scientific information the BLM should share that with the public. There are 205,872 acres of BLM-recognized elk parturition habitat in this draft EIS which would prohibit or restrict grazing, oil and gas development, and motorized access. The Guardians do not support this intended management approach, nor do we recognize it as scientifically valid.	2025
10383	10383-5	What the RMP/EIS does not bring to the discussion is how the overpopulation of elk has negatively affected BLM permittees. As affected parties, the LGCA and the Guardians asks that the RMP/EIS qualify and quantify how the increase in elk has: Complicated grazing for BLM permittees; Compromised the economic viability of permittees; Disrupted attaining utilization standards.	2025
10383	10383-19	The draft in no way addresses or even looks at the range conditions and impacts associated with over populations, year round grazing and no management rotation strategies of wild horses as they relate to rangeland health.	2030
10383	10383-6	The agricultural community has become greatly dependent on the surface discharge from oil and gas development. It has become a vital water source for livestock and provides perennial fresh-water sources. Additionally, the water creates hundreds of miles of riparian zones and thousands of acres of wetlands. The draft never mentions this. A document such as this should speak to such realities if it is to be a credible and balanced document. There is an inherent obligation to inform the public of such collateral beneficial details as such information is not generally known or appreciated but certainly important in helping the public to see how things are connected.	2031
10383	10383-13	Vegetation inventories are deficient, particularly invasive species inventories. A return to “historical vegetation” is unnecessary on a total landscape scale. This term ignores the appropriateness of blending that concept with having the vegetation move in a forward rangeland health direction.	2033
10383	10383-2	ECONOMIC STRATEGIES WORKSHOP - NOT CONDUCTED BUT REQUIRED There is no record of the BLM having conducted a credible Economic Strategies Workshop which would have allowed the public to “identify desired economic and social conditions” and to “collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions.”	2046
10383	10383-9	The BLM doesn’t clearly represent the results of oil and gas development and mining in the Basin. The BLM needs to look at more locally available data in regards to our economic viability (for instance the research done by Bighorn Basin Resource Alliance). This data clearly shows how important oil and gas is to our communities and in 2,000 pages the BLM doesn’t clearly articulate how important it is. For instance, all four of the counties in the Bighorn Basin received 54 percent of their property taxes directly from oil and gas development. By including this information, it will inform citizens of the current economics. The regional IMPLAN model allows for much flawed data. A more	2046

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		local model would represent the data more accurately	
10383	10383-12	Measurement indicators are missing for all resources, making it infeasible to conduct an effects analysis.	2054
10383	10383-7	Livestock grazing should not be considered a surface disturbing activity. Any final RMP should be absolutely clear that livestock grazing is not to be viewed, perceived or “managed” as a surface disturbance with accompanying restrictions. To do so would be patently deceitful, and unjustified. Definitions deserve lasting transparency so they cannot be later “redefined” by anti-grazing interests.	2054
10383	10383-16	It is not possible to recreate maps and information based on information provided in the RMP/EIS. Therefore, the BLM must better describe and disclose methodologies and correct GIS data issues.	2057
10383	10383-8	No proper science exists that would support changes which would increase the acreage of “administratively unavailable” for oil and gas leasing from 150,000 to almost 300,000. Additionally the amount of moderate restrictions rose dramatically from 1.7 million acres to 3.5 million acres. Why? Where is the substantiation for this change which increases restrictions? The potential impacts to livestock grazing with these increases in unavailable acreages and increases in moderate restrictions are not addressed, yet the potential exists.	2071
10383	10383-3	There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. No credible “management document” should be absent of substantiated reasons for changes (up or down) in AUM allocations.	2074
10384	10384-1	EOC in the Big Horn Basin has not been given adequate consideration in the draft RMP. Oil industry representatives are clear that tremendous EOC potential exists in the aging oil fields within the region, yet the BLM has repeated stated “Low to moderate potential”. There is also huge potential in Mowry Shale development. At the present time, the records room in the Big Horn County courthouse is over-run with oil industry representatives who are researching oil and gas lease information. I strongly urge the BLM to take a hard look at these two areas, using current scientific information, and update the final RMP accordingly. Definition of Reasonable Foreseeable Development needs to accurately define today’s developments. Mineral potential in the Bighorn Basin is significantly underestimated in the RFD scenarios. Of special concern to us in Big Horn County is the mining of bentonite, which is a vital part of our local economy.	2051
10384	10384-2	Related to the above, Rights of Way corridors need to be better protected in the final RMP, as EOC will require pipelines for carbon dioxide injection and oil transportation away from the Big Horn Basin. Carbon sequestration is a secondary industry with great possibilities that could be realized, but that, too, is contingent on the availability of pipelines to carry the material. The preferred alternative (D) of the draft RMP greatly increases the acreage designated as Right-of-Way (ROW) corridor avoidance/mitigation and exclusion areas. This increase will make the construction of the aforementioned EOR pipelines difficult into many existing oilfields in the Bighorn Basin. Where Right of Way Corridors conflict with Right of Way Avoidance/Mitigation Zones, it should be clearly documented in the final RMP that the ROW corridors will take precedence over the ROW exclusion areas.	2066
10385	10385-2	2. Page 3-42 in Management Challenges Approximately 30,000 acres of land has	2015

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		been disturbed in the Bighorn Basin due to bentonite mining, along with approximately 4,000 acres of road and haul-road disturbance (BLM 2008c).The approximate of 4000 acres of road disturbance from bentonite activities cannot be accurate. Assuming 30 linear feet of width per road, this equates to 1100 miles of roads from bentonite activity. Unless the other bentonite mines have substantially more roads than my mine, the 4000 acres of road disturbance stated in the RMP should be reviewed for accuracy.	
10385	10385-5	5. Page 3-169 in Lands with Wilderness Characteristics The BLM performed an inventory of lands in the Planning Area to determine if any BLM-administered lands had wilderness characteristics. Wilderness characteristics are resource values that include naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation. Areas evaluated for wilderness characteristics generally occur in undeveloped locations of sufficient size (usually at least 5,000 acres) to be practical to manage for these characteristics. Smaller areas are considered if they are contiguous with designated Wilderness or WSAs or are of a manageable size. Map 63 Land Resources - In the Township T55N R93W there is a Wilderness designated area to the east of our patented mining claims which is actively being mined day and night. Based on the Wilderness characteristics listed above in the RMP, this area should not be classified as a WSA because the area is certainly not in solitude with the dozers, scrapers and blasting operating daily nor is it an unconfined recreation area either for the same reason.	2027
10385	10385-1	1. Page 3-41 in Locatable Minerals In the plan it states: The six mines in the Bighorn Basin employ 132 persons, and another 360 persons are employed at the milling -processing facilities at six different mills (one in the Worland area, two near Greybull, and three near Lovell, Wyoming).The number of employed people in the bighorn basin from the bentonite industry is a lot more than the number stated in the plan. My mine alone has four full-time contractors (stripping overburden, hauling bentonite, drilling/blasting and conducting environmental activities) totaling over 60 employees. The number stated in the RMP is the number of employees who work "in-house" for the bentonite companies, i.e. not contractors. Please modify in the RMP the number of people employed from the bentonite industry in the Bighorn basin. My guess is the number of workers in the bentonite industry is 10X more than what the RMP states.	2049
10385	10385-4	4. Map 54 Land Resources Rights-of-Way and Corridors Alternative D Why is the area east of the Big Horn River and SE of Lovell mostly classified as Right-of-Way Avoidance/Mitigation Area? This area is a major active bentonite mining region in the Bighorn basin. Won't this designation hurt the bentonite industry when we need to obtain a ROW to access new mining areas in the future?	2066
10386	10386-4	We believe that the Lands with Wilderness Characteristics (LWC) analysis which was conducted by the BLM is flawed. It was based on erroneous data. The Chamber believes this flawed effort was clearly substantiated when private citizens, county commissioners and conservation district supervisors documented the lack of wilderness characteristics in numerous situations. A clearly disturbing reality is that using the BLM's own criteria for what would qualify as lands with wilderness characteristics was not met time and again, yet the parcels went forward as qualifying as LWC, which we believe is misleading. We are extremely concerned that the designation of these flawed LWCs could potentially erase billions of dollars in total potential output.	2027

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		Consequently, many socio-economic aspects stand to be impacted.	
10386	10386-1	Socio-economics: There is a disconnect between the concerns of the communities of the Planning Area and the BLM's socio-economic analysis. It does not appear that the BLM has complied with the requirement for the public to "identify desired economic and social conditions" and to "collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions." This is a significant weakness in this draft EIS. The potential socio-economic impacts of each proposed alternative in this Resource Management Plan/DEIS deserve full development, consideration and justifications. Real numbers, current numbers and solid data sets are absolutely necessary to comply not only with the requirements of the National Environmental Policy Act, but to respect the legitimate expectations of all the communities involved. The agency needs to strengthen all of the socio-economics in this DEIS if it is to fulfill its public trust.	2046
10386	10386-2	The draft EIS does not set forth data relative to the historic and current conditions for the Planning Area (PA). This makes a proper analysis of the various alternatives impossible. There should be a clear and verifiable discussion of the starting point for this landscape scale document (PA). This PA has been under management scenarios for decades, and these management scenarios are based in public documents which were developed under the National Environmental Policy Act. How these management scenarios have affected the Planning Area is missing from this draft EIS in any substantive way.	2054
10386	10386-5	One of the most worrisome general themes in this draft EIS is the continual statements of perception that are used to recommend management changes or to characterize a multiple use. Such statements and/or missing data sets can be found relative to reduction in livestock grazing, wildlife habitats, analysis of Areas of Critical Environmental Concern (ACEC), enhanced oil recovery, mineral potential to name only some. It appears more than likely that in the planning process for this RMP/EIS the BLM has violated or not conformed to the Data Quality Act of 2000.	2055
10386	10386-3	Rights-of-way (ROW) which would require avoidance/mitigation areas seem beyond reasonable. They range in magnitude from 941,778 acres - 2,717,617 acres depending on the alternative. However, there are no justifications as to why these acreages are necessary, or if they would be effective in protecting resources. This seems economically irresponsible, as NEPA requires the socio-economic impacts be fully considered and set forth. This document lacks that information.	2066
10387	10387-11	We did not see any documentation to support that irreparable damage was taken into consideration on the designation of current ACECs or on the newly proposed ACECs.	2001
10387	10387-7	Trapper-Medicine Lodge ACEC area, we would like to express our concern over the listing of this area. We realize the importance of the water recharge area to the local municipalities in the area and believe that all municipal and irrigation waters are important. We would like to see supporting documentation to justify the special geologic qualities of the above area. Much of the State of Wyoming is a recharge area for many aquifers, and we do not understand what criteria have been used to classify this particular one as an ACEC. The Madison Limestone appears to us to receive recharge over a much greater section than just the ACEC plotted area. Why does the erosional environment make this area so special?	2001

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Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
10387	10387-1	In Appendix W, in the fifth paragraph on page W-1, narrative states that watershed and vegetation management objectives would not be met if utilization levels consistently exceed the levels in Table W-1. Please include in the Final RMP peer reviewed, science based support for this statement.	2011
10387	10387-2	We have noticed that Appendix P contains only the “active use” column, and would like to request that a “permitted use” column be added in order to show what is formally allocated and recognized by the BLM.	2011
10387	10387-5	Permittees also need to be included in the list of those with whom the BLM intends to cooperate in the collection, analyzing, and reporting of monitoring data. Looking at Appendix C under DATA COLLECTION, we find that permittees are not included. On page 3-176 it states that “When rangelands are not meeting resource objectives, the BLM implements changes in grazing management.” The lessee has no control over the other resource uses and shouldn’t be penalized for the poor management of other resource uses. Prior to any changes in grazing management because rangeland objectives are not being met the BLM must provide multiple year monitoring data (3 to 5 years) to document that grazing is the cause.	2011
10387	10387-8	prior to any reduction in AUMs or adjustments in utilization levels due to wildlife use, the BLM will provide monitoring data to support the reductions and provide reasonable alternative areas to graze to replace the AUMs lost due to wildlife excess use. The BLM needs to provide the policy, law, or regulation that allows preferential use of wildlife over livestock.	2011
10387	10387-14	Big Game Crucial Winter Range: The Draft Plan covers nearly twice the area identified by the Wyoming Game and Fish Department as Big Game Crucial Habitat which seems unnecessary to us. The state agency designations should be supported as it is difficult in the BLM document to determine what the BLM intends with their designations.	2022
10387	10387-15	Elk Parturition Areas: Hamilton Ranch does not support the removal of cattle or sheep due to elk disturbance concerns unless it, too, can be scientifically supported. There is no scientific evidence in the plan suggesting that stock grazing creates problems for birthing elk.	2025
10387	10387-6	Big Horn Sheep: The RMP states (pg. 3-97): Bighorn sheep populations in the Planning Area have increased due to the establishment of native core areas in occupied bighorn sheep habitat and because of habitat augmentation and improvement through burning and livestock permit changes. What is this statement suggesting? Does it suggest that the elimination of domestic sheep and goats allotments in Big Horn Sheep habitat has increased population numbers? We are not aware of any sheep allotments in the Big Horn Sheep designated habitat. BLM needs to furnish data on historic grazing allotment and Big Horn Sheep population data to see if there are correlations and if increases have taken place. Also, what does habitat augmentation entail? We'd like to see a definition of this term in the RMP.	2025
10387	10387-10	Much of the mapping presented by the BLM does not include many of the roads, range improvements, pipelines, water wells, and oil fields that are currently on the land. The BLM needs to do a new inventory of the 56 proposed areas that potentially could be managed as LWCS. These designations are just one more way to regulate the grazing and other industries that have occurred in the area for over a century. Nowhere is it stated in the Draft RMP that the area is already surrounded by 9.13 million acres of U.S. Forest Service, Wilderness	2027

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		Areas and National Parks. We question why there is a need for more areas that are restricted or closed. Many of the areas proposed do not represent what we would consider to be lands with wilderness characteristics because most of them certainly show some habitation and use by man. In the BLM Manual 6301 it is stated that naturalness refers to looking natural to the average visitor who is not familiar with the compositions of a natural ecosystem. An average visitor from a metropolitan area may not recognize weed infestations and other man induced influences. To most anyone living in the city, much of the Big Horn Basin BLM lands will look like wilderness. How can the agriculture possibly survive, if untrained individuals are influencing the determination of lands with wilderness characteristics? Also, many of the LWCs do not meet the requirement that they contain 5000+ acres or if not meeting that requirement they are not contiguous to wilderness or existing WSAs.	
10387	10387-12	We do not think the BLM has taken into consideration the Reasonably Foreseeable Development (RFD) that could potentially occur in the Big Horn Basin. Horizontal and directional drilling is happening in other areas and should be considered in this next 20 year plan.	2051
10387	10387-4	Please change the definition of surface-disturbing activity as stated in Appendix 2 (Footnote 1, Table W-1). Livestock and wildlife are listed as a surface disturbing activity, and it appears that this RMP is the only one in Wyoming that views it as such. Surface-disturbing activities should only include uses that remove non-renewable resources such as top soil, sand, gravel, etc. We feel that the surface disturbing activity applies more to construction of well pads, roads, reservoirs, pipelines, power lines, parking lots, etc	2054
10387	10387-9	Please clarify “stakeholder” and “interested publics.” The term “stakeholder” needs to taken out of the grazing section and abolished. The Code of Federal Regulations (CFR) 4100.0-5 has a specific definition for “interested publics” and is a term used in the grazing portion of the code, and we feel it is important that the BLM definition is consistent with the existing regulations. A “stakeholder” can be any citizen of the United States. The above regulation states that the U.S. citizen actively request involvement before being consulted on grazing management and Allotment Management Plans. Please include the above CFR definition in the RMP.	2054
10387	10387-13	BLM management needs to be consistent with the core areas identified by the State of Wyoming. Also, the Executive Order from the Wyoming Governor specifically conveyed that normal livestock and rangeland management practices be considered “de minimus” by that Order.	2069
10388	10388-6	Page ES-7, last P: As previously discussed, livestock grazing has to be listed as a surface disturbing activity on our Public Lands.	2011
10388	10388-7	Page ES-10, P 5: As previously discussed, livestock grazing causes 98+ percent of the wetland/riparian habitat impacts and must be thoroughly addressed here.	2011
10388	10388-5	Page ES-5, last P: Shouldn't all the existing HMPs be listed here?	2025
10388	10388-2	Based on the total lack of information on Stock Pond Wetlands in the entire three volumes of this RMP/EIS document, it appears that BLM has purposely chosen to ignore them in an attempt to once again freely mismanage these Range Improvement Projects as Public Land GRAZING SACRIFICE AREAS. Previous BLM Grazing EISs and MFP/RMPs of the 1980s specifically addressed Stock Pond Wetlands, as required by EO 11990, which led to the subsequent preparation of BLM Reservoir Habitat Management Plans to guide the steady	2033

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		improvement of the wetland values at these abundant water collection sites by the Range and Wildlife manager public servants. Also, Stock Pond Wetlands meet every published definition of the term “wetland,” including the one in the EO and those in this EIS/RMP document. Obviously (although BLM currently refuses to recognize the fact), the purpose of the EO was to protect/improve all wetland values on Public Land. It makes no difference to wildlife if a palustrine Stock Pond Wetland furnishes them their habitat needs as a result of water collected behind a man-made dam or if habitat needs are furnished in a wetland created by a beaver dam or as an indirect result of man’s activities associated with irrigation. It appears that most of the current BLM public servants in the Bighorn Basin, versus those of the 1980s, are trying to justify their failure and lack of ingenuity and dedication to protect/improve ALL wetlands on Public Lands. On page 4-133, it states that, ALL (emphasis added) riparian/wetland areas are evaluated per the Wyoming Standards for Healthy Rangelands (Appendix N) and managed toward proper functioning condition (PFC). Thus, the condition/trend of Stock Pond Wetlands must also be presented in this RMP/EIS.	
10388	10388-8	Page 1-6, last bullet: Must mention EOs 11990 and 11988 (Protection of Floodplains) as existing Statutes.	2033
10388	10388-4	Page ES-3, 5th bullet: Must list EO.	2054
10389	10389-10	In addition to lacking an adequate range of geographic alternatives for the MLPs, Appendix Y also lacks an adequate range of management alternatives. This is because beyond identifying the proposed special designations for each of the MLPs and referring the public to an “oil and gas constraints” map, BLM did not provide a detailed analysis of the management prescriptions for those designations in Appendix Y.	2014
10389	10389-11	As a critical first step in the development of MLPs, BLM must identify and fully evaluate the impacts of oil and gas leasing and development on “important resources and values” within the MLP planning areas. Those resources and values include lands with wilderness characteristics, wildlife habitat and others specifically identified in section II.A of IM 2010-117, as well as any other important resource or value that may be present within the MLP planning areas. This approach is also required under NEPA, as discussed above. However, Appendix Y, merely lists a number of “resources of concern” that exist within each MLP planning area, without further description or evaluation of potential impacts.	2014
10389	10389-12	As discussed in Section X.A, the only measures identified in Appendix Y to resolve potential resource conflicts in MLP planning areas are special designations and the customary range of “oil and gas constraints.” However, IM 2010-117 also requires BLM to “consider a range of new constraints” and “other planning decisions” like phased leasing, capping surface disturbance and requiring compliance with best management practices. Id. at II.B. Some of these measures are already analyzed under one or more of the Draft RMP’s proposed alternatives, while others are not evaluated in any of the alternatives.	2014
10389	10389-13	Furthermore, prioritizing leasing “in areas where development is most likely to occur based on historical development, adjacent development, or geologic information” was a principle recommendation of the team of resource specialists who prepared the “Stiles Report”(Footnote 3: Available at: http://www.doi.gov/documents/BLM_Utah77LeaseParcelReport.pdf) and was carried forward into IM 2010-117 as a measure that BLM should evaluate when	2014

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		preparing MLPs. IM 2010-117 at II.B. Thus, BLM must consider phased leasing - i.e., prioritizing leasing in areas with high development potential, such as the Oil and Gas Management Areas, and minimal resource conflicts - as a means of resolving potential resource conflicts in the MLP planning areas.	
10389	10389-14	BLM should identify areas with conflicts between existing leases and the protection important resources, in particular lands with wilderness characteristics and critical wildlife habitat, and should then evaluate allowing those leases to expire and closing them to future leasing in the MLPs. BLM made such a commitment in the Jack Morrow Hills Coordinated Activity Plan for an area that, like the MLP planning areas, contains critical wildlife habitat and other “sensitive” resources	2014
10389	10389-8	While BLM addressed the MLPs in the Draft RMP, it did so superficially. Instead of developing and presenting to the public a full range of alternatives for the MLPs, BLM simply summarized in a brief appendix how it addressed the management of the MLPs throughout the Draft RMP and then described how such a “holistic” approach addressing “land use allocations for all resources” was preferable to actually preparing MLPs. Draft RMP at App. Y-1.	2014
10389	10389-9	In order to consider an adequate range of alternatives for the MLPs, BLM must evaluate a wider range of geographic areas, including the areas nominated by the public and, for Absaroka-Beartooth Front, the “core” area separate and in addition to the nominated area.	2014
10389	10389-1	The definition and application of “wilderness characteristics” in the RMP and related documents must be corrected. The Glossary in the Draft RMP includes a definition of “Wilderness Characteristics” that refers to a 2003 IM, which should be replaced with the current IM 2011-154, Attachment 1, which defines wilderness characteristics.	2027
10389	10389-4	The Draft RMP also overstates the potential impacts on oil and gas production from managing lands to protect their wilderness characteristics. The Draft RMP acknowledges that BLM expects oil and gas development to be focused in established fields (see, i.e., Draft RMP, p. 3-155). Most of the lands with wilderness characteristics are outside these fields, which is not discussed in the Draft RMP and, therefore, not fully taken into account in weighing the impacts of protecting lands with wilderness characteristics on oil and gas development.	2027
10389	10389-5	Given the substantial acreage identified with wilderness characteristics, only evaluating protection of all the acres or less than 10% of those acres does not represent an actual consideration of alternatives and makes the Preferred Alternative appear to be “a foreordained formality” in contravention of NEPA, as well as FLPMA and the agency’s current guidance on considering management of lands to protect their wilderness characteristics. The range of alternatives for the Bighorn Basin RMP must include a true range of alternatives to protect lands with wilderness characteristics; the BLM must expand the analysis in the Draft RMP.	2027
10389	10389-6	IM 2011-154 sets out considerations in deciding whether to manage lands to protect their wilderness characteristics, including analysis of “manageability” and other resources values and uses. Attachment 2, p. 2. The Draft RMP purports to have engaged in these considerations, as well, in compliance with previous guidance. Draft RMP, p. 3-174. However, while the Draft RMP does not provide a detailed discussion of this process, the information provided indicates the evaluation needs to be corrected. Table 3-46 sets out the “other resource values and uses” and also appears to identify manageability factors. Draft RMP,	2027

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		pp. 3-169 - 3-173. However, the table includes “proximity to wildland urban interface” as a resource value/manageability issue. As noted above, outside human impacts are generally not to be considered in evaluating “naturalness”	
10389	10389-7	The mere proximity of the wildland urban interface is not an appropriate measure. In addition, IM 2011-154 requires that BLM analyze not only whether other resources and values are present in lands with wilderness characteristics, but also whether those resources are available on other public and private lands outside those areas “thus ensuring that the BLM considers the relative importance of the resources and values located within the lands with wilderness characteristics. Attachment 2, p. 2. However, Table 3-46 does not include this analysis at all.	2027
10400	10400-5	Different divisions within the Wyoming Department of Environmental Quality (WDEQ) have different regulations for the resources they are charged with protecting. The citation should be for the Water Quality Rules and Regulations to avoid confusion for the reader. Additionally, for the same reason the applicable WDEQ division should be referred to specifically throughout this document. Class I waters are those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed, nonpoint sources of pollution shall be controlled through implementation of appropriate best management practices, and the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. Water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people are all considered by the Environmental Quality Council in designating these waters. However, a water does not need to possess all of these values to be designated as Class 1, and such designation does not necessarily create requirements to protect values which are not related to water quality.	2031
10400	10400-6	Although produced water has the potential to cause these negative impacts, the WYPDES program regulates discharges to protect water quality and support designated uses, and to protect against these negative impacts. This paragraph needs to elaborate on the WYPDES program's role in increasing beneficial impacts and reducing negative impacts, as well as discussing how the BLM should communicate with the WQD if such issues associated with permitted discharges are identified. WEPP Model starting at pages 4-14 and 4-29; and Appendix V The WEPP model discussion is very brief and provides little information, other than the results, to the reader. The model appears to grossly underestimate runoff and erosion, and it appears to need to be calibrated to the Bighorn Basin. Assuming that undisturbed areas have essentially no runoff implies there was no streamflow, other than from springs and snowmelt from the mountains, prior to the basin being settled, and that all runoff seen today is only from disturbed areas. The low amount of runoff associated with disturbed areas is also very low, since it appears to predict that over 95% of the precipitation that falls on disturbed areas does not run off. The model should be run in various watersheds in the basin in comparison to water quantity and sediment load data to see how it correlates with surface disturbed areas, etc. If the WEPP model has been calibrated to actual Bighorn Basin data, Appendix V needs to discuss this in much more detail. Based on these issues it is difficult to	2031

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		support the model as more than a qualitative tool; however, ranking of the relative amounts of erosion and sediment loading associated with the different alternatives appears correct.	
10400	10400-1	The WOGCC has regulations that require reporting of the anticipated completion and stimulation (hydraulic fracturing) program (WOGCC Rules and Regulations, Chapter 3). Language should be included in the document to reflect this regulation.	2049
10400	10400-2	discusses conforming with WQO regulations and meeting Wyoming water quality standards, yet this record implies the BLM will only use BMPs to meet those requirements. The WQO has a number of permitting and other requirements that the BLM, its permittees and/or authorized actions must meet that rely on more than BMPs. For example, Wyoming Water Quality Rules and Regulations (Chapter 4, "Reporting and Cleanup of Releases of Oil and Hazardous Substances") requires reporting of leaks and spills to the WQO - a requirement which is often overlooked or ignored. Please change the language: "BLM actions will conform with WQO regulations and requirements through application of BMPs and other measures, consistent with resource goals and objectives. Require reporting of leaks and spills to the WQD."	2054
10400	10400-3	It may be appropriate for this line to reference State Engineers Office regulations (Part III) for proper water well abandonment.	2054
10400	10400-4	Although the 2010 and 2008 303(d) Lists are similar, we can see no clear justification why the BLM did not use the most recent 2010 303(d) List which was published in April 2010. Additionally, the WQD is currently in the process of developing TMDLs for 14 of these 303(d) listed waters. The FEIS should use the 2010 303(d) List.	2054
10400	10400-7	Detailed groundwater monitoring discussions should be included in the report. "Groundwater Quality and Quantity Impacts and/or Proactive Management Actions" contains some general source discussion, but no detail on groundwater monitoring. Appendix C, Monitoring and Evaluation, contains broad monitoring and evaluation requirements, but a detailed discussion of groundwater monitoring requirements related to energy development should be included, if not in this section, elsewhere in the document. (Section 2.3.2 Mineral Exploration contains some discussion of oil and gas development.) Wherever the BLM chooses to include groundwater monitoring detail in the document, here is some suggested language to include in WQD's comments to the BLM: The WQD supports the recent BLM/USGS document "Regional Framework for Water Resources Monitoring Related to Energy Exploration and Development" (Framework). This guidance document provides a seven (7) step framework for developing a monitoring strategy for measuring and mitigating water resource damage. The framework should be specifically referenced in the EIS and the monitoring framework should be followed to develop a monitoring plan for both surface and groundwater prior to any development.	2054
10400	10400-8	This is not the definition of Surface-Disturbing Activities agreed to by the BLM and Cooperators throughout this process of developing this RMP, nor is it even similar to that in any other RMPs in the state. This definition muddies the waters and confuses the reader by including vegetation disturbance in the definition of surface disturbance. Surface disturbance is the physical removal of the land surface by mechanical means. Vegetation can be "disturbed", such as by grazing or browsing, without creating surface disturbance.	2054

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10401	10401-1	Grazing permittees in these areas have BLM maps showing many times the developments than are shown in the maps presented in this plan and wildland evaluations prepared to nominate these areas.	2027
10408	10408-1	Big Game Crucial Winter Range acreage identified by BLM for all alternatives (Map 35 - Biological Resources, Fish and Wildlife Resources, All Alternatives) is much greater than Big Game Crucial Habitat Areas identified by the Wyoming Game and Fish Department (WGFD) (WGFD Habitat Priority Areas - Revised January 2009, WGFD GIS Section, http://gf.state.wy.us/habitat/portal/index.asp).	2022
10412	10412-1	we are requesting a 90 day extension and will be meeting here in Billings as soon as possible to discuss the Big Horn Basin RMP	2007
10413	10413-1	o Tables labeled "Total Annual Emissions from Oil Wells" failed to include any actual emissions from oil wells.	2009_1
10479	10479-5	The negative environmental consequences of the RMP's and EIS' proposed livestock grazing practices must be analyzed and compared to alternative grazing practices.	2011
10479	10479-1	The RMP states that the HMA Plan or the grazing permit renewal process is the proper forum for AML revisions. However, it is the RMP which guides the management and distribution of the resources within the Planning Area. AMLs are based on resource allocation. Therefore, the RMP must include options to increase AML and reinstitute zeroed-out Herd Areas (HAs).	2030
10479	10479-2	The BLM must include an alternative for increasing AMLs. Increasing AML can be accomplished through the agency's Adaptive Management Strategy and by decreasing livestock grazing within the complex, pursuant to 43 C.F.R. 4710.5(a).	2030
10479	10479-4	The RMP fails to provide cross-reference information regarding the wild horse HMAs and zeroed-out HAs by livestock allotments. Inspecting the maps to try to see where the two intersect is imprecise, and the maps don't identify individual allotments due to their sheer number -- 687 -- covering virtually all 3,200,000 acres of BLM-administered "surface land."	2054
10480	10480-3	The DEIS states that the gray wolf is a Bureau sensitive species. The Service recommends that the text state that gray wolves in Wyoming are also currently listed as a nonessential experimental population under the Act.	2025
10480	10480-4	The DEIS states that wolverines existing in the planning area. The DEIS should state that the species is currently a candidate for listing under the Act.	2025
10480	10480-1	Please reword the text to state that this species is currently a candidate for listing under the Act.	2033
10480	10480-2	The DEIS states that the mountain plover is proposed for listing; However, on May 12, 2011, the Service announced the decision to withdraw the proposed listing of the mountain plover as a threatened species under the Act (76 FR 27756). Please change the text to reflect this change in status.	2041
10480	10480-5	Please correct this typographical error to state December 1 - September 30.	2054
10481	10481-1	Table 2-5. Detailed Alternatives. Record #4031. p. 2-65: The WDA does not support the language in the Agency Preferred Alternative (Alternative D): "Manage to achieve or make progress towards achieving 65 percent or more of Historical Climax Plant Community (HCPC)." We recommend removing this language and using the language provided in the first portion of Alternative A: "Implement objectives for Watershed Protection, Forestland Management and	2011

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		Livestock Grazing." This, in addition to the second paragraph in Alternative D, provides flexibility to define the Desired Plant Community (DPC) most compatible with management objectives, budget and personnel capabilities and current land use. Furthermore, if managing for HCPC is the goal, the DPC can include this. Currently, Alternative D does not provide the flexibility to manage for both DPC and HCPC.	
10481	10481-4	Record #6253 allows "permitted livestock grazing use consistent with other resource objectives and in agreement with the Wyoming Standards for Healthy Rangelands." The WDA recommends removing "consistent with other resource objectives" from this management action. Livestock grazing has occurred on these lands for decades without harming wilderness characteristics and it is reasonable to conclude that livestock grazing managed to meet the Standards for Healthy Rangelands will not reduce these characteristics.	2011
10481	10481-5	Table 2-5. Detailed Alternatives. Record #6268. p. 2-160:The WDA strongly urges the BLM to delete the word "stakeholder" from this management action and add the words "interested publics." Interested publics is an established term used in the livestock grazing portions of the Code of Federal Regulations (CFR) and this RMP must be consistent with existing regulations. CFR 4100.0-5 includes a specific definition for interested publics. It is important to cite these regulations in the RMP: CFR 4100.0-5 Interested public means an individual, group, or organization that has:(1)(i) Submitted a written request to SLM to be provided an opportunity to be involved in the decision making process as to a specific allotment, and(ii) Followed up that request by submitting written comment as to management of a specific allotment, or otherwise participating in the decision making process as to a specific allotment, if BLM has provided them an opportunity for comment or other participation; or(2) Submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment. Even though there is a definition of stakeholders in the glossary, stakeholders are not included in the grazing portion of the regulations and cannot be used in this RMP. The definition of stakeholders in the glossary can include anyone holding U.S. citizenship. The CFR regulations cited above require U.S. citizens to actively request involvement before being consulted on grazing management decisions and Allotment Management Plans.	2011
10481	10481-6	Chapter 3 - Affected Environment, Livestock Grazing Management. AUM Allocations, p. 3-176 - 3-177: New statistics are available from the USDA National Agricultural Statistics Service on the impact of cattle and sheep in Wyoming and the U.S. Please update the statistics to include up-to-date information.	2011
10481	10481-7	The DEIS states: "Livestock and, to a lesser extent, wild horses and wildlife would contribute to the introduction and spread of invasive species." The WDA does not believe the BLM has sufficient data to show livestock are the main reason invasive species are introduced and spread. It is not reasonable to prioritize the culprits in the introduction and spread of invasive species. We recommend the DEIS strictly discuss the fact that invasive species will continue to spread in the planning area and this could occur for several reasons including livestock, wild horses, wildlife, surface disturbance, vehicles and travel routes, etc. If the BLM insists livestock are the primary factor in the introduction and spread of invasive species in the Bighorn Basin, we would request data to verify this statement be included.	2011

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10481	10481-8	Chapter 4 - Environmental Consequences, Special Status Species - Plants, Alternative B, Resource Uses, p. 4-208: The DEIS states "Alternative B places more emphasis on meeting the rangeland health standards and maximizing multiple use benefits." This statement is not correct. Each alternative places equal weight on obtaining the Wyoming Standards for Healthy Rangelands and Alternative B does not emphasize multiple use benefits.	2011
10481	10481-9	Chapter 4 - Environmental Consequences, Special Status Species - Wildlife, Trophy Game, Alternative A, p. 4-227: The DEIS does not disclose the true impact of livestock grazing on grizzly bears. While the paragraph does describe conflicts between livestock and grizzly bears, there is no disclosure on how choosing Alternative A (or Alternative D, p. 4-246) will truly impact grizzly bears. The WDA does not believe opening or closing areas to livestock grazing will greatly impact grizzly bears on BLM land. How much overlap actually exists between livestock allotments and grizzly bear habitat? How many conflicts have arisen? Will closing additional areas to livestock grazing under Alternative B really decrease conflicts? The true impacts are not currently displayed in the DEIS and we recommend deleting this discussion since the Wyoming Game and Fish Department manages wildlife in Wyoming.	2011
10481	10481-3	If Record #4077, Alternative D, was developed to address disruptive activities associated with grazing in delineated elk parturition habitat, then the WDA does not support this Alternative. We are concerned with the accuracy of current parturition habitat lines and believe these lines vary year-to-year based on predator pressure and weather patterns. Therefore, we do not support restricting cattle grazing in parturition areas based on the premise of disturbance. However, if Record # 4077 was developed to address potential brucellosis impacts, we recommend the following language, "SLM would consider implementation, on a case by case basis, of management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."	2020
10481	10481-10	Chapter 4 - Environmental Consequences, Livestock Grazing Management, Alternative D, Resources, p. 4-378: The DEIS states that Alternative D "allows water development projects in sage-grouse nesting habitat with 10 inches or less annual precipitation if adverse effects can be avoided or mitigated based on site-specific analysis, a less restrictive requirement for allowing water development than that under Alternative B," The DEIS should clearly state how this action will impact livestock grazing management. For example, will it make distribution and management of livestock more difficult? Will it be costly to mitigate impacts?	2071
10484	10484-1	The plan mentions that the adverse impact to allowing timber harvest is an increase in unplanned ignition sources (chainsaws) in woodlands. What is this statement based on? How many fires have started due to chainsaws? How do these numbers compare to natural ignitions such as lightning.	2008
10487	10487-1	Fidelity believes BLMs sage grouse management should be consistent with Wyoming EO 2011-5 and the KHAs acreage should mirror the sage grouse core areas. There is no justification or scientific evidence provided to explain this discrepancy in the RMP	2069
10489	10489-2	The Impact Analysis for Planning Model (IMPLAN) is a model that uses regional analysis. It appears the Big Horn Basin would be better analyzed with a more geographic-specific approach. Example, in Table X-1, IMPLAN identifies regional oil and gas well numbers including coal bed natural gas. There has been very	2046

**Attachment B – Draft Resource Management Plan and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table B-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
		limited exploration and not any marketable sales from coal bed natural gas development in the Big Horn Basin. The model appears to be using the entire state of Wyoming for a regional model. Data like this has no bearing on oil and gas development in the Big Horn Basin and makes the reported information and findings questionable as well as misleading.	
10490	10490-1	For purposes of clarification, we request the BLM insert "(see Glossary)" following "avoid" in record #s 5020, 5022, and 5023 on pages 2-97 and 2-98. We also suggest on page 3-131 in paragraph 2, "buffer zones" be replaced with "visual resource management areas" as this may help to clarify how the BLM is proposing to manage these types of cultural resources.	2004
10572	10572-2	How can the BLM have standards that the mining companies have to comply with but the mining is exempt?	2032
10572	10572-1	Cretaceous strata in the Bighorn Basin have yielded important paleontological finds. In particular, outcrops of the Cloverly, Meeteetse, and Lance Formations produce dinosaur bones, while outcrops of the Thermopolis Shale and Mowry Shale produce the fossil bones of marine reptiles. (page 3-133) Where are the findings? It states on page 3-133 that there is a lack of information.	2059
10577	10577-1	It is not clear to me if you are referring to mountain bikes in record 6049 or something else. Based upon a discussion of this topic elsewhere in the document, it is clear to me that you are talking about motorized vehicles. "Mechanized vehicle" is not in the glossary of terms. "Mechanized use" is in the glossary and refers to mountain bikes. There are a couple of issues here that apply to other areas of this document besides this record, but this is where it first arises. First, areas with "limited travel designations" are an OHV designation and does not apply to mountain bikes. Second, I would suggest this section be checked for meaning to make sure you are not inappropriately lumping motorized and mechanized together. It would help to add a glossary term for "limited travel designations".	2034
10578	10578-1	Any closure of Tatman Mountain for emergency communications is unacceptable. As the Sheriff for Big Horn County, we are responsible for the safe dispatching of ambulance fire search and rescue, and law enforcement. Over 13,000 citizens require our services. Tatman Mountain is the only location we have found that provides adequate communication for the entire counties emergency resources.	2054

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Attachment C

Supplement to the Draft Resource Management Plan and
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Commenter Response Index

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ATTACHMENT C

COMMENTER RESPONSE INDEX

1.0 INTRODUCTION

The tables presented in Attachments C and D are provided to assist commenters in finding their submitted comments and identifying the associated BLM comment summary and response in the Comment Analysis Report. Table C-1 provides a list of first and last names of commenters, the commenter’s affiliation (if applicable), and the commenter’s comment document number. PDF copies of all received comment documents are located on the BLM website: <http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>. Within Attachment D, also located at the above website, Table D-1 includes all individual substantive comments and identifies the BLM summary comment and response number associated with individual comments, organized by comment document number.

To use these tables:

1. Locate your name and associated comment document number in Table C-1.
2. Using the comment document numbers from Table A-1, go to Attachment D on the BLM website address provided above and find your identified individual comment(s), comment text, and BLM summary comment and response numbers in Table D-1.
3. The BLM summary comment/response numbers match those provided in Section 4.2.2 of the Comment Analysis Report.

With this information (comment document number, comment number, and summary comment and response number) commenters can locate a copy of their original comment document on the BLM website, their individual comments in Attachment C, and BLM summary comments and responses in Section 4.2.2 of the Comment Analysis Report.

Table C-1. Index of Commenters

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Abbott	Tyler	U.S. Fish and Wildlife Service	1002
Allard	Wayne	American Motorcyclist Association	1006
Applegate	David	Anadarko Petroleum Company	1024
Baird	Virginia	Unaffiliated Individual	1005
Baird	John	Unaffiliated Individual	1014
Bales	Patricia	Unaffiliated Individual	1015
Bales	Shirley	Unaffiliated Individual	1031
Bales	Steve	Unaffiliated Individual	1056
Ball	Gene	Unaffiliated Individual	1001
Bates	Karen	Unaffiliated Individual	1033
Bebout	Eli	State of Wyoming Legislature	1079
Bell	Matt	Unaffiliated Individual	1053

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Table C-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Bodtke	Dale	Unaffiliated Individual	1007
Bohan	Suzanne	Environmental Protection Agency	1066
Bolles	Randy	Devon Energy Corporation	1026
Bowman	Bo	Hot Springs County Planning Office	1016
Briggs	Jeff	Unaffiliated Individual	1044
Brown	Scott	Double Dollar Land and Livestock LLC	1018
Bruner	Travis	Western Watersheds Project	1028
Close	Dan	M-I SWACO	1076
Culver	Nada	The Wilderness Society	1051
Dillon	Matthew	American Colloid Company	1012
Dockery	Carl	Unaffiliated Individual	1054
Edmunds	Daly	Audubon Rockies	1037
Fearneyhough	Jason	Wyoming Department of Agriculture	1013
Flitner	David	Flitner Ranch, Flitner Packing and Outfitting, Hideout Adventures	1011
Flitner	Tim	Diamond Tail Ranch	1042
Hildebrand-Marvin	Robin	Unaffiliated Individual	1065
Hilding	Nancy	Unaffiliated Individual	1070
Holmer	Steve	American Bird Conservancy	1074
Jachowski	Kathleen	Guardians of the Range	1047
James	Michael	Denbury Onshore, LLC	1023
Jespersen	Soren	The Wilderness Society	1067
Johnsey	Danette	Unaffiliated Individual	1036
Keller	Michael	Fidelity Exploration and Production Company	1048
Liguori	Sherry	Pacificorp	1073
Liguori	Sherry	Rocky Mountain Power, Avian Power Line Interaction Committee	1075
Magagna	Jim	Wyoming Stock Growers Association	1049
Magstadt	Rick	WYO-BEN, Inc.	1021
McClenahan	Pepper	Enhanced Oil Recovery Institute	1041
McGaffin	Graham	The Nature Conservancy	1039
Mead	Matthew	Office of the Governor	1069
Miller	Neil	Unaffiliated Individual	1010
Molvar	Eric	Wild Earth Guardians	1008
Moore	T.R. "Doc"	Northwest Wyoming O.H.V.	1004
Moseley	Claire	Public Lands Advocacy	1025
Nelson	April	Unaffiliated Individual	1032
Newcomer	Chris	Sierra Club	1055
Nielson	Glenn	Mountain Holdings	1038
Noecker	Suzy	Wyoming Farm Bureau Federation	1057
Nordberg	Ronald	Unaffiliated Individual	1077
Olson	Claire	Basin Electric Power Cooperative	1019
Orchard	Cathy	Unaffiliated Individual	1034

**Attachment C – Supplement to the Draft Resource Management Plan and
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Table C-1. Index of Commenters (Continued)

Commenter Last Name	Commenter First Name	Commenter Affiliation	Comment Document Number
Orchard	Charly	Unaffiliated Individual	1035
Public	Jean	Unaffiliated Individual	1040
Radakovich	Jason	Hoodoo Ranch	1043
Roden Jr.	John	Unaffiliated Individual	1072
Rolston	Bob	Wyoming County Commissioners Association	1068
Rosin	Lawrence	Unaffiliated Individual	1059
Ruble	Peggy	Bighorn Basin Local Government Cooperating Agencies	1017
Salvo	Mark	Defenders of Wildlife	1022
Satas	Vic	Unaffiliated Individual	1058
Schiffer	Linda	Unaffiliated Individual	1062
Shaffer	Raymond	Unaffiliated Individual	1063
Skaer	Laura	Northwest Mining Association	1050
Steitz	Jim	Unaffiliated Individual	1003
Stuble	Julia	Wyoming Outdoor Council	1029
Sylvester	Joseph	Unaffiliated Individual	1009
Thagard	Neil	Theodore Roosevelt Conservation Partnership	1052
Thompson	Rick	Tri-State Generation and Transmission Association, Inc.	1027
Tolman	Donald	Unaffiliated Individual	1064
Trefen	Jennie	Wyoming Wilderness Association	1046
Umphlett	Jeff	Unaffiliated Individual	1045
Williams	Bruce	Wyoming Enhanced Oil Recovery Commission, University of Wyoming	1020
Williams	Hana	Wyoming Outdoor Council	1030
Wuerthner	George	Western Watersheds Project	1071
-	-	Sierra Club	1060
-	-	Unknown Letter	1078
-	-	WildEarth Guardians	1061

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Attachment D

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Individual Comments and Index to Summary Comments and
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ATTACHMENT D

Table D-1 includes all individual substantive comments and identifies the BLM summary comment and response number associated with individual comments. The table is organized by comment document number. Please refer to Attachment C, Table C-1 within the Comment Analysis Report for the Bighorn Basin Resource Management Plan Revision Project to locate your name and associated comment document number.

Table D-1. Individual Comments and BLM Response Index

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1005	1005-3	Alternative F Record 49. It is counter productive to the sage grouse to limit livestock grazing on burn areas. Record 50 is completely unnecessary ~it is extreme to fence off a burned area and to not allow grazing within a specific time frame. It appears there is an obvious agenda against Livestock grazing under the guise of restoration of the land Alternative E & F appear to be totally against livestock grazing on public lands. There is no proof that livestock grazing on public lands degenerates the grasses.	3011
1005	1005-2	Chapter 4:3 Some of the lands in the West NEED controlled burns and grazing to help manage wildfires. If the grass and weeds are not thinned out and forest clearings are not allowed, periodically, a natural fire will get out of control quickly and uncontrollably!	3011
1008	1008-82	This discretionary language calls into question the BLM's commitment to implement the conservation measures outlined in its policy. The Bighorn Basin RMP should include language that is mandatory, not discretionary.	3027-1
1008	1008-80	BLM should correct the deficiencies in the State policy by requiring that nesting habitats be delineated, and that new road construction be sited at least 0.8 mile from leks, nesting habitat, and winter concentration areas. Within these areas, jeep trails should be used for access, and seasonal closures to motor vehicles should be applied during breeding, nesting, and wintering periods.	3039-1
1008	1008-79	Unfortunately, both the State and Wyoming BLM Core Area strategies (and Bighorn Basin RMP Preferred Alternative) only require protective buffers of 0.6 miles around leks in designated core habitat; this corresponds to a 6% probability of lek persistence (Christiansen and Bohne 3008). BLM itself concedes, "Energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87% to 5% (Walker et al. 2007a)." DEIS at 367. By comparison, the NTT report recommends a 4-mile lek buffer for siting industrial development in sage-grouse habitat (SGNTT 2011), a prescription in greater accord with the science.	3035_2

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-78	This policy required BLM to complete an Ecoregional Assessment for the Wyoming Basins Ecoregion. Id. at 11. This Wyoming Basins Ecoregional Assessment publication (“WBEA”)3 was completed in 2011, and BLM should reference the findings of this report as they apply to the Bighorn Basin RMP, which falls within the Wyoming Basins Ecoregion, in order for the BLM has not met its obligation to “use the best available science” including publications specifically mandated under the Strategy. This study included a complete land cover mapping exercise including analysis of human footprint, which would have been useful to include in the Affected Environment section of the FEIS. Chapter 5 of this publication (WBEA at 112) specifically addresses sage grouse avoidance of oil and gas developments and other permitted facilities. This analysis found that sage grouse density was negatively correlated with major highways, powerlines, and the presence of oil and gas wells. WBEA at 124. These researchers pointed out, “Any drilling <6.5 km [approximately 4 miles] from a sage-grouse lek could have indirect (noise disturbance) or direct (mortality) negative effects on sage-grouse populations.” WBEA at 131. This finding supports the NTT recommendation of a 4.0-mile no-surface-disturbance buffer, but not the application of an 0.6-mile buffer as in the proposed Bighorn Basin RMP Preferred Alternative. Model results (WBEA at 134) could have been used to examine what proportion of high abundance roost sites and general use areas were encompassed by the Core Area and non-Core mitigation measures applied under each alternative.	3035_2
1008	1008-77	With this in mind, we ask the BLM to gather each of the scientific articles referenced in the Literature Cited section of these comments, review them thoroughly and incorporate their findings into the EIS, and add them to the administrative record for this RMP revision.	3035_2
1008	1008-75	In the Bighorn Basin RMP DEIS, BLM failed to apply baseline information from the Wyoming Basins Ecoregional assessment and other scientific studies and reports to inform its analysis of impacts by alternative. BLM also failed to map and present sage grouse wintering habitat as part of the baseline information requirement. Text on Affected Environment with regard to sage grouse habitat also failed to discuss the winter habitat needs of the birds (SDEIS at 3-3), in spite of clear scientific evidence that impacts to sage grouse by oil and gas development on winter ranges can have profound effects on the birds (Walker 2008). BLM Sensitive Species policy imposes additional requirements to provide baseline information. For BLM Sensitive Species, the agency is responsible for “Determining, to the extent practicable, the distribution, abundance, population condition, current threats, and habitat needs for sensitive species, and evaluating the significance of BLM-administered lands and actions undertaken by the BLM in conserving those species.” BLM Manual 6840.2(C)(1). Furthermore, the agency is responsible for “Monitoring populations and habitats of Bureau sensitive species to determine whether species management objectives are being met.” BLM Manual 6840.2(C)(3). The BLM must make up for the absence of population status and trend data for BLM Sensitive Species by generating these data of its own accord where they are unavailable through WGFD, Wyoming Natural Diversity Database, or other external sources.	3035_2

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-71	Do not use fire in precipitation zones < 12", except as last resort and where conditions allow and cheatgrass is a very minor component. (Northwest Colorado RMP Amendments).	3011
1008	1008-70	Avoid all new structural range developments and location of supplements (salt or protein blocks) unless independent peer-reviewed studies show that the range improvement structure or nutrient supplement placement benefits sage grouse. (North Dakota RMP Amendments).	3035_8
1008	1008-69	Where riparian and wetland areas are already meeting standards they would be maintained in that condition or better. Where a site's capability is less than PFC, BLM would manage to achieve or move toward capability. Manage wet meadows to maintain a component of perennial forbs with diverse species richness relative to site potential (e.g., reference state) to facilitate brood rearing. (North Dakota RMP Amendments).	3034
1008	1008-68	Authorize new water developments only when no adverse effect to sage grouse. (Northwest Colorado Plan Amendments).	3023-1
1008	1008-67	Prioritize assessments that include sage grouse habitat parameters, using ESD to determine if rangeland health standards are met. Develop objectives to conserve, enhance or restore sage grouse habitat. Give preference to SG habitat unless site-specific circumstances warrant an exemption. Manage toward ecological site potential and toward reference state to achieve sage grouse objectives. (Northwest Colorado Plan Amendments). Develop drought contingency plans that provide for a consistent/appropriate response. (Northwest Colorado Plan Amendments).	3035_8
1008	1008-66	Bury new distribution lines within 1 mile of leks. (HiLine RMP revision). Incorporate sage grouse habitat objectives into grazing permit renewals. (Northwest Colorado RMP Amendments).	3035_8
1008	1008-65	Find General Habitats unsuitable for surface mining; apply disturbance cap with exception when SG population is stable or increasing. Offsetting mitigation as needed. Recommend minimization of impacts. (Northwest Colorado RMP revision).	3035_8
1008	1008-64	Noise limited to no more than 10 dBA above ambient, where technologically feasible. (Buffalo RMP revision).	3035_8
1008	1008-63	Only allow geophysical operations by heliportable drilling methods and in accordance with seasonal timing restrictions. (North Dakota RMP Amendments). High-profile structures exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact SG. Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to GRS. (North Dakota RMP Amendments).	3035_8
1008	1008-62	Allow new routes/realignments during site-specific travel planning if it improves GRS habitat and resource conditions. Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road. (North Dakota RMP Amendments).	3035_8

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-61	Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats. Maximize placement of and transportation routes in existing ROWs. Power lines would be buried, eliminated, designed or sited in a manner which does not impact SG. ROWs would be allowed with appropriate mitigation and conservation measures identified within the terms of the authorization to minimize surface disturbing and disruptive activities. Co-locate new ROWs within existing ROWs where possible. (North Dakota RMP Amendments).	3035_8
1008	1008-60	Conduct restoration of roads, primitive roads and trails not designated in travel management plans. (North Dakota RMP Amendments).	3035_8
1008	1008-59	Limit motorized use to existing roads and trails pending travel management planning. Complete planning within 5 years of ROD.	3039-1
1008	1008-58	Avoid all new structural range developments and location of supplements (salt or protein blocks) unless independent peer-reviewed studies show that the range improvement structure or nutrient supplement placement benefits GRSG. Design any new structural range improvements and location of supplements to conserve, enhance, or restore SG habitat through an improved grazing management system relative to SG objectives. Evaluate existing range improvements and location of supplements during AMP renewal process to make sure they conserve, enhance or restore SG habitat. (North Dakota RMP Amendments).	3035_8
1008	1008-57	Evaluate the role of non-native seedings to determine if they should be restored to sagebrush; seedings that contribute to grazing management that improves SG habitat can remain. (Northwest Colorado RMP Amendments).	3035_8
1008	1008-56	Do not allow treatments with a potential to adversely affect SG. Retain a minimum of 70% of ecological sites capable of supporting 12% cover in Wyoming big sage or 15% cover in mountain big sage. Manage a total disturbance cap of less than 30% lands not meeting these criteria. Irrigated meadows do not count against the disturbance cap. (Northwest Colorado RMP Amendments).	3035_8
1008	1008-55	Authorize water developments only when no adverse effect to sage grouse. Analyze springs, seeps, and pipelines to see if modifications are needed. (Northwest Colorado RMP Amendments).	3035_8
1008	1008-54	Priority Habitats are exclusion areas for new renewable energy ROW permitting. (North Dakota RMP Amendments; HiLine, Buffalo, and South Dakota RMP revisions). Maximum 25% forage utilization for livestock grazing in each grazing allotment. (North Dakota RMP Amendments).	3035_8
1008	1008-53	Close Priority Habitats to energy and non-energy leasable minerals leasing. (HiLine RMP revision).	3035_8
1008	1008-52	No Surface Occupancy stipulations required for any new fluid minerals leasing. (North Dakota RMP Amendments; HiLine, Billings/Pompeys Pillar, Miles City, and South Dakota RMP revisions).	3035_8

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-51	Priority Habitat would be a priority in consideration of land acquisitions. Retain public ownership of PH. Consider exceptions where: There is mixed ownership, and land exchanges would allow for additional or more contiguous federal ownership patterns within the priority sage-grouse habitat area; Under priority sage-grouse habitat areas with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. As a final preservation measure consideration would be given to pursuing a permanent conservation easement. (North Dakota Plan Amendments).	3035_8
1008	1008-50	Prohibit or bury powerlines within 0.6 miles of leks unless no SG declines can be demonstrated. Prohibit overhead transmission except within 0.5 mile of existing lines, corridor a maximum of 1 mile wide. Bury lines where possible. (Buffalo RMP revision). High-profile structures exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage grouse. Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage grouse. (North Dakota RMP Amendments).	3035_8
1008	1008-49	New road construction would be limited to realignments of existing roads, if that realignment has a minimal impact on greater sage-grouse habitat, eliminates the need to construct a new road, or is necessary for public safety. Incorporate BMPs. Existing roads used to access valid existing rights; if unavailable, construct to minimum standard necessary. (HiLine RMP revision, North Dakota RMP Amendments).	3035_8
1008	1008-48	Conduct restoration of roads not designated during travel planning. (Northwest Colorado RMP amendments).	3035_8
1008	1008-47	Use existing roads, or realignments as described above to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary. Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road. (North Dakota RMP Amendments).	3035_8
1008	1008-45	For geophysical exploration (Record #86), the protections in Alternative E are unnecessarily strict, and Alternative F is preferable as it will fulfill the requirements of sage grouse to avoid disturbance while minimizing the need for wildcat exploration through drilling. DSEIS at 2-31.	3023-4
1008	1008-44	We agree with Record #36 for both alternatives (SDEIS at 2-22), although the use of Plateau in heavily cheatgrass-infested areas might be allowed in cases where sage grouse are not using the treated habitats. This might be accomplished by deliberately driving grouse off by teams on foot prior to treatment, and by treating from backpack units rather than aerial or truck/ATV application.	3014

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-41	The BLM has also not considered protections for sage grouse for lands outside Priority Habitats, and has not fully considered NTT or Sage-grouse Recovery Alternative measures proposed for sage grouse general habitats. What will be the impact of permitted activities on grouse populations that fall outside the Priority Habitats/ACEC boundaries under this plan? The SDEIS is silent on this matter.	3035_1
1008	1008-40	We are concerned that the BLM has not fully considered the Sage-grouse Recovery Alternative or the National Technical Team recommendations in full, and has not provided sufficient explanation for why this has occurred. In particular, measures to protect sage grouse wintering habitat are entirely absent from all alternatives, and there is no impacts analysis for permitted activities on wintering sage grouse and their habitats. There is a notable absence of baseline information in the SDEIS on wintering habitats, and the lack of impacts analysis leaves open the question of how heavily wintering sage grouse will be affected by permitted activities under the new RMP, and what effect this will have on the viability of sage grouse populations both inside and outside Priority Habitats.	3035_1
1008	1008-39	The Bighorn Basin DEIS supplement, and the Draft EIS to which it is related, do not appear to consider alternatives to provide enhanced protections for sage grouse General Habitats of the type recommended in the National Technical Team report.	3035_1
1008	1008-38	Placing salt blocks in upland areas is not an effective means of drawing cattle use away from riparian areas. Bryant (1982:784) found that salt placement and alternate water sources did not influence cattle preference for riparian habitats, and came to the following conclusion: "These cattle used the salt when convenient but did not alter behavior patterns to obtain it." Thus, the BLM should not rely on the placement of salt blocks as a means to draw livestock away from riparian habitats.	3034
1008	1008-37	The pattern of grazing may have a significant effect on efforts to maintain riparian areas in Properly Functioning Condition. Bryant (1985) found that season-long grazing had the greatest negative impact on riparian vegetation. Late season grazing may result in less disturbance to riparian communities (Green and Kaufman 1995). Clary (1995:24) made the following recommendation for grazing in riparian areas: "If utilization guidelines are used, those rates that do not exceed 30% of the annual biomass production will likely maintain production the following year." Riparian areas should be the focus of monitoring efforts, as these areas can become ecologically impaired before upland habitats begin to show signs of damage.	3034

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1008	1008-34	According to the Conservation Objectives Team (U.S. Fish and Wildlife Service 2013: 45), the following objective should be a guiding principle: Conduct grazing management for all ungulates in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage grouse (e.g. shrub cover, nesting cover). Should Alternative E not be selected, the Bighorn Basin RMP should implement its management standards such that this direction is achieved. Furthermore, we recommend that BLM should include a provision to retire livestock grazing allotments on a willing-permittee basis when they come up for renewal under all alternatives, as is included under all alternatives in the BLM's South Dakota RMP Draft EIS. We support the effort in Alternatives E and F to effect this change.	3035_6
1008	1008-33	for sage grouse Priority and General Habitats there should be a decision procedure and actions described below, depending on habitat conditions. 1. Assess which lands meet the Connelly et al. (2000) guidelines both in riparian areas and upland areas in Table 3. Include the conservation community and grazers in this assessment. 2. For those not meeting these guidelines, determine that the allotment does not meet rangeland health standards. To meet these standards, the sagebrush community must meet or exceed the height and percent canopy cover percents for sagebrush, native grasses, and forbs in Table 3 (Connelly et al. 2000). 3. Change grazing use as necessary so that upland and riparian areas have a positive 2 or better Grazing Response Index (GRI) score for allotments not meeting standards. 4. For allotments that meet standards, insure grazing practices produce a "0" or plus net GRI score. 5. In sage grouse nesting areas, do not allow grazing until after the 20th of June (Braun 2006). 6. During permit renewal, inventory the amount of forage produced in the allotment, assess the allotment ecological conditions, and document past grazing use. As a part of permit renewal, conduct a range capacity analysis to assess the stocking rate for the allotment. Stocking levels for allotments that meet standards should lead to less than 25% utilization (Braun 2006) and for allotments not meeting standards, less than 15% utilization. 7. For allotments not meeting the rangeland health standards, prohibit grazing during a severe or worse droughts as defined by the national drought monitor. 8. For allotments that meet the standards, reduce grazing use prior to a drought to utilization levels less than 10-15% utilization for forage expected during the drought. 9. In sage grouse habitats, produce an annual end-of-season report for each allotment.	3035_6
1008	1008-32	If Alternative E is not adopted, all allotments in Priority Habitats must be managed to meet or exceed Rangeland Health standards, and following natural fires, livestock should be excluded for a 2-year period. We concur with the wisdom of applying Records # 88 through 101 for Alternative F as a backup plan in this regard. Record #113 is a good goal for the management of wild horses, and should be applied equally to domestic livestock on all grazing allotments within Priority Habitat.	3035_6
1008	1008-31	The RMP should include at least one alternative that targets a 10.2-inch residual summer height throughout sage grouse nesting habitat during the nesting season.	3042

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1008	1008-30	For allotments where sage grouse nesting is known to occur, shifting on-off dates (if necessary) could minimize the chances of impacts to nesting sage grouse, and livestock drives should be routed to avoid sage grouse leks during the strutting and nesting seasons.	3035_6
1008	1008-29	BLM should fence off natural springs and place livestock water sources outside the fences rather than at the spring itself. If past actions have dried up natural springs or wetlands to create stock tanks, then remedial action should be required return some water to ground for sage grouse and vegetation, in an area protected from livestock.	3017-3
1008	1008-28	We strongly concur with the need to abstain from vegetation treatments in Priority Habitats, per both Alternatives E and F. SDEIS at 2-21, 22. There is a growing scientific consensus that burns and mechanical treatments are deleterious to sage grouse. For Record # 102, the Alternative E language should be adopted, as Alternative F allows the continued degradation of sage grouse habitats through treatments that may not be compatible with sage grouse persistence.	3011
1008	1008-27	Taking into account the negative effects of vegetation treatments on sage grouse nesting and lekking areas, and uncertainty in the overall extent of sage grouse nesting habitat surrounding lek sites in the Great Plains region, the BLM should prohibit vegetation treatments within 3 miles of sage grouse lek sites.	3042
1008	1008-26	BLM proposes to continue to allow the use of prescribed fire in Core Areas, which will cause negative impacts to sage grouse populations. BLM measures under Alternative F would "limit" prescribed fire in ACECs on lands with less than 12 inches of annual precipitation, but apparently still allow it. SDEIS at 2-23. "Limit" is a word so poorly defined that it is impossible to tell whether it has any effect at all; it appears purely discretionary. Prescribed fire not only harms sage grouse by eliminating the sagebrush that is their key habitat element, but also promotes the spread of cheatgrass (smooth brome and Japanese brome), which are becoming ever more widespread in the Bighorn Basin. Required measures for prescribed fires reduce the negative effects but do not drop them below the threshold of a significant impact to sage grouse.	3011
1008	1008-25	BLM should rigorously evaluate all sagebrush habitat treatment projects to determine how exactly they will impact sage grouse populations prior to counting such projects as assets toward sage grouse recovery or threats to sage grouse persistence.	3042

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1008	1008-24	We are concerned that many, if not most, of these "habitat improvement" projects are actually harming sage grouse habitat in the long term and that the remainder will cause short-term impacts to sage grouse populations that contribute to the multiple serious threats to their existence. The scientific basis for many such projects (which include prescribed burns and mechanical or herbicidal thinning or removal of sagebrush) is extremely shaky, and given the lack of familiarity of the project proponents with basic sage grouse habitat requirements, such projects may unintentionally cause additional damage to sage grouse habitats. The impacts (positive and/or negative) of such projects have not been rigorously tested, and thus their results for improving (or harming) sagebrush habitats remain open to speculation.	3042
1008	1008-23	The Bighorn Basin RMP should cure these problems for BLM-managed lands and projects on BLM-managed minerals by establishing Priority and General Habitat boundaries as inviolate and permanent designations (at least throughout the life of the Plan) and by precluding exceptions or waivers of sage grouse measures within these respective habitats. BLM must ensure that all Core Area/Priority Habitat/ACEC protections are nondiscretionary standards, so the agency can rely on them as conservation measures that are adequate and reliable in the context of Endangered Species decisionmaking by the U.S. Fish and Wildlife Service.	3035_1
1008	1008-22	All new roads should be located farther than 1.9 miles from active leks; Alternative F is deficient in this regard by allowing tertiary roads as close as 0.6 mile, although the NSO stipulations in Alternative E are well within the scientifically sound thresholds described by peer-reviewed studies that do not result in significant impacts to breeding populations. Seismic activity should be limited to periods outside the breeding/nesting or winter use season, for breeding/nesting and winter concentration habitats, respectively. Allowing heliportable geophysical exploration in Priority Habitat only outside the season of use is the proper approach.	3039-1
1008	1008-20	We concur with the need to manage Priority habitats as right-of-way exclusion areas per Alternative E rather than avoidance areas per Alternative F. SDEIS at 2-17, 27, 28. An exception could be allowed to the exclusion for buried powerlines, regardless of location. Similarly, Priority Habitats should be exclusion areas for wind power projects and met towers, per Alternative E. SDEIS at 2-19. Discretionary "avoidance" is too weak, and there is no evidence extant that compensatory mitigation has increased sage grouse numbers anywhere. Despite tens of millions of dollars being spent on offsite mitigation in the Pinedale Field Office, the result has been a net loss of sage grouse.	3033-1

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1008	1008-19	On Density and Disturbance, we support the approach as outlined in Alternative E as the preferable approach to managing the density of surface disturbances. SDEIS at 2-17, Record #7. Some modifications would be helpful here. The section should read "do not exceed one disturbance per 640-acre section" to remove any and all ambiguity as to how the density calculations will be made. While using square-mile sections has its limitations, it is more rigorous than averaging the density over a larger area, and all sage grouse scientific studies have calculated well pad density on a per-square mile basis (not using a DDCT), so their results would be applicable to an RMP that managed density in this way. We agree with 3% as the maximum allowable density of disturbance that should be allowed in Priority Habitats. We appreciate the language requiring the well to be sited on the portion of the lease most distal from the lek. Record #76 for Alternative E fleshes out additional NSO requirements that would best protect leks -- and to some degree, nesting habitat -- from individual disturbances. SDEIS at 2-30.	3035_4
1008	1008-18	Alternatives E and F both include a 3% disturbance cap, within the range recommended by the NTT, but they calculate disturbance based on a DDCT. This use of the DDCT results in an inaccurate disturbance calculation that allows more than 3% per square mile on a section-by-section basis, the threshold at which negative impacts to sage grouse occur. BLM should manage Core Area habitats to prevent significant impacts to sage grouse, including from surface disturbance in excess of 3% per square mile, within Core Areas under the new RMP.	3035_4
1008	1008-17	We support the designation of the "Key Habitats" as shown in Map SEIS-1, rather than the Core Habitats that would apply to Alternative F, because the Key Habitats more closely represent the Core Areas as originally designated in 2008 and prior to gerrymandering of boundaries that excluded major areas near highly populated leks that has occurred subsequently. BLM has itself identified that the Key Habitat Areas, beyond state-designated Cores, "include additional productive habitats identified as important to greater sage grouse in the Planning Area." SDEIS at 3-3. We find that the changes made by the SGIT from the original Core Area map on balance have a negative effect on the ability to conserve grouse in the Bighorn Basin, and would unduly facilitate industry proposals that would degrade key grouse habitats that need to be protected. We would further recommend that connecting corridors be established between the ACEC units, and managed for sage grouse retention and passage. These corridors should follow the 4-mile buffers of more lightly populated leks wherever possible.	3035_1

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1008	1008-16	Importantly, the BLM has a better option: Implement the National Technical Team recommendations, which are in fact consistent with state Executive Order 2011-5. EO 2011-5 prescribes a maximum of 1 well pad or mine site per square mile as calculated within a DDCT area; applying a one well pad or mine site per section limit as recommended by the NTT would result in a lesser density than 1 site per square mile when calculated with a DDCT area, and therefore would be allowable under EO 2011-5. Requiring a no surface disturbance buffer of 4 miles would never allow surface disturbance within 0.6 mile of leks inside Core Areas, and therefore would be allowable under EO 2011-5 because the state prohibition of surface disturbance within 0.6 mile of leks would be upheld. An unconditional burial of electrical distribution lines would never violate the state guideline to bury powerlines when possible. Implementing a 2.5% or 3% cap on surface disturbance on a per-square mile basis would always yield a disturbance result less than the state's 5% limit and therefore within the realm of acceptable outcomes under the state policy. At no point does state policy mandate that impacts to sage grouse reach the maximum levels allowed under the policy; the state thresholds under EO 2011-5 are written as limits, not targets. The BLM therefore has the opportunity (and indeed under NEPA, FLPMA, and Manual 6840, the responsibility) to implement the science-based measures recommended in the NTT Report in order to both maintain consistency with state Core area policy and protect this BLM Sensitive Species with measures that satisfy NEPA's scientific integrity standards and prevent unnecessary or undue degradation to sage grouse Core habitats under FLPMA.	3035_4
1008	1008-14	Given the limitations in the Wyoming strategies and considering new scientific information on sage grouse, it is unlikely that application of the strategies in Alternative F will prevent further declines in sage grouse. BLM should instead apply at minimum the measures recommended by the BLM's National Technical Team, and more preferably the Sage Grouse Recovery Alternative attached to these comments. See Attachment 1. The impact of the failure to apply adequate protections to Core Areas would likely to result in major impacts to sage grouse. Given the inadequacy of mitigation measures proposed under Alternative F to protect sage grouse in Core Areas, the consequences for making sage grouse Core habitat available to sage grouse populations are likely to be locally severe.	3035_1
1008	1008-13	We have grave concerns about the adequacy of conservation measures employed by the State of Wyoming and the Wyoming State Office of the Bureau of Land Management (BLM) under its Instruction Memoranda to conserve greater sage grouse in that state, carried forward in the detailed provisions of Alternative F. The two entities' Core Area strategies are similar and share weaknesses that prevent them from successfully addressing the conservation needs of sage grouse. These policies were established in State Executive Order 2011-5 and BLM Instruction Memoranda WY-2010-012 and WY-2010-013, and carried forward in Instruction Memorandum WY-2012-019.	3035_1

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1008	1008-12	Alternative F appears to adopt the state's Core Area policy and 2012 BLM instruction memoranda to guide sage grouse management measures. The performance to date of sage grouse Core Area protections under state Executive Orders and Wyoming BLM Instruction Memoranda has been poor, and they have in many cases failed to prevent significant impacts to sage grouse populations in Core Areas. In many cases, the BLM appears to have limited its own conservation measures for sage grouse to those included in state Executive Order 2011-5 (EO 2011-5). However, this alternative excludes many of the most important conservation measures recommended by the NTT. Importantly, EO 2011-5 was promulgated in the absence of a NEPA process, and this lack of NEPA foundation has undermined its effectiveness. Because there was no "hard look" at potential impacts to sage grouse in Core Areas under EO 2011-5, and no requirement of scientific integrity as imposed under NEPA, many of the measures included in EO 2011-5 do not reflect the best available science and their implementation in the face of industrial uses of the land to which the Order applies will in fact result in significant impacts to the viability of sage grouse populations in Core Areas.	3035_1
1008	1008-11	We are concerned that Alternative F will not uphold BLM's obligation to manage Sensitive Species to "minimize or eliminate threats," either within or outside of Core Area habitats. As detailed elsewhere in these comments, mitigation measures applied under Alternative F (and the even less-protective Alternatives A through D in the original RMP DEIS) will inevitably lead to serious impacts to sage grouse populations within Core Areas. This result represents an unnecessary and undue degradation of key sage grouse habitats.	3035_1
1008	1008-9	We strongly urge the BLM that Priority Habitats should be withdrawn from future oil and gas leasing, allowing existing leases to lapse as they expire, as in Alternative E. SDEIS at 2-29. Existing leases should have all measures approved under the RMP revision applied as Conditions of Approval. However, the Preferred Alternative would not apparently close Priority Habitats to future oil and gas leasing. Id. BLM should close sage grouse Priority Habitats to future oil and gas leasing as a means of steering future land uses away from conflict in the future.	3035_9
1008	1008-8	BLM should consider a phased leasing alternative under which a third or less of the planning area is open at any given time to leasing and development. Leases that are not drilled and held by production are forfeited back to the agency after their 10-year lease term expires, except in cases of unitization. It makes the best sense for BLM to close areas that are highly sensitive to future leasing even if they are leased today; most of BLM's Wilderness Study Areas were heavily leased upon establishment, and even though operators were given the opportunity to be grandfathered in if these leases were developed, few were and today WSAs are almost entirely free of the encumbrance of oil and gas leases.	3023-3

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1008	1008-7	The level of protection outside Core Areas should be maintained under the Preferred Alternative and adopted into the RMP, and this level of protection should be accorded to Core and Connectivity Areas as well. As perch inhibitors do not fully prevent raptor perching, this measure should be amended to allow buried powerline but prohibit new overhead lines under any circumstance.	3033-2
1008	1008-6	The NTT Report recommends that all electrical distribution lines be buried within Core Areas, period; BLM does not evaluate this under Alternative F. See SDEIS at 2-17, 18; Records # 8, 10. Under both alternatives, the agency would evaluate the need to bury existing power lines. Id. But in Alternative F, Priority Habitats would be an avoidance area, not an exclusion area. Id. At Record #10. BLM itself points out reductions of sage grouse use within 2.9 miles of powerlines. According to BLM (2003: 2-8), Power lines may also cause changes in lek dynamics, with lower growth rates observed on leks within 0.25 miles of new power lines in the Powder River Basin of Wyoming as compared with those further from the lines. This was attributed to increased raptor predation (Braun et al. 2002).	3033-1
1008	1008-5	According to BLM IM 2012-44, "The conservation measures developed by the NTT and contained in Attachment 3 must be considered and analyzed, as appropriate, through the land use planning process by all BLM State and Field Offices that contain occupied Greater Sage-Grouse habitat." This must be done fully in the Bighorn Basin EIS supplement. IM 2012-44 does not provide an option not to analyze these measures in at least one alternative unless a clear finding is provided that the measure is not appropriate, and BLM has provided no such findings in the context of the Bighorn Basin supplement.	3035_1
1008	1008-3	Importantly, the BLM appears to rely heavily on discretionary measures such as "avoidance" rather than "exclusion" of activities known to be detrimental to sage grouse inside Priority Habitat areas. And even more importantly, BLM in many cases adopts measures that provide inadequate protections based on the available science, which outlines thresholds at which significant impacts can be expected. The lack of sufficient regulatory mechanisms to conserve sage grouse and their habitats was identified as a primary threat leading to the USFWS warranted but precluded finding in 2010. 75 FR 13910. The Preferred Alternative (presumably Alt. F) will need to be strengthened to meet the level of protection recommended in the National Technical Team Report at minimum in order to represent effective conservation measures that have some chance of obviating the need to list the greater sage grouse in general, and this population in particular, as Threatened or Endangered. We are concerned that BLM may not fully apply mitigation measures identified in the RMP revision, using agency discretion to create loopholes in cases where project proponents find mitigation measures to be onerous. RMP language should be clearly articulated that standards are indeed standards and will be applied rigorously throughout the life of the Plan.	3035_1

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1008	1008-1	BLM must consider implementing key sage grouse protections recommended by USFWS and the BLM's own National Technical Team (e.g., a 4-mile no surface disturbance buffer for active leks within Core Areas). The agency must also consider the Sage-Grouse Recovery Alternative attached to these comments; it is important to note that this alternative has been considered in detail for sage grouse plan amendments elsewhere within BLM purview. The agency must consider expanding Priority Habitat designations beyond the Core Areas designated under State Executive Order, and we applaud the agency for doing this under Alternative E's Key Habitats. And the BLM must consider measures that require the elimination of surface disposal of coalbed methane wastewater.	3035_1
1009	1009-6	Also, if the mining company is unable to claim this and mine through then the mining company would not be able to continue the cast back technique and this would require a stop and start that would result in additional disturbance and which is not a desired BMP from an ecological basis.	3020
1009	1009-4	The socioeconomic section of the Draft RMP failed to include bentonite mining industry even though 16% of the employment for Big Horn County is the mining industry generating 22% of the earnings. The proposed options E & F would have a greater impact than what is portrayed in this section and I believe that the author is incorrect with their analysis.	3036-1
1009	1009-3	When developing a mine plan for submission it is occasionally found where a corner or a small amount of bentonite is located outside of the existing claims and will be claimed prior to submitting the plan of operation. If the lands became an ACEC then the existing claims would be valid in the above instance however, the mining company would not be able to obtain the additional mineral since it will be proposed to be withdrawn by Congress.	3020
1009	1009-2	In regards to the proposed ACEC lands for both E (1, 764,621 Acres) & F (1,529,955 Acres), they will have a significant impact on the mining companies as well as grazing. Both of these industries provide a significant source of revenue to the Big Horn Basin. This would be fine if all of the lands were claimed, but they are not. With the additional restrictions placed on the ACEC such as drill notices requiring a plan of operation in order to assess whether or not the bentonite is a viable option for mining would be detrimental to the industry for those operating on federal lands based on the additional time and work to complete the notice. This would also at least double the workload of an already "super busy" Field Offices.	3020
1011	1011-7	Record #50 requiring fencing off of burned areas is another proposal designed to destroy the economic viability of livestock grazing on Federal lands and cannot be scientifically justified. Proper herd management is currently used to avoid unwarranted intrusion into sensitive areas and is effective.	3011
1011	1011-6	Record #49 the concept of eliminating livestock grazing from grazing in burned areas is very counterproductive to the resource. Many shrubs take many years (50-60) to develop and the elimination of livestock grazing is not scientifically justifiable and again, another radical and single use, environmentally biased proposal designed to eliminate livestock grazing from Federal lands.	3011

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1011	1011-5	Chapter 4.3 Fire and Fuels Management: This restrictive use of fire as a management tool is another scientifically unjustified provision available to land managers and should not be eliminated from the options available to sustain and improve the forage potential of Federal lands.	3011
1011	1011-2	Chapter 2, Table 2.3 Alternatives E & F. This clause establishes sage grouse as the single dominant use at the expense of all others. It cannot be justified scientifically. Our cattle operation, commercial hunting business and guest ranch, all use lands inhabited by sage grouse with no negative effects. The predator problem, especially coyotes, is in fact a serious problem and as their population has increased, there has been increasingly serious pressure on the sage grouse on our ranch lands, both private and public.	3001
1011	1011-1	2. Chapter 2, Table 2.2 states that Desert Land entries would be abolished. The fact is that irrigated lands, blended with Federal lands are a positive relative to sage grouse habitat. We have local evidence on our own fee property, proving this and our private irrigated land base has consistently assisted the survival rate of sage grouse during severe winters.	3016-1
1012	1012-1	We recommend that the BLM continue to maintain Alternative D as the Preferred Alternative in the Bighorn Basin RMP. While we appreciate the analysis of the new Alternatives E and F for Greater Sage-grouse conservation, we do not believe that these alternatives are necessary. Alternative E would establish an Area of Critical Environmental Concern (ACEC) based on a modified version of the federally managed portions of Wyoming's Version 2 Core Areas, which we believe have little biologic value in the eastern Bighorn Basin. Alternative F would establish an ACEC based on federally managed portions of Wyoming's Version 3 Core Areas. While we feel that the Version 3 Core Areas have biologic value, we feel that the State of Wyoming is already providing adequate and appropriate protection for sage-grouse and the species' habitat. The State of Wyoming's Greater Sage-grouse Core Area Protection strategy, currently set by Executive Order 2011-5, has proven to be an effective conservation strategy for the sage-grouse. This strategy has been endorsed by the United States Fish and Wildlife Service, and we also believe that the BLM has been able to successfully implement it on projects occurring on federal land in Wyoming. Further, the strategy applies to regulated development on all lands whereas the proposed Alternatives would only apply to BLM land though a significant amount of non-BLM land exists in these areas. As such, we believe that the protections provided by the strategy exceed those that could come from the proposed Alternatives.	3001
1013	1013-6	Appendix L, Best Management Practices, Vegetation Treatments/Fire and Fuels Management, #24-25, p. L-7: The Best Management Practices refer to "annual grasslands." Generally, annual grasslands are an ecosystem that exists in California and not in Wyoming. The WDA recommends changing the language to "areas infested with undesirable annual grasses" or similar language to decrease possible confusion.	3042

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1013	1013-5	4.4.2 Vegetation -Grassland and Shrubland Communities. 4.4.2.3 Detailed Analysis of Alternatives, Alternative F, Resource Uses. p. 4-46: "livestock grazing management in this ACEC includes multiple management actions that would benefit grasslands and shrublands, including requirements for land health assessments to determine whether rangeland health standards are being met..." The BLM is already required to determine whether rangeland health standards are being met. This requirement includes meeting standards for wildlife habitat, including greater sage-grouse habitat. Alternative F does not change or extend this requirement. We recommend removing this portion of the analysis.	3042
1013	1013-4	Table 2.5. Detailed Alternatives, 7000 Special Designations (SO) -ACECs - Proposed Greater Sage-Grouse Priority Habitat Area ACECs, Record #110, p. 2-35: Alternative F -"Identify the specific allotment(s) where retirement of grazing privileges is potentially beneficial. (See Appendix P for a list of all grazing allotments in Core Habitat Area; this list indicates the universe of allotments where retirement could be considered, not those currently identified for retirement)." The WDA continues to be concerned about identifying allotments through an RMP process where retirement of grazing privileges is "potentially beneficial." We do not recommend carrying this action forward as part of the preferred alternative.	3017-1
1013	1013-3	Table 2.5. Detailed Alternatives, 7000 Special Designations (SD) -ACECs - Proposed Greater Sage-Grouse Priority Habitat Area ACECs, Record #31, p. 2-21: Alternative E -"If there ever is any legitimate need to reduce "thatch" in meadows, grass mowers will be used. Thus, livestock manure, trampling damage to soils, weed spread will be minimized." The action expressed in this record includes many negative statements towards livestock grazing, assumes livestock cannot be managed in a manner to reduce "thatch," introduces bias immediately against the idea of reducing "thatch" in meadows and contains more analysis points than actual actions. The WDA recommends removing bias and analysis points from Record #31 by rewriting the action to read "If necessary, "thatch" in meadows will be reduced using grass mowers." The BLM should analyze the pros and cons of using other methods, such as livestock, in Chapter 4. In addition, we do not recommend carrying this action forward as part of the preferred alternative	3042
1013	1013-2	The WDA requests the BLM incorporate language similar to the following in order to be consistent with EO 2013-3, Greater Sage-Grouse Core Area-Grazing Adjustments, which supplements EO 2011-5: "The BLM will collaborate with appropriate Federal agencies, and the State of Wyoming as contemplated under Governor Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage Grouse conservation objectives are not being achieved on federal land, to determine if a significant causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site based action to achieve Greater Sage-Grouse conservation objectives within the framework." We recommend the BLM add the above language as a standalone management action in the preferred alternative .	3017-1

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1013	1013-1	The actions addressed in Alternatives E and F are built with the perception that livestock grazing is always a negative influence on greater sage-grouse habitat and the BLM's management options to improve livestock grazing management, and thus greater sage-grouse habitat, are limited. In reality, livestock grazing can be managed to maintain or improve greater sage-grouse habitat and the BLM already has the authority to make changes to livestock grazing management without additional restrictions added through this RMP Revision process. Choosing Alternative E or Alternative F as the preferred alternative will have negative consequences on livestock grazing, the ability to manage livestock grazing, local economics and the custom and culture of Wyoming and the West.	3017-3
1016	1016-5	6. The last-minute introduction of Sage Grouse mitigation measures into this planning process is unacceptable. After years of a drawn-out planning effort, numbing the participants to the point where some have abandoned the process, two new alternatives have suddenly been mandated by BLM political leadership. These last-minute additions have then been run through an amended EIS process. We have been repeatedly assured that the Preferred Alternative is not one of these new sage-grouse-friendly alternatives, but there is no certainty that this will not change. Within the Cooperating Agencies there is a dread that a "bait-and-switch" scenario may replace the Preferred Alternative with one of the sage grouse alternatives at the last minutes.	3027-1
1016	1016-3	4. Hot Springs County's 2002 Natural Resources Plan for State & Federal Lands mandates sage grouse mitigation. Specifically, on Page 62 the Plan states: Hot Springs County supports sage grouse recovery efforts which are implemented by management techniques that do not negatively affect the general we/fare/economy of the County. Therefore, the County has identified habitat improvement (mechanical, chemical, irrigation, controlled fires, fire suppression policies, reseeding, and grazing), predator control and revision of hunting seasons if necessary as acceptable management techniques. Management techniques which negatively affect the economy, especially restrictions and stipulations on grazing and mining/oil/gas operators, are strongly discouraged by the County. Hot Springs County is currently in the process of updating its Natural Resources Plan. However, in its current draft form the language of the paragraph quoted above is retained with only a few minor changes. In summary, the 2002 HSC Natural Resource Plan mandates that efforts which do not impact the socio-economic fabric of the County must be pursued prior to any measures which do have the potential to impact the County's economy. The Big Horn RMP should be amended to contain similar language	3036-2

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1016	1016-2	2. Socio-Economic Impacts to local communities are not being adequately addressed. This is also a NEPA requirement (section 1502.22), and is elemental to the environmental review process. Typical examples of these impacts include reduced funding to local school districts, County operational funding, infrastructure maintenance and repair (i.e. bridges, highways), and other major local services due to reductions in tax revenues from oil, gas, and mineral operations on BLM lands. It is important to note that oil & gas revenues and property taxes fund approximately 80 percent of Hot Springs County's operating budget, and the overwhelming majority of that production activity in the County occurs on BLM lands. While oil & gas production has been steadily decreasing over the past four decades, the increasing unit value of these resources has allowed revenues to remain consistent. Increasing regulations and restrictions on this activity -- particularly those addressing sage grouse habitat--will accelerate this drop in production and subsequent decrease in revenues, very likely outpacing the ability of the rising value of these commodities to keep pace with reduced production. Furthermore, these regulations should consider that the United States now has nationwide strategic considerations which render it undesirable to discourage oil and gas production. I have attached two pie-charts (HSC 2012 Valuation and HSC 2012 Tax Dollars Distribution) that illustrate the overwhelming importance of oil & gas revenues to schools and other local government operations in Hot Springs County. It is not unreasonable for us to expect that potential adverse impacts to local residents and local communities should be given the same detailed scrutiny as potential adverse impacts to sage grouse	3036-2
1016	1016-1	1. Cumulative Impacts are not adequately addressed. This had been a problem from the outset, and appears to be the result of a misinterpretation of NEPA's original intent, perhaps due to limited funding and personnel. These impacts must include seasonal restrictions, buffer zones, habitat expansion, surface restrictions, etc., and have already combined to create a substantial damper on the local economy. Addressing cumulative regulatory impacts is a NEPA requirement, and must include all existing or proposed regulations from other state and federal agencies. In the Big Horn Basin, these would include-but not be limited to-the ongoing Shoshone Forest Management Plan, the Big Horn River TMDL Study, and current Wyoming Game & Fish Department and U.S. Fish & Wildlife Service practices. Several of these involve existing or proposed regulations which combine to dramatically impede activities on public lands in the Big Horn Basin, such as oil and gas production, bentonite mining, public access, recreation, etc.	3008
1017	1017-130	With respect to projections of oil and gas development, the LGCA believes that the BLM significantly underestimated the potential for recent and upcoming technologies to develop existing resources. The LGCA is concerned about potential impacts on grazing that are not explicit in the SEIS. The land use plans are clear in that they are opposed to any reductions in grazing, particularly if they are not backed up by scientific data.	3027-2

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1017	1017-129	The LGCA fully supports the goals of multiple use and sustained yield, balancing increasing and competing demands for resources on public lands while serving the best interests of the residents of the Bighorn Basin. The LGCA finds both Alternatives E and F unacceptable in their current form.	3027-1
1017	1017-122	The LGCA Conservation Districts and Counties each have Land Use Plans which address goals, objectives, and policies for lands within the counties. The BLM has not adequately considered the counties' land use plans or the importance of oil and gas to Washakie. Hot Springs or Big Horn Counties in the SEIS. Hot Springs County has brought to the BLM's attention that 80% of their budget comes from oil and gas production, but this fact has not affected the BLM's analysis of the potential impacts to the oil, gas, minerals, and socioeconomic resources. Big Horn County's Comprehensive Land Use Plan also recognized the importance of industry. Policies directly related to the SEIS are excerpted below.	3027-2
1017	1017-121	According to Table 4-22 the impacts to livestock grazing are identical for Alternatives A, D, and F. Please provide support for your analysis .	3017-5
1017	1017-119	We request that this impact on livestock grazing, and therefore on the socioeconomic resource, be included in the assessment.	3017-5
1017	1017-118	Please address the cumulative impacts of oil and gas restrictions, including increased length of permitting due to additional management measures.	3008
1017	1017-117	The LGCA requests that the BLM incorporates the potential social and economic impacts summary tables provided in our PDSEIS comments into the SEIS.	3036-1
1017	1017-116	The cumulative impacts section includes the following statement on page 4-147: "While the reduction from Alternative A to alternatives B and E would still be substantial, the stability of state and private production would moderate the change in federal policy." This statement does not take into consideration the changes in tax revenue for private versus federal lands. In addition, the analysis should also consider changes to community health if oil and gas production is increasingly pushed onto state and private lands, which constitute a small portion of the area in the region. Also included in this section (page 4-19) is the statement that: Despite the potential for cumulative impacts resulting from various operations in the Planning Area, overall cumulative impacts of BLM and non-BLM actions are not anticipated to have long-term adverse impacts on livestock grazing on public lands, since anticipated impacts to grazing lands would occur gradually over the life of the plan, except in Alternatives 8 and E where the impacts of livestock grazing withdrawals would be substantial. The LGCA believe that the impacts from changes in other RMP revisions need to be analyzed in conjunction with changes in this RMP to determine the cumulative impact of the current environmental movement to remove grazing from public lands .	3036-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-115	The SEIS asserts on page 4-137 that "Geographically, the change in job opportunities -and related impacts on housing and community services - would be spread across the Planning Area and would be spread over time." These are assumptions that were made within the analysis itself, rather than results of the impact analysis. Where the impacts would occur and at what time period was not analyzed. The LGCA would like to clarify that there are small communities within the planning area which will experience large impacts from small changes. A \$5 million difference in revenues over two decades is a significant effect to our small counties. And, by making the assumption that the impacts will spread across the planning area, the BLM is failing to provide required monitoring and mitigation measures for adverse impacts that may arise to particular communities.	3036-2
1017	1017-114	The following remark is included in the summary of impacts from Alternative F on page 4-136: "In comparison to Alternative A, the average annual number of jobs supported by recreation activities and livestock grazing would increase, while the number of jobs supported by oil and gas would decrease by approximately 4%." According to Table 4-22 the impacts to recreation are constant across all alternatives and the impacts to livestock grazing are identical for Alternatives A, D, and F. The conclusion that jobs in livestock grazing would increase with the additional seasonal and other restrictions in Alternative F is inconsistent with the experience of the LGCA. Please provide support for your analysis. Furthermore, while we understand that the use of 2008 data facilitates comparison between the four original and two new alternatives, we are concerned that employing 2008 figures has the effect of understating the true economic impacts to county, state, and federal revenue streams.	3036-1
1017	1017-113	The LGCA also request that additional language be included in the analysis on page 4-135 to clarify the summary of impacts. In our experience, an increase in management stipulations results in the decrease of future economic opportunities. This means that Alternatives E and F are in conflict with the land use plans that emphasize maintaining multiple-use in order to maximize future economic opportunities. Additionally, there is a high level of impact due to the seasonal and discretionary closures.	3036-1
1017	1017-110	While we understand that the impacts are low based on IMPLAN results, the inclusion of additional constraints in Alternatives E and F that were not analyzed has the potential to create high impacts. Our requested solution is to state a range of impacts from low to high based on outcomes of further analysis. This will ensure that the reader who skims the document and focuses on the summary tables to understand impacts is receiving accurate information. Also, this will provide the opportunity to incorporate monitoring and mitigation plans to ensure the health of local communities should seasonal and travel restrictions create high impacts. Prior to the PDSEIS, the LGCA submitted the following language for inclusion in the PDSEIS. This language was not included in the SEIS. We request that it be included in the Final RMP.	3036-1

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1017	1017-109	Our comments prior to the PDSEIS focused on the potential for Alternatives E and F to greatly impact the social and economic conditions in the planning area. While the BLM did include language on the uncertainty of impacts in the PDSEIS, which was expanded in the SEIS, the summary conclusions still state that there will be low impact to most social and economic conditions. By leaving the summary and related tables unchanged, the BLM is failing to ensure that needed monitoring and mitigation plans will take place.	3036-2
1017	1017-108	Another major concern is the lack of analysis of restrictions placed on ROWs and seasonal use, as well as management discretion contained in the two new alternatives.	3033-1
1017	1017-107	As the LGCA has previously expressed, the summary of the level of impacts by alternative (Table 2.6, page 2-43) is misleading to readers and policy makers. The conclusion that the alternatives will have low impacts on the social and economic conditions of the planning area are based on assumptions that ROW restrictions, changes to the Travel Management Plan, seasonal restrictions, and management actions with discretionary decision-making will have no impact grossly understates the likely impacts. The LGCA requests that Table 2-6 be revised to clarify the range of potential impacts (low to high) and to include language that recognizes the uncertainty of the level impact as provided in the analysis.	3036-1
1017	1017-106	Page 2-24 of the SEIS states: The BLM closes the same acreage in the Planning Area to livestock grazing as alternatives A and D (5,171 acres). Alternative F manages grazing lands consistent with Alternative D, except that in the Greater Sage-Grouse Habitat Core Habitat Areas ACEC where the BLM prioritizes the consideration of sage-grouse habitat objectives and management considerations over livestock grazing objectives through the imposition of restrictions on livestock grazing location and timing, and range improvements projects. The location and timing of grazing is critical to ranch viability in the planning area. Ranchers move herds to allotments on specific days in order to grow enough hay to feed the cattle through the winter. If a small window of time is closed in a specific allotment the operations for a ranch may be impacted for the entire year. We request that this impact on livestock grazing, and therefore on the socioeconomic resource, be included in the assessment.	3017-5
1017	1017-105	Lastly, we believe that the cumulative impacts are understated. Cumulative impacts should also address the impacts of the changes in other RMP revisions within Wyoming. There is currently a strong push by the environmental community to remove livestock grazing from public lands. The movement's effect on management actions outlined in RMP revisions across Wyoming and Idaho must be addressed in this analysis. Also, cumulative impacts of oil and gas restrictions, including increased length of permitting due to additional management measures, should be addressed.	3008

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1017	1017-104	Additionally, as with the Draft EIS, the SEIS socioeconomic analysis fails to provide an adequate analysis of the dispersion of impacts across the planning area. There are some communities in the planning area that are primarily ranching communities, while others are population centers for oil and gas workers. Small changes in livestock grazing policies have the potential to create large impacts in small ranching communities. By aggregating impacts across the region, the BLM and LGCA are missing the opportunity to develop proper monitoring and mitigation measures during the planning process and within the ROD.	3036-2
1017	1017-103	The LGCA believes that Alternative E and F should be more accurately portrayed as having restrictive impacts on economic activities in the planning area. We request that if any of the management actions from these two alternatives are included in the preferred alternative, or if Alternative E or Fare selected by the BLM, that a comprehensive socioeconomic monitoring and mitigation plan be included in the ROD. Further, at present the summary conclusions in the SEIS are not consistent with the analysis performed in the document. We are concerned that a cursory reading of the document shows only a low to medium impact from Alternative F, when in fact the impacts to the resource are unknown at this time due to ROW, travel, seasonal restrictions, and management discretion. Further analysis is needed to determine the socioeconomic impacts with any level of certainty for both Alternatives E and F.	3036-2
1017	1017-102	While a limited amount of the narrative that was provided prior to the completion of the PDSEIS was incorporated, we were impressed with the level of responsiveness from the BLM in integrating the majority of our recommendations on the PDSEIS in to the current SEIS. At this point in the process, the major change the LGCA requests is that the BLM incorporates the potential social and economic impacts summary tables provided in our PDSEIS comments into the SEIS. These are included again below for your convenience (Table 2 and Table 3).	3036-1
1017	1017-101	We support the 5% disturbance cap, which when combined with other collaborative conservation efforts provides sufficient measures for the protection of sage-grouse populations in the Bighorn Basin Planning Area. The LGCA requests that the 3% disturbance cap in Alternative F be changed to 5%.	3035_4
1017	1017-98	We support the State of Wyoming's Executive Order 2011-5 regarding greater sage-grouse conservation and request that the BLM use only Core Area habitat designations across all alternatives. We insist that the BLM work with the State of Wyoming to adhere to the Executive Order.	3035_1
1017	1017-96	We are concerned about the restriction of herbicide use within ACECs, particularly about the BLM's capacity to manage invasion plant species in existing, potentially expanded, and newly proposed ACECs. This is critical for the ACECs designated for Key or Core sage-grouse habitats, where weed management would greatly benefit sage-grouse. We suggest the BLM consider a pilot program where herbicide use would be allowed in all new acreage brought into the ACEC designation that is Core Area or Key sage grouse habitat for any noxious weed infestation that totals more than 5 acres.	3014

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1017	1017-93	We encourage the BLM to add the replacement of windmills with solar pumps for stock water tanks and ponds to BMPs for greater sage-grouse. This technology has proved highly beneficial and effective in the Pinedale Planning Area for providing domestic livestock with water sources, producing overflow water that increases vegetative cover and forage production for sage-grouse, and removing the raptor perches provided by the windmill structures. Please see livestock grazing comments for more details on the BLM Pinedale planning efforts.	3035_6
1017	1017-91	The LGCA is concerned that the BLM claims to be following Wyoming's Core Area policy in Alternative F, yet uses a 3% disturbance cap, not the 5% disturbance cap outlined in Wyoming's Core Area strategy. We feel this represents an excessive restriction. A recent review of the BLM's NTT Report corroborates our belief: According to the NTT, the report "provides the latest science and best biological judgment to assist in making management decisions." In reality, the NTT report represents a partial presentation of scientific information to justify a narrow range of preferred conservation measures and policies that will be imposed as land use regulations by the BLM. In contrast, an objective scientific review would have led to a broadening of conservation alternatives for decision makers to choose from. (Ramey II 2013)	3035_4
1017	1017-89	We understand the need to balance the development and maintenance of industry and commercial activities with the management of healthy fish and wildlife populations. We therefore support the State of Wyoming's Executive Order 2011 -5 regarding greater sage-grouse conservation. Copeland et al. (2013) predict that using Wyoming's "Core Area" policy combined with \$250 million in targeted easements could reduce projected losses of sage-grouse populations to 9-15%, cutting anticipated losses by one-half statewide and nearly two-thirds within sage-grouse core breeding areas (Copeland et al. 2013). These projected losses were calculated based on projected future build-out of oil and gas, wind energy and residential development.	3035_1
1017	1017-88	The history of horse management in the Fifteen Mile HMA is described on page 3-119 of the Draft RMP. We find the wild horse estimates by the BLM especially problematic in the context of the NTT Report directing the agency to incorporate sage-grouse habitat objectives within HMA management plans for those HMAs within Key and Core sage-grouse habitat areas. Please consider revising HMA management in light of Record 113 (page 2-36 of the Draft RMP), which authorizes the BLM to prioritize evaluation of all Appropriate Management Levels based on indicators that address structure/condition/composition of vegetation and measurement specific to achieving sage-grouse habitat objectives within Key and Core sage-grouse habitat.	3045

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-81	Record 50 in Table 2.5 provides for the following management action under Alternative F: "Where burned sage-grouse habitat cannot be fenced from other unburned habitat, the entire area (e.g., allotment/pasture) should be closed to grazing until recovered." Please amend this management action by specifying the acreage of burned greater sage-grouse habitat that would trigger an area (allotment/pasture) closure. This can be done either by establishing a minimum burned acreage or a percentage of greater sage-grouse habitat within an existing allotment. We suggest the following language: Where recently burned sage-grouse Core Area habitats exceed 20% or sage-grouse general habitats exceed 40% of a specific pasture or allotment that cannot be fenced from other unburned habitat, the entire area (e.g. allotment/pasture) should be closed to grazing by domestic livestock until area recovers. Recovery is based upon BLM's recovery formula.	3035_6
1017	1017-80	The LGCA is strongly in favor of using the Greater Sage-grouse Core Habitat Areas, as designated by the Wyoming Governor's Office, across all alternatives (Wyoming Office of the Governor 2011). We request that the BLM omit the use of Key Areas in the Final RMP and EIS.	3035_1
1017	1017-78	Please include language in that acknowledges the impacts wild ungulates and feral horses may have on the quality and composition of key forage species.	3045
1017	1017-75	The Draft RMP states on page 3-98: Management challenges for big game species include poor habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality and composition of key forage species. The above text singles out domestic livestock as the only grazing impact on big game species. This is inconsistent with the SEIS language in Section 3.4.9, which suggests that grazing and browsing from wild ungulates (deer, pronghorn, moose, elk, mountain goat, and bighorn sheep) impact special status species habitat. Please include language in section 3.4.6 that acknowledges the impacts wild ungulates may have on the quality and composition of key forage species. Wild ungulates have the capacity to alter and impact frequency, quality and composition of key forage species as well. Wild or feral horses, depending on how an agency chooses to classify them, are ungulates too. Grazing and browsing by these horses influence frequency, quality and composition of key forage species. The LGCA requests language to this effect is included in section 3.4.6.	3045
1017	1017-69	Please provide additional explanation of how the BLM national greater sage-grouse planning strategy led to the decision to propose the two new ACECs, when neither the NTT nor the statewide BLM specify that ACECs are a required designation for sage-grouse habitat protection. Since Alternatives E and F are almost the same as B and D, please address what about ACEC designation in particular responds to the directives in these above-discussed memoranda and directives.	3001
1017	1017-68	Please clarify how the additional layer of proposed ACEC designation meet the stated objectives beyond what is already provided in Alternatives B and D.	3001

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1017	1017-67	The BLM national greater sage-grouse planning strategy provides the following language as directive for treatment of sage-grouse in the RMP revision process: Based on the identified threats to the Greater Sage-Grouse and the FWS timeline for making a listing decision on this species, the BLM needs to incorporate explicit objectives and desired habitat conditions, management actions, and area-wide use restrictions into LUPs by the end of FY 2014. The BLM's objective is to conserve sage-grouse and its habitat and potentially avoid an ESA listing. (BLM 2011 a) Further: The NTT-developed conservation measures were derived from goals and objectives developed by the NTTThese goals and objectives are a guiding philosophy that should inform the goals and objectives developed for individual land use plans. However, it is anticipated that individual plans may develop goals and objectives that differ and are specific to individual planning areas. "(BLM 2011a) (emphasis added). The LGCA interprets this statement as providing flexibility to individual land use plans for crafting their own area-specific goals and objectives. The SEIS, however, treats ACEC designation as arising naturally from the BLM directives above, rather than actually being just one of many conservation strategies that would have met the conservation measures referenced above. The SEIS states on page 4-122: The proposed Greater Sage-Grouse Key Habitat Areas and Greater Sage-Grouse Core Habitat Areas ACECs were developed in response to the greater sage-grouse habitat management policy guidance set forth in WY BLM Instruction Memorandum (IM) No. WY-2012-019 (BLM 2012a), and in accordance with the BLM Washington Office IM No. 2012-44 (BLM 2012b), BLM National Greater Sage-Grouse Land Use Planning Strategy. Proposal and consideration of these ACECs represent proactive conservation measures that reduce or eliminate threats to greater sage-grouse to minimize the likelihood of and need for listing of this species under the ESA. Please provide additional explanation of how the BLM national greater sage-grouse planning strategy led to the decision to propose the two new ACECs, when neither the NTT nor the statewide BLM specify that ACECs are a required designation for sage-grouse habitat protection. Since Alternatives E and F are almost the same as B and D, please address what about ACEC designation in particular responds to the directives in these above-discussed memoranda and directives.	3001
1017	1017-64	The goals and objectives for Special Designations are as follows on page 2-163: Goal SD 1: Protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or process, or to protect life and safety from natural hazards. Objectives: SD1.1: Utilize special designations to meet resource protection needs within appropriate geographical areas. SD 1.2: Provide for appropriate interpretation of sites of high public interest. How does the additional layer of proposed ACEC designation meet these objectives beyond what is already provided in Alternatives B and D? The creation of Alternatives E and F does not appear to the LGCA to address the goals and objectives more substantially than the existing alternatives.	3001

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1017	1017-63	The LGCA continues to support the Governor of Wyoming's Executive Order for Greater Sage-grouse (Wyoming Office of the Governor 2011), which established core areas for protection. We believe that this order provides for sage-grouse and sage-grouse habitat protection while avoiding unnecessary additional restrictions. The latest scientific findings corroborate the strength of core areas designation in protecting sage-grouse adequately to prevent an ESA listing (Copeland et al. 2013). The BLM should work with the State of Wyoming and with the LGCA to determine what conformance to the Executive Order means specifically for this planning area.	3035_1
1017	1017-60	Correct the boundaries of the Alternative F VRM Class II for the Sheep Mountain Anticline ACEC to provide a 1/4-mile buffer of the adjacent VRM Class IV to fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.	3043
1017	1017-59	Until the impacts associated with Alternatives E and F are fully analyzed and understood, we request that the BLM dismiss these alternatives.	3027-1
1017	1017-57	While applying a leasing screen during the RMP/EIS revision process to ensure consistency with proposed protections for greater sage-grouse is justified, the first modifying statement does not provide clear or consistent management direction. More importantly, it is not clearly described in the Draft RMP/EIS or SEIS how the BLM intends to evaluate oil and gas leasing decisions for these areas that address resources of concern and better fit the MLP criteria. Given that there will be no changing circumstances, updated policies, or new information not already examined in the RMP/EIS revision, how would the MLP analysis differ from that performed during the revision and why would it be required?	3023-6
1017	1017-55	Alternative F withdrawals and VRM Class II restrictions encompass the Sheep Mountain Anticline ACEC and the VRM Class II east and west boundaries coincide with the BLM-developed potential for bentonite GIS layer boundaries. The VRM Classes are definitive boundaries on the map and management of the VRM boundaries should take place strictly within the area boundaries, not on areas outside the boundaries or on a viewshed basis. For example, do not conclude that operations in Class IV areas detract from the visual resources of the adjacent Class II because the operation can be viewed from within the Class II. This conclusion would result in an inaccurate determination of undue environmental degradation for a Plan of Operations in the adjacent class boundary. Therefore, the boundaries of the Alternative F VRM Class II encompassing the Sheep Mountain Anticline ACEC should be modified to provide an additional 1/4-mile buffer of the adjacent Alternative F VRM Class IV to more fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.	3043
1017	1017-54	While it is acknowledged that there will be a decrease in earnings and output under Alternative F when compared to Alternative D, the increase in additional timing limitations included in Alternative F are not adequately analyzed or presented. Until the impacts associated with these alternatives are fully analyzed and understood, we request that the BLM dismiss Alternatives E and F.	3023-6

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1017	1017-53	The Wyoming Enhanced Oil Recovery Institute (WEORI) estimates that another 1.3 to 2 billion barrels of oil can be recovered from the Bighorn Basin as a result of enhanced oil recovery (EOR) operations using CO2 to displace stranded oil (Wyoming Enhanced Oil Recovery Institute 2011). The LGCA agrees that large reserves of oil can be recovered with the implementation of CO2 EOR in the planning area and believes that Alternative E would have significant impacts that have not been disclosed. The same holds true for Alternative F. The SEIS states (page 4-143): Based on the IMPLAN model, regional earnings and output under Alternative F for the modeled sectors (oil and gas, grazing, and recreation) would be similar to but slightly less than under Alternative D due to additional NSO restrictions for oil and gas development in greater sage-grouse Core Habitat Areas. This NSO restriction would reduce estimated oil and gas development when compared to alternatives A and D.	3023-6
1017	1017-52	Further, Sublette County Commissioner Joel Bousman has indicated that several innovative approaches to wildlife mitigations exist (Bousman pers. comm.). These including the possibility of the broad scale purchase of conservation practices as payment for ecosystem services, as described in the BLM Socioeconomics Strategic Plan 2012-2022 (BLM 2013). One practice in particular that the BLM should consider is coordination and assistance with cost-sharing in the conversion from windmill water developments to solar power. This practice was surprisingly successful in the Pinedale Planning Area, as the conversion took away raptor perches, thereby reducing a risk to sage-grouse. At the same time, overflow water was newly available into mid-September, which kept some plant communities and key forb species in a more productive state, increasing habitat quality for sage-grouse clutches.	3035-7
1017	1017-51	The LGCA also suggests that the BLM Bighorn Office communicate with the BLM Pinedale Office to take advantage of their experience with sage-grouse related conservation measures. Sublette County, which is within the Pinedale Planning Area, has been extensively involved in project and planning level BLM projects and has experience with developing effective mitigations for sage-grouse, including improved livestock distribution, fencing, and water developments. Their range improvements are consistent with NTT recommendations. Generally, ranching and cattle water developments provide water resources that the sage-grouse depend upon. The retirement of grazing leases could reduce water availability to sage-grouse, while effective mitigation measures to existing allotments has been shown to benefit sage-grouse	3035_6
1017	1017-49	Provide the impacts for management actions under Alternative F that limit, reduce, or prohibit AUMs.	3017-3

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-48	<p>Please clarify the management actions language in Table 2.5 as discussed above. "Our review of the Draft RMP's glossary definition of surface disturbing activities indicates an inconsistency with the Rawlins, Casper, Kemmerer, and Grass Creek RMP glossaries. Only the Bighorn Basin Draft RMP considers livestock grazing as a surface disturbing activity. BLM IM No. WY-2007-029, "Guidance for Use of Standardized Surface Use Definitions," is relevant to the incorrect definition of "surface disturbing activities" in the Draft RMP. The 1M directs BLM managers to standardize the definitions of commonly used terms in RMPs and EISs. Review of the five definitions below indicates that the BLM has failed to implement the directive. Rawlins RMP: Surface Disturbance: Any action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lots and tanks). Casper RMP: Surface-disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of land surface and vegetation. These activities range from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit, and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction. Kemmerer RMP: Surface-disturbing Activity: An action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lot and tanks). Grass Creek RMP: Surface-Disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of the land surface and vegetation. It ranges from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction. Bighorn Basin Draft RMP: Surface-Disturbing Activities: These are Public Land resource uses/activities that disturb the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface-disturbing activities include: construction of well pads and roads, pits and reservoirs,</p>	3017-1
D-28		<p>pipelines and power lines, and most types of vegetation treatments (e.g. prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., No Surface</p>	<p>Bighorn Basin Proposed RMP and Final EIS Comment Analysis Report</p>

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-46	The only text in Appendix P precedes Table P-3, "Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Core Habitat Areas." It reads as follows: "The determination of retirement of grazing privileges of allotments or portions of allotments in Greater Sage-grouse Core Habitat Areas would be made upon site specific National Environmental Policy Act analysis." The LGCA has several questions here. What goal, objective, or management action would trigger a NEPA analysis? In other words, would grazing lease retirement be the proposed action itself, or would it be considered indirectly, as a necessary part of Greater sage-grouse Core Habitat Area management? Secondly, why is there no chart or language regarding allotment treatment under Alternative E? Please indicate here that Alternative E would cancel all grazing allotments in Key Areas. Lastly, please provide an explanation of the actions and impacts of the three management categories, "custodial," "improve," and "maintain," in relation to the NEPA analyses cited above. Are Custodial and Improve category allotments slated for retirement of grazing privileges under Alternative F, as their definition in the Draft RMP/EIS Glossary can be read to imply? Please clarify if this is or is not the case. If it is, the socioeconomic effects analysis must include the impacts of such management actions. Please see Socioeconomic Resource comments.	3017-1
1017	1017-45	In sum, the LGCA believes that Alternative F has indirect, direct, and cumulative impacts to the livestock grazing resource which have not been adequately addressed in the SEIS. We request this analysis be included in the Final RMP/EIS.	3017-3
1017	1017-44	The LGCA requests that the BLM incorporate these impacts into the analysis in the socioeconomic resources section of the SEIS. We have the same comments regarding the text on page 4-121: Within priority sage-grouse habitat, objectives and management considerations that benefit greater sage-grouse are incorporated into all BLM grazing allotments through AMPs or permit renewals, and additional restrictions would be placed on riparian/wetland and wet meadow areas to promote recovery or maintenance of appropriate vegetation and water quality. Under Alternative F, grazing and trailing would also be avoided within lekking, nesting, brood-rearing, and winter habitats of priority sage-grouse habitat during periods of the year when sage-grouse are utilizing such areas. A focus on greater sage-grouse habitat considerations in the Greater Sage-Grouse Core Habitat Areas ACEC, over consideration that would provide greater benefits to livestock grazing management, would result in adverse impacts from seasonal and other closures and a reduced ability to perform vegetation treatments. Management considerations under Alternative F would result in similar beneficial impacts to forage availability as alternatives A and D, except within the Greater Sage-Grouse Core Habitat Areas ACEC. Additional vegetation management restrictions within priority sage-grouse habitat would reduce the availability of livestock forage over a larger acreage than alternatives A and D. In addition, Alternative F would create seasonal and spatial limitations on grazing activities within the Greater Sage-Grouse Core Habitat Areas ACEC.	3036-1

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1017	1017-43	The LGCA agrees that "such a requirement could adversely affect livestock grazing in a substantial portion of the Planning Area since sagebrush may take multiple years to reestablish." We ask that the impacts to the livestock grazing and the socioeconomic resource be adequately characterized here, given that sagebrush ecosystem recovery could take decades. The same comment applies to the adverse effects on the resource that would result from the following actions, described on page 4-121: The management of surface-disturbing activities and livestock grazing near surface water and riparian/wetland areas under Alternative F is the same as Alternative D, except in the Greater Sage-Grouse Core Habitat Areas ACEC. In these areas surface disturbance limitations would result in beneficial impacts to vegetation health and forage productivity compared to alternatives A, C, and D, but would limit the ability of permittees to implement surface-disturbing rangeland improvement projects. Alternative F manages grazing use of riparian/wetland and wet meadow areas consistent with Alternative D, except in the greater sage-grouse Core Habitat Areas where closures to hot-season grazing and adjustments to the seasonal distribution of livestock may apply. Alternative F applies the same wildlife and special status species management action as Alternative D, except in greater sage-grouse Core Habitat Areas. Under Alternative F, grazing in lekking, nesting, brood-rearing, and winter habitats would be seasonally avoided. These restrictions on location and season of use would have adverse impacts on forage availability for livestock grazing compared to alternatives A and D, where these restrictions do not apply.	3017-5
1017	1017-42	Please disclose who the responsible party will be for performance and funding of the myriad monitoring and data collection activities required above. Is it the permittee? The BLM? Also, please disclose the impacts to the resource and to the socioeconomic resource as a result of these management actions. The description of Alternative F management actions continues, again without an impacts assessment, as follows on pages 4-120 to 4-121: Alternative F would result in the same acreage of prescribed fire treatment as alternatives A and D, although the emphasis of protecting and enhancing greater sage-grouse habitat for treatments in Core Habitat Areas under Alternative F could reduce the benefits to livestock grazing forage availability compared to those alternatives. In particular, Alternative F excludes livestock grazing in burned Core Habitat Areas (35 percent of BLM-administered surface lands) until woody and herbaceous plants achieve sage-grouse habitat objectives; such a requirement could adversely affect livestock grazing in a substantial portion of the Planning Area since sagebrush may take multiple years to reestablish (Manier et al. 2013). Similar to Alternative E, the fire and fuels management of Alternative F may also result in an increased risk of forage loss due to catastrophic fire.	3017-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-41	Page 4-118: The use of herbicides to control invasive species would be minimized within the Greater Sage Grouse Core Habitat Areas ACEC under Alternative F. Flash burners, mowing, and selected handcutting would be prioritized in these areas. Therefore, Alternative F may restrict grazing permit holders to more labor-intensive methods to control weeds when compared to Alternative D. Our concern with this directive is that ranchers will be restricted to using labor-intensive methods to control weeds and that the impacts of this management prescription have not been entirely disclosed in the impacts analysis. Please see the socioeconomic comments in this document regarding this issue.	3017-4
1017	1017-40	The LGCA is very concerned about the impacts analysis for Alternative F. It does not come close to disclosing the range of adverse impacts to the livestock grazing resource that are inevitable under the management actions described below. Page 4-116 of the SEIS states: "Livestock grazing management under alternatives A, O, and F-the alternatives most likely to apply management actions on a case-by-case basis-would generally result in a continuance of current grazing practices." This conclusion is unsupported, given that management actions developed for protection of sage-grouse core habitat often limit or prohibit grazing (see below). Please change this sentence to indicate that livestock management would substantially change under Alternative F. Below we excerpt descriptions of management under Alternative F that would have significant adverse impacts on livestock grazing. Please disclose these impacts to the resource in this section as well as in the socioeconomic resource section of the Final RMP/EIS. Alternative F Page 4-118: The use of herbicides to control invasive species would be minimized within the Greater Sage Grouse Core Habitat Areas ACEC under Alternative F. Flash burners, mowing, and selected hand-cutting would be prioritized in these areas. Therefore, Alternative F may restrict grazing permit holders to more labor-intensive methods to control weeds when compared to Alternative D.	3017-3
1017	1017-37	We ask that the Final RMP/EIS document include language that acknowledges the positive effect that grazing has on sage-grouse habitat when BMPs regarding seasonal rotation and stocking rates are followed.	3035_6
1017	1017-35	The SEIS states in Table 2-6 that that the current AUMs of 305,887 will only be reduced by 1-2% over the life of the RMP/EIS under Alternatives A, C, D, and F. According to this assessment, impacts to livestock grazing result only from management actions that directly change AUM allocations or otherwise restrict livestock grazing. There are no impacts disclosed under the array of Alternative F management actions that will inevitably change AUM allocations. As noted in detail below, these impacts are considerable. The LGCA also requests that the RMP include language that limits the decreases to AUMs to no more than 1-2% over the life of the plan, and that any restrictions that result in further decreases beyond the 1-2% are significant and require a full NEPA analysis.	3017-3

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1017	1017-34	"For all HMAs within priority sage-grouse habitat, prioritize the evaluation of all AMLs [sic.; AMUs] based on indicators that address structure, condition, and composition of vegetation and measurements specific to achieving sage-grouse habitat objectives." We recognize that the BLM is hamstrung by horse management priorities. But there is nothing in here about managing horses at minimum populations. We are concerned that if there are management actions conducted to address range conditions, the burden of those actions is going to fall on the agricultural community and not on horse management.	3045
1017	1017-33	"Any vegetation treatment plan must include pretreatment data on wildlife and habitat condition, establish non-grazing exclosures, and include long-term monitoring where treated areas are monitored for at least 3 years before grazing returns. Continue monitoring for 5 years after livestock are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas." Please disclose the vegetation treatments to which this management action applies, and indicate if grazing is deferred while pretreatment data is collected.	3017-4
1017	1017-32	"Encourage partners to monitor effects of retiring grazing permits in sage-grouse habitat." Please identify the partners that would perform monitoring.	3035_6
1017	1017-31	Regarding structural range improvements and supplements, the "[p]otential for invasive species establishment or increase following construction must be considered in the project planning process and monitored and treated post-construction." Our concern is that the burden of monitoring, and potentially treating, invasive species that establish themselves post-construction falls entirely on the rancher. This is especially problematic when considering that the establishment of the invasive species in the area may not have been caused by the new structures and supplements, but may have happened concurrently.	3017-4
1017	1017-30	"Design post-fuels-management projects to ensure long-term persistence of seeded or pre-treatment native plants. This may require temporary or long-term changes in livestock grazing management, wild horse and burro management, travel management, or other activities to achieve and maintain the desired condition of the fuels management projects." This directive may lead to confusion and inconsistent management in the event that seeded or pre-treatment native plants are not flourishing. Please provide specific language on the what, where, and degree of "persistence" necessary for seeded or pre-treatment native plants after fuels management activities.	3011
1017	1017-29	"Rest treated areas from grazing for three full growing seasons unless vegetation recovery dictates otherwise." Please clarify how vegetation recovery will be determined.	3017-4

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1017	1017-28	"Design post-restoration management to ensure long-term persistence. This could include changes in livestock grazing management, wild horse and burro management, travel management, or other activities to achieve and maintain the desired condition of the restoration effort that benefits sage-grouse." Please modify this language for clarity, so that the record gives precise limits to the extent of management actions. As it reads, this management direction can be interpreted to allow for the prohibition of all livestock grazing, access, or "other activities" as long as a case is made that such restrictions help "achieve and maintain the desired condition of the restoration effort that benefits sage-grouse."	3001
1017	1017-22	Table 4-16, Acres of Management in Lands with Wilderness Characteristics (page 4-115), is indicative of the BLM's problematic and inconsistent direction regarding LWCs. First, footnote 1 illustrates the muddled understanding the BLM has of the state of this resource: "Due to differing scales of analysis, numbers do not add to the total acreage for LWCs in the Planning Area" (page 4-115). We request clarification of these multiple scales of analysis. Further, we request that the BLM decide on one scale of analysis in order to adequately characterize the resource.	3046
1017	1017-21	The BLM's inventory of LWCs included in the Draft RMP/EIS remains problematic because it is still the de facto inventory relied upon in the SEIS. Crystal Creek and Sheep Mountain both have contorted borders that are a reflection of a desire to maintain land as LWC despite its roaded nature. The redesignation of inventoried roads that exist within LWCs as a new "border" is disingenuous. From the west side of the Crystal Creek LWC, one can see cars driving up and down the mountain. From the east, one can see the Georgia Pacific wall board plant. The BLM indicated to one LGCA member to pretend there was a curtain around this LWC, a directive which violates the viewshed requirements for LWCs. We ask that the LWC inventory be updated responsibly to reflect the current state of the resource. As it stands now, the addition of new borders amounts to gerrymandering, and sets a dangerous precedent. Further, the BLM's LWC inventory leaves out seismic trails and silt retention systems, which should be included in the updated inventory. Please see Appendix.	3046
1017	1017-19	SEIS Table 2-5, Detailed Alternatives, Record 60, provides for the following management action under both Alternatives E and F (page 2-27): Conduct restoration of roads, primitive roads, and trails not designated in travel management plans in priority habitat. This also includes primitive routes/roads that were not designated in Wilderness Study Areas and within lands with wilderness characteristics that have been selected for protection in previous RMPs. This management action gives us pause. It can be interpreted to call for the restoration of all roads and trails within LWCs that are protected in "previous RMPs." It effectively gives carte blanche to rewilding efforts of all of the LWCs, especially those that no longer contain wilderness characteristics nor are being actively managed for their current, past, or (now apparently) potential future wilderness character. We find this management action to be in violation of the principles of multiple use and sustained yield, and driven by a wilderness agenda.	3046

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1017	1017-18	The LGCA is opposed to the designation of the 571,288 acres of Lands with Wilderness Characteristics under Alternatives B and E (Page 2-10 of SEIS). We also oppose the continued designation of 52,485 acres of LWCs under Alternatives D and F. Our reasons are twofold: one, we feel that this management designation is irresponsible and incorrect, considering that the LWC inventory relied upon by the BLM is inadequate. As communicated in several memoranda since the availability of the Draft RMP/EIS in 2011, we have urged the BLM to remove the LWC designation from lands that are actually roaded and have manmade structures, as they no longer contain wilderness characteristics.	3046
1017	1017-10	It is requested that the BLM adopt Alternative C ROW corridors in the Final RMP/EIS. The LGCA suggests that ROW avoidance/mitigation areas be removed from areas designated as oil and gas management areas and corridors under all alternatives. This includes segregating avoidance and mitigation areas into two separate analyses so that it is clear to the public which areas should be avoided and which areas will require mitigation.	3033-1
1017	1017-9	Please clarify why only carbon dioxide emissions were included in the calculations in Tables 4-3 and 4-4.	3002
1017	1017-8	Please provide a reference for this statement that CO ₂ from prescribed fires is "typically considered to be counterbalanced" by increased productivity of existing larger vegetation and new growth .	3002
1017	1017-7	Footnote 1 for Tables 4-3 and 4-4 reads as follows: "Carbon Dioxide Equivalent is a measurement that allows an aggregate comparison of multiple greenhouse gases, created by multiplying the emissions of each gas by its relative global warming potential. For this analysis, however, metric tons of Carbon Dioxide Equivalent includes only carbon dioxide (CO ₂) emissions." Since the analysis does not include any additional greenhouse gases, please remove the word "Equivalent" in the titles of both tables and delete the footnote in order to avoid confusion. Secondly, why were the other greenhouse gases not included in the calculation? The omission of methane from the table is especially confusing, given the following statement on page 4-6 states, "CH ₄ is more than 20 times as effective as CO ₂ at trapping heat in the atmosphere and accounted for 8.2 percent of GHG emissions in 2008 (based on CO ₂ equivalents (EPA 2010))." Lastly, please explain why the carbon dioxide analysis was conducted for 2018 and 2028, rather than the years 2015 and 2024, as in all other air emission analyses.	3002
1017	1017-6	On Page 4-6, the SEIS states that "Wildland fires, including prescribed burns, would also result in CO ₂ emissions. However, CO ₂ from fires, particularly prescribed fires, is typically considered to be counterbalanced by the increased productivity of existing larger vegetation and new growth of vegetation post-fire." While it is possible that prescribed fires would have such a benefit, it seems that large wildfires may only be partially balanced by vegetative re-growth, and such re-growth may take years to accomplish. Please provide a reference for this statement that CO ₂ from prescribed fires is "typically considered to be counterbalanced" by increased productivity of existing larger vegetation and new growth.	3002

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1017	1017-5	On Page 4-4 the SEIS states that "Alternative E would result in the lowest levels of emissions in 2015 and 2024 and, therefore, it is unlikely that emissions under this alternative would contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) or Wyoming Ambient Air Quality Standards WAAQS)." It does not follow logically that just because it has the lowest emissions, Alternative E will not exceed NAAQS or WAAQS. Please indicate whether this statement is based on modeling predictions, on the logic that since current air quality in the planning area is within National and Federal Standards thus the future air quality must also be within standards, or on some other reasoning.	3002
1017	1017-4	Lastly, the LGCA continues to support the Wyoming Governor's Executive Order 2011 -5 regarding Greater Sage-grouse Core Habitat, and Executive Order 2013-3 regarding Sage-Grouse Core Habitat grazing adjustments. We request that all key habitat designations and management stipulations in the Final RMP and EIS be changed to Core, in keeping with Wyoming's directive and priorities. We also request that BLM work with the State of Wyoming and the LGCA to determine what conformance to the Executive Order means specifically for the Bighorn Basin Planning Area.	3035_1
1017	1017-2	This leads us to one of our major concerns about the SEIS: we would like to see in the final the inclusion of a full characterization of the socioeconomic impacts of Alternatives E and F. We request that the BLM fully characterize the socioeconomic impacts of new alternatives both quantitatively and qualitatively. The LGCA wants the information contained in the Final RMP and EIS to allow decision makers and our constituents to understand the impacts of additional management restrictions. The potential impacts to the socioeconomic, livestock grazing, and minerals resources are considerable under both Alternatives E and F. We would like the Final RMP and EIS to adequately measure the impacts to these resources under Alternative E, which is very restrictive of multiple uses and sustained yield, but also of Alternative F. At various times throughout the SEIS development process, BLM staff members have communicated to the public and to the LGCA that the difference between Alternative E and F is not significant, and/or that the difference between Alternative D and F are also insignificant in terms of impacts to grazing, oil and gas, and therefore socioeconomics. Our analyses of the management actions actually indicate the opposite: Alternative E and F both have major impacts.	3036-1
1018	1018-6	Record #50 " It is unrealistic to assert that an entire allotment /pasture should be shut off from grazing if the burned area can't be fenced. This is completely unnecessary and extreme. It reflects an absence of on the ground realities. These allotments can be huge, burned areas can be huge and fencing unrealistic. It again reflects the obvious agenda against livestock grazing under the guise of caring about restoration.	3011
1018	1018-5	Record #49 " Alternative F: It is counterproductive for sage grouse to exclude livestock from grazing in burned areas until wood and herbaceous plants achieve sage-grouse habitat objectives. Woody shrubs in this ecology could take as long as 60 years to re-establish and in the meantime grasses could compete with them. Livestock grazing should be permitted during this time frame, if in fact sage-grouse stewardship is on the radar screen.	3011

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1018	1018-4	Chapter 4.3 Fire and Fuels Management: Proactive Management section “ Marginalizing and restricting the use of fire within areas of environmental concern will only worsen the invasive weed problem already ahead of land managers. We need all tools to help control invasive weeds and not worsen the weed problem by slowing management. Proactive fire management must not move slowly, it must continue at a rapid and consistent pace to improve habitat.	3011
1018	1018-3	Chapter 2, Table 2.3: Alternatives E & F not necessary to put 1,857,485 acres or 1,786,241 acres under the restrictions of Areas of Environmental Concern (ACECs). While sage-grouse may be present, it does not mean that they will be negatively impacted or the area degraded if left open to the public. This document and these alternatives seek to manage for one species--the sage-grouse to the detriment of all other resources. Alternative E adds 9 additional Areas of Critical Environmental Concern (ACECs) to the restricted use picture: The nine proposed ACECs are Chapman Beach, Clarks Fork Basin/Polecat Bench West Paleontological Area, Clarks Fork Canyon, Foster Gulch Paleontological Area, McCullough Peaks South Paleontological Area, Rainbow Canyon, Rattlesnake Mountain, Sheep Mountain, and Greater Sage-Grouse Key Habitat Areas. Where is the demonstrated justification for this closeout? The American public can co-exist with many value systems and has for decades.	3001
1018	1018-2	Chapter 2, Table 2.2: No lands open for Desert Land Entry. No justification for this, as any such entries would take into account sage-grouse life cycle if they were present. These entries, while underutilized should remain an option to the American public	3016-1
1019	1019-3	Transmission Line Impacts on Wildlife May Be Overstated. Basin Electric is a member of the Avian Power Line Interaction Committee (APLIC), an organization that works with utilities, resource agencies and the public in a collaborative way to develop practical, effective solutions to potential avian problems such as nesting, electrocution, and collision with power lines. As indicated in APLIC’s September 26, 2013 comment regarding the Buffalo Field Office Draft Resource Management Plan, recent studies suggest the effect of energy infrastructure on sage grouse may be overstated. As such, many of the proposed restrictions and conditions for BLM ROW use may be unnecessary. Echoing APLIC’s position, stipulations for sage grouse should not include any mitigation requirement unless it is based on valid science, not anecdotal evidence or casual observation. Further, the science should be specific to the sage grouse, not surrogate species such as the prairie chicken.	3049

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1019	1019-2	Above-ground facilities are not allowed in many cases on BLM-administered preferred range of alternatives. Only buried utilities would be allowed. As a G&T cooperative, Basin Electric may need to construct additional 230 kilovolt (kV) or higher voltage transmission lines the Planning Area. It is generally not economically feasible to bury power lines with voltages higher than 34.5 kV. The cost for high voltage transmission lines is already significant at more than \$400,000 per mile for 230 kV lines to over \$1,000,000 per mile for 345 kV lines. If placed underground, this cost would be increased by a factor of 10 to 20 times. Furthermore, underground power lines would require continuous excavation along the entire route, which in turn creates significantly more disturbance than overhead construction. Underground power lines may be less reliable and are more difficult to maintain. Line breaks may be difficult to locate, resulting in long outages for customers. Additional ground disturbance would be necessary because excavations would be required to facilitate repairs.	3033-2
1019	1019-1	Restrictions and Limitations on new ROW Alternatives under consideration by the BLM propose restrictions or limitations on ROW ranging from 1,003,194 to 2,943,655 acres in the Planning Area. It is important to note the total area included in the Planning Area is only about 5.6 million acres, including all lands (federal, state, and private). Any new limitations on ROW use, including uses for electric distribution and transmission lines within the Planning Area, would have a significant negative impact on Basin Electric's ability to site new infrastructure. The increased restrictions are expected to increase costs for infrastructure that may utilize BLM lands. Alternatively, longer routes (with concomitant increases in surface disturbance and cost) may be necessary to avoid BLM lands. In any case, new BLM ROW restrictions are expected to impact electric utility customers through increased costs and time delays for new projects.	3033-2
1020	1020-6	The EORC continues to feel strongly that the Bighorn Basin RMP should carefully consider the large enhanced oil recovery potential in and near the existing oil fields in the basin and the management option chosen by the Bureau of Land Management (BLM) should be developed to accommodate the associated facilities to the largest extent feasible. Of critical importance to the future of CO2 and EOR development is the provision for adequate infrastructure to deliver CO2 to the basin.	3023-3
1020	1020-5	EORC recommends that BLM consider development of unconventional reservoirs in Bighorn Basin when evaluating alternatives during the RMP process. There is a strong likelihood that unconventional development opportunities may exist within the deeper portions of the basin; i.e. the center of the basin.	3023-3
1020	1020-4	Likewise, Alternative F would have a large impact on EOR development opportunities within the basin due to increased restrictions. Under Alternative F, 62% and 58% of the proven and possible EOR development areas in the basin, respectively, would be subject to moderate constraints; and increase of 18% and 23% (as compared to Alternative C). Additionally, less land is available for development under standard restrictions by 17% and 25% as compared to Alternative C.	3023-3

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1020	1020-3	It is our opinion that Alternative E would have a large impact on EOR development in the basin. Under this alternative, 62% and 57% of the proven and possible EOR development areas in the basin, respectively, would be subject to major constraints and/or administratively unavailable to development including portions of existing active oil fields in the basin. In Alternative C only about 4% and 5% of the proven and possible development areas, respectively, would be subject to the same limitations with little or no impact to most of the currently producing fields in the basin. Assuming that no development would occur in areas with major constraints or those administratively closed, Alternative E could reduce overall recovery from proven areas by between 0.8 billion to 1.2 billion barrels of oil or about half of the production that is likely to result from EOR CO2 recovery in the Bighorn Basin. The corresponding net reduction of severance taxes and ad valorem taxes paid to state and county governments would range from \$7.4 to \$11.5 billion dollars. Reduced oil development in the affected counties will reduce direct employment, indirect employment, sales taxes, and property taxes.	3036-1
1020	1020-2	While it is impossible to predict what these additional moderate constraints would mean to project specific development, it is reasonable to conclude that development in some additional areas (as compared to Alternative C) would be slowed and possibly eliminated due to costs associated with additional constraints. Activities, such as drilling, would still be allowed, but would only be allowed to occur during shortened seasons. The cost of these constraints to individual projects is impossible to accurately estimate but in some areas with multiple seasonal closures it is expected that the cost would eliminate some future oil and gas development.	3023-6
1020	1020-1	EORI staff conducted an Enhanced Oil Recovery technical analysis of the economic impact on oil related revenue with respect to Alternatives C, E and F. From an EOR perspective, both Alternative E and Alternative F would be less desirable than Alternative C because they both pose additional constraints to oil and gas development in areas that may be redeveloped using CO2 EOR.	3023-3
1021	1021-19	Wyo-Ben supports conservation of sage grouse habitat, as long as such conservation does not dominate at the expense of other resources, and where responsible, sound science supports such conservation. We strongly dispute the idea expressed throughout the SEIS that the NTT report, and Alternative E (and portions of F), represents the best available science on Sage Grouse management and should form the basis for BLM's sound management objectives in the revised RMP. As a rebuttal to this idea, Wyo-Ben directs the BLM, by reference to Dr. Rob Roy Ramey II's September 19th, 2013 "Review of Data Quality Issues in A Report on National Greater Sage-Grouse Conservation Measures Produced by the BLM Sage Grouse National Technical Team (NTT)." There, Dr. Ramey describes the many scientific inconsistencies and inaccuracies contained in the NTT report that are a concern for Wyo-Ben.	3035_1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1021	1021-18	Specifically regarding bentonite mining, Alternative E promotes poor ecology and unnecessary disturbance, even with a 3% cap. Modern bentonite reclamation occurs concurrently with mining taking place in an engineered, continuous castback sequence. The pit that is being opened casts overburden, subsoil and topsoil into the pits behind it. Under the proposed Alternative, this extremely effective reclamation and conservation practice would no longer be possible. Once the disturbance threshold is met, the entire continuous sequence would stop. Soils that normally would be spread live would sit idle. Backfilling and re-vegetating the open pit would no longer be possible. This will force the mining company to use archaic bank stockpiling techniques for overburden, topsoil, and subsoil which effectively doubles the disturbance required for each mine site. Such practices are scientifically-demonstrated to have longer re-vegetation times and may result in poorer vegetative production along with a higher incidence of weeds. Ultimately, as a result of this forced larger footprint, the portion of the mineral estate that can be developed is cut in half: Only 1.5% of the surface may effectively have the bentonite removed. In addition to unintended environmental consequences, the standards suggested in Alternative E are in direct conflict with the rights conferred under the General Mining Law of 1872. While such rights are not unfettered, an arbitrary, non-statutory standard that effectively removes 98.5% of the estate from development for an undefined-but-decades-long waiting period open the RMP to legal action by mining claimants. Recommendations: 1) BLM must eliminate reference to a 3% disturbance cap in favor of developing site specific management plans where conservation goals are desirable 2) Respect the rights of mining claimants under the 1872 Mining Law, who rely on access to the mineral estate for their viability 3) Develop conservation plans for mine operators that allow for contemporaneous reclamation with the smallest possible footprint of disturbance	3020
1021	1021-17	If BLM does not use one of the existing Alternatives for its final plan but instead chooses, or is required, to blend parts from various Alternatives, then neither the SEIS nor the Draft RMP will have adequately addressed the potential effects of combination. This will not allow BLM to meet its NEPA analysis responsibility. Recommendation: If a hybridized Alternative is used for the final plan then BLM must prepare a new Environmental Impact Statement that examines the combined effects of this new Alternative and submit this to the public for comment	3027-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1021	1021-16	On page 2-31, Table 2-5 explains at Record 84 that, for both Alternative E and F, nonfederal surface estate over federal minerals should be managed with the same conservation measures as those applied to lands where the federal government owns both the surface and the mineral estate. Even though this acknowledges the long standing legal doctrine that mineral estate rights trump surface estate rights it fails to acknowledge that the federal government has no right to exercise any management of the private surface unless and until the mineral estate is developed, and then only with regard to that development. At Record 85, the Table incorrectly ignores the superior rights of the mineral estate, assuming that when the non-federal minerals under federal surface are developed it can arbitrarily apply Fluid Mineral BMPs to the surface used during development even where minerals subject to the Mining Law are being developed. Recommendations: 1) BLM must recognize that the management of private surface overlying federal minerals is exclusive to the surface owner 2) BLM must acknowledge the superior right of private mineral under federal surface and apply surface management practices specific that do not hinder the development rights of the mineral owner 3) Recognize the provisions of 43 CRF 3809.31(d) regarding Stockraising Homestead Act Lands that no Plan of Operations is required for authorization except where there is no landowner consent	3019
1021	1021-15	The SEIS repeatedly comments on Validity Testing of mining claims under the 1872 Mining Law. Wyo-Ben does not disagree with the use of validity tests in the context of mineral patenting as allowed by the Mining Law, but does disagree with the arbitrary and capricious use of such tests for any other purpose. We also strongly oppose delay of mining authorizations and activity while waiting for non-mineral patent related validity examinations. Recommendations: 1) BLM should uniformly apply validity tests in order to determine compliance with the General Mining Law of 1872, and not as a means to enforce unrelated resource management goals such as Special Status Species 2) BLM should not use validity tests to unnecessarily restrict or delay legitimate mineral activity; BLM should state when and where validity testing will be performed and how examinations may affect authorizations 3) BLM should publish validity criterion as means to inform the public and mining community	3020
1021	1021-14	Table 4-9 is confusing, suggesting that Big Game Habitat will close or otherwise restrict locatable mineral development. BLM does not have the discretion to restrict locatable mineral development in big game habitat. The BLM does not have authority to manage game species, as this oversight is reserved for the states. Regardless of authority, Wyo-Ben has and will continue to voluntarily work with BLM and Wyoming Game and Fish regarding crucial wintering habitat. Recommendations: 1) Annotate or clarify Table 4-9 on what "closed" means 2) Recognize the unique right of the states to manage game animals and birds 3) Avoid authoritative management in favor of cooperative management with non-discretionary mining activities where wildlife concerns exist	3049

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1021	1021-13	BLM must re-evaluate the socioeconomic impact of the SEIS policies on the Big Horn Basin using realistic models and up-to-date data, including the impact on all natural resource industries operating in the Basin. In doing this, BLM must: a. meet the NEP A threshold for socioeconomic analysis and avoid demotion of socioeconomics relative to wildlife and other resource analyses b. Recognize probabilistic economic outcomes from forced reductions in output as a result of locatable mineral activity restrictions c. Evaluate the national economic significance of the potential loss of a strategically important and unique mineral like bentonite d. Provide a realistic human population, lifestyle, and economic analysis with the effects of each alternative e. Evaluate the socioeconomic effects of delayed permitting due to mineral restrictions and RMP conflicts	3036-1
1021	1021-12	The socioeconomic impact on the Big Horn Basin resulting from the impact of the restrictions described in the SEIS on bentonite mining was ignored on pages 4-134 and 4-135, where only oil and gas (commensurate in size with bentonite) and lesser industries were noted. Because of the dependence of the economy of the Big Horn Basin on natural resource industries and the predominance of federal lands in the Basin, the policies described in the SEIS will have a highly-significant impact on the economy of the area. The economy of Big Horn County is virtually completely reliant on the extractive industries, and bentonite mining is a major contributor to the economies of Washakie and Hot Springs Counties as well. If employment in the bentonite industry is reduced, due to the policies in the SEIS, the communities of Lovell, Greybull, and Basin will face a crisis.	3036-1
1021	1021-11	Mining is also a premium employer with the highest average wages and benefits in the county. Finally, the Wyoming Mining Association estimates that each mining job creates 3 additional jobs, underscoring dependence of as many as 3600 jobs in Big Horn County.	3036-2
1021	1021-10	The Cumulative Impact section does not even list locatable minerals as a line item in its 4-22 and 4-23 charts, and in 4-24 mining is lumped together with Oil and Gas. Moreover, the information is incorrect. Per the Big Horn County Land Use Plan (2009) mining is the single largest employer in Big Horn County with over 900 direct jobs. Since that time, employment has increased	3036-1
1021	1021-9	The SEIS is woefully inadequate in researching the impact to the local economy as a result of the actions required by either Alternative E or F. Any financial burden placed on operators tests the highly-competitive international marketplace at the expense of domestic bentonite production.	3036-1
1021	1021-8	Consider the economic effects from delays and expenses should EIS's replace Environmental Assessments for mining authorization in ACECs	3020
1021	1021-7	3) BLM must develop habitat management solutions that are alternatives to the use of ACEC's, which selectively encumber land uses other than Sage Grouse conservation	3001
1021	1021-6	Acknowledge that only Congress may withdraw large segments of land from mineral location	3020

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1021	1021-5	An Environmental Impact Statement may be required by BLM to meet the NEPA requirements for mining authorization in ACEC's as a result of the avoidable synthetic conflict created by the new designation. Traditionally, much less costly Environmental Assessments have been adequate but for new lines on the map. EIS's do not generate superior results, despite the additional research, time, and expense. Likewise, the artificial creation of widespread ACEC's establishes conflict where none existed previously, favoring conservation over mineral development. Finally, withdrawal is a virtually-irrevocable designation that forever removes a critical mineral resource from society.	3020
1021	1021-4	Both Alternative E and F use ACEC's as a regulatory mechanism for restricting locatable mineral development. At a minimum, Notice Level Activity such as exploration will require a Plan of Operations, which is an additional burden in time and expense without any identified environmental or ecological benefit. The SEIS mentions this impact to bentonite operators, but not the effect or economic burden.	3020
1021	1021-3	Under 4.2.1 Locatable Minerals, Alternatives E utilizes a mineral withdrawal in the form of an ACEC which specifically favors sage grouse conservation over mineral development in 1.75 million acres. This is not consistent with FLPMA's recognition of the importance of mining on the federal estate, nor is it consistent with BLM's multiple use mandate and direction under the Mining and Minerals Policy Act.	3020
1021	1021-2	The State of Wyoming manages game animals and retains the sole authority for that function. BLM's use of the word "habitat" in place of "sage grouse" does not grant authority for game management. Alternative F, in that regard, is at least partially consistent with the State of Wyoming's Core Habitat Plan, but is superfluous in light of the State's existing and exclusive authority for game management. In addition, the BLM already has guidance from other BLM generated manuals and instructional memoranda that would be recognized by the USFWS as meeting their Policy for Evaluating Conservation Efforts (PECE). For example, BLM manual 6840, a manual prepared to guide the conservation of candidate and other special status species, was not referenced in the NTT report and thus not used for conservation recommendations in alternatives E or F (NWMA review of NTT report). Finally, the State of Wyoming has developed an encompassing plan in two related Executive Orders that provide substantial protection to sage grouse habitat in locally developed Core Areas (BHB RMP SEIS Page 3-3). Recommendations: 1) Recognize the State of Wyoming as the sole authority to regulate sage grouse as game animals 2) Eliminate the use of habitat management or habitat conservation as de facto authorization to manage sage grouse	3035_2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1021	1021-1	43 CFR 3809.420 states: (3) Land-use plans. Consistent with the mining laws, your operations and post-mining land use must comply with the applicable BLM land-use plans and activity plans, and with coastal zone management plans under 16 U.S.C. 1451, as appropriate. Wyo-Ben rejects any thought process that restrictions contained in a new RMP render locatable mineral development as subordinate to the RMP. On the contrary, BLM is fully-aware of its responsibility to manage land use consistent with the dominant mineral estate, both existing and future. Recommendation: Design the RMP Alternatives to be consistent with locatable mineral development pursuant to direction from the BLM 3809 Handbook (2012), section 5.2.3	3020
1022	1022-19	Recommendation: Strengthen the prescription in the preferred alternative to exclude wind energy development in key habitat areas. Outside key habitat areas, require that wind energy development be sited at least five miles from active sage-grouse leks (Manville 2004; Jones 2012) and at least four miles from the perimeter of sage-grouse winter habitat.	3032
1022	1022-18	Recommendation: While eliminating grazing in key habitat areas would best support sage-grouse conservation and recovery, the selected alternative in the proposed RMP and final EIS should at least adopt management prescriptions included in Alternative F, with additional minimum standards described above, for grazing within and outside key habitat areas. The proposed action should also support voluntary grazing permit retirement in sage-grouse range.	3035_6
1022	1022-15	Management plans should adopt a conservative approach to grazing in sagebrush steppe to maintain and restore native vegetation and reduce impacts on sage-grouse. Management objectives should be based on, in priority order, potential natural community within the applicable Ecological Site Description, Connelly et al. (2000: 977, Table 3), or other objectives that have been demonstrated to be associated with increasing sage-grouse populations. Utilization levels should not exceed 25 percent annually on uplands, meadows, flood plains and riparian habitat (Holecheck et al. 2010; B.J.M & USFS 1994). Habitat objectives should be applied to all sage-grouse habitat areas and plans should include the following three conservation measures: (1) grazing should maintain 2: 18 cm grass height in sage-grouse nesting and brooding-rearing habitat (Connelly et al. 2000; Braun et al. 2005); (2) livestock grazing should be restricted where cheatgrass (<i>Bromus tectorum</i>) occurs in sagebrush steppe to avoid contributing further to its incursion on the landscape (Reisner et al. 2013); and (3) grazing permit retirement should be prioritized in sage-grouse habitat to lessen impacts on the species (see SGNTT 2011: 17).	3017-3
1022	1022-14	Recommendation: The selected alternative in the proposed RMP/ final EIS should make key habitat areas administratively unavailable for new fluid mineral leasing, and adopt prescriptions in Alternative E to direct development of leased mineral estate, except that it should require larger buffers to protect sage-grouse leks outside of key habitat areas.	3023-3

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1022	1022-13	Recommendation: Identify restoration habitat to support habitat connectivity and sage-grouse range expansion in the Bighorn Basin, and adopt standards in Alternative E (Records 20-27, 30) to maintain and restore sagebrush steppe in the final preferred alternative.	3035-7
1022	1022-12	Recommendation: Map sage-grouse winter habitat in the proposed RMP and final EIS. Prohibit surface disturbance or disruption year-round in winter habitat within and outside key habitat areas in the final preferred alternative.	3035_2
1022	1022-11	Recommendation: The selected alternative in the proposed RMP/ final EIS should adopt recommendations in the NTT report, Alternative E, and other recent findings on sage-grouse by implementing a 4-mile no surface occupancy buffer to protect sage-grouse leks and limiting surface disturbance to one developed site and no more than three percent total disturbance per section.	3035_4
1022	1022-10	It is unclear if the total included on Table 4-9 in the SEIS is acres of key sage-grouse habitat areas in existing or proposed ACECs, or both.	3035_3-2
1022	1022-9	Alternative E would designate greater sage-grouse key habitat areas as an ACEC, totaling 1,857,485 acres, including 1,231,383 acres of BLM surface ownership (SEIS 2-11, Table 2-3; see also SEIS: 4-58, Table 4-9) (although the SEIS also indicates the key habitat areas ACEC is 1,436,941 acres, SEIS: ES-3). In contrast, the DRMP analyzed only 138,172 acres for expanded or new ACECs that might have benefited sage-grouse, and the preferred alternative only proposes to designate a small portion of this total -16,925 acres- in the final plan (Defenders analysis; DRMP 4-381, Table 4-118). In total, existing and/or proposed ACECs1 in the preferred alternative would specially protect only 23,144 acres of sage-grouse key habitat areas (SEIS 4-58, Table 4-9). Recommendation: Designate sage-grouse key habitat areas as an ACEC in the proposed RMP and final EIS with more protective management prescriptions like those in Alternatives E or F to give sage-grouse the best chance at recovery in the Bighorn Basin.	3035_1
1022	1022-8	Recommendation: Adopt key habitat areas proposed in the preferred alternative and Alternative E, but add missing habitat and connective corridors depicted on the "core areas" map (Version 3) (see SEIS Q-3, Figure Q-1), which would also add more sage-grouse leks to key habitat areas (see DRMP Map 34). Do not allow key habitat areas to be reduced in size over the life of the plan.	3035_1

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1022	1022-6	By comparison, Alternative E in the SEIS, which strives to protect remaining habitat and limit effects of harmful land uses on sage-grouse, is more likely to support the species' conservation and recovery in the planning area. Alternative E would specially designate key sage-grouse habitat as an ACEC (SEIS 2-11, Table 2-3; SEIS ES-12) and apply stronger restrictions on resource use in key habitat areas (SEIS 4-76), which would result in less surface disturbance in key habitat areas (SEIS 476), less habitat fragmentation and degradation (SEIS ES 4-78), and fewer additional acres invaded by weeds (SEIS ES-7, 4-77) than any other alternative, making it the most beneficial alternative for sage-grouse (SEIS 4-78). The cumulative impacts of land uses on all land ownerships in Management Zones I and II is anticipated to have the least effects on sage-grouse in the Bighorn Basin under Alternative E (SEIS 4-154). federal agencies may supplement and improve analyses and modify management alternatives, including the proposed action (40 C.F.R. § 1503.4(a)). The BLM should modify the preferred alternative in the DRMP to better support sage-grouse conservation and potentially preclude the need to list the species under the ESA. Alternative E can be a model for how to improve conservation measures in the preferred alternative. The following recommendations are based on a comparison between the two alternatives as presented in Table 1, "Sage-Grouse Conservation Issues in the Bighorn Basin Resource Management Plan Revision Project."	3035_1
1022	1022-5	Unfortunately, the preferred alternative in the DRMP is unlikely to prevent further population declines in sage-grouse. The plan concurs that the more habitat conserved, the greater the benefit to species, and that prohibiting surface-disturbing and disruptive activities in sage-grouse habitats is more protective of grouse than "avoiding," let alone permitting, continued development that may harm the species (DRMP 4-221). But the preferred alternative does not specially protect remaining tracts of sagebrush steppe on public land and would permit livestock grazing and a host of energy and non-energy mineral development in key habitat areas to within 0.6 miles of sage-grouse leks (see Table 1). The plan acknowledges that small lek buffers are less effective for conserving sage-grouse than larger buffers (DRMP 4-228). The preferred alternative instead relies on additional restoration and reclamation requirements to conserve sagebrush habitats in development areas (rather than restricting surface-disturbing activities) (DRMP 4-222, 4-246), even though it is difficult to successfully restore xeric sagebrush steppe (DRMP 4-223). Threats to sage-grouse from various land uses and development of public resources under the preferred alternative would generally be the same as current management in the planning area (SEIS 4-155, Table 2b).	3035_1

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1022	1022-3	Finally, we noticed that neither the SEIS (nor the DRMP) considered important new research on sage-grouse and sagebrush steppe. The BLM's National Sage-Grouse Habitat Conservation Strategy (2004) commits the agency to "use the best available science and relevant information to develop conservation efforts for sage-grouse and sagebrush habitats." Planning criteria in the SEIS assures that the BLM will use "appropriate resources ... to identify greater sage-grouse habitat requirements and management practices" (SEIS 1-5). We have identified new information in Appendix 1 related to sage-grouse and sagebrush steppe that was published during preparation of the SEIS and should be considered in the proposed RMP/final EIS.	3035_2
1022	1022-1	The BLM produced the SEIS more than two years after releasing the DRMP. We are concerned that new information analyzed in the SEIS to develop Alternatives E and F was not also considered in development of the other four alternatives (Alternatives A-D) in the DRMP. The resultant, bifurcated plan is comprised of a SEIS that incorporates most of the latest research on sage-grouse and a DRMP that is outdated by the voluminous new information produced on sage-grouse since the draft was released in 2011. Alternatives A-D, including the preferred alternative (Alternative D) would be improved by incorporating information in the NTT report, Greater Sage-Grouse Conservation Objectives Team Final Report (COT report), Summary of Science, Activities, Programs, and Policies that Influence the Rangewide Conservation of Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) (aka "Sage-Grouse Baseline Environmental Report") (Manier et al. 2013), and GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS" (aka "greater sage-grouse monograph") (Knick and Connelly 2011).	3035_2
1023	1023-17	The Supplemental Draft RMP/EIS should state that: "The BLM will determine how to apply RMP management direction to split estate lands on a case-by-case basis. The BLM will generally defer to the resolution of surface use issues reached between the surface owner and the operator. "	3019
1023	1023-16	The Supplemental Draft RMP/EIS states that, under Alternatives E and F, the BLM is to:"Incorporate BLM required design features or mitigation for any authorized mineral activity for federal mineral estate, regardless of surface ownership." Supplemental Draft RMP/EIS at 2-16 (emphasis added). This statement is inappropriate, inadequately respects private property rights, and is inconsistent with BLM policy. Under the procedure contemplated in Onshore Order Number 1, an operator must engage in good-faith negotiations with the private surface owner to reach an agreement for the protection of surface resources and reclamation of the disturbed areas. The BLM should respect this process. The Final RMP/EIS should expressly state that surface use issues on private surface will be resolved primarily between the surface owner and the operator and that the BLM will not apply RMP management direction that conflicts with the agreement reached between the surface owner and operator.	3019

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1023	1023-13	But after adopting the State of Wyoming habitat designations, Alternative F abandons the State of Wyoming management direction for those areas. For example, Alternative F adopts management direction to limit the density of disturbance to 3 percent of sagebrush habitat per 640 acres. See Supplemental Draft RMP/EIS at 2-17. Under State of Wyoming EO 2011 -5, the density disturbance cap is 5 percent rather than 3 percent. The BLM should not deviate from the Wyoming Greater Sage-Grouse Core Area Protection plan in this manner.	3035_4
1023	1023-12	Alternative F of the Supplemental Draft RMP/EIS states that it adopts the habitat designations contained in "Version 3 of the State of Wyoming EO Greater Sage Grouse Core Area of Protection." See Supplemental Draft RMP/EIS at 2-1. As explained above, Denbury supports the adoption of Version 3 of the Wyoming Plan because Version 3 takes into account past management decisions to authorize oil and gas development in certain areas.	3035_1
1023	1023-10	Second, a one million acre ACEC would be incredibly burdensome to manage. For example, the BLM must report annually to the Director on the management of the ACEC. BLM Manual 1613.63. The report must address, among other things, "management measures undertaken and completed during the previous fiscal year " Preparing this report alone for an area covering 1,000,000 acres would be incredibly burdensome. And where does it stop? If the BLM designates an ACEC covering priority habitat for Sage Grouse, why would it not designate an ACEC covering priority habitat for other species? Wildlife management should not occur through the ACEC mechanism in this manner.	3001
1023	1023-9	First, ACECs have historically been used for discrete smaller portions of a BLM planning area that are carved out for special or enhanced management. This allows the BLM to manage the ACEC in accordance with BLM policy, which directs the BLM to: "give priority to the designation and protection of ACECs." See BLM Manual 1613.6. How can the BLM give "priority" to an area that covers one third of the planning area?	3001
1023	1023-8	Alternatives E and F of the Supplemental Draft RMP/EIS would designate ACECs for Greater Sage Grouse covering over one million acres. The Greater Sage-Grouse Key Habitat Area ACEC would cover 1,231,383 acres while the Greater Sage-Grouse Core Habitat Area would cover 1,116,124 acres. See, e.g., Supplemental Draft RMP/EIS at 3-6. These ACECs would cover approximately one-third of the 3.3 million acre planning area. Designation of these ACECs would achieve no purpose, would create management difficulties, and sets a bad precedent for future BLM management.	3001
1023	1023-7	1 Similarly, under Exhibit E the BLM must apply an NSO condition of approval to proposals to develop existing leases, subject to limited exceptions. See Supplemental RMP/EIS at 2-30. Such a use restriction violates valid existing oil and gas lease rights and cannot lawfully be imposed.	3023-2

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1023	1023-6	The Final RMP/EIS should expressly state that all sage grouse mitigation will be evaluated on a case-by-case basis prior to being imposed on existing lease development and will only be imposed where consistent with existing lease rights.	3035-7
1023	1023-5	The Final RMP/EIS should recognize and disclose the BLM's limited authority to impose new management direction on proposals to develop existing oil and gas leases.	3023-2
1023	1023-2	When identifying lands for inclusion in Priority Habitat, the BLM should exclude those lands in developed fields with potential for future CO2 EOR projects. These are lands that have already been disturbed, but that can produce large volumes of oil from within the existing development footprint. Designating these lands as "Priority Habitat" has a high cost, with little biological reward. The BLM can better meet its multiple use mandates by focusing its conservation efforts elsewhere, while allowing resource development to occur within developed fields. Page 6 of Exhibit 1 is a map of the largest oil producing fields in the BHB. The BLM should exclude the areas in and around these fields from Priority Habitat designation because these fields have high CO2EOR potential. At the very least, the BLM should help harmonize its Priority Habitat designations with future potential CO2 EOR projects by adopting Version 3 of the State of Wyoming Core Habitat Areas maps (which takes into account certain existing land uses such as oil and gas development).The BLM should exclude areas with future CO2 EOR potential from priority habitat designation	3023-3

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1024	1024-21	The Supplement is a high level planning document that must maintain management flexibility to address multi-use of public lands. Anadarko recommends the Supplement incorporate the concept of and programmatic flexibility to develop enhanced sage-grouse mitigation coupled with expanded use authorizations ("Enhanced Mitigation/Expanded Use Authorizations"). Anadarko encourages the BLM to utilize the concepts provided in the recent draft BLM Regional Mitigation Policy in conjunction with ensuring reasonable access for energy development. See DRAFT-REGIONAL MITIGATION MANUAL SECTION-1794 (IM No. 2013-142).Anadarko strongly encourages the BLM to incorporate in the RMP management objectives and directive that permit development of an Enhanced Mitigation/Expanded Use Authorizations Program. Such a program should be developed in coordination with the State of Wyoming, promote the policy objective in the JM-2013-142, and seek input from stakeholders including industry. Tools that could be utilized in such a program could include: - A biologically-based framework for mitigating impacts associated with a reasonable access mitigation program that includes exceptions to wildlife timing stipulations. - Allowance for the prioritization of potential mitigations sites. IM 2013-142. For example one idea could be to utilize a two-mile buffers within core areas. - Possibly structure mitigatory efforts within two-mile buffers around sage-grouse leks, consistent with the work by Doherty et al. (2010). This possible approach would provide tangible benefits to sagebrush steppe species at a regional landscape level. - Possibly target restoration of habitats within the two-mile buffer around sage-grouse leks. Within these two-mile lek buffers, existing disturbance and fragmentation profiles could be mapped so that reclamation and enhancement efforts can be focused, monitored, and assessed. Consider case-by-case focused habitat improvements within two-mile lek buffers. This mitigation could be exchanged for timing stipulation exceptions granted by the BLM.	3035-7
1024	1024-20	General Comment 4: Definition of Occupied leks s should Be Supported by Data and Analysis The BLM needs to define "occupied lek," a term used throughout the Supplement and Draft RMP, and the process by which leks are deemed unoccupied. In particular, the BLM appears to be applying stipulations (see Map 31 thru 34) to leks where male-grouse have not been observed for many years. Does lek monitoring continue when a lek nears a status of being non-occupied to allow determination of unoccupied status? How and who makes a determination of how a lek is going to be monitored? Recommendation: The BLM should include in the Final RMP a table indicating the status of all PRB leks. Leks that have had no birds in attendance for three years should be considered unoccupied when applying timing stipulations. Anadarko also recommends the BLM include in the Final RMP a map indicating all unoccupied leks. If leks that have had no birds in attendance for multiple years are still treated as occupied, Anadarko recommends the Final RMP include an explanation for that determination.	3035_2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1024	1024-19	General Comment 4: Definition of Occupied leks should Be Supported by Data and Analysis The BLM needs to define "occupied lek," a term used throughout the Supplement and Draft RMP, and the process by which leks are deemed unoccupied. In particular, the BLM appears to be applying stipulations (see Map 31 thru 34) to leks where male-grouse have not been observed for many years. Does lek monitoring continue when a lek nears a status of being non-occupied to allow determination of unoccupied status? How and who makes a determination of how a lek is going to be monitored?	3035_2
1024	1024-18	2. Impacts to Sage-Grouse Will Be Reduced During Future Development Due To Technological Changes In How Reservoirs Are Targeted, Wells Are Drilled, And Field Operations Are Conducted. Technological changes over the past ten years have dramatically shifted drilling technology from vertical well bores to directional and horizontal well bores, with the consequence that disturbance and fragmentation levels are declining at the same time that reservoir recovery rates are increasing. This technological shift is reflected in Figure 6 where oil and gas drilling permits issued in the State of Wyoming over the last decade are shown. Figure 6 indicates that horizontal drilling permits have increased 40-fold over the last decade, while directional drilling permits have increased by a factor of eight. On the other hand, vertical well permits and completions have decreased by approximately 50 percent over that same time period.	3035_9
1024	1024-17	In summary, oil and gas impacts to sage-grouse in Wyoming are not uniform across its entire range and depend heavily on the proximity to development. Suggesting oil and gas development has led to wholesale sage-grouse population declines across Wyoming is not supported by the degree of historic development in comparison to the overall sage-grouse range in addition to the best available scientific information. The Supplement provides no basis for the assertion that oil and gas development has caused sage-grouse declines in the BHB planning area.	3035_2
1024	1024-16	When considering impacts and mitigation measures for sage-grouse one method of assessing oil and gas impacts is to look at the development intensity within the two-mile buffer around a lek, as done by Doherty et al. (2010). Following this methodology, statistical analysis regression models of lek attendance and well density have been developed. Their results indicate a greater than 80 percent probability that leks will persist in the Wyoming Basin when the well count within the two-mile radius around a lek is less than 60 well pads. This corresponds to a spacing density of approximately five well pads per square mile (60 wells/12.4 square miles). Perhaps more importantly, their results indicate that at one well pad per square mile or less (corresponds to as many as 12 wells per the two-mile radius or within 32.2 km ² of a lek) impacts from oil and gas development on sage-grouse are not detectable: "Impacts were indiscernible at 1 -12 wells per 32.2 km ² ." This result is consistent with the proposed one well-pad per square mile criterion for sage-grouse core areas outlined in the Wyoming Core Area Policy, and provides insight into the nature of localized impacts associated with oil and gas development within a two-mile buffer around a lek.	3035_4

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1024	1024-15	General Comment 3: Oil and Gas Activities Must Be Considered Under the Lens of Today's Technologies in Use and Actual Development 1. Spacing Density through Wyoming's Core-Area Policy Protects Sage-Grouse from Impacts The Supplement suggests a primary threat to sage-grouse is energy development at 3-2, 3-3, 4-1 52, and 4-153 Impacts associate with oil and gas development as presented in the Supplement does not consider the most current and available data. As presented below, peer reviewed literature indicates that 75 percent of all leks (current and historic, active and inactive) in Wyoming are not expected to have discernible impacts from oil and gas activities according to the criterion of less than 12 wells within the two-mile buffer. Moreover, no less that 89 percent of all Wyoming leks are expected to persist given current levels of oil and gas development.	3035_2
1024	1024-14	Anadarko disagrees with the necessity and justification of the BLM to propose sage-grouse conservation measures that go beyond the requirements of Wyoming's Core Area Policy. The BLM should not expand development restrictions to sage-grouse populations outside of core areas. See discussion below in Section !J.D. Given the success of the Core Area Policy, any proposed measures that exceed those within the Core Area Policy are unwarranted and unnecessarily restrict other important uses of public lands, such as oil and gas development.	3035_1
1024	1024-13	General Comment 2: The Wyoming Core Area Policy, Endorsed by the FWS, Is Effective to Conserve Sage-Grouse on a Landscape Scale. Energy development impacts in Wyoming on sage-grouse are, and will continue to be, mitigated by the Wyoming Core Area Policy. The Wyoming Core Area Policy is designed to protect sage-grouse populations and important habitats on which they depend into the future and provide certainty for the species. Table 3 indicates that 1,508 leks or 64 percent of all leks in Wyoming are afforded protection through the Core Area Policy. Considering the number of lek that had over ten males counted in 2012, 483 (from a total of 626) or 70 percent of the most productive leks were in core areas. There were 741 active leks in core and 272 active leks in non-core. Hence, 73 percent of active leks counted in 2012 were in core areas. A recent analysis of future urbanization and energy development in Wyoming concluded, "No leks located within core areas are predicted to be extirpated with the core policy in place" (Copeland et al., 2013).	3035_1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1024	1024-12	In summary, earlier scientific information based population predictions on a constant rate of decline that in retrospect is flawed. This constancy is represented in Figure 4 above, where the log linear decline curve of negative 3.4 percent as suggested by Garton et al (2011) is employed to project forward populations, hardwiring the population to go to extinction levels in the future. If historical decline rates have not been constant, then future rates of annual decline cannot be based on an assumption of a constant rate of decline over the previous 42year period. Garton et al. (2011) recognized this limitation when they noted "Forecasting future viability requires the assumption that future conditions will continue the same trajectory or trend observed in the past. We reiterated this assumption repeatedly in our presentation of results." The BLM has incorrectly relied on Garton et al. (2011) for modeled future population trends and fashioned mitigation measures to address supposed downward trends. See Supplement at 3-4. With the information presented herein, the BLM should reexamine the necessary mitigation measures based on the updated information on sage-grouse populations.	3035_2
1024	1024-11	Historical Rate of Decline Modeling Is Inaccurate Sage-grouse population modeling data relied upon in the Supplement is inaccurate, raising concerns that the management decisions based on the modeling is overly burdensome and unreasonable given the actual facts. For example the Supplement references USFWS conclusions based on modeled population estimates prepared by Garton et al. (2011) that directly contradict actual data. The Supplement further suggests that sage-grouse are threatened in some areas by wildfire, encroachment of native conifers, overstocking of domestic livestock, and both renewable and non-renewable energy development. See Supplement at 3-3. No data is provided to indicate that these threats -present in some parts of the overall sage-grouse range -are present and to what degree they are present in the BHB planning area. Such generalizations about threats do not meet the "hard look" requirements of NEPA. For example, Figure 3 below indicates fire perimeters in 2012. No significant fires occurred in priority sage grouse habitat in the Wyoming Basin SMZ in 2012. Speculating that fire is a significant threat in the BHB planning area requires more analysis than simply stating it is a threat. A geographical analysis of historical fire perimeters and data suggesting this is increasing in the BHB planning area, juniper encroachment perimeters, renewable energy footprints and other data should be added to the Supplement to support the conclusion therein. Connection of these data to population trends would indicate whether BLM assertions have merit. The BLM should use the most accurate and current data when developing mitigation measures that have significant impacts restricting other uses of public lands.	3035_2

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1024	1024-10	Finally, taking historical hunting harvest rates into account, the trends forward from 1995 may represent the best scientifically available data from which to make persistence projections and encompass modern temporal changes in species management that promote more appropriate management of sage-grouse populations. As indicated above on Figure 1 and Figure 2, this more recent data suggest that sage-grouse populations overall are relatively stable to increasing over this time period in the Wyoming Basin SMZ.	3035_2
1024	1024-9	Anadarko comments that the BLM must consider the more recent scientific data as provided herein and not solely rely on Garton's conclusions when making management decisions. Forward looking projections based on this modeling are predicated upon an assumption of constancy and in review of the significant pressures of past overharvest and more recent temporal changes in species management, the ability to project forward population parameters is burdened by an inappropriate analysis that in its current form biases the foreseeable future to provide for a negative outcome. The fundamental nature of the modeling exercise and assumptions it is built upon demand caution in its utilization as a tool by which management decisions should be based.	3035_2
1024	1024-8	"An appropriate harvest rate has not been determined for Greater Sage-Grouse populations. Harvest equal to 5-10% of the fall population may be appropriate but assumes detailed and specific knowledge of population size in September or October. Given the uncertainty in abundance estimates for breeding season population, expecting any state to adequately determine the size of any population of Greater Sage-grouse in fall is not realistic ...Thus, harvest management should be based on spring populations size. Managers could propose harvest of a percentage of the spring breeding population estimate, perhaps 5%; devise and implement survey protocols to obtain breeding season population size (Reese and Bowyer 2007); and subsequently be assured that hunter harvest would not likely exceed the threshold to become additive." Recent scientific data, as noted above, suggest that a harvest percentage of "perhaps five percent" of the spring population may be appropriate if state wildlife agencies "devise and implement survey protocols" to "be assured that hunter harvest would not likely exceed the threshold to become additive." This new information sharply contrasts the USFWS 2010 Listing Decision conclusions (which relied heavily on Garton et al. 2011 data) relied upon in the Supplement at 3-4 to identify future population projections. The Supplement at page 3-4 notes that populations have remained stable over the last decade yet: "Even so, population modeling suggests that declines will continue over the long-term (USFWS (2013))."	3035_2
1024	1024-7	Historical sage-grouse data identified that decline rates correlate with periods of potential overhunting as shown in Figure 2. Unfortunately upon a survey of scientific literature on sage-grouse populations this information appears to have been overlooked and not taken into consideration in projecting future populations. Figure 2 represents the U.S. Fish and Wildlife Services (FWS) hunting harvest data and breeding population estimates as derived from Garton et al. (2011). Harvest as a percentage of reconstructed population estimates is also shown on the secondary y-axis.	3035_2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1024	1024-6	1. Reduced Hunting Harvest Rates Correlate with Increasing Sage Grouse Populations Historical sage-grouse populations have been affected by a number of factors, including hunting. A reduction in hunting pressure in the mid-1990s correlates with stable to increasing sage-grouse populations since that time. Figure 1 shows historical population trends within the Wyoming Basin Management Zone (SMZ), which encompasses the BHB. The "rate of population change" fundamentally shifted around 1995 for not only the Wyoming Basin SMZ but also for each of the six additional SMZs that encompass the entire range of the sage-grouse. Of note, hunting regulations also changed in 1995 for some portions of the range, including Wyoming, which limited hunter harvest rates, altered season dates, and lowered overall hunter participation. (see FIGURE 1 in PDF) Wyoming Basin SMZ Population estimates (minimum number of males) (from Garton et al. 2011)	3035_2
1024	1024-5	General Comment 1: The BLM Must Consider Data That Demonstrate Sage-Grouse Populations Are No Longer Declining As Suggested By Earlier Literature. Review of available lek count data and historical hunting harvest rates indicate sage-grouse populations are stabilizing and, in fact, are likely to increase in the future without further restriction on oil and gas activity and development. This is due to a combination of factors Increased costs and reduced access to oil and gas resources result in reduced tax revenue to state and Federal governments. including: (1) the Wyoming Core Area Policy, (2) BMPs used by the oil and gas industry, and (3) changes in the management of hunter harvest rates as implemented since the mid1990s, which are discussed in more detail in General Comments 2 to 5. Studies3 predicting future decreasing population trends are demonstrably flawed and fail to account for historical hunting harvest data. The BLM must recommend land management practices not on past flawed data, but on current more accurate data as presented herein.	3035_2
1024	1024-3	The BLM is obligated to manage lands for multi-use. 43 C.F.R. § 1732(a)-(b). This obligation must be reflected in the Supplement. In balancing multiple uses, the BLM should not require conservation measures that are unsupported by science and that unnecessarily infringe on leaseholder rights. Anadarko requests that the BLM reconsider the sage-grouse measures set out in the Supplement at Appendix G (page G-1), among others, and discussed in more detail in Section II.D below, in light of the scientific information contained in these comments and the practical and economic implications of imposing mitigation measures not supported by scientific data.	3035_2
1024	1024-2	Current scientific information discussed herein establishes that sage-grouse populations in the BHB planning area are not at as great a risk as once considered to be. This updated and crucial information must be incorporated in to the planning decisions and proposed mitigation of the Supplement.	3035_2

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1025	1025-89	Under EPCA BLM is required to identify impediments to oil and gas development. It was the intent of Congress that access to energy resources be improved as indicated in EPCA and EPAct. BLM recognized the intent of the both Phases I and II of the EPCA review when it issued Instruction Memorandum 2003-233, Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results, into the Land Use Planning Process. Consequently, BLM Field Offices are now required to review all current oil and gas lease stipulations to make sure their intent is clearly stated and that stipulations utilized are the least restrictive necessary to accomplish the desired protection. Moreover, the IM directs that stipulations not necessary to accomplish the desired resource protection be modified or dropped using the planning process. Since the purpose of integrating the EPCA results into planning is intended to determine whether existing resource protection measures are inadequate, adequate or excessive, we recommend that BLM reevaluate its management decisions accordingly and make requisite changes to the final planning documents	3027-1
1025	1025-88	COMMENT: As history has shown, as the technology of any given industry evolves so does the science that creates BMP's. The oil and gas industry developed the concept of BMPs whereby unique, state-of-the-art mitigation measures could be utilized voluntarily by an operator on a project-by-project basis while taking into account cost, feasibility and desired outcomes. BLM has since hijacked this effort, which was initially directed at devising innovative solutions, by attempting to mandate these measures on all projects without the flexibility needed to determine their efficacy and feasibility. The mandatory application of BMPs/RDFs as outlined in the SEIS is a perfect example of this unworkable approach. Appendix L contains design features found in the NTT report that require a myriad of measures aimed at protecting Sage-grouse. However, no documentation is provided showing that any of these RDFs have been proven effective over time. Where is the scientific evidence available that demonstrates these RDFs would result in a reduction of impact to Sage-grouse and its habitat? Similar to the approach taken by the BLM's Washington Office, the NTT is relying upon a one-size-fits-all approach that fails to take into account local conditions, including unique habitat and threats, and socio-economic factors. As such, the NTT BMPs are needlessly restrictive, scientifically unfounded, and ignore specific cause and effect mechanisms. Most egregiously, they were designed without any benefit of tracking and testing of the effectiveness of currently required BMPs and mitigation measures. Moreover, many the NTT BMPs fail to acknowledge that a variety of valid existing rights are held throughout the planning area. It is crucial for BLM to acknowledge these rights and honor them, regardless of the BMP(s) selected for implementation, and that the Bureau may not have the legal authority to require implementation of these measures unilaterally.	3035_3-1
1025	1025-87	We support BLM's intention to adopt EO 2011-5 with respect to adaptive management strategies. However, monitoring/adaptive management objectives would only be appropriate for large scale projects, e.g., 500 well EIS, not individual wells. It would be impossible to correlate a population decline with a project of one or two wells, even over a 5-year period.	3035-7

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1025	1025-86	APPENDIX T In accordance with the Authority outlined in the Federal Land Policy and Management Act (43 U.S.C. 1701-1782) P.L. 98-450 (98 STAT 2718), the Federal Government (BLM) existing in cooperation between the State of Wyoming Oil and Gas Conservation Commission (WOGCC), entered into a Memorandum of Understanding (MOU) concerning well spacing. Specifically, the MOU provides that "BLM will offer input for state spacing hearings, regarding Federal minerals, and will accept WOGCC spacing decisions with no formal ratification measures." We recommend that BLM specifically address how it intends to comply with this MOU with respect to mineral development and surface disturbance as described in Appendix T.	3023-2
1025	1025-83	The NTT recommends management of produced water through removal or re-injection. COMMENT: 40 CFR 435.50 (Subpart E) provides that produced water from onshore facilities west of the 98th meridian may be used in agriculture or wildlife propagation. There is a considerable lack of surface water in semi-arid Bighorn Basin and beneficial use of surface discharge water by ranchers and wildlife is essential. The suggested management of removing produced waters as suggested by the NTT would result in huge habitat and water resource losses to Sage-grouse. Moreover, the Wyoming Department of Environmental Quality, Water Quality Division, already has jurisdictional oversight of the surface discharge monitoring program on non-tribal lands in Wyoming. Therefore, it would be wholly inappropriate for BLM to attempt to implement this poorly conceived NTT BMP in the Bighorn Basin. It is important for BLM to clarify how the BMPs/RDFs will interface with the specific NSO and CSU requirements outlined in the preferred Alternative D of the RMP/EIS, as well as the NSOs and CSU requirements in Alternatives E and F which are the subject of the Supplement. Moreover, the SEIS does not specify whether all of the RDFs apply to core (priority) habitats only or whether some (or all) apply to both core/priority as well as general Sage-grouse habitat. BLM needs to clarify where it envisions each of these measures would be applied. Additionally, BLM needs to specify whether there will be a process for granting waivers, exceptions or modifications due to site limitations or engineering considerations which establish the design approach as infeasible. The SEIS has failed to incorporate the qualifiers "if feasible, where feasible and unless technically unfeasible" in order to acknowledge that not all measures will have blanket applicability in all cases and that feasibility is a valid concern. Instead, the SEIS mandates measures with no attention given to whether the practice is even feasible based on project-specific factors.	3044
1025	1025-82	The NTT also recommends pest management through a number of pesticide applications. However, mosquitos are already sufficiently managed and there are new technologies other than larvicides that have been proven effective to controlling mosquito populations.	3035_3-1

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1025	1025-81	NTT suggests management of a number of structural modifications for water impoundments. COMMENT: Such a program can only be viewed as a needless waste of federal taxpayer dollars because the Wyoming State Engineer's Office (WSEO) already has the legal jurisdiction to review and approve construction plans associated with State waters. Additionally, the NTT recommends management of produced waters through re-injection at facilities through Underground Injection Control (UIC) Permitting which would also constitute a needless duplication of the UIC Permitting Program already under the jurisdiction of the Wyoming Oil and Gas Conservation Commission (WOGCC). Establishing these new federal programs would be a waste of manpower and tax dollars because they would merely attempt to duplicate State programs.	3044
1025	1025-80	"Increase the size of freshwater ponds to accommodate a greater volume of water than is discharged" COMMENT: In an effort to avoid Cx. Tarsalis breeding, this BMP would increase larval habitat for Culicoides sonorensis, a vector of blue tongue disease. The proposal to trade one viral vector habitat for another can hardly be construed as beneficial to the Bighorn Basin. Without question, the mortality impact of Culicoides sonorensis on wild ruminants' populations would be far more devastating than WNV in Wyoming's Bighorn Basin semi-arid region. In fact, not only are food sources such as white-tail and mule deer populations currently under attack in Montana by epizootic hemorrhagic disease virus (EHDV), cattle infections have also been reported resulting in economic loss due to EHDV elsewhere (Ruder, M.G., Parasites and Vectors 201, 5:236). Therefore, these management approaches on produced waters clearly are not in the best interests of the Bighorn Basin mammalian food sources or mammalian related economics.	3023-1
1025	1025-79	The NTT suggests a multitude of BMPs (16) to manage West Nile Virus. COMMENT: According to data from the Centers for Disease Control (CDC) the risk to avian species from West Nile virus (WNV) has declined to virtually nothing since 2003. This is an example of where only a portion of the available information is used to address the impacts, in this case of WNV on Sage-grouse, resulting in onerous and unfounded mitigation requirements. We recommend that rather than focusing on the minimal threat of WNV, BLM more appropriately focus its attention on the highly significant issue of rampant predation of Sage-grouse.	3035_3-1
1025	1025-78	Remove standing and encroaching trees within at least 100 meters of occupied sage grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as appropriate, and resources permitted. COMMENT: Apparently, the NTT is unaware that trees are actually rare occurrences within the Bighorn Basin. Consequently, we question the advisability of removing a tree simply because a lek exists.	3035_2

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1025	1025-77	Power-washing all vehicles and equipment involved in vegetation treatment and firefighting activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species. COMMENT: This BMP fails to describe how the wash areas and runoff associated with wash stations will be handled. Can the fluid and associated substances be hauled off, injected or disposed of at a facility onsite and are special permits required? This BMP attempts to address concerns regarding a perceived problem but fails to fully consider the ramifications of such a requirement. What solution does BLM intend to utilize for the general public or recreationalist crossing Public Lands on motorized and non-motorized forms of transportation and how this issue will be enforced?	3014
1025	1025-76	Use only close-loop systems for drilling operations. COMMENT: Closed loop systems for drilling operations are utilized in most sensitive areas already where they are technically feasible and economically viable for the operator. We recommend that BLM consider the impact that additional truck traffic hauling fluids out of the area could have on Sage-grouse habitat. It must also be recognized that additional truck traffic may require road upgrade, which could defeat the purpose of the BMP. It may be more reasonable to install Sage-grouse safe fences in the majority of instances.	3035_9
1025	1025-75	Cluster disturbances, operations and liquid gathering facilities outside priority areas. COMMENT: Based on the recent release of IM 2013-152 "Commingling" and existing rules governing "Off Lease Measurement", does the BLM have a plan in place to approve these requests for commingling and off lease measurement of oil and gas for areas where wells may be located within priority areas and the pipelines and treating facilities are located outside priority areas? Due to the limited disturbance and parameters outlined throughout this document, this will likely become an issue for future development within the Sage-grouse habitat and BLM needs to have a plan in place to address these issues.	3035_9
1025	1025-74	It is important for BLM to collaborate with WGFD and to also recognize that as a landowner, the Bureau must also be a contributor to the overall collection of information. Additionally, we recommend that the State maintain a database of information and recommendations for BMP's, additional studies and monitoring activities that are based upon the best available science. Limiting the data repository to one entity that handles information, mapping and recommendations will eliminate confusion for the public, multiple conflicting reports and overall mistrust.	3035-7
1025	1025-73	It is unclear why there is a discrepancy (males and females versus males only) between the two referenced planning documents in their protocols regarding monitoring of Sage-grouse, particularly if Wyoming Game and Fish is responsible for data collection in both cases. If this information is to be used to "identify connections between the overall monitoring program and then management decision process", there should be single set of recommended indicators to detect change in resource conditions range wide. We recommend that Wyoming BLM adopt a strategy that includes the monitoring of females and males rather than just males. Appendix C acknowledges that "state fish and wildlife agencies have the primary responsibility for population level management of wildlife, including population monitoring"	3035-7

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1025	1025-72	The SEIS does not provide any relevant detail regarding the type of monitoring strategy BLM is contemplating. Nor does it explain how its monitoring strategy will interface with BLM's AIM strategy and how monitoring will be utilized to gauge the effectiveness of RDFs which are the subject of Appendix L (See further comments below). Further, it is not specified what entity will be charged with collecting the monitoring data on oil/gas leases. BLM needs to explain in the SEIS how this data could be used to adaptively feed back into the monitoring process and refine adaptive management needs on a planning area basis. Also, BLM needs to include a discussion on what types of findings, or more specifically, what type of numeric thresholds, might trigger adaptive management.	3035-7
1025	1025-71	Page 4-144: "Projected tax revenues for Alternative F due to oil and gas production on BLM-administered surface would average \$35.5 million per year for federal royalties, \$17.1 million per year for state severance taxes, and \$19.7 million per year for local ad valorem taxes." COMMENT: This is a decrease across the board in tax revenue (federal, state and local). This represents a total reduction of over \$5 million in annual royalty and tax revenue. The local tax decrease from Alternative A to Alternative F would be almost \$3 million, an impact the Bighorn Basin communities would most certainly notice.	3036-2
1025	1025-70	Alternative F Page 4-143 : "...regional earnings and output under Alternative F for the modeled sectors (oil and gas, grazing, and recreation) would be similar to but slightly less than under Alternative D due to additional NSO restrictions for oil and gas development in greater Sage-grouse Core Habitat Areas. This NSO restriction would reduce estimated oil and gas development when compared to alternatives A and D." COMMENT: Here again is another instance of attempting to downplay the differences between alternatives D and F. Table 4-22 on page 4-139 shows a decrease under Alternative F in regional earnings of \$5 million and a decrease in output of \$33 million annually. These numbers are significantly less, and cannot be characterized as similar or just slightly less.	3036-1
1025	1025-68	4.8.2.2 Summary of Impacts by Alternative Page 4-137: "Alternative A would result in the second-highest level of economic activity, and alternatives D and F the third-highest." COMMENT: Both alternatives D and F cannot rank third-highest, they should be listed as ranking third and fourth highest respectively. This is another instance of the attempt to align Alternatives D and F as similar and only slightly different, when a review of the BHB SEIS shows there are some significant modifications in the land management which result in significantly different socio-economic impacts .	3036-1

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1025	1025-67	Page 4-137: "As described under Alternative D, Alternative F employs a balanced management approach and would continue BLM's current practice of allowing multiple-uses of public lands, as opposed to a single species management. However, under Alternative F, additional measures related to conservation of resources (particularly in greater Sage-grouse Core Habitat Areas) would place additional emphasis on wildlife habitat concerns over economic development compared to management under alternatives A or D." COMMENT: BLM continually states with regard to Alternative F that it represents a balanced management approach, however, additional measures related to conservation of resources place additional emphasis on wildlife habitat. Many of these additional measures related to conservation of Sage-grouse habitat referenced are scientifically unsupported and inconsistent with EO 2011-5.	3036-1
1025	1025-66	Page 4-137: "Economic opportunities in the Planning Area under Alternative F would be slightly less than under alternatives A and D. Alternative F would also result in greater beneficial effects to air quality, wildlife, and other resources that improve quality of life related to natural characteristics than under alternatives A, C, or D." COMMENT: Yet again, this paragraph illustrates BLM's continued alignment of Alternative F with Alternative D. It states that economic opportunities would be "slightly less" under Alternative F in comparison to Alternative D. However, review of Table 4-21 on page 4-134 of the BHB SEIS reveals that under Alternative F, there would be a decrease in annual earnings due to activities on BLM-administered surface of \$4.9 million. This number does not support the statement "slightly less", but rather "significantly less" would be a much better characterization. Further, with regard to the second sentence in this paragraph which states, "Alternative F would also result in greater beneficial effects to air quality, wildlife, and other resources that improve quality of life related to natural characteristics than under alternatives A, C, or D," there is the insinuation that less oil and gas development will result in better air quality, wildlife, and other resources. We would like to point out that responsible oil and gas development will not adversely impact air quality, wildlife or natural characteristics. Oil and gas development in the Bighorn Basin has a very favorable historical record of responsibility for all environmental concerns. It is objectionable that the agency is sacrificing the growth of the Bighorn Basin by relying upon flawed assumptions with no science to back them up.	3036-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-65	Page 4-137: "Alternative F would also result in slightly reduced tax base from oil and gas production compared to alternatives A and D. Geographically, the change in job opportunities-and related impacts on housing and community services-would be spread across the Planning Area and would be spread over time." COMMENT: This statement is erroneous in that the impacts to job opportunities, and the related impacts on housing and community services, would be more immediate and not something that would take place over time. Table 4-25 on page 4-142 shows focal ad valorem production tax revenue from Alternative A to Alternative F will decrease by close to \$3 million annually and the decrease from Alternative O to Alternative F will be \$1.5 million annually. These are large decreases in local tax revenue that would be felt right away by the communities in the Bighorn Basin.	3036-2
1025	1025-64	Page 4-136: "Alternative F may result in a slight decrease in job opportunities compared to Alternatives A and D, potentially causing a slight decrease in population compared to those alternatives. At this time, the impact to individual communities is not known until further research is conducted." COMMENT: Again there is the attempt to align Alternative F with alternatives A and D, when clearly they are different. The social and economic impacts from Alternative F have been shown throughout this section of the BHB SEIS to be more than slight. Also, it is again stated that further research is needed to understand the true impacts, showing the analysis to be incomplete and, therefore, inaccurate.	3036-1
1025	1025-63	Alternative F Page 4-136: "For purposes of this analysis it is assumed that ROW; transportation, and seasonal restrictions would not impact commercial or recreational activities, although the impact is unknown at this time." COMMENT: The BHB SEIS is mainly about the addition of restrictions on disturbance in greater Sage-grouse Core Habitat Areas, which will include ROW, transportation and seasonal restrictions. All parts of this analysis need to take into consideration the impacts these additional restrictions WILL incur. For example, decreasing the allowable disturbance threshold in Sage-grouse Core Habitat Areas from 5% to 3% will cause severe impacts to oil and gas development, which will, in turn, cause severe impacts to the communities of the Bighorn Basin. Failure to fully and adequately review the economic and social impacts that could result from changes in public land management make this analysis seriously flawed, rendering this report incomplete and inaccurate.	3036-1

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Table D-1. Individual Comments and BLM Response Index (Continued)

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1025	1025-62	Alternative E Page 4-134: "...impacts on population would be the same as those described under Alternative 8, which would include a decrease of 669 jobs (approximate 46 percent decrease) compared to Alternative A." Impacts on Housing and Community Services, Page 4-135, Line 6: "The exact geographic distribution of these changes is not possible to predict because tax losses in specific jurisdictions would be driven by undetermined well locations; however, the restriction on oil and gas development under Alternative E affect broad areas of land throughout the Planning Area, so the reductions in tax revenues would likely affect all communities that currently produce oil and/or gas." COMMENT: As with Alternative B, Alternative E would adversely affect the economic and social well-being of all communities in the Bighorn Basin. This can be seen in the substantial decrease in jobs (46%) and resulting reduction in tax revenues. The overarching implications of decreases at this level would be detrimental to the area and its culture.	3036-2
1025	1025-61	Page 4-133: Alternative F in the table is listed as having, "Low to medium impact (due to restrictions and requirements for livestock grazing operators in Core Habitat Areas.)" COMMENT: This statement is deliberately misleading. BLM knows full well that the additional restrictions and requirements in Core Habitat Areas imposed by Alternative F would also be impactful to oil and gas activities, and as stated above, oil and gas development is the largest contributor to the social and economic well-being of the communities of the BHB.	3036-1
1025	1025-60	Page 4-132: "Alternatives D and F balance management emphasis between resource conservation and resource use, but are generally closer in line with resource use and development. Alternative F imposes additional constraints on disturbance in greater Sage-grouse Core Habitat Areas when compared to Alternative D. Based on analysis in the Economic Conditions section, these additional constraints would restrict further economic activity in the oil and gas sector when compared to Alternative D. Impacts of Alternative F on population and public services associated with impacts on economic activity would be slightly more restrictive than those of Alternative D." COMMENT: This paragraph claims that "impacts on economic activity would be slightly more restrictive than those of Alternative D." However, a review of Table 4-20 on page 4-133, lists the impacts from Alternative D as being low, whereas impacts from Alternative F are listed as low to medium. If the statement above were truly the case, Alternative F would be listed as having low impact. Of note is the fact that alternatives B and E, the alternatives that would pose the greatest impact to the social conditions in the Bighorn Basin, with the highest reductions in oil and gas workforce numbers and tax benefits, are both listed as having medium impact. No matter which way you look at it, any additional restrictions to oil and gas development, the largest contributor to the social and economic well-being of the BHB, would have adverse effects on the BHB communities. We again point out that Alternative F would impose additional constraints that are both largely unsupported by science and inconsistent with the Governor's Sage-grouse Executive Order 2011-5.	3036-1

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1025	1025-59	Section 4.8.1.2 Summary of Impacts by Alternative Page 4-131: "Social conditions are fundamentally influenced by economic conditions. Employment and income improve or detract from social conditions and quality of life; communities in the Planning Area have developed cultures associated with economic activities such as natural resource extraction, ranching and recreation. Given the large portions of public land within the counties of the Planning Area, BLM management decisions have the potential to influence the community character and identity, even if the economic impact is measured by this analysis is minimal. " COMMENT: We agree that BLM management decisions, as well as employment and income, have significant influence on the quality of life and social conditions of the Bighorn Basin communities. These areas area is dependent on high paying oil and gas jobs in addition to the tax revenue realized from oil and gas exploration and production activities. The addition of more restrictive policies for oil and gas development, as described in alternatives E and F, will seriously limit economic development and job creation in the planning area, detracting from the social conditions and quality of life in these communities.	3036-2
1025	1025-58	Our previous comments to the Bighorn Basin DEIS/RMP dated September 7, 2011 regarding socio-economics remain the same and by this reference are incorporated herein. We would like to further add the following with regard to the Bighorn Basin Supplemental EIS (BHB SEIS) and alternatives E and F. BLM has failed to adequately disclose the importance of oil and gas resources in the Bighorn Basin.	3036-2
1025	1025-57	The publication of Samson et al (2004) does not address sagebrush ecosystems in Sage-Grouse MZL. This paper addresses prairie grasslands in the Great Plains, which represents a much larger area. Samson et al (2004) also does not differentiate between prairie grasslands and sagebrush steppe. Therefore, it is unsuitable as a reference. We recommend that final RMP/EIS present information (including a map) on the amount of sagebrush habitat that has been converted to agricultural uses within the Bighorn Basin planning area specifically. The SEIS does not specify whether all of the RDFs apply to core (priority) habitats only or whether some (or all) apply to both core/priority and general Sage-grouse habitat. BLM needs to clarify where each of these measures is envisioned to be applied and identify whether, consistent with the Lander Proposed RMP/EIS and EO 2011-5, 5 Taylor, Dzialak and Hayden-Wing, Greater Sage-grouse Populations and Energy Development in Wyoming, 2007; Greater Sage-grouse Populations and Energy Development In Wyoming-2010 Update Taylor, Russell and Taylor 2011 there will be a process to consider exceptions due to site limitations or engineering considerations which establish the design approach as infeasible.	3035_2
1025	1025-56	We recommend that BLM fully consider the results of the studies conducted by Ramey et al (2011) and Taylor et al (2007) in addressing the effects of oil and gas development on Sage-grouse and Sage-grouse habitat. In addition, most of the recorded effects on Sage-grouse populations have been based on lek counts. These studies indicate that oil and gas activities have reduced lek counts in the vicinity of oil and gas developments but have not shown that population losses have occurred.	3035_2

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1025	1025-55	Alternatives E and F in the SEIS do not directly address Sage-grouse winter concentration areas/habitat since these Alternatives are focused on management within Sage-grouse CHA and KHA ACECs. However, Alternatives B and D in the BHB Draft RMP provide stipulations that apply within Sage-grouse winter concentration areas under Alternatives E and F, respectively.	3035_2
1025	1025-54	It is important for BLM to limit the application of this TLS to "suitable" Sage-grouse habitat. EO 2011-5 specifies that activities in nesting and early brood rearing habitat may be approved year round on a case-by-case basis in "unsuitable habitat." Seasonally restricting oil and gas operations to protect unsuitable Sagegrouse habitat is entirely unjustified. As such, we recommend that BLM place the same qualifier, "suitable habitat," on this TLS as outlined in Record 77. The prohibitions on surface disturbing/disruptive activities in nesting and early brood-rearing habitat are unwarranted. While there may be some discrepancy in nesting/brood-rearing seasons due to elevation, geography, etc., the overall length of the season will be consistent regardless of location. For example, Sagegrouse in lower elevations tend to start mating approximately two weeks earlier than Sage-grouse at higher elevations; but, the overall length of the mating season remains the same. We are not opposed to starting or ending this TLS on different dates to account for geographic differences in Sage-grouse behavior. However, we oppose arbitrarily extending a TLS for nesting/early-brood rearing habitat by 2 Y. months because it is not biologically justified. We point out that the SGIT has determined that a 3 Y. month TLS for nesting/early-brood rearing is adequate throughout Wyoming.	3035_9

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-53	Sage-grouse habitat management for activities outside of Core Populations Areas is straight forward under EO 2011-5 -a maximum Y.-mile NSO and 2-mile seasonal buffer applied to occupied leks. It does not mandate the application of any stipulations outside of Core Areas. Additionally, EO 2011-5 provides that incentives to enable development of all types outside Core Areas should be established, including stipulation waivers or modifications, even if it results in reduced numbers of Sage-grouse outside of Core Areas. We are concerned that management outside of KHAs under Alternatives B and E is inconsistent with and greatly exceeds what is provided for under EO 2011-5. Specifically, the 0.6 mile NSO around occupied Sage-grouse leks, CSU for discretionary actions, ROW exclusion areas around leks, and TLS in nesting and early brood rearing habitat within 3-mile lek buffer were not contemplated by EO 2011-5 because such stipulations directly contradict the foundational principal of the Sage-grouse Core/Key Habitat Area concept -control and restrict operations within these areas to protect important Sage-grouse habitat, while promoting and incentivizing development in less desirable Sage-grouse habitat outside these areas. EO 2011-5 recognizes this principal by providing incentives to enable development outside of Core Areas. The overly restrictive Sage-grouse habitat stipulations outside of Key Habitat Areas as proposed under Alternatives Band E conflict with this principal. Therefore, rather than adopting any variation of these management options, we urge BLM to adopt the Core Area Strategy contained in EO 2011-5 in the final planning documents because it represents the most scientifically valid approach to protecting important Sage-grouse populations and habitats.	3035_1
1025	1025-52	Neither the NTT nor the SEIS specify what activities will be included in the surface disturbance calculation. Properly managed livestock grazing on federal land has been shown to have beneficial impacts on the surface. This positive impact of livestock grazing has been acknowledged by BLM and the Wyoming Governor's Office. As such, it is not appropriate to consider livestock grazing as a disturbance that will count against the surface disturbance cap. Additionally, the surface disturbance cap is focused specifically on limiting surface impacts created by oil and gas operations. Therefore, the only surface disturbance that should be included in the disturbance cap calculation is that caused by oil and gas development.	3017-1
1025	1025-51	We recommend that BLM specify what mitigation and/or reclamation efforts will be considered, the process for determining what efforts will be considered, and how an operator will receive credit for restored habitat and offset mitigation. This will provide operators with certainty and an incentive for pursuing such projects. We also suggest BLM expand this exception to include reclamation of Sage-grouse habitat in addition to mitigation; reclaimed Sage-grouse habitat has been returned to its previous condition and thus should not be counted as disturbed in the surface disturbance calculation.	3035-7
1025	1025-50	Another discrepancy between Alternatives E and F and EO 2011-5 is the extent of the surface disturbance cap. Alternatives E and F propose a 3% cap while EO 2011-5 (and Alternative D) provides for a 5% cap on surface disturbance.	3035_4

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-49	We recommend that BLM modify Alternatives D, E and F to comport with EO 2011-5. EO 2011-5 went through careful deliberations to ensure that a practical and scientific basis was utilized when identifying appropriate Sage-grouse protection measures. Using language such as "sage brush habitat" or "total Sage-grouse habitat" is unacceptably broad because it fails to focus on the real purpose of the surface disturbance cap, which is to protect the Sage-grouse. We urge BLM to acknowledge in the planning documents that not all sage brush habitat is Sage-grouse habitat and not all Sage-grouse habitat is suitable Sage-grouse habitat. To achieve protection of the Sage-grouse and its habitat, the surface disturbance cap need only apply to "suitable Sage-grouse habitat." As provided for in EO 2011-5, it is crucial for BLM to eliminate unsuitable Sage-grouse habitat from consideration when calculating the surface disturbance cap.	3035_1
1025	1025-48	The SEIS states that Key Habitat Areas outlined in Alternative E were based upon Version 2 of EO 2011-5 while the Core Habitat Areas described in Alternative F were based upon Version 3 of EO 2011-5. It is unclear why BLM would base one of the two new alternatives upon an outdated version of EO 2011-5 when Version 3 was available during the supplemental planning process. Further, we oppose the expansion of BLM's Key Habitat under Alternative E which encompasses nearly 72,000 additional acres because there is no scientific justification for this arbitrary expansion of habitat. Moreover, an ACEC designation coupled with a 3 percent disturbance cap would effectively prohibit any new oil and gas exploration and development within the highly important Bighorn Basin. We encourage BLM's adoption of the Version 3 Core Area provided in EO 2011-5 in the final planning documents, including the 5 percent disturbance cap.	3035_1

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1025	1025-47	It is clearly inappropriate for BLM to dictate a specific technique for conducting geophysical operations. While heliportable drilling for seismic operations can be a useful BMP in certain, limited situations, there are abundant and equally effective BMPs that allow for the same or similar impact mitigation in Sage-grouse habitats which the SEIS fails to even mention, much less analyze. The following is an abbreviated BMP list that is recommended and applied by both BLM and the geophysical industry. These techniques have proven to be highly effective in minimizing or in many cases eliminating impacts to sage brush/Sage-grouse: Off-set tracking for all wheeled vehicles; Smooth or non-aggressive tires (vibrators); Limited or no "back-tracking" on the same route(s); Elimination of ATVs/OHVs off-road; Vibrating on existing roads; On-snow or frozen ground buggy drilling/vibrating; Hand raking of buggy/vibrator tracks visible from traveled roads. Application of a reasonable mix of the above techniques has been shown to successfully avoid impacts to sage brush. Extensive monitoring has shown that balloon tired four wheelers and foot traffic have very diffuse impacts, indeed much less effect on the environment than cattle grazing and wild horse traffic on public lands. Moreover, we question whether BLM has fully considered the safety, noise or economic ramifications of this proposal We also question BLM's justification for requiring helicopter-portable seismic exploration when seasonal restrictions will be utilized. BLM needs to clearly explain in the SEIS what is meant by "other restrictions that may apply." A mere statement that other restrictions may be imposed is far from adequate because it fails to meet the disclosure requirements under the National Environmental Policy Act (NEPA) and precludes the opportunity for public review and comment.	3039-2
1025	1025-46	Attempting to limit collection and use of scientific information would have no practical effect on mitigation of Sage-grouse impacts. We remind BLM that geophysical data and its interpretation do not stop at an arbitrary line on a map. Any attempt limit its interpretation would compromise the usefulness of the data on both sides of that boundary definition. This proposed wording and concept is totally unacceptable and beyond the BLM's authority to regulate and must be dropped in its entirety.	3023-4
1025	1025-45	This wording is dangerously confusing because it could be interpreted to prohibit the use and interpretation of geophysical information for areas within Sage-grouse core areas, which would be inconsistent with valid existing lease rights for oil and gas leases.	3023-4
1025	1025-44	The SEIS fails to discuss the application of both BLM and industry recommended BMPs and their effectiveness or the abundant independent monitoring of such BMPs in sagebrush ecosystems. It also fails to analyze less stringent mitigation to Sage-grouse population and habitat goals. Finally, such a restriction could abrogate valid existing lease rights granted because prohibiting geophysical exploration would be a major "taking" of lease rights.	3023-4

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1025	1025-43	Closure of these vast and substantial key Sage-grouse habitats to geophysical exploration is not a stated objective of the IM 2012-044 or the U.S. Fish and Wildlife Service (FWS) "Conservation Objectives: Final Report." Moreover, we found no language in any of these documents that recommends the wide-ranging requirement to disallow use of geophysical information either in or outside Sage-grouse habitat.	3023-4
1025	1025-42	RECORD 85 - Where the federal government owns the surface, and the mineral estate is in non-federal ownership in priority habitat, apply appropriate Fluid Mineral BMPs to surface development.COMMENT: In addition to the concern expressed regarding the previous record, we are concerned that in taking this action, the federal government be denying a mineral owner the ability to develop his minerals. Case law has already established that the mineral estate is dominant over the surface estate. It is agreed that, in the case of separate ownership of minerals and surface, the mineral owner may enter and use that part of the surface that is reasonably necessary for the efficient removal of the minerals. Further, such use does not require any payment for damages caused to the surface by the mineral owner so long as the use is reasonable.	3019
1025	1025-41	RECORD 84 -Where the federal government owns the mineral estate and the surface is in non-federal ownership, apply the conservation measures applied on public lands. COMMENT: The imposition of the identified conservation measures on federal minerals/private surface demonstrates DOI's intention to limit at all costs future oil and gas activities within the planning area, and indeed the entire Rocky Mountain region, while all other uses on private surface will proceed as the surface owner sees fit. We strongly object to this approach because it is predicated upon the scientifically flawed assumptions promoted by the NTT as discussed previously in these comments.	3023-2
1025	1025-40	RECORD 83 -Any oil, gas, geothermal activity will be reviewed based on evolving scientific knowledge of impacts. COMMENT: BLM can review any activity it wishes, but the agency must still honor valid existing rights as previously discussed in these comments. It does not have the authority to modify the lease agreement simply because new science may evolve.	3019
1025	1025-39	RECORD 80 -Consider offers to amend, cancel or buy out leases. RECORD 81 -Include conditions that require relinquishment of leases/authorizations if doing so will mitigate the impact of a proposed development or mitigate the unanticipated impacts of an approved development. COMMENT: We point out that while BLM may have the authority to approve offers to buy out a lease, the ultimate decision rests with the lessee rather than agency. Moreover, any attempt by BLM to amend, cancel, buy out or force relinquishment of a lease would constitute a breach of the federal lease contract and would found by any court to be an illegal "taking" and the lessee would be due just compensation. Valid existing rights must be honored regardless of any new mitigation measures that would exceed the terms of the lease. Additionally, what is meant by an "unanticipated impact?"	3023-2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-38	RECORD79 Limit proposed surface disturbance to 3 percent for an area when permitting APDs on existing leases that are not yet developed. Consider an exception if additional mitigation is demonstrated to offset the resulting loss of Sage-grouse habitat. Implement additional mitigation when necessary in priority sage-grouse habitat. Implement additional mitigation first within the same population area where the impact is realized, and if not possible, then conduct mitigation within the same Management Zone as the impact, per 2006 WAFWA Strategy (page 2 17). COMMENT: See our previous comments regarding our opposition to the imposition of a 3 percent disturbance cap and the adoption of a Sage-grouse ACEC. Once again, we support the language in EO 2011-5, which provides that existing activities in areas already disturbed or approved for development within Core Areas prior to August 1, 2008 will not be made subject to new Sage-grouse stipulations. Existing activities in areas already disturbed or approved for developments include those within a defined project boundary such as: a recognized federal oil and gas unit, drilling and spacing unit, mine plan, subdivision plat, etc. Under EO 2011-5, they would be allowed to continue within the existing boundary, even if the use exceeds recommended stipulations recognizing that all applicable federal actions shall be allowed to continue. Additionally, we question BLM's authority to impose mitigation measures that a inconsistent with the rights granted under the lease.	3035_4
1025	1025-37	RECORD 78 -Complete Master Development Plans in lieu of APD-by-APD processing for all but wildcat wells. COMMENT: Such a provision is poorly reasoned and is particularly inappropriate for use in the Bighorn Basin. While master development plans (MDP) may be acceptable and beneficial in areas where new drilling takes place year round or where there is long term development planned, BLM has failed to consider the greater likelihood of periodic drilling or drilling within existing Federal Units on a well-by-well basis within the Bighorn Basin. Currently, the operator of a federal unit is required to submit a Plan of Development and a Review of Operations on a yearly basis. BLM needs to recognize that most Bighorn Basin operators drill only on occasion, rather than continuously. Very few, if any, are solely exploration companies. Therefore, we recommend BLM eliminate the requirement for an MDP within the Bighorn Basin.	3023-6
1025	1025-36	RECORD 71 -Apply a TLS condition of approval to prohibit surface-disturbing exploratory drilling activities during the nesting and early brood-rearing season in priority Sage-grouse habitat. COMMENT: First, this record fails to establish what timeframes BLM is considering. Second, BLM does not have the authority to impose a TLS COA on existing leases if the COA would exceed the terms of the lease. While BLM may believe the Yates decision gave it the authority to apply new restrictions at will, that belief is false. The case simply upheld the application of a COA based upon a site-specific circumstance. The decision did not give BLM authority to impose any COA it wishes on any lease. (See Yates, 176 IBLA at 157; William P. Maycock, 177 IBLA 1, 16-17 (2009). Case law has clearly established that once the BLM has issued an oil and gas lease that grants the right to access and develop, BLM has no authority to modify the terms of the lease in such a manner that would abrogate the lease rights granted.	3023-2

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1025	1025-35	<p>RECORD 76-Apply an NSO condition of approval within 0.6 mile of occupied or undetermined Sage-grouse leks. Apply TLS condition of approval to restrict disruptive activity within 0.6 mile of occupied or undetermined Sagegrouse leks from March 15 to June 30. COMMENT: Each oil and gas lease contains lease covenants made by the lessee, which can be express or implied. Implied covenants are unwritten promises that impose duties on the lessee and protect the lessor. The courts generally recognize implied covenants such as the right to produce and market, protect from drainage, to reasonably develop, further explore, to operate prudently and properly, and to explore based on economic justification. BLM has no legal authority to impose mitigation measures, such as an NSO Condition of Approval (COA) if it would exceed the terms and conditions of previously issued lease. The BLM must acknowledge that it has no authority to abrogate the valid existing lease rights. We strongly recommend that BLM eliminate this record from the final planning documents. The surface occupancy stipulations proposed under Alternative E, including the 4-mile NSO around a lek, are entirely unreasonable because there is no scientific rationale to support such extreme measures. The 0.6 mile NSO around the perimeter of occupied Sage-grouse leks within KHAs provided under EO 2011-5 is adequate to protect Sage-grouse habitat. Increasing the size of a lek buffer by almost 700% is excessive and wholly unjustified. Placing a 4-mile NSO around all leks would unreasonably preclude development on thousands of acres of unsuitable Sage-grouse habitat. We recommend a more focused NSO of 0.6 miles that allows for a case-by-case analysis and determination of where development is feasible after consideration of habitat suitability and other site specific conditions. We strongly urge BLM to remove the Sage-grouse surface disturbance stipulations provided for in Alternative E from consideration for inclusion in the final planning document. In so doing, BLM would prevent undue restriction of surface use while ensuring consistent management of Sage-grouse habitat throughout Wyoming and clearly illustrate that the State of Wyoming and the BLM are dedicated to protecting and preserving Sage-grouse habitat to prevent a listing of the species under the Endangered Species Act. The 4.0-mile NSO under Alternative E and the 0.6 mile NSO under Alternative F refer to placing limitations on "surface disturbance" and "disruptive activity" respectively. This is in addition to precluding "surface occupancy" within these lek buffers. Since it is possible to have surface disturbing activities without actually occupying the surface (e.g. buried pipelines, buried power lines), this is a notable discrepancy between the SEIS and EO 2011-5 because it will unduly restrict potential surface uses in these areas. While EO 2011-5 prohibits "surface occupancy," it does not prohibit "surface disturbing activities;" rather it allows for authorization of "other activities" if protected resources are not adversely affected. It provides that for activities outside of Core Population Areas, no more than a .25 mile no surface occupancy standard will be applied to occupied leks. The BLM's proposed 0.6 mile COA directly conflicts with the 0.25 mile buffer provided for by the State for leks outside core areas, which allows much needed flexibility in the application of this stipulation and potential land use. We urge BLM to remove "surface disturbance" and "disruptive activity" from these stipulations to achieve consistency with the State.</p>	3035_1

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1025	1025-34	RECORD 75 -Implement management actions regarding unitization and requirements for full reclamation bonds through implementation decisions (e.g., approval of an APD, Sundry Notice, etc.) and upon completion of the environmental record of review (43 CFR 3162.5), including appropriate documentation of compliance with NEPA. Evaluate, among other things: Whether the conservation measure is "reasonable" (43 CFR 3101.1-2) with the valid existing rights. Whether the action is in conformance with the approved RMP COMMENT: See comments on Records 72 and 73.	3023-2
1025	1025-33	RECORD 73 -Require a full reclamation bond specific to the site in accordance with 43 CFR 3104.2, 3104.3, and 3104.5. Ensure bonds are sufficient for costs relative to reclamation that would result in full restoration of the lands to the condition it was found prior to disturbance. Base the reclamation costs on the assumption that contractors for the BLM or USFS will perform the work. COMMENT: Current bonding requirements already fully address reclamation in accordance with current regulation; therefore this proposal is excessive and unjustified. If an operator is in good standing and has a Statewide/Nationwide bond in place, there is no need to require any additional bonding. Moreover, this is inconsistent with IM 2013-151 which prohibits automatic bond increases without conducting a site-specific review that demonstrates an operator has failed to conduct all operations in a prudent manner and has a definitive history of serious noncompliance. We are concerned that BLM is attempting to unilaterally modify existing regulations without going through the rulemaking process to achieve the changes proposed in the SEIS. We strongly recommend that BLM eliminate this flawed proposal from the planning documents. We ask BLM to explain its plans for granting roll-over credits. Is BLM willing to give credit for interim reclamation efforts toward the total disturbance cap allowance? For example, as outlined in the EO 2011-5, reclamation credit is to be given for completion of habitat enhancements once a bond is released. These habitat enhancements may be used as credit for reclamation that is slow to establish in order to maintain the disturbance cap or to improve nearby Sage-grouse habitat.	3023-2

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1025	1025-32	RECORD 72 -Require unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to resources, including greater Sage-grouse, so long as the unitization plan adequately protects the rights of all parties including the United States, according to the Federal Lease Form, 3100-11, Sections 4 and 6. COMMENT: This Record misinterprets the legal purpose of unitization as established by law as well as BLM's legal authority to require unitization. According to BLM's own draft Handbook on Unitization and findings by the Interior Board of Land Appeals, the principal purpose of establishing a unit is to facilitate exploration in undeveloped areas and to maximize the production of oil and gas and revenue for the federal government. Units are not established for the protection of resources but are based on economics and reservoir engineering designed to provide technical benefits to all unit participants. Moreover, significant surface acreage and mineral estate within the Bighorn Basin are held privately; and, BLM has no authority to require non-federal lessee and mineral owners to enter into federal units. Furthermore, EO 2011-5 provides that existing land uses within Core Population Areas will be recognized and respected prior to August 1, 2008, which directs that oil and gas activities will not be managed under Core Area stipulations.	3023-3

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1025	1025-31	<p>RECORD 71 -Apply an NSO stipulation within 0.6 mile of occupied or undetermined Sage-grouse leks (Map SEIS15). Apply a minimum lease size of 640 contiguous acres of federal mineral estate within sage-grouse Core Habitat Areas. Leasing smaller parcels only when 640 contiguous acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations, and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. Apply a TLS to restrict disruptive activity within 0.6 mile of occupied or undetermined sage-grouse leks from March 15 to June 30. COMMENT: It is unclear why BLM intends to utilize both an NSO and a timing stipulation within 0.6 miles of a lek. EO 2011-5 requires an NSO stipulation with 0.6 miles of a lek and a 4-mile TLS around a lek. It is confusing, however, why BLM would need a TLS if surface activities are already precluded through the imposition of an NSO stipulation within 0.6 miles of a lek. Leasing is allowed within Sage-grouse Core Area Habitat subject to Sage-grouse stipulations and the DDCT/ PIAA process established under EO 2011-5. Rather than making vast acreage administratively unavailable to oil and gas development through NSO lease restrictions, EO 2011-5 scrutinizes oil and gas development within Sage-grouse Core Populations Areas at the permitting stage and applies carefully reasoned Sage-grouse mitigation to such operations. The fluid mineral leasing restrictions proposed under Alternatives E and F are unnecessary and excessive. We recommend that BLM utilize the direction contained in EO 2011-5. Additionally, the proposal to make lands within the Sage-grouse KHA ACEC administratively unavailable for mineral leasing under Alternatives B and E is unwarranted and conflicts with BLM's multiple use mandate. There are circumstances under which leasing and development within these areas can occur without resulting in a negative impact to Sage-grouse habitat as discussed in EO 2011-5. While Sage-grouse Priority Habitat Areas (KHA and CHA) contain important Sage-grouse habitat, these areas also contain vast acreage of "unsuitable" habitat. It is of vital importance for unsuitable habitat to be identified in both a seasonal and landscape context, on a case-by-case basis, outside the 0.6 mile buffer around leks. This will provide proponents an incentive to locate projects in unsuitable habitat in order to avoid creating additional disturbance acres. At a minimum, BLM should make lands within Sage-grouse habitat available for possible leasing even if it is on a case-by-case basis. Moreover, developed acreage in unsuitable habitat must not be included in calculated disturbance acres as provided in EO 2011-5. Ongoing oil and gas operations within KHA boundaries in Wyoming must be allowed to continue subject to reasonable mitigation measures to protect the Sage-grouse. As such, we recommend that BLM adopt an oil and gas leasing policy consistent with EO 2011-5. Lastly, what is an undetermined lek? BLM must be able to determine whether or not a lek exists. Protecting undetermined leks is irresponsible and not scientifically valid. Unless the Game and Fish Department has identified an occupied lek in its annual report, there is no lek to protect. This comment applies to all subsequent references to undetermined leks in the SEIS .</p>	3035_1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-30	RECORD 62 - Consider closing designated roads in Sage-grouse priority habitat. COMMENT: Once again, BLM must recognize valid existing rights of lease holders and operators when considering new road closures. It is crucial for operators to have access to their well locations to perform routine maintenance and other production activities. Furthermore, prior to closing any existing roads in Sage grouse habitat, it is crucial for BLM to actually analyze whether the road in question is having a significant effect on the current Sage-grouse population in the vicinity. It may be found that there is no scientifically valid need to close a road, which would deny public access to public lands. BLM's proposed road closure proposal unnecessarily deviates from EO 2011-5 which states that areas already disturbed or approved for development in Core Areas prior to August 1, 2008 are not subject to new Sage-grouse restrictions. We recommend that BLM management remain consistent with EO 2011-5.	3039-1
1025	1025-29	RECORD 58 -Use existing roads or realignments in greater Sage-grouse priority habitat to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in the priority area. If that disturbance exceeds 3 percent for that area, then evaluate and implement additional, effective mitigation necessary to offset the resulting loss of sage-grouse habitat. COMMENT: The 3 percent threshold cap must be changed to comport with the EO 2011-5 requirement of 5 percent. Also, before requiring additional mitigation, BLM must first ascertain what specific impacts new road construction may have on nearby leks to determine whether they are significant enough to warrant additional mitigation. The blanket assumption that impacts would be severe has not been scientifically or site-specifically confirmed.	3039-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-28	<p>RECORD 52 -Locate new primary and secondary roads greater than 1.9 miles from the perimeter of occupied Sage-grouse leks inside core areas. Additionally, for new proposals, consider and evaluate an alternative that would locate new tertiary roads greater than 0.6 mile from the perimeter of occupied leks. COMMENT: The standard contained in EO 2011-5 for road construction and use within Sage-grouse Core Habitat Areas has already been adopted by the USFWS and applied by BLM Wyoming. The restrictions proposed under Alternatives E and Fare excessive, particularly where they would prohibit new road construction within 4 miles of active Sage-grouse leks and new road construction in occupied Sage-grouse habitat as proposed under Alternative E. This 4-mile protective buffer around leks is over two times the 1.9 mile buffer provided under EO 2011-5 for road construction. This buffer has not been scientifically documented as necessary. Precluding road construction in "occupied Sage-grouse habitat" and closing designated roads in Sage-grouse priority habitat also exceed the provisions of EO 2011-5. We also point out that a precise definition of "occupied" is not included in the SEIS. Moreover, application of these restrictions in sage-brush habitat that is used only seasonally or intermittently is not warranted. We recommend that BLM retain its use of the parameters established in EO 2011-5. We also recommend that BLM evaluate new road construction and its use in Sage-grouse habitat on a case-by-case basis assessing habitat suitability, Sage-grouse presence, and need. Further, we recommend that the SEIS clearly explain the significant difference between the requirement of 1.9 miles for a primary and secondary road and the 0.6 mile for a tertiary road and explain how each was derived. It also needs to clarify the widths of the roads as well as the uses that classify them as primary, secondary and tertiary. We also recommend that BLM adopt the guidance contained in EO 2011-5, which states that main roads shall be located for transporting production and/or waste products greater than 1.9 miles from the perimeter of occupied Sage-grouse leks. For example, other roads are to be located to provide facility site access and maintenance greater than 0.6 miles from the perimeter of occupied Sage-grouse leks.</p>	3039-1
1025	1025-27	<p>RECORD 23 -Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success. Where probability of success or adapted seed availability is low, nonnative seeds may be used as long as they support Sage-grouse habitat objectives. COMMENT: We appreciate that BLM has acknowledged that some native seeds may be unavailable at times. However, we recommend that BLM provide a general description of what would constitute acceptable alternative seed mixes in the SEIS.</p>	3035-7

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-26	RECORD 21 -Include Sage-grouse habitat parameters as defined by Connelly et al. (2000), Hagen et al. (2007), or if available, State Sage-Grouse Conservation Plans and appropriate local information in habitat restoration objectives. Make meeting these objectives within priority Sage-grouse habitat areas the highest restoration priority. COMMENT: This record is somewhat confusing because it fails to specifically acknowledge EO 2011-5, which already provides BLM with the habitat parameters required for the protection of the Sage-grouse. We advise against relying upon of the habitat parameters defined by Connelly and Hagen because these studies are overly broad and include marginal habitats that do not warrant the same level of protection as priority habitat areas. As provided for in EO 2011-5, BLM needs to focus its attention on site-specifically identified nesting, brood rearing and winter concentration areas. Furthermore, use of the term "restoration" instead of "reclamation" is of concern because regulatory expectations referenced in this record are vague. BLM needs to distinguish the between the terms "restoration" and "reclamation" because under Onshore Order No. 2, industry is not required to "restore" areas use for oil and gas operations. We presume that restoration activities in core areas is referring to previous disturbances, on-site or off-site, that were created prior to current standards of reclamation, which may be restored for reclamation credit. An opportunity for restoration would then provide the possibility of reclamation credits which could then be used to for future activities as provided for in EO 2011-5.	3035_1
1025	1025-25	RECORD 17 -Any existing towers must undergo review for adverse effects. Review will include minimizing wires and other collision hazards for sage-grouse and migratory birds, as well as adverse impacts of night lights (FAA requirement). COMMENT: Upon what scientific basis was this requirement derived? Does BLM have scientific documentation that demonstrates a high level of collisions with existing towers has occurred in the last 5 years by Sage-grouse or migratory birds? How does the mortality rate compare between existing towers (radio, TV, Cell, etc.) to those of wind farms, buildings and other fixed objects? We also recommend that BLM fully consider the FAA minimum standards for tower safety and lighting before adopting this type of requirement.	3033-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-24	RECORD 12 -Relocate existing designated ROW corridors crossing priority Sage-grouse habitat void of any authorized ROWs, outside of the priority habitat area. If relocation is not possible, undesignate that entire corridor during the planning process. COMMENT: BLM must recognize that some designated ROW corridors are already in use and that valid existing rights must be honored. Under what authority can BLM require modification of an existing ROW? In addition, given the recent release of IM 2013-152 "Commingleing" and existing rules governing "Off Lease Measurement", what plan does BLM have in place to approve requests for commingleing and off lease measurement of oil and gas where wells may be located within priority Sage-grouse habitat and the pipelines and treating facilities are to be located outside priority Sage-grouse habitat? Due to the limited disturbance and parameters outlined throughout the SEIS, this will likely become an issue for future development within priority Sage-grouse habitat and BLM needs to have a plan in place to adequately address these concerns. Further, BLM needs to clarify whether efforts to remove existing power lines and/or reclamation of unused features within existing leases or ROWs would be used as a means to offset the calculated disturbance threshold discussed in the Alternatives.	3033-2
1025	1025-23	RECORD 10 -Manage the ACEC as a ROW avoidance/mitigation area. Allow ROWs where it best minimizes Sage-grouse impacts, build new roads to the minimum standard necessary, and add the surface disturbance to the total disturbance in the Greater Sage-Grouse Core Habitat Areas ACEC if valid existing rights cannot be accessed via existing roads. If disturbance exceeds 3 percent for that area, implement additional effective mitigation on a case-by-case basis to offset the resulting loss of Sage-grouse habitat. Use existing roads to access valid existing rights that are not yet developed to the extent practicable. Allow new ROWs to access valid, existing rights and private and state inholdings where needed. COMMENT: We support BLM's recognition of valid existing rights and constructing roads to the minimum standard needed for the activity; but we object to the designation of an ACEC and BLM's proposed use of a 3 percent disturbance cap. We recommend that BLM adopt the requirements contained in EO 2011-5.	3033-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-22	<p>RECORD 9 "Allow only below ground ROWs within designated ROW corridors. Do not limit the width of below ground ROW corridors as long as new linear facilities are constructed adjacent to existing linear facilities accounting for adequate separation for operating system integrity; safety (construction and operations); appropriate federal, state, and local statutes, regulations, and policies; and land use constraints. If a linear facility is moved away from an adjacent utility to avoid a resource conflict, the new linear facility will still be considered to be within the ROW corridor." "Construct new transmission lines between July 1 and March 14 (or between July 1 and November 30 in winter concentration areas) and within 0.5 miles on either side of existing 115 kV or larger transmission lines (Map SEIS-23)." COMMENT: Industry has offered to bury pipelines for years. However, BLM is proposing that multiple operators use the same ROW. It is unclear whether BLM has considered the legal implications of this requirement. First, how will it be determined which party will be responsible for a joint ROW. Has BLM considered how the liability with multiple facilities will be addressed, such as cost, safety and potential environmental risks? Only until these factors are clearly addressed would BLM's proposal be ripe for consideration.</p>	3033-2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-21	<p>RECORD 8 -Evaluate and remove, bury, or modify existing power lines within priority Sage-grouse habitat areas on a case-by-case basis.</p> <p>COMMENT: Apparently, the NTT failed to consider the role valid existing rights would play in such decisions. It also failed to consider the existence of circumstances where the removal or modification of an existing right-of-way could result in more damage to the habitat than no action at all. Moreover, in some circumstances, above ground power lines are the best and only option that can be considered. For example, topography or terrain may limit the ability to bury power lines. Additionally, continued use and/or construction of new above ground power/transmission lines can be accomplished without negatively impacting priority Sage-grouse habitat (e.g. when placed in unsuitable Sage-grouse habitat identified within priority habitat boundaries or through the use of other, reasonable requirements). The prohibition on constructing above ground transmission lines in Sage-grouse Priority Habitat Areas as proposed under both alternatives is unwarranted and overly restrictive. We recommend that BLM retain needed flexibility by considering the use and construction of power/transmission lines on a case-by-case basis. This will allow BLM to account for site specific circumstances (e.g. topography and terrain) and actual Sage-grouse habitat suitability. Further, we remind BLM that it would likely be economically impossible for operators to modify existing power lines in mature fields due to the fact they produce significantly less income compared to new fields or those that have yet to be developed. Further, BLM does not have legal authority to require such changes. We also remind BLM that Recent State Director Review (SDR) decisions clarify the limits of the BLM's authority as it relates to overhead power lines built and operated by utilities on non-federal surface. SDR No. WY-2009-006 provides that BLM has no authority or jurisdiction over a third-party public utility company installing non-lease facilities on fee surface estate. While it may consider a non-Federal action through analysis and disclosure pursuant to NEPA, BLM's denial of overhead power is not binding on the third-party public utility company (SDR No. WY-2011-001, pg. 16). Even though BLM could find that significant impacts may occur if the overhead power lines were to be constructed; once approval has been granted for the power drops, the agency has no authority to preclude construction of infrastructure that is not a lease production facility (SDR No. WY-2011-001, pg. 16). BLM simply lacks jurisdiction to approve or deny non-lease facilities that are not owned or controlled by the operator and are located on split-estate fee surface (SDR No. WY-2011-001, pg. 17). Mandating burial of all power lines within Sage-grouse Priority Habitat, as proposed under Alternative E, will potentially preclude construction of infrastructure that is not a lease production facility and may prohibit a public utility from installing non-lease facilities on adjacent fee surface estate. As such, this stipulation exceeds the limits established in recent SDR decisions and must be modified.</p>	3033-2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-20	Consolidate anthropogenic features from development and transmission on the landscape, regardless of land ownership patterns or whether proposed actions occur in the Greater Sage-Grouse Core Habitat Areas ACEC. Allow high profile structures (higher than 12 feet) within greater Sage-grouse nesting habitat on a case-by-case basis. COMMENT: Once again, valid existing rights must be honored. Under what authority can BLM force the consolidation of development features or transmission line? We point out that EO 2011-5 recognizes valid existing rights: "Existing activities in areas already disturbed or approved for development within Core Areas Prior to August 1, 2008 are NOT subject to new Sage-grouse stipulations with the exception existing operations may not initiate activities resulting in new surface occupancy within 0.6 mile of the perimeter of a Sage-grouse lek. Any existing disturbance will be counted toward the calculated disturbance cap for a new proposed activity. The level of disturbance far existing activity and rollover credit may exceed 5%". The EO was carefully crafted to respect valid existing rights and we strongly recommend that BLM adopt this same approach.	3035_4
1025	1025-19	RECORD 7-In the Greater Sage-Grouse Core Habitat Areas ACEC, the density goal includes either: Maintain or reduce the existing level of density of energy production and/or transmission structures on the landscape in sagebrush communities, or Manage the existing level of density of disturbance on the landscape so that anthropogenic disturbances do not exceed one disturbance per 640 acres within the Density and Disturbance Calculation Tool (DDCT) analysis (or best available tool) and cover less than 3 percent of sagebrush habitat. COMMENT: This proposal conflicts with EO 2011-5 and must be modified to remain consistent, particularly with respect to the disturbance cap. Moreover, we question how BLM intends to reduce the existing level of density of energy production and/or transmission structures while honoring valid existing rights. According to the Federal Land Policy and Management Act (FLPMA), the Mineral Leasing Act (MLA) and BLM's Planning 1600 Handbook, BLM does not have the authority to impose new stipulations on leases after they have been issued or to require abandonment of existing operations. Nor does BLM have authority to impose mitigation measures, such as COAs, that exceed the terms and conditions of previously issued leases. In sum, BLM cannot deprive operators of their rights to develop pre-existing leases in accordance with the terms under which they were issued. BLM is limited to negotiating with existing rights owners when seeking to impose newly developed restrictions.	3035_4
1025	1025-18	RECORD 6 -Designate greater Sage-grouse priority habitat within Core Habitat Area as the Greater Sage-Grouse Core Habitat Areas ACEC (Map SE/S-31 and Appendix F of the Draft RMP and Draft EIS; 1,161,234 acres). COMMENT: As previously stated, we object to the designation of an ACEC within the planning area because it would be unmanageable and would conflict with the process already established in EO 2011-5.	3001

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-17	RECORD 4 -Where suitable conservation actions cannot be achieved in priority habitat, seek to acquire state and private lands with intact subsurface mineral estate by donation, purchase, or exchange in order to best conserve, enhance, or restore sage -grouse habitat. COMMENT: We strongly object to BLM seeking to acquire state and private lands with intact mineral estate because the agency does not currently receive adequate funding to fully manage the lands already in federal ownership. Instead, we recommend that BLM work with private landowners to arrive at mutually agreeable programs while recognizing and respecting existing rights as well as acknowledging that a federally managed conservation approach is not always preferable or needed.	3016-2
1025	1025-16	RECORD 3-Examine applicability of categorical exclusions in priority habitat COMMENT: Categorical exclusions (CE) are provided by law and are intended to benefit the operator as well as BLM during the permitting process. Therefore, we object to BLM's proposal to consider excluding the use of CEs even in priority habitat. The decision to exclude the use of a CE must be made based upon site-specific conditions and the scope of a project proposal rather than on a unilateral decision in a planning document.	3027-1
1025	1025-15	Finally, it has been industry's experience that BLM rarely uses monitoring data of any type collected at BLM's direction. While we don't object to reasonable monitoring activities, it is incumbent upon BLM to establish a system or database whereby the monitoring data is available for future use by other government agencies, industry and the public. Otherwise, the effort is simply an expensive exercise in futility.	3035-7
1025	1025-14	With respect to split estate lands, BLM needs to specify how the rights of private landowners will be protected. As such, BLM needs to incorporate proper mechanisms for working with landowners and lessee's so as not to unnecessarily delay development activities. In addition, specific parameters need to be clearly articulated for any monitoring and mitigation plan, i.e., scope, requirements, costs and timing. We recommend that BLM work with operators, other land users as well as the Wyoming Game and Fish Department (WGFD) in order to establish a reasonable and workable monitoring program. Moreover, in order to avoid conflict and confusion, the monitoring program must be well-defined before it is required for project activities.	3019
1025	1025-13	In addition to eliminating or modifying RDFs to establish consistency with EO 2011-5, we recommend that BLM adopt limitations to the application of RDFs similar to the Lander Proposed RMP/EIS to institute consistency across BLM Field Offices.	3023-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-12	RECORD 2 Incorporate BLM required design features or mitigation for any authorized mineral activity for federal mineral estate, regardless of surface ownership. Require development of wildlife monitoring and mitigation plan to address potential impacts from mineral development on wildlife populations COMMENT: We recommend that BLM revisit its design features and mitigation to ensure they are technically feasible and appropriate and that they maintain the level of flexibility required when their use is considered on a site-specific basis. In accordance with current law and regulation, it is inappropriate for the RMP to establish site-specific requirements at a project level as is proposed in the SEIS. Moreover, many of the design features (addressed later in these comments) outlined in the NTT report reflect a distinct lack of understanding of the activity requirements during the oil and gas exploration and development process.	3023-3
1025	1025-10	According to BLM Manual 1613-ACEC, such designations are used to highlight areas where special management attention is needed to protect, and prevent irreparable damage to important values or processes. The description cited in the SEIS is inadequate. The ACEC included in the SEIS needs to be discussed and justified in more detail, including recognition of the wide scope of mitigation measures BLM has at its disposal to lessen the impacts on the Sage-grouse in areas where it is believed they pose a threat. Ironically, the statement fails to acknowledge that the single, greatest threat to the survival of the species is predation. Moreover, we seriously question BLM's ability to manage nearly 2 million acres as an ACEC and it is unclear why such a designation was even considered. BLM needs to more fully discuss this concept in the SEIS. Our opposition to an ACEC does not mean we do not support the delineation of Sage-grouse Core Habitat Areas and non-Core Habitat Areas as a Sage-grouse management strategy provided it is consistent with EO 2011-5. Labeling this area as an Area of Critical Environmental Concern (ACEC) (e.g. the KHA ACEC under Alternative E and CHA ACEC under Alternative F) is inconsistent with EO 2011-5 and is, clearly, unjustified to ensure adequate protection of Sage-grouse habitat. We are concerned that an ACEC designation of Sage-grouse Priority Habitat Areas has resource management implications that reach far beyond the Sage-grouse Core Habitat Area strategy, which already provides more than adequate protection of Sage-grouse habitat. As such, we urge BLM to abandon the use of an ACEC designation on Sage-grouse Priority Habitat Areas (i.e. Core Habitat Areas and Key Habitat Areas).	3001
1025	1025-9	RECORD 1 -ACEC-Proposed Greater Sage-grouse Priority Habitat: 1,786,244 acres; COMMENT: BLM has provided no clear rationale for designating Core Habitat Areas as an ACEC. In Appendix F, BLM simply provides the following statement regarding the proposed ACEC, "The area contains sagebrush habitat used by sensitive bird species and other wildlife, including the greater sage-grouse, a candidate species for listing under provisions of the ESA. These habitats are under threat from surface disturbance associated with mineral (including gravel pits) and ROW development, renewable energy developments, heavy recreational and motorized vehicle use, and invasive and nonnative species infestations. These activities threaten important greater Sage-grouse habitats, including breeding, later brood-rearing, and winter concentration areas."	3035_1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1025	1025-8	<p>Alternatives F. 2-1-Chapter 2 of the Draft RMP and Draft EIS is supplemented to include two new alternatives (alternatives E and F). COMMENT: We are strongly opposed to both of the new, unreasonably restrictive alternatives analyzed in the SEIS. Neither Alternative E nor Alternative F represent suitable management plans for the Bighorn Basin because both are unnecessarily restrictive on oil and gas resources and conflict with BLM's multiple-use mandate under FLPMA. Specifically, they would gratuitously limit the continued exploration and development of oil and gas resource, 2,296,279 acres under Alternative E and 291,294 acres under Alternative F. Moreover, an additional 1,320,277 acres under Alternative D and 261,282 acres under Alternative F would be available for oil and gas leasing only with NSO or other major constraints. The adoption of either of these alternatives would stymie future oil and gas development in the Basin creating a huge economic impact on local communities as well as compromising the continued generation of revenue to the US Treasury. Clearly, the significant loss of continued development of domestic oil and gas resources as described in this SEIS fails to recognize the ever-increasing need for domestic energy supplies which defies the requirements of the Energy Policy Act of 2005 and the needs of the nation as a whole. In addition to the comments above regarding the alternatives, we question why the SEIS does not present a new agency-preferred alternative based on the supplemental analysis. BLM tied the analyses of Alternatives E and F to the previously analyzed Alternatives B and D, respectively, and it is unclear whether Alternative F should be considered the new preferred Alternative, replacing Alternative D. We request BLM to clarify its intent. Nevertheless, we are opposed to implementation of or inclusion of management elements from either of these two newly analyzed alternatives because they are overly restrictive, unjustified and fail to meet BLM's multiple use mandate as detailed subsequently in these comments.</p>	3023-3
1025	1025-7	<p>Section 1.4.2 -The BLM will utilize the COT Report (USFWS 2013), the Western Association of Fish and Wildlife Agencies (WAFWA) Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004), and any other appropriate resources, to identify greater Sage-grouse habitat requirements and best management practices. Page 2-1 - Management approaches applied to the new greater sage-grouse priority habitat ACECs were derived from recommendations on the management of greater sage-grouse by the Sage-Grouse National Technical Team (Sage-grouse NTT 2011) and public comments. COMMENT: While the SEIS states in Chapter 1 that it would use several different appropriate scientific sources to formulate its management options for Sage-grouse, apparently the reliance upon these other sources was either extremely limited or nonexistent. The fact that BLM has relied solely upon the extreme recommendations contained in the NTT report rather than utilizing all available science to develop its alternative management options is patently objectionable as previously stated. Our comments below cite several additional scientific references and studies which must be considered when developing a management approach for the Sage-grouse and its habitat areas.</p>	3035_1

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1025	1025-6	The SEIS offers no explanation of what constitutes valid existing lease rights and how they relate to the new land use management options considered in the SEIS. We recommend that BLM clearly state in the Final EIS that the new stipulations proposed in the Preferred Alternative will not apply to lands already under oil and gas lease. Moreover, it must be made clear that BLM has no authority to impose these new restrictions through the use of Conditions of Approval (COA) on applications for permit to drill (APD) if they would abrogate the valid existing lease rights. These principles are particularly important given the fact that discussions regarding new protections for the proposed Areas of Critical Environmental Concern (ACEC) could impose debilitating limitations on existing leases that were not anticipated at the time the leases were purchased in good faith from the federal government. Such qualifiers are consistent with current rules and policies of the BLM and must be clearly disclosed in the planning documents. An acceptable example of appropriate language is included in the Rawlins RMP adopted in 2008, page 20.	3019
1025	1025-5	In addition to many of the design features included in the SEIS, of particular concern is BLM's departure from the disturbance cap of 5 percent provided in EO 2011-5. The SEIS suggests a 3 percent disturbance threshold be imposed that does not exceed one disturbance per 640 acres using the DDCT regardless of the use. The WY EO specifies a 5 percent disturbance threshold per 640 acres using the DDT and it does not limit such disturbance to one occurrence. This is an issue of significant concern because it will essentially shut off the Bighorn Basin to future oil and gas activities as well as other uses, such as grazing. Additional concerns with BLM's departure from the standards and stipulations provided in EO 2011-5 are discussed in detail below. Given the above concerns, we object to the management and mitigation proposals contained in the SEIS because they demonstrate a problematic disregard of the need for continued development of domestic energy resources, the tremendous economic impact implementation of either of these alternatives would have on the region, a lack of understanding of how the federal oil and gas program works as evidenced by ill-conceived measures that are either impossible to implement or are unduly restrictive and the fact that oil and gas activities do not have the catastrophic impacts on Sage-grouse assumed by the NTT report. We strongly recommend that BLM's final RMP/DEIS establish clear consistency with EO 2011-5.	3035_4

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1025	1025-4	CONSISTENCY WITH WYOMING EXECUTIVE ORDER 2011-5, GREATER SAGE-GROUSE CORE AREA PROTECTION, IS OF PARAMOUNT IMPORTANCE COMMENT: As BLM is aware, EO 2011-5 was developed through an extensive collaborative process in which all affected parties were represented. It has also garnered the support of USFWS, which stated in a letter to Wyoming Governor Matt Mead (June 24, 2011), that "if fully implemented, we believe the EO can provide the conservation program necessary to achieve your goal of precluding listing of the Sage-grouse in Wyoming." Moreover, the Service also noted in the letter that "the core population area strategy (EO 2011 -5) is a sound framework for a policy by which to conserve greater sage grouse ... " Additionally, the BLM Wyoming State Office issued a revised Greater Sage Grouse Habitat Management Policy, WYSO 2012-019, in February 2012 that applies EO 2011-5, and entered into a Memorandum of Understanding (MOU) with the State of Wyoming for use and implementation of EO 2011-5 on federal projects. As such, a Sage-grouse habitat management strategy on federal lands in Wyoming that is inconsistent with EO 2011-5 is unacceptable and unjustified.	3035_1
1025	1025-3	We are also confused by the BLM's SEIS press release, which indicates the agency was required to supplement the draft Bighorn Basin RMP/EIS "to allow the public to nominate areas within the study area as areas of critical environmental concern for Sage-grouse." We ask BLM to clarify the legal requirement that directs the Bureau to reopen the planning process to allow the "public" to specifically nominate a Sage-grouse ACEC simply because it was not considered in the original planning documents.	3001
1025	1025-2	We are concerned that BLM limited its analysis to the overly restrictive conservation measures recommended by the NTT during the planning process; we strongly oppose the inclusion of these conservation measures in the agency's preferred alternative and their adoption in the Final RMP/ROD. Additionally, it is our understanding that a planning document such as this is intended to be a programmatic overview of actions that could occur throughout the life of the plan. As such, the SEIS is far too prescriptive for a land use plan.	3035_1
1025	1025-1	We object to the two new alternatives analyzed in the SEIS to the Bighorn Basin Draft RMP and Draft EIS because they were limited to the scientifically unfounded conservation measures identified in the Greater Sage-grouse National Technical Team (NTT) Report on National Greater Sage-Grouse Conservation Measures (Sage-grouse NTT 2011). BLM Instruction Memorandum (IM) No. 2012-044, BLM National Greater Sage-grouse Land Use Planning Strategy, contains a very clear provision which allows BLM to adopt Wyoming Executive Order EO 2011-5, Greater Sage-Grouse Core Area Protection, in its entirety.	3035_1

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1026	1026-96	Finally, Devon encourages the BLM to eliminate BMP's for phased development. The United States Court of Appeals for the Tenth Circuit, which has authority over all of Wyoming, recently affirmed a BLM decision not to require a phased leasing resource management plan in the Buffalo Field Office specifically because such an alternative would delay the production of energy resources and was not otherwise practical. Biodiversity Conservation Alliance, et al. v. Bureau of Land Management, et al., 608 F.3d 709, 715 (10th Cir. 2010). The BLM need not analyze such an unreasonable and impartial alternative. Further, allowing oil and gas developers to secure leases in only one portion of a geologic basin or area at a time will limit and preclude exploration and development activities. Before an oil and gas operator will be willing to commit the millions of dollars necessary to drill even a single exploratory oil and gas well, it must secure a large enough lease position to justify the expense. If phased leasing was mandated by the BLM, the operator may be unable to secure such lease positions and new exploration would come to a halt, along with the economic benefits associated therewith.	3023-3
1026	1026-95	Finally, BLM should consider the adverse air quality impacts potentially associated with this management action. In many cases, oil and gas operators install power lines in order to reduce potential air emissions from compressors and other facilities. Requiring these lines to be buried in all circumstances may make it uneconomic to use electrical power which could lead to more air quality impacts from compressors.	3033-2
1026	1026-94	Appendix L., Best Management Practices and Required Design Features, Reclamation No. 4 "Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions. Utilize mulching techniques to expedite reclamation." This RDF should be reworded to reflect that irrigation needs to be done in a way that will prevent vegetation from being unable to withstand drought conditions after the irrigation has been removed.	3042
1026	1026-93	Appendix L., Best Management Practices and Required Design Features, Reclamation No. 3 "Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community." If the disturbance is on private land, this requirement needs to be subject to the preferences of landowners.	3023-1
1026	1026-92	Appendix L., Best Management Practices and Required Design Features, Noise No. 3 "Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat." This requirement is overly broad and unnecessarily prescriptive. There are many items to consider when siting compressor stations, such as the engineering and design constraints inherent to gas gathering systems. With regard to directing compressor station noise away from priority habitat, proximity to other receptors, such as homes, also needs to be considered. This item needs to be subject to technical feasibility, as well as landowner preferences when private land is involved. Furthermore, it is inconsistent with Wyoming Executive Order and BLM Instruction Memorandum 2012 -019, and should be removed.	3035_3-1

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1026	1026-91	Appendix L, Best Management Practices and Required Design Features, Noise No. 2 "Require noise shields when drilling during the lek, nesting, brood-rearing, and wintering seasons." This requirement is too broad and vague. First, the measure does not define the types of noise shields that are required. Further, the shield can take any number of shape and form. It is also important to realize that noise shields cannot be used at a site without being engineered for safety factors such as wind load. Shields are not merely installed near a noise source. They must be carefully anchored, potentially with a foundation, to meet wind load requirements depending upon the material used to build a "shield." Additionally, larger well pads may be needed to accommodate the configuration of a "shield" while increasing surface disturbance. It is also important to consider the attenuation of noise from a site to receptors such as leks, nesting, and brood rearing. Moreover, simply stating that noise shields are required during "wintering seasons" may not be necessary if the drilling is occurring where the noise attenuation would not be a problem. This requirement needs to be completely reworded to provide more direction and flexibility.	3035_3-1
1026	1026-90	Appendix L, Best Management Practices and Required Design Features, West Nile No. 3 "Build steep shorelines to reduce shallow water (greater than 60 em) and aquatic vegetation around the perimeter of impoundments. Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito species like Cx. tarsalis which prefer newly flooded sites with high primary productivity." While the intent of steep shorelines may be advantageous for the control of mosquito species, it presents a hazard to mammals being able to escape from the impoundment. This is something that needs to be considered in administering this measure. This entire section on West Nile Virus is missing any reference to insecticide are effective in controlling mosquito larvae. We recommend this measure be included on the list of requirements.	3035_3-1
1026	1026-89	Appendix L, Best Management Practices and Required Design Features, West Nile No. 2 "Increase the size of freshwater ponds to accommodate a greater volume of water than is discharged. This will result in un-vegetated and muddy shorelines that breeding Cx. tarsalis avoid. This modification may reduce Cx. tarsalis habitat but could create larval habitat for Culicoides sonorensis, a vector of blue tongue disease, and should be used sparingly. Steep shorelines should be used in combination with this technique whenever possible." These requirements need to be subject to the preferences of landowners. On split estate lands where the surface is owned by private landowners, BLM must defer decisions regarding what facilities remain on the land and the size of ponds to those private landowners.	3035_3-1

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1026	1026-88	Appendix L, Best Management Practices and Required Design Features, Operations No. 22 "Use only closed-loop systems for drilling operations, with no reserve pits." It is not always reasonable or feasible to require closed loop mud systems for drilling. Many drilling rigs are not equipped for closed loop drilling, which could complicate development in some situations. Further, even if a closed system were available on a drilling rig, some type of pit will be needed for placement of drilling cuttings. This requirement must provide the flexibility to allow this as an option.	3023-1
1026	1026-87	Appendix L, Best Management Practices and Required Design Features, Operations No. 21 "Design or site permanent structures to minimize impacts to sage-grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of sage-grouse or interference with habitat use." This requirement is unreasonable and lacks scientific justification. We are unaware of any studies on sage-grouse which correlate movement and distances relative to sage-grouse response. Considering the existing NSO from leks, pump jacks at a distance of at least 0.6 mile will not create an issue. We recommend this requirement be removed. Again, this requirement is inconsistent with the Wyoming Executive Order and BLM Instruction Memorandum 2012 -019 and needs to be removed.	3023-1
1026	1026-86	Appendix L, Best Management Practices and Required Design Features, Operations No. 20 "Restrict the construction of tall facilities, distribution powerlines, and fences to the minimum number and amount needed." It is unclear what is meant by "tall". Certain facilities, particularly those for compression or natural gas treatment, require the use of designs which incorporate vessels or equipment that, by their design, can involve height. Furthermore, fences are typically installed for reasons of security and safety. Although some flexibility is mentioned such as the "minimum amount needed", this requirement lacks specificity and the reality of what is needed to construct a facility and needs to be removed.	3023-1
1026	1026-85	Appendix L, Best Management Practices and Required Design Features, Operations No. 19 "Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use." Remotely monitoring a site may not always identify all operational considerations, so sometimes there is the need to go out and look at a well or facility. In order to conduct safe and effective oil and gas operations, certain inspection and maintenance activities must be conducted regularly. We recognize that limitation on some disruptive activities and access to well locations during critical seasons may be necessary, such as prohibiting construction activities (e.g. well pads, roads, pits) or limiting the number of trips allowed. Basic maintenance and operation activities are necessary to maintain safe, effective, and environmentally sound operations. Further, the economics associated with some leases may not allow telemetry to be installed. This requirement should be subject to operational considerations and economic viability. Moreover, this requirement is inconsistent with Wyoming Executive Order and BLM Instruction Memorandum 2012- 019 and needs to be removed.	3023-1

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1026	1026-84	Appendix L, Best Management Practices and Required Design Features, Operations No. 17 "Place liquid gathering facilities outside of priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors do not place tanks at well locations within priority habitat areas." This requirement is confusing. Placing liquid gathering facilities inside priority areas would reduce truck traffic which would be advantageous in priority areas. Further, if liquid gathering or trucking is not allowed inside priority areas, there is no way to remove liquid production from the lease. This requirement conflicts with standard operational practices and is not feasible and needs to be removed.	3023-1
1026	1026-83	Appendix L, Best Management Practices and Required Design Features, Operations No. 16 "Apply a phased development approach with concurrent reclamation." The term "phased development" needs clarification. This means different things to different people. Devon opposes phased development which only allows certain portions of a leasehold or unit to be developed over time until that portion is plugged or abandoned before proceeding to another portion of the leasehold or unit. This is a clear violation of existing lease terms since this type of terminology has not been used in lease language before.	3023-2
1026	1026-82	Appendix L, Best Management Practices and Required Design Features, Operations No. 14 "Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells." The phrase "technically feasible and as part of the downhole design objectives" should be added to provide necessary flexibility to this requirement.	3023-1
1026	1026-81	Appendix L, Best Management Practices and Required Design Features, Operations No. 5 "Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce sage-grouse mortality." This requirement is not practical. Fine mesh netting is not only extremely difficult to deploy, but difficult to maintain, especially during winter with snow accumulation. It is unclear why tanks are included here, unless this is referring to open-top tanks. We urge BLM to remove this requirement or revise it reflecting these concerns. This is another requirement that exceeds the parameters of Wyoming Executive Order and BLM Instruction Memorandum 2012 -019 and, therefore, we recommend it be removed.	3023-1
1026	1026-80	Appendix L, Best Management Practices and Required Design Features, Operations No. 3 "Bury power lines to the extent technically feasible." This requirement is excessive and cost-prohibitive. We urge BLM to add flexibility that takes into account technical feasibility and economic considerations.	3033-1

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1026	1026-79	Appendix L, Best Management Practices and Required Design Features, Roads No. 6 "Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition)." Remotely monitoring a site may not always identify all operational considerations, so there is sometimes the need inspect a well or facility. In order to conduct safe and effective oil and gas operations, certain inspection and maintenance activities must be conducted regularly. We recognize that limitation on some disruptive activities and access to well locations during critical seasons may be necessary, such as prohibiting construction activities (e.g. well pads, roads, pits) or limiting the number of trips allowed. Basic maintenance and operation activities are necessary to maintain safe, effective, and environmentally sound operations. Further, the economics associated with some leases may not allow telemetry to be installed. This requirement should be subject to operational considerations and economic viability.	3039-2
1026	1026-78	Appendix L, Best Management Practices and Required Design Features, Roads No. 2 "Locate roads to avoid important areas and habitats." This requirement needs to be subject to the preferences of landowners on split estate lands where the surface is owned by private landowners. BLM must defer decisions regarding road location with those private landowners.	3039-2
1026	1026-76	Devon is particularly opposed to the Required Design Features and Best Management Practices affecting fluid minerals on pages L-2 -L-3 of Appendix L. It would be impossible for an oil and gas operator to economically utilize all of the proposed Required Design Features contained in this section. The BLM needs to specifically modify Appendix L to indicate that it does not and cannot impact existing leases. Given the fact that the BLM cannot modify or alter Devon's existing rights, Devon is very concerned regarding the language in Appendix L suggesting that the Required Design Features will be imposed on both existing and new oil and gas development projects and leases within the Bighorn Planning Area. BLM does not have the authority to modify existing lease rights through the RMP planning process. As noted above, Devon is particularly concerned regarding the BLM's Required Design Features related to fluid minerals on pages L-2 -L-3 of Appendix L. Not only are some of the Required Design Features inconsistent, i.e. requiring closed-loop systems and requiring all pits to be fenced, the requirement to use all of the Design Features would be cost prohibitive and not possible in many situations. For example, in certain circumstances, it is impossible to use closed-loop systems for drilling operations because surfactants and other additives are included within the drilling mud making the use of tanks extraordinarily difficult. In other situations, closed-loop drilling systems cannot be utilized because of the amount of water produced during drilling operations would make it impossible to utilize closed-loop systems.	3023-2
1026	1026-75	In the revised Bighorn RMPs and accompanying EISs, the BLM should also state clearly that an oil and gas lease is a contract between the federal government and the lessee, and that the lessee has certain rights thereunder.	3023-2

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1026	1026-74	Appendix L -Best Management Practices and Required Design Features The BLM has not adequately explained how the proposed Best Management Practices contained in Appendix L will be applied to existing leases. The BLM must expressly recognize that oil and gas leases are existing rights that cannot be modified.	3023-2
1026	1026-73	Because the monitoring framework is unquestionably a "substantial change" when compared to any of the alternatives included in the Draft EIS, the BLM should prepare and release for comment another supplement to the Draft EIS.	3035-7
1026	1026-72	Appendix C -Monitoring and Evaluation Devon applauds the BLM's decision to develop a monitoring framework for sage-grouse as part of the Bighorn RMPs. Unfortunately, in its rush to release the supplement to the Bighorn Basin Draft RMP, the BLM has likely violated the terms of NEPA. The BLM indicates that it will include a new monitoring framework in the proposed RMPs and Final EIS. Bighorn RMP/SDEIS, Appd. C-2. If the monitoring framework will be included in the proposed RMPs for the first time, Devon will not have an opportunity to review or submit comments regarding any of the specific monitoring criteria before they were proposed for inclusion in the Final EIS. It is wholly inappropriate under NEPA for the BLM to introduce radically new and different concepts and procedures in the Final EIS for the Bighorn RMPs, especially given the limited ability for companies such as Devon to submit comments or react to the new measures once a proposed RMP has been issued.	3035-7

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1026	1026-71	Section 4.8 -Socioeconomic Resources Devon agrees with the BLM's analyses demonstrating that Alternative F would have more negative socioeconomic impacts than Alternative D. Bighorn RMP/SDEIS, pg. 4-132. Devon strenuously disagrees with the BLM's assertion that Alternative E would have essentially the same economic impacts as Alternative B. Given the significant limitations on oil and gas development under both Alternative E and Alternative F, Devon has no doubt it would have far greater negative impacts than Alternative B or Alternative D. As the BLM is well aware, oil and gas development has a significant role in the economic well-being of the Bighorn Planning Area. The BLM's analysis demonstrates that oil and gas operations would provide between 63% and 74% of total employment under Alternative E or Alternative F. Bighorn Page 20 RMP/SDEIS, pgs. 4-135, 4-136. Given the importance of oil and gas development on the local economy, BLM should not adopt either Alternative E or Alternative F as both alternatives would cause significant decreases in employment within the area. Bighorn RMP/ SDEIS, pg. 4-134. Just as the economy is beginning to recover from the difficulties of the last several years, the BLM should ensure it is doing everything to foster, not limit, future employment within the Planning Area. For that reason alone, the BLM must not select Alternative E or Alternative F in the planning process. The BLM's analysis also demonstrates that oil and gas development also contributes significantly to earnings within the Planning Area. Bighorn RMP/SDEIS, pg. 4-139. The adoption of either Alternative E or Alternative F would have significant negative impacts to local earnings within the Planning Area. Bighorn RMP / SDEIS, pgs. 4-193 -4-140. The BLM should not adopt an alternative that would lead to either a ten percent or 40% decrease in employment as compared to Alternative A. Bighorn RMP / SDEIS, pgs. 4-134, 4-136, 4-140. Alternative E and Alternative F would also result in a significant decrease in federal mineral royalties, state severance taxes and ad valorem taxes and should not be adopted. Bighorn RMP /SDEIS, pg. 4-142. Given the significant adverse impacts associated with either Alternative E or Alternative F, neither must be adopted by the BLM.	3036-2
1026	1026-70	Section 4. 7 -Special Designation and Other Management Areas Devon is opposed to the creation of any new ACECs within the Bighorn RMPs. Devon is particularly opposed to the creation of a sage-grouse habitat area or greater sage-grouse key habitat areas under Alternative E and Alternative F. Bighorn RMP/SDEIS, pg. 4-122. Devon appreciates that the BLM tried to exclude private lands and developed oil and gas fields from its key habitat area ACEC, but Devon believes the ACEC is still far too large. Devon urges the BLM not to create any additional ACECs within the Planning Area. Once again, Devon is opposed to the BLM's description of Alternative F as placing a moderate constraint on oil and gas development. Bighorn RMP /SDEIS, pg. 4-127. Given the significant limitations imposed under Alternative F, it would be more accurate to describe the alternative as placing major constraints on oil and gas development. The BLM's assertion that Alternative F places only moderate constraints on oil and gas development is disingenuous and should be corrected in the final EIS.	3001

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1026	1026-69	Section 4.6.3 -Rights-of-Way and Corridors When developing the final EIS for the Bighorn RMPs, the BLM should also ensure that it has identified ROW exclusion and avoidance areas as major constraints for oil and gas development. Limiting the access to and from federal oil and gas leases will have the very real impact of eliminating oil and gas development. For that reason, Devon is strenuously opposed to Alternative E that would restrict almost three million (3,000,000) acres within the Planning Area with either ROW exclusion or avoidance areas. Bighorn RMP /SDEIS, pg. 4-104, Map SEIS-22. Precluding ROWs with over 42% of the Planning Area would decimate oil and gas development. The BLM has not adequately analyzed the potential socio-economic impacts of effectively prohibiting oil and gas development on almost three million (3,000,000) acres within the Planning Area. Devon urges the BLM not to adopt Alternative E.	3033-2
1026	1026-68	Section 4.5.2-Paleontological Resources The BLM appropriately recognizes that the surface disturbing operations associated with oil and gas development often lead to the discovery of paleontological resources. Bighorn RMP /SDEIS, pg. 491. The BLM must ensure it does not impose unreasonable restrictions on oil and gas development as such responsible development may actually lead to the discovery of new paleontological resources within the Bighorn Planning Area.	3028
1026	1026-66	Section 4.4. 9 -Special Status Species -Wildlife As described earlier, Devon supports the BLM's creation of oil and gas management areas under Alternative C and Alternative D. Bighorn RMP/SDEIS, pg. 4-76. Devon believes the oil and gas management area under Alternative D should be enlarged to the same size as that under Alternative C. Further, Devon does not believe that big game restrictions should apply within the ACEC areas to the extent they overlap the oil and gas management areas. The BLM effectively eliminates the benefits associated with the oil and gas management areas by making them subject to seasonal restrictions.	3023-6
1026	1026-65	Section 4.4.5 -Fish and Wildlife Resources The BLM admits in Table 4-9 that it would be closing significant portions of the Planning Area to future leasing and development, not making them "administratively unavailable" as suggested elsewhere in the document. Bighorn RMP/SDEIS, pg. 4-57. As also described earlier, the BLM inaccurately suggests that under Alternative F, the greater sage-grouse core habitat area ACEC imposes only moderate constraints on oil and gas development. The limitations on surface disturbance, timing restrictions, and ROW restrictions make it abundantly clear that the sage-grouse ACEC restrictions under Alternative F should be described as major, not moderate. Devon urges the BLM to correct this misinformation when preparing the final EIS.	3035_9
1026	1026-64	Section 4.4.4 -Invasive Species Management The BLM should clarify that under all of the alternatives, including the no action alternative reclamation plans are required for all oil and gas drilling operations under Onshore Order Number 1, Section III, 4, j, 72 Fed. Reg. 10308, 10333 (Mar. 7, 2007). As currently described on page 4-51, the public may have the impression that reclamation plans are not always required for oil and gas development activities. Under current regulations, oil and gas operators will be required to prepare and submit reclamation plans with any and all applications for permits to drill.	3014

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1026	1026-63	Figure 4.3 and Map SEIS-7 must be updated and corrected for inclusion in the Final EIS for the Bighorn RMPs. The BLM suggests that under Alternative F, the vast majority, of the Planning Area would be open with only moderate constraints. Bighorn RMP/SDEIS, pgs. 4-22, 4-26. Given the significant limitations on surface disturbance imposed by the proposed Alternative F, the vast majority of the Planning Area, including the entire greater sage-grouse core area ACEC, should be identified as a major constraint for oil and gas development. It is disingenuous of the BLM to suggest that the area is subject to only moderate constraints when limiting the entire area to only three percent surface disturbance, especially when combined with the ROW avoidance area, limitations on the construction of transmission lines, and the other significant limitations imposed within the ACEC. The BLM must prepare new information in the final EIS clearly indicating that the lands within the greater sage-grouse core area ACEC are subject to major, not moderate, constraints.	3035_9
1026	1026-61	Section 4.2.5 -Leasable Minerals-Oil and Gas As already described above, Devon is opposed to the amount of lands that oil and gas development under Alternative E and Alternative F. The BLM needs to analyze and disclose to the public the significant impacts closing such a large area to oil and gas development will have not only on the area closed to leasing, but upon other lands. No reasonable operator will conduct exploratory development within the Bighorn Planning Area if it will be unreasonably difficult, if not impossible, to secure additional leases within the Planning Area. BLM must provide additional analyses regarding the negative impacts Alternative E and Alternative F would have upon oil and gas development within the entire Planning Area.	3023-6
1026	1026-60	Section 3.7.1 -Areas of Critical Environmental Concern As already discussed above, Devon does not believe the greater sage-grouse key habitat ACEC or the greater sage-grouse core habitat area ACEC meets the relevance or importance criteria necessary to establish a new ACEC. 43 C.F.R. § 1610.7-2.	3001
1026	1026-59	It was a significant mistake for the BLM to release this document prior to completing its review of Version III of the sage-grouse data. If there are substantial changes between the current BLM core habitat area and that proposed in the final EIS, the BLM may again be required to provide a supplement to the DEIS in order to ensure the public has the opportunity to carefully examine and understand the proposed changes to the RMPs.	3035_1
1026	1026-58	Devon is strenuously opposed to the BLM's use of the Core Habitat Area Version II to establish the BLM's key habitat areas for greater sage-grouse. As discussed earlier, Core Habitat Area Version II has been replaced by Version III. Wyoming Executive Order 2011 -5. The Wyoming Governor, in conjunction with experts and other operators, specifically developed Version III based on more recent and correct information. It is entirely inappropriate for the BLM to utilize Version II when describing its own key habitat areas. Further, it was inappropriate for the BLM to insist on the release of the Bighorn Basin Supplement to the DEIS prior to the agency completing its review of the Core Habitat Area Version III. Bighorn RMP/SDEIS, pg. 3-3. It would have been far more appropriate for the BLM to complete its review of Version III prior to releasing this document.	3035_1

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1026	1026-57	Given the fact the Wyoming population of sage-grouse is relatively healthy, and already protected by existing regulatory measures, Devon encourages the BLM not to adopt the onerous management restrictions provided for in Alternative E and Alternative F in the Bighorn RMP /SDEIS. Both alternatives provide excessive and unnecessary protections on greater sage-grouse to the detriment of all other resources. The BLM specifically recognizes that, within the Planning Area, sage-grouse habitat is largely intact. Bighorn RMP/SDEIS, pg. 3-3. Devon urges the BLM not to adopt either Alternative E or Alternative F in the Bighorn RMPs given the significant protections already provided.	3035_1
1026	1026-56	The language in the Bighorn RMP /SDEIS does not sufficiently recognize the fact that geophysical surveys are designed to have very little impact and rarely cause adverse impacts to the natural environment. The BLM should develop language to encourage seismic exploration in the Bighorn RMPs.	3023-4
1026	1026-55	The BLM should ensure that nothing in the Bighorn RMPs eliminates or discourages the use of geophysical exploration or the approval of such exploration using categorical exclusions.	3023-4
1026	1026-54	Devon does not agree that the BLM should close the entire greater sage-grouse key habitat area ACEC to geophysical exploration or propose unnecessary restrictions on geophysical exploration. Bighorn RMP /SDEIS, Record No. 86, pg. 2-31. Overall, Devon believes that seismic exploration can actually reduce impacts to the environment because operators will be less likely to drill unsuccessful wildcat wells in previously undisturbed areas. The BLM should not place unnecessary requirements, limitations, or procedures on seismic and geophysical surveys.	3023-4
1026	1026-53	Devon also does not support the language in Record No. 83 that suggests that all oil and gas activities would be conducted to maximize the avoidance of impacts based on the evolving scientific knowledge. Bighorn RMP/SDEIS, Record No. 83, pg. 2-71. Such a restriction does not recognize Devon's valid existing rights. Read broadly, this language could be construed by opponents of oil and gas development to prohibit virtually any oil and gas development within the Planning Area even if unrelated research demonstrates there may be adverse impact. The BLM should modify this language to specifically state that oil and gas activities would be conducted in a manner to minimize impacts while still protecting existing rights.	3023-2
1026	1026-52	Devon is completely opposed to BLM's proposal that would explore options to amend, cancel, or buy-out leases, or include as COAs the relinquishment of leases within the Bighorn Planning Area. Bighorn RMP/SDEIS, Record Nos. 80, 81, pg. 2-31. The BLM simply does not have the authority to require operators to relinquish leases or to cancel existing leases.	3023-2

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1026	1026-51	Devon is concerned about BLM's proposal to require Master Development Plans ("MDP") on all but wildcat wells. Bighorn RMP/SDEIS, Record No. 78, pg. 2-30. First, the BLM has not defined a wildcat well. How will operators know when it will apply? Second, the BLM should allow infill development within existing fields without a MDP. Often only one or two wells are needed within existing fields to continue production levels, so a full MDP would not be an appropriated use of the BLM or operator's resources. Finally, Devon does not believe MDP should be required in designated oil and gas development areas.	3023-6
1026	1026-50	Devon is also opposed to the BLM's proposal to include timing limitations on existing leases to the extent they may be inconsistent with existing lease rights. Bighorn RMP/SDEIS, Record No. 77, pg. 2-30. Devon cannot use a RMP to develop COAs or other limitations that are inconsistent with existing lease rights.	3023-2
1026	1026-49	Devon is opposed to the BLM's proposal to include NSO restrictions within the entire sage-grouse key habitat area ACEC under Alternative E. Bighorn RMP /SDEIS, Record No. 76, pg. 2-30. As set forth above, the BLM does not have the authority to impose such radical restrictions on Devon's existing leases, even within a newly created ACEC. BLM does not have the authority to impose restrictions or limitations on Devon's existing leases. Devon is also concerned about the ACEC because it applies a four-mile NSO around leks, which is inconsistent with Wyoming Executive Order No. 2011-5. The Wyoming Executive Order and Sage-grouse Policy was carefully drafted with federal, state, and local scientists, experts, and users of the public lands. It is inappropriate to propose a management objective or alternative that is inconsistent with the State of Wyoming's Executive Order. This is particularly true since BLM has clearly signaled its intent to adopt the Wyoming Sage-grouse Policy. See Memorandum WY-2012-019 (Feb. 10, 2012). While the BLM may have been required to analyze this alternative to fulfill its requirements under NEPA, it is inappropriate for the BLM to select this alternative.	3035_1
1026	1026-48	As already discussed above, Devon is strenuously opposed to closing the entire sage-grouse key habitat area ACEC to future oil and gas leasing. Bighorn RMP/SDEIS, Record No. 74, pg. 2-29. This closure will have significant impacts on future oil and gas operations, particularly where operators are not able to secure a sufficient acreage block to develop the area.	3035_9
1026	1026-47	Devon is significantly opposed to Record No. 73 that would require full reclamation bond for all oil and gas operations. Bighorn RMP/SDEIS, Record No. 73, pg. 2-29. First, such a requirement is not consistent with the BLM regulations regarding the amount of bonds. Under the BLM's existing regulations, the agency is only to increase bond amount when an operator has a history of previous violations, a notice from the Office of Natural Resources Revenue that there are uncollected royalties due, or where there is a significant reason to believe the operator will default. 43 C.F.R. § 3104.5(b). Additionally, the proposed management objective is not consistent with the BLM's recently released Instruction Memorandum regarding bonds. Instruction Memorandum 2013-151 (Jul. 3, 2013).	3023-2

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1026	1026-46	Second, requiring unitization for the protection of resources other than oil and gas is not appropriate or practical. The BLM Draft Handbook on Unitization recognizes that a central reason for unitization is the promotion of exploration in unproven areas.	3023-3
1026	1026-45	Devon is strenuously opposed to the BLM's management objective that would require unitization would be necessary to protect other resources. Bighorn RMP /SDEIS, Record No. 72, pg. 229. First, as set forth above, the BLM cannot impose new requirements on Devon's existing leases. Requiring operators to join federal units is a radical mitigation measure because it requires those lessees not designated as the unit operator of the federal exploratory unit to surrender control over all development operations to another party.	3023-3
1026	1026-44	As set forth above, the BLM needs to carefully define and explain the extent to which the proposed stipulations and management objectives contained in Alternative E and Alternative F would be applied to existing federal leases. The language in Table 2.2-5 suggests that the new requirements would only be applied to unleased federal minerals. Bighorn RMP/SDEIS, pg. 2-28. The majority of language in the remainder of the document suggests, however, that the limitations will be applied on both existing and new federal oil and gas leases within the Bighorn Planning Area. In particular, the language in Appendix L suggests that the Required Design Features will be imposed on both existing and new federal leases. As set forth above, in significant detail, given the limitations of its authority under FLPMA, the BLM cannot impose new stipulations or COAs inconsistent with Devon's existing lease rights.	3023-2
1026	1026-43	Devon is also opposed to the BLM's prohibition on new road construction within four (4) miles of active sage-grouse leks. Bighorn RMP/SDEIS, Record No. 54, pg. 2-25. Such a restriction is inconsistent with Wyoming Executive Order 2011-5 and should be eliminated.	3039-1
1026	1026-42	Finally, the BLM has not justified the seasonal closures proposed under Alternative E. The BLM specifically admits that winter conditions are generally not a limiting factor in the Bighorn Basin for sage-grouse because snow depths are not as severe as in other parts of Wyoming. Bighorn RMP /SDEIS, pg. 3-4. Given this fact, the BLM has not justified the seasonal closures and the closures should not be implemented under any alternative in the Bighorn RMPs.	3023-3
1026	1026-41	It also appears the BLM failed to consider the significant detrimental impact seasonal prohibition on oil and gas operations could have upon the local economy. By precluding production during several months of the year, the BLM would force operators to significantly reduce their workforces on an annual basis. The management action would create a seasonal boom and bust cycle with routine maintenance workers and pumpers being laid off annually. The inconsistent nature of the work would almost certainly reduce the number of local employees lessees are able to hire, which would restrict or eliminate the long-term beneficial impacts of the oil and gas development to the local economy. The BLM's current socio-economic analysis does not account for this cycle. The BLM must eliminate this proposed management action under Alternative E and Alternative F.	3036-2

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1026	1026-40	The BLM would effectively eliminate all oil and gas development in areas where production would be limited. Further, the BLM has not analyzed or considered the damage that could be done to oil and gas wells if they are shut-in on an annual basis. The BLM has also not analyzed the very real threat that federal minerals would be effectively drained by offsetting wells on State of Wyoming and private lands if federal wells are annually shut-in. The BLM must prepare this analysis in order to disclose the significant adverse impacts that would be associated with the closure of oil and gas development on a seasonal basis, including the potential loss of federal reserves and royalties.	3023-3
1026	1026-38	Road closures will also prevent year-round production operations. Even the very threat of such a radical and unjustified restriction on production operations would seriously hamper future oil and gas development in the Bighorn Planning Area because oil and gas operators would be unwilling to invest the millions of dollars necessary to drill an oil and gas well if they would be unable to produce the wells throughout the year. The BLM's belief that any oil and gas wells would be drilled in big game winter range given such overly restrictive limitations on future production is specious.	3039-1
1026	1026-37	Further, seasonal road closures may prohibit routine maintenance operations. As the BLM is aware, many types of routine oil and gas operations and maintenance activities occur year-round on active, producing oil and gas wells. BLM must recognize the routine nature of these activities, many of which do not even require BLM approval prior to the operations. See 43 C.F.R. § 3162.3-2 (subsequent well operations). Under the current BLM regulations, no prior approval and, thus, no timing limitations, are imposed upon routine activities including routine fracturing or acidizing jobs, recompletions in the same interval, routine well maintenance, or bottom hole pressure surveys. 43 C.F.R. § 3162.3-2(b), (c). The Bighorn RMP/ SDEIS does not indicate whether, or if, it intends to impose timing limitations on these routine activities in apparent violation of the BLM's regulations. Further, the BLM has not indicated whether it intends to impose timing limitations on other routine subsequent operations including those that require prior approval. 43 C.F.R. § 3162.3-2(a). In the Bighorn Planning Area the BLM routinely approved subsequent well operations quickly and efficiently and without the imposition of timing limitations. Devon is concerned the BLM intends to prohibit such activities during certain portions of the year, which may strand production, limit operational efficiencies, and otherwise reduce development potential. In certain circumstances, the inability to quickly conduct repairs and other operations on producing wells may even lead to loss of a well or permanent damage to a reservoir. The ability to conduct repair and maintenance operations is also a significant safety and environmental issue because as issues arise, operators need to be able to quickly respond to the situation. Forcing operators to comply with seasonal limitations for these otherwise routine issues may create or exacerbate significant safety and environmental issues.	3039-1

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1026	1026-36	Devon is also concerned that the BLM's proposed management action to apply seasonal road closures would propose significant safety concerns to existing facilities. To the extent the BLM applies the limitation on even routine maintenance in this action, it is very possible minor issues necessitating repairs will not be timely corrected, which could contribute to significant or even catastrophic spills and other hazards. Devon encourages the BLM not to adopt this radical alternative.	3039-1
1026	1026-35	Devon is strenuously opposed to the BLM's proposed management action under Alternative E that would impose seasonal road closures from March 15 to June 30. Bighorn RMP /SDEIS, Record No. 52, pg. 2-25. As the BLM is aware, current seasonal stipulations in most RMPs prohibit construction and drilling activities in specific crucial winter ranges, but do not prohibit routine production operations necessary to safely maintain facilities or other routine operations. It would be inappropriate for the BLM to preclude all production operations in crucial winter range areas. Such a decision would essentially preclude year-round production operations and would lead to a significant decrease in domestic energy production. Moreover, many species such as pronghorn and mule deer have been found to habituate to increased traffic so long as the movement remains predictable. See Reeve, A.F. 1984. Environmental Influences on Male Pronghorn Home Range and Pronghorn Behavior, PhD. Dissertation; Irby, L.R. et al., 1984; "Management of Mule Deer in Relation to Oil and Gas Development in Montana's Overthrust Belt" Proceedings III: Issues and Technology in the Management of Impacted Wildlife. The BLM has not justified seasonal limitations on production operations.	3023-3
1026	1026-33	Devon supports the BLM's desire to eliminate invasive and noxious weeds within the Bighorn Planning Area. Devon believes, however, BLM should modify the language in Record No. 33 under Alternative E suggesting it will restrict activities in sage-grouse habitat that may facilitate the spread of invasive plants. Bighorn RMP /SDEIS, Record No. 33, pg. 2021. Read broadly, opponents of oil and gas development could utilize this management action to suggest that any and all surface disturbing operations, including those associated with oil and gas operations, should be prohibited. The BLM should modify this language to specifically include that activities in sage-grouse habitat will only be modified to the extent appropriate given BLM's multiple use management objectives.	3014

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1026	1026-31	Devon is opposed to the BLM's proposed management in Record Nos. 20 through 26 requires the "restoration" of sage-grouse habitat rather than reclamation as is normally required. See e.g., Onshore Oil and Gas Order No. 1, III, D.4.j, 72 Fed. Reg. 10308 (Mar. 7, 2007); "Wyoming Instruction Memorandum 2012-032 (Mar. 27, 2012). First, the BLM has not adequately identified or defined the difference between restoration and reclamation. Second, existing BLM policies for oil and gas development, including Onshore Order No. 1, do not require restoration of areas disturbed by oil and gas operations. See e.g., Onshore Oil and Gas Order No.1 , III, D.4.j, 72 Fed. Reg. 10308 (Mar. 7, 2007); Wyoming Instruction Memorandum 2012 -032 (Mar. 27, 2012). Rather, BLM regulations and Onshore Orders specifically require the development of adequate reclamation plans. See e.g. , Onshore Oil and Gas Order No. 1, III, D.4.j, 72 Fed. Reg. 10308 (Mar. 7, 2007); Wyoming Instruction Memorandum 2012-032 (Mar. 27, 2012). The BLM must ensure that its proposed management actions under Alternative E and Alternative F are entirely consistent with existing BLM regulations and policies. See e.g., Onshore Oil and Gas Order No. 1, III, D.4.j, 72 Fed. Reg. 10308 (Mar. 7, 2007); Wyoming Instruction Memorandum 2012-032 (Mar. 27, 2012). Requiring restoration rather than reclamation suggests a very different standard.	3035-7
1026	1026-30	Devon appreciates, and encourages the BLM to adopt, portions of Record No. 10 that recognize that valid existing rights must be honored and that the BLM should not prohibit access to federal oil gas leases. As discussed above, unless the BLM authorizes access to leased lands within the Bighorn Planning Area, the federal government, the State of Wyoming, and local governments would be deprived of significant oil and gas revenue. Devon does not support the BLM's proposal under Alternative E and Alternative F to require maintenance or amendments to existing ROWs within grouse habitat. Bighorn RMP/S DEIS, Record No. 16, pg. 2-19. As set forth above, the BLM should not modify existing rights within the Planning Area. Absent a request for renewal of such authorization} Devon also questions whether the BLM has the authority to require modification of an existing ROW.	3039-1
1026	1026-29	Devon is strenuously opposed to the limitations on new rights-of-way ("ROW") within the Planning Area under both Alternative E and Alternative F. Bighorn RMP /SDEIS, Record Nos. 9, 10, 11, 12, pgs. 4-103 -4-106. Devon believes BLM has not sufficiently analyzed the significant extent these limitations on future ROW will have upon oil and gas operations. In particular, Devon is concerned about the management of the ACECs under Alternative E and Alternative F as ROW exclusion and avoidance areas. The BLM has not justified this substantial increase in the number of acres subject to ROW exclusion and avoidance areas. Devon is particularly concerned that the ROW excludance and avoidance areas will be utilized to significantly hamper or decrease oil and gas operations. The BLM must be willing to work with oil and gas lessees and operators to design access routes for proposed oil and gas development projects. Future limitations on road construction could impact Devon's valid and existing lease rights or its rights as the operator of a federal exploratory unit within the Bighorn Planning Area.	3033-2

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1026	1026-28	Devon objects to the BLM's decision to require operators and other users to remove, bury, or modify existing power lines within priority sage-grouse habitat under Alternative E and Alternative F. Bighorn RMP/SDEIS, Record No. 8, pg. 2-17. Requiring operators to modify even existing power lines will require significant additional surface disturbance within sage-grouse priority habitat which may cause adverse impacts to the species.	3033-2
1026	1026-27	Devon is strenuously opposed to the density and disturbance limitations proposed under Alternative E and Alternative F. Bighorn RMP/SDEIS, Record No. 7, pg. 2-17. The proposed three percent disturbance threshold is inconsistent with Wyoming Executive Order 2011-5 and has not been independently justified by sufficient science.	3035_4
1026	1026-26	Devon also does not support the BLM's proposal to designate the greater sage-grouse core habitat area ACEC under Alternative F. Bighorn RMP/SDEIS, Record No.6, pg. 2-17. The existing state of Wyoming Core Area Policy provides sufficient protection for sage-grouse within Wyoming. The designation of an ACEC is neither necessary nor warranted. Further, Devon does not believe that the BLM has sufficiently justified the creation of an ACEC using the relevance and importance criteria contained in the BLM's planning regulations. 43 C.F.R. § 1610.7-2. Devon encourages the BLM not to create an ACEC to protect greater sage-grouse.	3035_1
1026	1026-25	Devon is very concerned about, and thus opposed to, BLM's proposal to designate the greater sage-grouse key habitat areas of critical environmental concern ("ACEC") under Alternative E. Bighorn RMP/SDEIS, Record No. 6, pg. 2-17. The greater sage-grouse key habitat ACEC is not only based on an outdated outline of the State of Wyoming Executive Order Greater Sage-grouse Core Area, the boundary has been further modified by the BLM to include additional productive habitats identified by the BLM. Bighorn RMP/SDEIS, pg. 4-122. The Wyoming sage-grouse Implementation Team and the Governor of Wyoming carefully developed the Core Area Policy for sage-grouse based on the best scientific information available and in cooperation with operators and the Wyoming Game and Fish Department ("WGFD"). The United States Fish and Wildlife Service approved the core area strategy. It is inappropriate to modify or alter the boundaries of the core area in a BLM Land Use Plan. Devon encourages the BLM to revise its boundaries to correspond directly with the State of Wyoming policy.	3035_1
1026	1026-24	Devon is opposed to BLM's proposal to acquire private lands within the Planning Area in order to protect sage-grouse habitat. Bighorn RMP/SDEIS, Record Nos. 4, 5, pg. 2-17. The BLM already owns and manages the vast majority of the surface and mineral estate within the Planning Area, owning 3.1 million acres of surface lands and 4.2 million acres of federal minerals estate out of the approximately 5.6 million acres within the Planning Area. Bighorn RMP/DEIS, pg. 1-1. It is inappropriate for the BLM to attempt to acquire any additional public lands within the Planning Area.	3016-2

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1026	1026-23	The BLM should clarify its proposed management action regarding categorical exclusions within priority sage-grouse habitat. Bighorn RMP/SDEIS, Record No. 3, pg. 2-16. The BLM should specifically state that the agency is free to utilize categorical exclusions established by section 390 of the Energy Policy Act of 2005 without applying the extraordinary circumstances as provided for in the CEQ regulations (40 C.F.R. § 1508.4) and the BLM's NEPA regulations (43 C.F.R. § 46.205).	3027-1
1026	1026-22	Devon is additionally opposed to the BLM's proposal under Record No. 2 to require development of wildlife resource monitoring and mitigation plans to address mineral development. First, the BLM has not justified that such a wildlife monitoring plan is necessary for each and every development activity on federal lands. Such an assumption presumes that oil and gas development will always have a negative impact on wildlife and wildlife habitat. The BLM has failed to support the position that all mineral development negatively impacts wildlife. Second, Devon believes the BLM should create a threshold for when wildlife mitigation and monitoring plans may be necessary. For example, if a single infill well is proposed within an established oil and gas area, the development of an entirely separate wildlife mitigation and monitoring plan is likely not justified.	3023-2
1026	1026-21	For the same reasons, Devon is opposed to Record No. 2 in the Bighorn RMP /SDEIS that would require the incorporation of BLM Design Features into mineral development activities on federal minerals, regardless of surface ownership. Bighorn RMP /SDEIS, Record No. 2, pg. 2-16.	3023-2
1026	1026-20	Given its nature and purpose, the BLM should carefully consider what decisions need to be made in the Bighorn RMPs. The BLM should not attempt to make site-specific decisions, but should develop only broad management goals and objectives. Further, the BLM should not expend unnecessary resources attempting to analyze the potential impacts of oil and gas development on a site-specific basis more than necessary given the uncertainty associated with the location and extent of future development.	3023-3
1026	1026-19	Devon also objects to the BLM's attempt to impose site-specific mitigation measures in a RMP. Pursuant to FLPMA, the BLM is required to develop land use plans to guide the agency's management of federal lands under its administration.	3027-1
1026	1026-18	In the revised Bighorn RMPs and accompanying EIS, the BLM should also state clearly that oil and gas lease is a contract between the federal government and the lessee, and that the lessee has a certain rights there under	3023-2
1026	1026-17	Table 2-5 -Detailed Alternatives Devon is opposed to Record No. 1 and the imposition of the Required Design Features contained in Appendix L to the Bighorn RMP/SDEIS. Bighorn RMP/SDEIS, Record No. 1, pg. 2-16. The BLM must clarify the extent to which the so-called Required Design Features will be applied to operations on existing leases. The BLM must recognize that oil and gas leases are existing rights that cannot be modified.	3023-2

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1026	1026-16	Further, the BLM has not analyzed or disclosed the potential impacts the restrictions on future leasing may have upon operations on existing leases. As the BLM acknowledges in Map SEIS 9 and Map SEIS 10, a significant portion of the Bighorn Planning Area is currently leased for oil and gas development. Some leases, however, are isolated making them virtually impossible and not economically feasible to develop in their current state. Any responsible oil and gas producer who decides to take the risk of exploring by drilling a wildcat area must do so only after assembling a large enough block of leasehold acreage so that, if the drilling is successful, it can obtain an adequate return on the high-risk dollars invested. The BLM has, in another context, recognized the need for control of a reasonable acreage block. See Prima Oil Et Gas Co., 148 IBLA 45, 51, (1999) (BLM policy to suspend leases when "a lessee is unable to explore, develop, and produce leases due to the proximity, or commingling of other adjacent Federal lands needed for logical exploration and development that are currently not available for leasing"). The BLM must recognize, study, and report the economic impact of its decision to close significant portions of the Planning Area to leasing, or to make significant portions of the Planning Area only available with major constraints will have upon future exploration and development in the area. It is not enough for the BLM to simply assert that existing lease rights will be protected, the BLM must analyze further how existing lease rights will be impacted by future limitations on leasing and development and what protection it will afford existing leases in the above-described scenario.	3036-1
1026	1026-15	The removal of vast areas of lands from future oil and gas development and potential restrictions on existing leases under Alternative E, and, to a lesser extent, Alternative F, would also significantly restrict regional earnings, jobs, and tax revenue. According to the information presented in the Bighorn RMP/SDEIS, the adoption of Alternative E would reduce regional earnings significantly and reduce local jobs by a staggering 46% over the current management. See Bighorn RMP /SDEIS, Table 4-21, pg. 4-134. In these difficult economic times, it is inappropriate for the BLM to significantly restrict economic development opportunities. The Obama Administration has repeatedly indicated that its first priority is to create jobs for the American people, yet the BLM is proposing alternatives, including Alternative E and Alternative F, that would actually reduce jobs in the Bighorn Planning Area. Such alternatives are inappropriate and should be eliminated. The BLM must not adopt an alternative that would reduce economic development, decrease domestic energy supplies, and harm the local tax base.	3036-2
1026	1026-14	The adoption of Alternative E, and, to a lesser extent Alternative F, would significantly curtail domestic production compared to both the baseline scenario and any of the other alternatives analyzed by the BLM. Bighorn RMP/DEIS, pg. 4-22.	3023-3

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1026	1026-13	The overall minerals management under Alternative E and Alternative F are inappropriate because they unreasonably limit oil and gas development. As noted above, the BLM is significantly limiting potential future oil and gas development in the Planning Area by making 2,296,279 acres under Alternative E and 291,294 acres under Alternative F unavailable for oil and gas leasing. The BLM is additionally making 1,320,277 acres and 261,282 acres available to oil and gas leasing only with major constraints under Alternatives E and F, respectively. Alternative E in particular eliminates almost the entire Planning Area for mineral development and must not be selected by the BLM.	3023-3
1026	1026-12	Under FLPMA, BLM is required to foster and develop mineral development, not stifle and prohibit such development. Alternative E and Alternative F do not comply with the BLM's multiple use mandate and must be eliminated.	3027-1
1026	1026-11	Overall, Alternative E and Alternative F are overly restrictive, unnecessarily limiting oil and gas development in the Bighorn Basin, and should be eliminated from further consideration. Oil and gas development is one of the primary employment and tax revenue sources in the Bighorn Basin, Bighorn RMP/DEIS, pgs. 3-214 -3-217; 4-456 -4-477; Bighorn RMP/DEIS, pgs. 4-135 -4-144. In these trying economic times, the BLM should take every action to promote and foster the employment and revenue opportunities in Wyoming, not limit economic development and job creation. The BLM's adoption of Alternative E or Alternative F would have devastating economic impacts upon the region, State of Wyoming, and even the nation. Bighorn RMP/SDEIS, pgs. 4-134 -4-144. Oil and gas development, even on existing leases, would be significantly hampered by the BLM's management actions under Alternative E or Alternative F. Although Devon understands the importance of having a wide range of alternatives to satisfy the requirements of NEPA, the BLM must not adopt Alternative E or Alternative F.	3023-3
1026	1026-10	Given the release of the Bighorn RMP/SDEIS, it is no longer entirely clear whether Alternative D from the Bighorn RMP/DEIS remains the Preferred Alternative. The BLM should clarify the extent to which Alternative D is still the Preferred Alternative so that the public and operators like Devon can provide more specific comments.	3027-1
1026	1026-9	Under Alternative E and Alternative F, the BLM would make over 100,000 acres of oil and gas leasing unavailable for a period of two years or more, yet BLM has not complied with the clear and unequivocal requirements of FLPMA. BLM must notify Congress of its intent to close significant areas to future oil and gas development prior to finalizing the Bighorn RMPs.	3027-1
1026	1026-8	To date, the Department of the Interior has not complied with the requirements set forth in section 204 of FLPMA. Prior to approving the Bighorn RMPs, the BLM must comply with these provisions and inform the public how it will be impacted.	3027-1

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1026	1026-7	The BLM cannot escape the withdrawal requirements imposed by FLPMA by suggesting lands are not "closed" to development, but merely "administratively unavailable" to leasing for several reasons. First, the BLM's Land Use Planning Handbook does not recognize or authorize the BLM to make lands administratively unavailable. Rather, the Handbook only recognized closed or open with varying levels of constraint. BLM Land Use Planning Handbook H-1601, Appd. C.II.H., pgs. 23-24 (Rel. 1-1693 03/11 /05). Second, the BLM admits throughout the document that administratively unavailable areas are actually closed to leasing. Bighorn RMP/SDEIS, pgs. ES-6, 4-21, 4-22, 4-23, 4-57, 4-70, 4-79. There is simply no distinction between areas administratively available for leasing and those that are closed. Finally, regardless of whether the BLM terms the closure as "administratively unavailable," eliminating the land from oil and gas leasing for the life of the plan still meets the definition of a withdrawal" because they make large areas of the public lands unavailable for a significant period of time making a conscious, deliberate choice not to allow leasing in these areas. It is not merely deferring a few parcels from a particular lease sale. Such a formal closure constitutes a withdrawal. 1702(j). The BLM must comply with the withdrawal requirements set forth in FLPMA.	3023-2
1026	1026-6	Under Alternative E and Alternative F, the BLM proposes to make large areas of land unavailable to oil and gas leasing. Closing an area to fluid mineral leasing constitutes a withdrawal under FLPMA. Unbelievably, under Alternative E, the BLM proposes to close almost 2,300,000 acres and render them unavailable for oil and gas leasing. Because closing areas to oil and gas leasing constitutes a withdrawal, the Department of the Interior will be required to comply with the procedural provisions of section 204 of FLPMA. 43 U.S.C. § 1714.	3023-2
1026	1026-5	For example, overly stringent restrictions or conditions of approval ("COAs"), such as requiring all directional drilling regardless of technical or economic considerations, may render development uneconomic and need not be analyzed. The restrictions included in both Alternative E and Alternative F are not appropriate, and, thus, are not reasonable alternatives.	3023-1
1026	1026-4	Given the drastic limitations both Alternative E and Alternative F would have upon oil and gas development, neither alternative is reasonable and must not be selected. Devon urges the BLM not to adopt either Alternative E or Alternative F because of the drastic adverse impacts they would have upon oil and gas development and, thus, on the economy of the Bighorn Planning Area.	3023-5

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1026	1026-2	Devon is strenuously opposed to the BLM's adoption of either Alternative E or Alternative F in the Big Horn RMP /SDEIS. It is Devon's assessment that both Alternative E and Alternative F will unreasonably limit if not preclude oil and gas development, even on existing leases. Devon is aware of the difficulties inherent in managing the public lands for multiple use, but believes that the proposed alternatives are not adequate. Devon is particularly concerned that both Alternative E and Alternative F will not honor existing lease rights in violation of federal law. As the BLM is aware, a significant portion of the Bighorn Planning Area has high potential for oil and gas development. See Reasonable Foreseeable Development Scenario for Oil and Gas for the Bighorn Basin Draft Report, May 6, 2009 ("RFD Report"), Figure 20. The BLM should not unreasonably restrict access to this important source of domestic energy. Devon opposes Alternative E and Alternative F because they place far too many onerous and unreasonable restrictions on future oil and gas development. In particular, Alternative E inappropriately and unreasonably proposes to close much of the Bighorn Basin to future oil and gas leasing and places overwhelming operational restrictions and timing stipulations on the remainder of the lands. Bighorn RMP/SDEIS, Record No. 71 , pg. 2-28, Map SEIS 7. Devon is also opposed to Alternative E and Alternative F because they do not comply with the Energy Policy Act of 2005, Energy Policy and Conservation Act of 2000 ("EPCA"), the National Energy Policy, and Executive Order Number 13212 (66 Fed. Reg. 28357 (May 18, 2001)) to reduce rather than increase impediments to federal oil and gas leasing. Devon strongly opposes the adoption of Alternative E or Alternative F, or any elements thereof.	3023-3
1027	1027-25	Tri-State requests that existing authorizations and pending access authorizations be excluded from the ACEC designation under Alternatives E and F. Utilities should be allowed under their existing and future authorizations to upgrade existing facilities and improve/construct access roads associated with their facilities under either alternative. Rights-of-way in some cases might need to be expanded anywhere from 50-150 feet to allow for upgrades to these facilities.	3033-1
1027	1027-24	Tri-State is concerned that the proposed Alternatives E and F have incorporated mitigation measures that are not based on peer-reviewed science and in some cases are not a feasible option for utilities to implement (burying, modifying, or removing existing transmission lines). Tri-State is also concerned that Alternatives E and F could place restrictions on our ability to safely operate and maintain our existing facilities in violation of other federal requirements	3033-2

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1027	1027-23	Routing and siting of new facilities is a complex process that involves consideration of meeting system planning requirements, numerous environmental resource concerns as well as land use, property rights, safety, cost, and engineering constraints. Tri-State recommends that the DEIS and supplemental FEIS documents acknowledge this complex process and work directly with local utilities owners, operators, and local governments and municipalities when evaluating future corridors designated for use. The outcome of this approach will be a better understanding of future energy demands and a balanced approach to conserving sage-grouse and their habitat and identifying corridors that will meet customer demands.	3033-2
1027	1027-22	Tri-State requests that the BLM consider an adaptive management approach whenever requiring seasonal buffers for sage-grouse. There is a lack of peer-reviewed data to show effective buffer distances for tall structures. There has been a push in the past year by APLIC, electric utilities, and agencies alike to conduct further research to understand what man-made and other environmental variables might play a role in how tall structures may or may not affect sage-grouse. Research is also evaluating lek proximity to existing power lines which may help inform discussions on appropriate and effective lek buffers. Designation of suitable No Surface Occupancy Buffers and seasonal buffers should take into consideration the existing environment (disturbance, topography, vegetation type, etc) and the latest peer-reviewed research available.	3033-2
1027	1027-21	Tri-State requests that the BLM FEIS and RMP consider other forms of mitigation in their conservation "tool box". Mitigation in the form of funding research studies would be beneficial to both the agencies and industry in helping both groups understand the issues as well as identifying effective mitigation measures that could minimize potential effects. All stakeholders agree there are a number of factors affecting sage-grouse across the western U.S. from habitat loss to disease to predation. Connelly and Braun 1997 and Connelly et. al 2000c, state "the effect of predation on the fluctuations and viability of sage-grouse populations has never been investigated. The National Technical Team report states that raptor predation from power poles could be a significant factor in sage-grouse mortality, yet there is still no clear understanding of the extent of these impacts on overall sage-grouse populations. Additional research funds could be used to better understand natural mortality rates from predation and would enable us to better understand, to what extent raptor predation from increased perching on power poles may affect sage-grouse populations.	3027-3

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1027	1027-20	A second issue requiring additional research is the incidence of sage-grouse collisions with power lines. To date, grouse collision risk with fences has been established. Sage-grouse collisions with power lines have been few, isolated, and anecdotal. Information to date infers no population-level impacts to grouse, but this has not been thoroughly studied. Tri-State requests that the BLM engage with members of the utility industry to gain a better understanding of utility construction and operational constraints relative to the recommended conservation measures to ensure they are reasonable and feasible given other federal and state requirements as well as general operational requirements.	3033-1
1027	1027-19	Tri-State requests that the FEIS include a review of the results of these studies and incorporates adaptive management to identify appropriate and effective mitigation measures for potential impacts associated with tall structures. The BLM's National Technical Team states that tall structures "may" negatively impact grouse populations. The availability of the science to date does not provide sufficient information for land management agencies across the West to make educated decisions relative to sage-grouse and their responses to aboveground structures. This lack of data has resulted in and could continue to exacerbate agency decisions that are not only infeasible for the electric utility industry (e.g., burying power lines), but also are not structured to support grouse in the long term. Increased communication among all the stakeholders is encouraged in order to identify the process by which new research and data is obtained and shared between the agencies and utilities.	3033-1
1027	1027-17	Tri-State requests that the BLM address in the FEIS and RMP that there is a critical lack of information and research on the effects of tall structures on sage-grouse. There are very few peer-reviewed, experimental studies designed specifically to evaluate the landscape effects of tall structures on sage-grouse according to a review conducted by the Utah Wildlife in Need, a nonprofit foundation working in cooperation with Utah Department of Natural Resources and Rocky Mountain Power (2010). Although raptors prey on adult sage-grouse, chick and egg predation typically increase following power line construction (Stahlecker 1978, Knight and Kawashima 1993, Steenhof et al 1993, Oles 2007), however, such changes have not yet been linked to population-level impacts on sage-grouse.	3033-1

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1027	1027-16	<p>Despite their declining use by electric utilities to prevent avian electrocution, perch discouragers are now being required on transmission lines by resource agencies to be installed in sage-grouse habitats to dissuade raptors and corvids from perching or nesting on power poles in areas with sage-grouse or other special status species. Perch discourager research has shown limited effectiveness in preventing perching. Discouragers actually increase the potential for nesting on structures because they provide a firm foundation for nest material. Furthermore, use of discouragers to avoid perching on a structure may increase electrocution risk, particularly on lower voltage distribution lines by forcing raptors to perch in unsafe areas (the discourager reduces the separation required to prevent bird contact from phase to phase or phase to ground). In areas where raven predation on sage-grouse nests is a concern, perch discouragers may aid in the accumulation of nest material (APLIC 2006), and could potentially increase raven predation pressure due to nest construction on discouragers in sensitive areas. The negative impacts of perch discouragers must be weighed against the limited benefits, if any, they may provide, particularly if they are contributing to mortalities of protected birds and facilitating increases in predator nesting opportunities. Hunting techniques and strategies of avian predators of sage-grouse should also be considered, because they differ for different prey species. For example, golden eagle diet is largely mammalian (80-90%, Kochert et al. 2002). Golden eagles prey on sage-grouse opportunistically, and typically hunt sage-grouse by stooping from a high soar (Watson 1997, Kochert et al. 2002). Consequently, power poles may not play an important role in eagle predation of sage-grouse. Golden eagles are vulnerable to electrocution mortality (APLIC 2006) and perch discouragers have been correlated with increased eagle electrocution risk (PacifiCorp, in prep.). Common ravens are known predators of sage-grouse nests, yet ravens are able to overcome perch discouragers, will perch on wires, and may experience higher nesting rates on poles with perch discouragers. Because of these concerns, Tri-State requests that the BLM consider other more effective alternatives to sage-grouse conservation, such as habitat conservation or enhancement efforts, which are compatible with conservation measures for other protected species (e.g. electrocution prevention measures for raptors and other migratory birds). Consideration must be given to other federally protected species and should not result in impacts to migratory birds, including eagles.</p>	3033-1
1027	1027-15	<p>These proposed mitigation measures would have a significant impact on utilities ability to provide reliable power at a reasonable rate. Existing data has not shown to date that overhead power lines and raptor predation from these lines has had a significant effect on sage-grouse populations. Proposed mitigation measures need to be based on the best available science and must be proven to effectively mitigate impacts to sage-grouse and their habitat.</p>	3033-1

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1027	1027-14	These same issues apply to the suggestion to re-locate transmission lines outside of priority habitats for sage-grouse. Re-locating a multi-million dollar facility is cost-prohibitive and not a viable option for Tri-State and its members in almost all situations. Transmission lines are routed to avoid impacts to the natural and human environment to the greatest extent feasible. Relocating and removing existing power lines requires local, state, and federal permits; the acquisition of new easements on private lands; and complete environmental compliance under the National Environmental Policy Act, often for facilities that have been in operation for decades. Re-locating a transmission line can cost millions of dollars in permitting, engineering, and construction fees. All of these costs are passed along to the rate payers in the community. Potential line re-location also could result in cumulative impacts to Greater Sage-Grouse from increased habitat fragmentation across the landscape for power lines that cross federal and private lands and, therefore, could not be moved entirely out of a geographic area (due to engineering constraints or established electrical paths).	3033-2
1027	1027-13	Direct impacts to sagebrush habitats increase when burying a transmission line versus building an overhead line. The ROW required to construct and operate an underground transmission line is generally wider and would result in more direct impacts to sagebrush habitats, increasing habitat fragmentation for sage-grouse. Burying transmission lines can result in greater ground disturbance and more regular maintenance in seeding and weed prevention. It is important to consider the other resources (biological and cultural) and conservation objectives associated with burying a high voltage transmission line compared to the ground disturbance for an overhead line. Restoring sagebrush habitat and weed control in a wide linear corridor is inherently difficult and the BLM has acknowledged that sagebrush restoration can take decades to reach pre-construction results/conditions. Minimizing impacts to sagebrush habitats is identified in the Greater Sage-Grouse Interim Management Policies and Procedures (JM 2012-043), and the Conservation Objectives Team Final Report, but the recommendation to bury transmission lines contradicts this approach	3033-2
1027	1027-12	Other factors regarding the feasibility of building an underground transmission line include longevity, maintenance and operational issues, and increased habitat fragmentation effects. Underground transmission lines typically have half the life expectancy of an overhead transmission line and when an outage occurs on an underground line, it takes much longer to respond because it is difficult to pinpoint and reach the source of the outage. Repairs will take longer and require additional ground disturbance, potentially increasing disturbances to sensitive habitats.	3033-2

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1027	1027-11	Construction costs per mile for a new overhead 115kV transmission line average between \$270,000-\$300,000 dollars per mile (based on two new lines constructed in the San Luis Valley and Telluride area). Increasing these costs by 6 -10 times would create a significant economic impact to our member entities and individual rate payers. If the new lines were required to be constructed underground the costs would increase to an average range of \$1,620,000-\$3,000,000 dollars per mile. Tri-State recently completed the Nucla-Sunshine transmission line project that required 9 miles of line to be constructed underground. The cost for undergrounding the 9 miles of the Nucla-Sunshine line was \$19,000,000 dollars or just over \$2.1 million dollars per mile. In another project, the cost for re-building 30-miles of existing transmission line (construction labor and material only) was \$12.6 million dollars. Here, underground construction would increase those costs to between \$2,520,000 and \$4,200,000 dollars. For this reason it is imperative that mitigation for sensitive species is proven to be necessary and effective as our entire cooperative network shares these costs.	3033-2
1027	1027-10	The Supplemental EIS calls for co-locating power lines within existing ROWs. For operational and safety reasons, utilities frequently cannot co-locate facilities within existing ROWs. Utilities are required to maintain clearances identified in the National Electric Safety Code for the safe and reliable operation of our transmission system. The Final EIS should recognize requirements, policies and guidelines defined by the North American Electric Reliability Corporation (NERC) and the Federal Regulatory Energy Commission (FERC) for the safe and reliable operation of transmission systems. Tri-State requests the RMP is clarified to state that linear facilities should parallel existing ROWs (not co-located within) to the greatest extent feasible, in order to make this a viable management option and to comply with utilities' other federally mandated operation standards and guidelines.	3033-2
1027	1027-9	Tri-State is unclear on how the BLM would implement management directive #8 in Table 2-5 under Alternative E: Managing sage-grouse Key Habitat Areas ACEC so that anthropogenic disturbance does not exceed one disturbance per 640 acres and cover less than 3% of total sage-grouse habitat regardless of ownership. The management directive also recommends prohibiting further disturbance in Key Areas ACEC where the 3% threshold is already exceeded until enough habitat has been restored to reduce impacts below the 3% disturbance threshold. How would these disturbance thresholds apply to both existing authorizations and for future transmission line authorizations that may occur in Core or Key Areas? If existing utility corridors are included in the ACEC designation regardless of alternative, Tri-State is concerned that if improving an existing access road within 4 miles of an active lek exceeds the 3% disturbance allowance for any given area, access could be restricted by the BLM. Tri-State currently builds access roads to the minimum standard required for operation and maintenance purposes and complies with seasonal restrictions in sensitive areas. Additional mitigation for existing access rights or prohibiting access improvements will affect our ability to safely maintain and operate existing facilities.	3035_4

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1027	1027-8	Tri-State's comments on travel management for Alternative F are similar to those discussed above for Alternative E. It is imperative that TriState is able to access its facilities and in some cases build new roads to access these facilities. Tri-State appreciates that Alternative F acknowledges the ongoing use of existing access roads. We request that roads that are currently being proposed for authorization for our Lovell-Big George transmission line are considered in this category. Tri-State has provided this data to the BLM for review.	3039-1
1027	1027-7	Tri-State regularly complies with seasonal restrictions to reduce impacts to sensitive species; however, we request that the BLM acknowledge that in an emergency situation (line outage), Tri-State is required by federal law to get the facility repaired immediately regardless of weather or season to ensure the safe, reliable transfer or power to our member systems.	3039-1
1027	1027-6	Road improvement and creation would be conducted to the minimum standard to reduce impacts to sage-grouse habitat. Alternative E would also not allow the upgrading of existing routes that would change route category. If a road has been authorized for administrative use only, Tri-State requests that maintenance and road improvements be approved (when necessary for maintenance activities) for the safe access and operation of our maintenance vehicles and equipment.	3039-1
1027	1027-5	Alternative E prohibits new road construction within 4 miles of an active lek site and requires the development of travel management plans that minimize impacts to sage-grouse habitat. In addition, Key Habitat areas would be managed under a seasonal closure restricting motorized use from February 1 through July 31. Tri-State is concerned that this alternative could prevent access to and therefore, maintenance of our existing facilities. Tri-State requests if this alternative is selected that existing permittees are allowed to improve and build new roads to access transmission structures when required.	3039-1
1027	1027-4	Table 2-5 of the DEIS recommends closing designated roads in sage-grouse priority habitats (which includes BLM Key Habitat Areas and State of Wyoming Core Areas) under both Alternatives E and F. The ability to safely maintain, operate, and access our existing electric delivery facilities is crucial to providing a reliable source of electricity to our customers. Tri-State requests that the BLM acknowledge in the final RMP supplement that access is a critical component to existing facility authorizations and that the BLM would not close designated or non-designated roads that may be critical to maintaining our existing electrical facilities in Core and Key Areas.	3039-1
1027	1027-3	As discussed above, Tri-State requests coordination with the BLM to incorporate existing facilities into planning efforts and into the Rights-of-Way and Corridor designation. We also request that if these existing transmission line corridors and substations occur in areas proposed as Areas of Critical Environmental Concern (ACEC) under Alternatives E and F; that the BLM consider these corridors and facilities excluded from this ACEC designation.	3033-1

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1027	1027-2	In reviewing the maps associated with the Supplemental EIS (Current Management Right-of-Way and Corridors), it appears that the lines listed above are not in the BLM's database and were not recognized as existing utility corridors during planning efforts (Figure 3). Tri-State requests that these transmission lines be included under the Current Right-of-Way and Corridors designation.	3033-2
1027	1027-1	In reviewing the maps associated with the Supplemental EIS (Current Management Right-of-Way and Corridors), it appears that the eastern portion of the Lovell-Big George transmission line is not in the BLM's database and was not recognized as an existing utility corridor during planning efforts. Figure 1 shows the remainder of the line as it travels towards the Lovell Substation. Tri-State requests that the entire line be included under the Current Right-of-Way and Corridors designation.	3033-2
1028	1028-52	Manier et al. (2013) provides a fairly comprehensive review of potential impacts of livestock grazing on sage grouse. ⁶⁴ Manier et al. (2013) point out that a reduction in livestock stocking rates can directly increase residual vegetation substantially, potentially assisting in meeting this target level for grasses. BLM should include residual grass requirements inside all sage-grouse habitats to be applied as automatic amendments to permit terms and conditions and Allotment Management Plans. Due to their reliance on sagebrush, sage-grouse are great indicators of the health of the sagebrush steppe ecosystem on which they depend. Literature previously cited indicates that sage-grouse need higher levels of sagebrush canopy cover than the RMP indicates and livestock reduce that cover.	3017-3
1028	1028-51	The chosen alternative for the RMP should also include specific direction and language authorizing the permanent retirement of voluntarily waived BLM grazing permits, regardless of the location within the planning area. The BLM Worland Field Office should utilize the process outlined by BLM IM No. 2013-184, released on September 9, 2013 and incorporate the Relinquishment Decision Tree as an Appendix in the plan, relieving the agency of the need for a subsequent plan amendment when site-specific relinquishments are offered. The Final EIS/RMP should also include suggested language for permit retirement authorizations as follows: Grazing privileges for allotments that are wholly or partially located within the Cody and Worland Field Offices planning area that are lost, relinquished, canceled, or have base property sold without transfer shall have attached AUMs held for watershed protection and wildlife habitat.	3017-1
1028	1028-49	The DRMP meets requirements of this IM because the conservation alternative considers meaningful reduction in lands available for grazing or forage amounts. Alternatives B and E contemplate closing 1,988,927 acres to livestock grazing, leaving about 1.2 million acres still available for grazing. ⁸⁸ The other alternatives do not consider meaningful reductions in lands available for grazing. ⁸⁹ Of the proposed alternatives, Alternatives B and E present the most meaningful protection of sage-grouse and sage-grouse. While the consideration of reduction in Alternatives B and E may meet the requirements of the IM, the other alternatives do not provide sufficient protection of sage-grouse and sage-grouse habitat.	3017-2

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1028	1028-47	The EIS and RMP must also address the fact that livestock sizes, and thus forage consumption, have increased dramatically since the AUM was defined. Failure to address this critical issue will lead to legal vulnerability under NEPA, Administrative Procedure Act and the False Claims Act.	3017-2
1028	1028-46	Meaningful alternatives must define specific measurable terms and conditions for livestock grazing. BLM must develop alternatives and adopt that alternative that charts a rapid, site-specific path forward to ensure protection of remaining native vegetation communities through passive restoration. BLM must prioritize areas based on habitat recovery needs, connectivity (reducing habitat fragmentation) and population viability needs, and other vital information necessary to maximize sagebrush ecosystem protections and efficiency of recovery and protection.	3035_1
1028	1028-45	BLM must fully analyze environmental effects of the No Grazing Alternative in depth. This includes conducting a full and fair capability and suitability analysis, where lands with significant conflicts with grazing are removed and retired from grazing disturbance impacts. This analysis is essential to set a solid comparative effects baseline and fully understand the significant ecological toll of any continued grazing use.	3017-2
1028	1028-44	Furthermore, meeting the requirements of the Wyoming Standards for Healthy Rangelands does not equate to protecting sage-grouse and sage-grouse habitat, as these standards were not written to protect sage-grouse habitat. A hard look must be taken at whether the Standards for Rangeland Health are even sufficient measures of sage-grouse habitat value; a recent ruling in the Office of Hearings and Appeals (Department of Interior) suggests that BLM's qualitative and inconsistent monitoring methods do not assure habitat protection and cannot be the full measure of grazing impacts to this species.	3035_6
1028	1028-43	The BLM must at least analyze the no grazing alternative to determine whether it is a viable alternative. Considering the scientific evidence demonstrating that the elimination of grazing is the only way to protect and restore many areas, the BLM should provide analysis of that important option.	3017-2
1028	1028-42	The Purpose and Need of the DEIS states an intent "to thoroughly consider the conservation measures identified in the Greater Sage-grouse National Technical Team (NTT) Report on National Greater Sage-Grouse Conservation Measures (Sage-grouse NTT 2011), as referenced in BLM IM 2012-044."85 However, the DEIS fails to considers a reasonable range of alternatives. The most likely alternatives considered propose no meaningful, enforceable, regulatory changes to livestock grazing practices in the planning area, despite the numerous and severe impacts of livestock grazing on sage-grouse habitat and other values.	3035_1
1028	1028-40	In accordance with its multiple use mission, the BLM must consider land uses other than grazing in its calculation of the economic and social values of each alternative, including administrative costs and environmental impacts to water, wildlife, plants, recreation, potential species loss, intrinsic land value, and beauty. WWP asks that the social and economic calculations presented in the RMP address these important issues.	3036-1

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1028	1028-39	The Supplemental DRMP states that under Alternative E livestock grazing would contribute 134 jobs, and under Alternative F livestock grazing would contribute 186 jobs. 84 However, this comparison, like the comparison of annual earnings and output of each alternative, fails to account for agency administrative costs, increased recreational income due to improved environmental conditions from decreased grazing, and other factors that WWP urges that BLM consider in its analysis.	3036-1
1028	1028-38	Furthermore, there is great potential for administrative cost savings for BLM from reduced grazing. Decreased grazing would save the BLM costs associated with environmental analysis, litigation, grazing permit administration, predator control, weed spraying, and costly efforts to preserve species harmed by grazing. The GAO found that it cost the federal agencies approximately \$23.50 per AUM to administer the livestock grazing program yet only .67 cents of the grazing fee goes towards covering those expenses.77 Disappointingly, RMPs tend to calculate economic and social values based almost exclusively on potential profits or lost profits of buying and selling cattle. The Bighorn Basin RMP should consider these important factors.	3036-1
1028	1028-37	The current grazing utilization level (what is it? I think they dumped the old RMP utilization limits) is unsustainable, and restoration of the land will require costly action by the BLM. A thorough economic calculation must consider the value lost from negative environmental impacts to: water quality and quantity, wildlife habitat quality and quantity, and native vegetation. The costs of further exotic species and weed expansions, diminished recreational opportunities, potential species loss, intrinsic land value, and beauty must also be calculated.	3036-1
1028	1028-36	The economic and social value of public lands livestock grazing often receives disproportionate weight in BLM RMPs. The importance of public lands grazing to the economy is often grossly overestimated. In the Final RMP, the comparison of social and economic values of the proposed alternatives should demonstrate a clear understanding and consideration of the conflicts between continued grazing and other uses of the public lands.	3036-1
1028	1028-35	Furthermore, the DEIS analysis includes no discussion of the other ways that cattle contribute to climate change, such as impacts to the carbon sequestration or storage of the lands themselves, and the effect of allowing livestock to utilize an unspecified percentage of the vegetation each year. The Final RMP/EIS must address the issue of climate change.	3002
1028	1028-34	The Supplemental DRMP acknowledges the issue of methane emissions from cattle, stating that "Animal Unit Month (AUM) projections under alternatives A, C, D, and F are similar, and therefore would result in similar CH4 [methane] emissions. Alternatives B and E would reduce AUMs by about 50 percent, resulting in a proportional reduction in CH4 emissions from enteric fermentation." Only the selection of Alternative B or E would address the climate change impacts of livestock grazing.	3002

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1028	1028-33	The document provides appendix L on Best Management Practices but fails to provide information regarding how these will be implemented and whether they are required components of any alternative(s). Furthermore, this section completely ignores any requirements related to the primary impact across the Bighorn basin which is livestock production.	3035_3-1
1028	1028-32	The document fails to provide the monitoring requirements stating that the BLM is "currently in the process of finalizing a monitoring framework". The result is that this critical component is not available for public review. This does not comply with NEPA.	3035-7
1028	1028-31	Unfortunately, the document fails to address the issue of livestock grazing as a contributor to the spread of West Nile virus among sage-grouse. Water developments installed on public lands for livestock serve as breeding grounds for mosquitoes and can thus increase the spread of West Nile virus, and "[e]liminating mosquito breeding habitat from anthropogenic water sources is crucial for reducing impacts. ⁵⁴	3035_6
1028	1028-29	Despite admissions of the negative impacts of livestock grazing, the DEIS, particularly the preferred alternative, fails to address livestock grazing in a way that would protect sage-grouse and sage-grouse habitat. In the Supplemental DRMP, BLM appropriately recognizes: There are many sources of habitat alteration, all of which may affect the greater sage-grouse... Livestock grazing, fuels treatments, and weed infestations are factors that may cause habitat degradation depending upon severity, intensity, and design. 51 Despite this acknowledgement of the impact of livestock grazing on sage-grouse habitat, DRMP's preferred alternative would continue grazing at high levels and allow vegetation treatments to the detriment of sage-grouse. Furthermore, the Affected Environment section later acknowledges threats to special status species and vegetation, but fails to mention livestock grazing.	3017-3
1028	1028-28	The EIS states that "alternative F manages grazing lands consistent with alternative D, except in greater sage grouse core habitat areas ACEC where the BLM prioritizes the consideration of sage grouse habitat objectives and management considerations over livestock grazing objectives through the imposition of restrictions on livestock grazing location and timing, and range improvement projects." ⁴⁵ However this critical issue, prioritizing sage grouse habitat objectives over livestock grazing, has not been declared within the proposed RMP.	3035_6
1028	1028-27	In our reading of the supplemental EIS, we could find no evidence that the BLM has shifted its preferred alternative from alternative D to one of the two alternatives that attempt to deal with this sage grouse issue, so it appears that the BLM is using this only as an exercise and does not plan to even implement the weak measures in the two new alternatives.	3027-1
1028	1028-26	The DEIS states "despite the long-term declines in populations, implementation of the Wyoming governor's executive orders for sage grouse may help alleviate these declines," ⁴⁴ but this statement is not supported by evidence.	3035_2

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1028	1028-25	The DEIS does not sufficiently address the issue of species recovery. The DRMP states that "the highest level objective ... [is] reversing negative population trends." 3 However, Record # 115 discusses adaptive management and sage grouse populations. Here the BLM attaches itself to State of Wyoming population objectives, which it says are "to maintain at least 67% of the 2005 to 2008 sage grouse core area population within the state of Wyoming". So the BLM here is admitting that the actions proposed are meant to achieve a one third reduction in the populations that the US Fish and Wildlife Service had determined made the species warranted for listing under the ESA. Further, the BLM's population objectives are only within core areas and do not even apply to areas excluded from core areas.	3035_2
1028	1028-24	Record # 101 fails to implement any trigger to "analyze" existing water developments and as such it will never happen and therefore from a sage grouse recovery perspective the direction provided is worthless. The same applies to #103 and #106.	3035_6
1028	1028-23	Record #97 provides that in those few riparian areas that do meet the minimal level of PFC the BLM well "strive" to attain further improvements. Such direction to "strive" is meaningless.	3034
1028	1028-22	Record #95 proposes to manage "riparian areas and wet meadows for proper functioning condition". This objective has been BLM policy since the mid-1990s and has rarely been achieved. In addition, PFC as defined in the technical reference, is merely the minimum physical functioning to withstand a 20 year flood event and is well below the condition necessary to provide fisheries or wildlife habitat needs.	3034
1028	1028-21	The DEIS suffers from flaws in its logic regarding impact analyses in riparian areas. As an example in the executive summary the document states that "alternative E would result in the greatest beneficial impacts to riparian-wetland resources through restrictions on surface disturbing activities". 2 These are not beneficial impacts, but reduced negative impacts. Furthermore, because the BLM has arbitrarily defined surface disturbing activities to exclude livestock grazing, the primary impact within riparian-wetland areas, livestock grazing, is ignored.	3017-3
1028	1028-20	The BLM must modify its preferred alternative that protect and restore sage-grouse habitat, native plants, particularly in riparian areas. This should be done, not with fencing that poses other problems for sage-grouse and other wildlife, but through reduction and removal of livestock grazing in pastures that include riparian areas. The Final RMP should include stipulations prioritizing riparian habitat protection for sage-grouse and other species.	3035_6
1028	1028-19	The DRMP states: "livestock grazing in greater sage grouse habitat can have both adverse and beneficial impacts".39 No references are provided to support the statement that livestock grazing has beneficial effects on sage grouse habitat. As described and referenced in this document, livestock grazing in sage grouse habitat increases fragmentation, causes fence strike mortality, causes direct disturbance to nesting habitat, reduces residual cover, causes long-term plant community changes which degrade sage grouse habitat and other impacts. We could find no support whatsoever in the literature that livestock grazing improves sage grouse habitat.	3035_6

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1028	1028-18	Stunningly, the document contains no data whatsoever regarding current sage grouse habitat conditions or population data nor how these compare to the objectives laid out in the proposed RMP. There is no information regarding the discrepancy between these two nor any examination of the effectiveness of the proposed actions. This clearly does not comply with the "hard look" requirement of NEPA .	3035_2
1028	1028-17	The Supplemental DRMP virtually ignores the threat of livestock grazing to sage-grouse habitat, stating that "the primary threats to this portion of the population are energy development and transfer including both renewable and nonrenewable resources, long-term drought and sagebrush eradication programs." ³² However, this completely ignores the fact that energy development occurs on a small percentage of the sagebrush habitat, while livestock grazing occurs on many more acres. The primary long-term threat is the widespread conversion of mid-stature cool season bunchgrasses, that did not evolve with significant herbivory, to short stature, grazing tolerant species. This conversion has occurred throughout much of the Bighorn basin already and is the primary source of habitat degradation across the planning area.	3035_6
1028	1028-16	This information should be integrated into the "No Grazing" or "Reduced Grazing" alternatives and, given these findings, the BLM should analyze the impacts of long-term authorized grazing and its impacts on sagebrush communities and obligates compared to the impacts of removing livestock and allowing these communities to recover naturally.	3017-2
1028	1028-15	The DRMP/DEIS fails to fully consider the impact of livestock grazing on the full suite of resources in the project area.	3017-3
1028	1028-14	The BLM is responsible for "Ensuring that BLM activities affecting Bureau sensitive species are carried out in a way that is consistent with its objectives for managing those species and their habitats at the appropriate spatial scale." ²³ This is true for every Sensitive Species in the field office, not just sage-grouse, and the DRMP/DEIS does not place enough emphasis on minimizing and eliminating threats from livestock grazing.	3017-3
1028	1028-13	WWP is concerned that no alternative will uphold BLM's obligation to manage Sensitive Species to "minimize or eliminate threats," and not "contribute" to the need for listing, either within or outside of sage-grouse Core Area habitats. As detailed elsewhere in these comments, mitigation measures applied under the proposed alternatives will inevitably lead to serious impacts to sage grouse populations within Core Areas and elsewhere and, for the most part are unenforceable, and therefore not "adequate regulatory mechanisms". This result represents an unnecessary and undue degradation of key sage grouse habitats.	3035_9

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1028	1028-12	The U.S Fish and Wildlife Service will consider the Policy for Evaluating Conservation Efforts ("PECE Policy") as the yardstick to determine the adequacy of existing regulatory mechanisms when considering whether listing is warranted. Implementation must be certain and the proposed plan in question must be known to be effective. According to the PECE policy, "We will make this evaluation based on the certainty of implementing the conservation effort and the certainty that the effort will be effective."8 The BLM must incorporate this certainty into the current planning effort. The current supplement fails to provide any information regarding these two key factors.	3035_2
1028	1028-11	The BLM National Sage-grouse Habitat Conservation Strategy is entitled "Guidance for the Management of Sagebrush Plant Communities for Sage-Grouse Conservation," and hence is directly applicable to the Bighorn Basin planning area. The Strategy includes a host of enforceable limitations and requirements on livestock grazing to protect sagebrush habitats, and to maintain, enhance or restore sagebrush habitat, including: Avoid constructing livestock management facilities (i.e., corrals, tanks, troughs, pipelines, fences, etc.) next to leks; Design and locate the placement of fences for livestock . . . so as not to disturb important sage-grouse habitat areas; Consider seasonal closures to protect priority sage-grouse habitat if other alternatives will not achieve desired objectives; Use grazing practices that promote the growth and persistence of native shrubs, grasses and forbs needed by sage-grouse for seasonal food and concealment. . . Vegetation structure (height) should be managed so as to provide adequate cover for sage-grouse during the nesting period; Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young sage-grouse; Maintain sagebrush and understory diversity . . . adjacent to crucial season sage-grouse habitat unless removal is necessary to achieve sage-grouse habitat management objectives; Where other grazing management options are not achieving, or cannot achieve, the desired objectives, a short-term option may be livestock exclusion These measures must be directly incorporated in the current plan.	3035_6
1028	1028-10	According to BLM IM 2012-44, "The conservation measures developed by the NIT and contained in Attachment 1 must be considered and analyzed, as appropriate, through the land use planning process by all BLM State and Field Offices that contain occupied Greater Sage-Grouse habitat." This must be done fully in the Bighorn Basin RMP EIS. IM 2012-44 does not provide an option not to analyze these measures in at least one alternative unless a clear finding is provided that the measure is not appropriate, and BLM has provided no such findings in the context of the RMP.	3035_1
1028	1028-8	The BLM is required to meet the water quality standards of every state in which it administers public lands. Livestock grazing in and near streams results in increased E. coli and fecal coliform bacteria. The Final EIS and RMP must explain how the plan complies with Wyoming surface water quality standards for E. coli and fecal coliform bacteria.	3044

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1028	1028-7	The National Environmental Policy Act ("NEPA") requires that the BLM consider a reasonable range of alternatives. See 42 U.S.C. § 4332(2)(C)(iii). Considering the presence of endangered, special status, and sensitive species in the planning area, a no grazing alternative and 50% reduction from actual use, in permitted grazing should be included within the reasonable range of alternatives for the Bighorn Basin DRMP.	3035_1
1028	1028-6	The EIS/DRMP fails to explicitly state that the desired outcome of the RMP is to recover sage grouse and its habitat to insure that the species is no longer warranted for listing under the ESA. As such the "allowable uses and actions" do not directly address the desired outcome.	3035_1
1028	1028-5	The DRMP fails to provide specific measurable terms and conditions related to livestock management sufficient to meet the requirements of FLPMA's unnecessary or undue degradation and multiple uses provisions. Western Watersheds Project urges the BLM to add specific measurable objectives for livestock grazing specific to riparian areas, uplands, and impacts on sensitive species habitat in order to comply with FLPMA, beginning with the terms and conditions mentioned above.	3017-2
1028	1028-4	The preferred alternative does not meet the requirements of FLPMA. FLPMA requires the BLM "take action necessary to prevent unnecessary or undue degradation of the lands[.]" 43 U.S.C. § 1732 (b). FLPMA also requires that the BLM manage lands for multiple uses, "without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." 43 U.S.C. § 1702(c). Permitting ongoing livestock grazing cannot be justified under these parameters.	3017-3

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1028	1028-3	In regard to livestock grazing, Western Watersheds Project urges the BLM to add the following to the Final EIS and RMP: (1) Specific measurable terms and conditions for livestock grazing in riparian areas, uplands, and wildlife and fisheries habitat. The 2010 US Fish and Wildlife Service "warranted but precluded" decision stated that sufficient management terms and conditions were not in place to protect the sage-grouse. Because NEPA analysis is rarely performed on grazing allotments, due to the BLM's addiction to the 2005 Appropriations Rider, the terms and conditions must be immediately incorporated into any existing use authorizations in order to meet adequate regulatory mechanisms of ESA. These terms and conditions must be specific to sage-grouse habitat, and include: (i) A minimum of 7" stubble height remaining on hydric soils riparian greenlines after livestock grazing; (ii) A 10% maximum annual bank or wetland alteration from all sources for streams and wetland hydric and mesic soil areas of upland seeps, springs, wet meadows and aspen clones; (iii) A maximum annual woody browse utilization by all browsing ungulates of 15% on cottonwood, aspen, woody shrubs, and willows; (iv) A maximum annual grazing utilization of perennial grass species on upland landscapes by all grazers of 25%; (v) A minimum 9" residual perennial native grass cover for ground-nesting birds; (2) Additional alternatives that represent a range of grazing levels; and (3) Authority for the permanent retirement of voluntarily waived grazing permits in every alternative of the Final EIS. (4) Standards and Guidelines assessments must be completed on all allotments within sage grouse habitat within 5 years of signing the Record of Decision ("ROD"). These assessments in addition to the standard procedures, must gather habitat condition data to be used in the decision-making process. Allotments within sage grouse habitat that are not in HCPC or >75% Similarity Index must have significant reductions in AUMs in order to allow recovery cool season grasses in order to provide sage grouse habitat. Much of the Bighorn Basin has been converted from grazing intolerant cool season bunch grasses to short stature increasers. Management changes that immediately address this issue must be implemented in order to provide for sage grouse habitat recovery. (5) Given the importance of changes in livestock management, the RMP must require full processing of all permits within sage grouse habitat or else all the actions proposed will never be implemented due to the BLM's addiction to the Appropriations Rider. Without this requirement in the RMP none of the livestock related actions could be considered "adequate regulatory mechanisms".	3035_6

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1028	1028-2	Responsible land management requires the use of ecologically sound, science-based analysis in the determination of appropriate livestock grazing levels. Unfortunately, the Bighorn Basin DRMP fails to sufficiently address the environmental impacts of livestock grazing. From the NEPA prospective, the BLM has failed to sufficiently discuss the effectiveness of its proposed actions or provide sufficient information regarding their effect on sage grouse populations and their habitat. The DRMP document falls short of providing the depth of analysis and consideration of grazing alternatives warranted by a land use plan that will govern lands managed by the Worland and Cody BLM Field Offices. A reader of the document is provided almost no information regarding the outcome for sage grouse of the various alternatives nor is there any population viability analyses provide added as references. This does not fulfill the "hard look" requirement of NEPA.	3035_6
1028	1028-1	Unfortunately, the DRMP fails to meet this purpose and need. The proposed DRMP fails to significantly address the "present and threatened destruction, modification, or curtailment of the habitat or range of the greater sage-grouse." In addition, RMP fails to implement the "regulatory mechanisms" that would be necessary for the recovery of the species. Regulatory mechanisms under the ESA must be mandatory and enforceable. The vast majority of the supposed actions proposed do not fit either of these requirements.	3035_1
1029	1029-18	Phased development and phased leasing are two important means for limiting environmental impacts. Phased development can "leave areas of habitat undisturbed by ongoing construction and drilling activity while other areas are developed" and developed areas "would be required to undergo interim reclamation before drilling could move on to the next area." Manual Phased leasing "could provide the opportunity to lease a limited and less sensitive for development in order to determine the area's production potential." /d. at V-6. This should be part of an adaptive management approach "so that if oil and gas were successfully discovered and produced there would then be the opportunity to analyze the impact of additional leasing." Id.	3023-3
1029	1029-14	We believe the DEIS and the Supplement define resource condition objectives that should be applied and sought in the A-B Front, Fifteen Mile Basin, and Bighorn Front MLPs. For example, under alternative E, which we think is appropriate for application to these three areas, anthropogenic disturbance will not exceed 640 acres and it will cover less than 3 percent of total sage-grouse habitat	3023-6

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1029	1029-13	These disturbance level specifications and habitat structural specifications establish resource condition objectives for these three MLP areas. Notably, they would help ensure greater sage-grouse conservation, among the many other resource values that would benefit from development of MLPs. Importantly, these Resource Condition Objectives must be based on the "vision" for the Master Leasing Plans. If the vision in these MLPs prioritizes (and it should prioritize) the avoidance of potential impacts on lands with wilderness characteristics, crucial big game winter habitat, wildlife migration corridors, greater sage-grouse core areas, recreational opportunities, scenic viewsheds, and more, the resource Condition Objectives should provide clear standards (numeric or otherwise) and measures for implementing that vision. A Resource Condition Objective must be developed for each of the values recognized in the MLP area: thus, a Resource Condition Objective for Lands with Wilderness Characteristics should be developed and prioritized with the conditions for the other recognized issues, in accordance with the MLP vision.	3023-6
1029	1029-7	In both the DEIS and SEIS, the BLM has examined a variety of management decisions to recognize and/or protect these resource values. As shown on maps in both the DEIS and the Supplement, there are, or will be, a large number of special recreation areas and ACECs in the MLP areas. These special designations demand special management of oil and gas leasing and development in these areas. There are large areas of inventoried lands with wilderness characteristics (LWC) in these MLP areas. DEIS Map 63. The Wyoming Outdoor Council advocates that all LWC be managed to protect their wilderness characteristics in the Master Leasing Plans. The Absaroka-Beartooth Front and the Bighorn Front border Forest Service lands, some of which are wilderness areas or roadless areas; cross-jurisdictional consistency of resource values and associated management are key in these two landscapes. Cultural resources are equally important as ecological values; the Nez Perce National Historic Trail traverses the northern part of the Absaroka-Beartooth Front and must be considered in the "A-B Front" MLP. DEIS Map 73. The extraordinary fisheries and wildlife values of these MLP areas are undeniable. DEIS Maps 30, 32, 34, and 35. Supplement Maps -14 and -15. The Bighorn Basin is obviously a sage-grouse stronghold where many potential conflicts are presented between conservation of this species and oil and gas development. The visual qualities of the MLP areas are also undeniable. DEIS Maps 39 and 41. Supplement Maps SEIS-16 and -17. And as to soils, at a minimum the extensive badlands and "hoodoos" in the Fifteen Mile Basin certainly present potential resource conflicts. All of these resource values should be recognized as BLM develops MLPs for these areas.	3023-6
1029	1029-3	The vision statement for these three Master Leasing Plans should also acknowledge the need to address conflicts not only with future leasing, but with future development, including developments on existing leases. The Supplement provides for a range of alternatives regarding resource protection measures that can be incorporated into these MLPs for existing leases. For example, Alternative E considers adding no surface occupancy (NSO) stipulations to APDs for the Greater Sage-Grouse Key Habitat Area of Critical Environmental Concern.	3023-6

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1030	1030-11	Additional peer-reviewed, scientific literature on sage-grouse is constantly developing addressing new behavioral patterns, habitat requirements, management implications, and population statistics. It would be appropriate for the BLM to provide itself with decision space in the Bighorn Basin RMP that allows for increased management stipulations and disturbance restrictions if research shows current approaches to be inadequate to protect sage-grouse populations from energy development. The greater flexibility inherent in such a system should allow for improved decision-making regarding the appropriate scale and extent of energy development in priority (core) sage-grouse areas.	3035_9
1030	1030-10	In order for Adaptive Management to be best utilized, adequate monitoring and data collection must be implemented. We recommend a tiered approach to monitoring, starting locally and working up to a national level. The local level would encompass geographically related habitats (for example, the Bighorn Basin) and data collection by Wyoming Game and Fish Department (WGFD) in collaboration with local working groups, BLM, U.S. Forest Service (USFS), and private land owners would monitor population trends and habitat integrity on a local level. The next level of management would be at the state level, under the Executive Order and in collaboration with WGFD, to monitor state-wide trends in population. Third would be trends on a regional scale recognizing the cross-state boundaries of Management Zones set by the USFWS Conservation Objectives Team (USFWS 2013), and finally at the national level as trends are monitored between states and management zones. The only way that Adaptive Management will function as a regulatory mechanism will be if trigger actions and trigger points for population trends and sagebrush ecosystem health are pre-determined, data are faithfully collected, analyzed, and compared to both trigger points and target population numbers, and management actions are strictly and effectively monitored and implemented properly. We strongly recommend that Adaptive Management be included in the final RMP and not as part of an alternate document.	3035-7
1030	1030-9	Adaptive Management is critical when addressing future threats to sage-grouse, primarily when considering declining population numbers. We recommend setting trigger points for identifying management action if and when population numbers reach a certain level of decline. When the trigger point is reached, additional management actions that provide further protections-such as treating non core area leks as core area leks, establishing core areas as Administratively Unavailable for oil and leasing within 4 miles of active and undetermined leks, etc.-should be implemented. The Wyoming Outdoor Council strongly advocates the inclusion of Adaptive Management in the Big Horn Basin RMP to allow for the best management decisions to continually be made as emerging research provide information over the life of the plan.	3035-7

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1030	1030-8	We advocate the BLM incorporate Alternative E's decisions regarding rights-of-way into the preferred alternative and FEIS-regardless of whether the ACEC designation is forwarded to the FEIS. Managing the priority habitats of the proposed Greater Sage-Grouse Key Habitat Area ACEC as exclusion areas for rights-of-way, see Supplement Map 22, provides the necessary protection for this species from aboveground transmission line impacts (predation, avoidance, and habitat fragmentation) and from construction-related impacts from below-ground pipelines (habitat fragmentation and loss). At the same time, there are ample opportunities for north-south or east-west rights-of-way to traverse the planning area but not impact these priority habitat areas; these provide adequate continuity with right-of-way decisions for public lands surrounding this planning area. We recognize the importance of the route identified for Energy Corridor 79-216; this is the only right-of-way that crosses the sage-grouse key habitats for which we could support avoidance/mitigation rather than exclusion.	3033-1
1030	1030-7	Enhanced BLM protections are likely required if ESA listings of the sage-grouse, or other sagebrush obligates, are to be avoided in the long-term. As recognized in the scientific literature, "[t]he simplest and most cost effective first step in conservation is to halt the largescale actions that further reduce or eliminate the largest populations in the best remaining landscape" (Doherty et al. 2010). Therefore, we advocate that the Field Offices included in the Bighorn Basin RMP and Supplement should err on the side of conservation when making management decisions in regard to oil and gas development. To accomplish this, provisions from Alternatives E and F should be incorporated into Alternative D, the preferred alternative, even if the corresponding ACECs are not designated.	3035_1
1030	1030-6	To slow population declines of sage-grouse, more effective conservation efforts must be considered if listing under the Endangered Species Act is to be avoided. The BLM should consider five specific actions to avoid impacts from oil and gas development. These include: 1) increase buffer zones surrounding both active and undetermined leks in areas designated Core Area by EO 2011-5 from 0.6 miles to a minimum of 2 miles; 2) apply an Administratively Unavailable determination or NSO stipulation in place of a TLS stipulation surrounding leks (Holloran 2005; Aldridge & Boyce 2007; Doherty et al. 2008); 3) reduce the maximum disturbance allowed within Core Areas from 5% disturbance per 640 acres to 3% per 640 acres with further disturbance prohibited in sections where disturbance has exceeded 3% (Knick et al 2013); 4) implement similar restrictions outside Core Areas, particularly where habitat is still mostly intact and unfragmented to maintain both habitat and population connectivity within the Bighorn Basin and between populations in Wyoming and Montana; and 5) implement a surface disturbance cap in non-core areas. Further protections to sagebrush ecosystems and wildlife habitats and protection from increased surface disturbance are essential to maintaining habitat and landscape integrity as more and more acres are fragmented and lost throughout the state and across the region.	3035_9

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1030	1030-5	The proposed plans to monitor habitat health lack standardized data collection and analysis of critical sagebrush habitats. This is a shortcoming that can and should be corrected. Fixing this flaw will also help the BLM to better plan for its multiple use objectives. Additional research has shown that percent cover in sagebrush habitats as determined by BLM is 2.6 times greater than sagebrush cover from research applications (Wambolt 2007 and references therein). Considering the additional proposed disturbances in sagebrush habitats, accurate information regarding current sagebrush cover and distribution is needed for BLM to make responsible management decisions. Implementation and enforcement of data sampling and analysis, utilizing Ecological Site Descriptions, will provide accurate data necessary to address sagebrush ecosystem health, and will benefit all wildlife and plant species reliant on sagebrush ecosystem	3042
1030	1030-4	Utilization of Ecological Site Descriptions also discourages subjective application associated with applying numerical percentages to classification ratings. According to this rating system, the classifications represent percent similarity to the Historic Climax Plant Community (poor= 0-25%, fair= 26-50%, good= 51-75%, and excellent= 76-100%). By using this ranking system, BLM is striving for 65% of HCPC in alternatives D and F, and 75% of HCPC in alternative B. The RMP and Supplement propose to "[m]anage to achieve or make progress toward achieving [65% or 75%] or more of Historical Climax Plant Community" (BLM 2011, p. 2-65, Record# 4031). This is flawed, in our opinion, because it gives no incentive to strive for better habitat, perpetuating the sentiment that "good is good enough." Ecological Site Descriptions reflect new understandings about ways in which vegetation changes over time. Instead of describing vegetation change as a gradual linear process, the state-and-transition models included in Ecological Site Descriptions reflect the sudden and unpredictable changes that sometimes occur on landscapes, providing resource managers with better information about ecological changes resulting from specific disturbances, response following disturbance, and how landscapes change over time.	3042
1030	1030-3	We are also concerned with the basic premise behind the Timing Limitation Stipulation (TLS) presented in alternative D. The TLS offers only the minimum to reduce direct disturbance to sage-grouse during critical times of year, primarily focusing on bird behavior, but does nothing to protect habitat. Since habitat degradation and fragmentation are considered primary threats to continued sage-grouse population resilience and survival, we object to the use of a TLS on principle. Habitat disturbance may occur at all other times of year not included in the TLS. Imagine spending the winter in Florida, only to return home to Wyoming to find that half of your house is missing. The loss of shelter and food is significant, even if the disturbance happened while you were not there. It is for these reasons that TLS is an 'inappropriate' management tool in this context. In its place, we urge the BLM to utilize unavailability determinations or No Surface Occupancy (NSO) stipulations. These administrative tools will better provide the protections needed to ensure the greater sage-grouse continues to be precluded from Endangered Species Act protections.	3035_1

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1030	1030-2	Providing a buffer in non-core areas that peer-reviewed scientific research has shown will neither ensure lek persistence nor maintain grouse populations, runs counter to Wyoming Executive Order 2011-5, which states: "[d]evelopment scenarios should be designed and managed to maintain populations, habitats and essential migration routes ..." We believe the Bighorn RMP should avoid taking undue risks with non-core populations and should provide alternatives that would adopt scientifically validated stipulations that afford sage-grouse inside and outside core areas with levels of protection that would satisfy core area conservation strategy objectives.	3035_1
1031	1031-6	Record # 50--It is unrealistic to assert that an entire allotment should be shut off from grazing if the burned area can't be fenced. This is completely unnecessary and extreme. It reflects an absence of on the ground reality. These allotments can be huge, burned areas can be huge and fencing unrealistic. It again reflects the obvious agenda against livestock grazing under the guise of caring about restoration.	3011
1031	1031-5	Record #49 " Alternative F: It is counterproductive for sage grouse to exclude livestock from grazing in burned areas until wood and herbaceous plants achieve sage-grouse habitat objectives. Woody shrubs in this ecology could take as long as 60 years to re-establish and in the meantime grasses could compete with them. Livestock grazing should be permitted during this time. If in fact sage grouse stewardship is on the radar screen.	3011
1031	1031-4	Chapter 4.3 Fire and Fuels Management: Proactive Management section-Marginalizing and restricting the use of fire within areas of environmental concern will only worsen the invasive weed problem already ahead of land managers. We need all tools to help control invasive weeds and not worsen the problem by slowing management. Proactive fire management must not move slowly, it must continue at a rapid and consistent pace to improve habitat.	3011
1031	1031-3	Chapter 2, Table 2.3: Alternatives E & F: Not necessary to put 1,857,485 acres or 1, 786.241 acres under the restrictions of Areas of Environmental Concern. While sage-grouse may be present, it does not mean that they will be negatively impacted or the area degraded if left open to the public. These alternatives seek to manage for one species only, the sage-grouse to the detriment of all other resources. Alternative E adds 9 additional Areas of Critical Environmental Concern (ACECs) to the restricted use picture: The nine proposed ACECs are Chapman Bench, Clarks Fork Basin/Polecat Bench West Paleontological Area, Clarks Fork Canyon, Foster Gulch Paleontological Area, McCullough Peaks South Paleontological Area, Rainbow Canyon, Rattlesnake Mountain, Sheep Mountain, and Greater Sage-Grouse Key Habitat Areas. Where is the demonstrated justification for this closeout?	3001
1031	1031-2	Chapter 2, Table 2.2: There are no lands open for Desert Land Entry. No justification for this, as any such entries would take into account the sage-grouse life cycle, if they were present. These entries, while underutilized should remain an option to the American public.	3016-1

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1032	1032-1	No Lands open for desert land entry” In Chapter 2, Table 2.2, although the entries may be under utilized, stopping entry is not justified because if sage grouse were present, any such entries would take into account their life cycles.	3016-1
1035	1035-1	Economic Fall out: Chapter 2, Table 2.2 proposes the closure of almost 2 million acres of livestock grazing. This alternative is not supported scientifically, nor does it take into account the economic fallout to local communities, communities who are sustained by the livestock industry throughout the Big Horn Basin.	3036-2
1036	1036-1	#1” If for some reason you choose alternative E. “Fire-Fuels” got my attention and its effect on grazing. If it (BLM land) has to recover fully to pre-fire condition, that could take up to 50 years for sagebrush to come back. Therefore our grazing would be cut up to 1/2 meaning we would also have to reconsider how we manage our private lands. One option is we would either cut way back on stocking rate & use more of our own resources for cattle, graze more intense leaving less habitat for the Prairie Chickens and other wildlife elk, deer, moose, antelope, etc. One other option is to subdivide or lease private land out, therefore cutting off habitat again. As far as the “science” that go into these decisions, it seems to change as the political and emotional winds shift.	3011
1037	1037-51	Alternative B/E provides the most appropriate protections for raptors, with improvements. Record #4124 states, “To protect nesting raptors, apply a TLS to prohibit surface-disturbing and disruptive activities within: 1 mile of active raptor nests (543,945 acres) during specific species nesting period, or until young birds have fledged ... 2 miles of active ferruginous hawk nests (47,365 acres) from March 1 to July 31, or until young birds have fledged.” [DRMP at 170]. Audubon encourages that the definition of “active nests” be clarified to include being those that have been active within the past 7 years as raptors may abandon a nest but either return themselves in following years or have the nest taken over by another pair. These temporarily inactive nests identify areas containing quality combinations of nesting and foraging habitats that should be protected for use by future nesting raptors. Audubon also requests for the inclusion of winter roost sites.	3038
1037	1037-48	Despite being a BLM sensitive species and referenced as being within the Planning Area, Golden Eagles were woefully addressed within the RMP. The Final RMP should include analyses on Golden Eagle populations and use within the planning area and improve the protective buffers. Especially in light of USFWS currently authorizing take permits only under “no net loss” requirements, surface-disturbing activities should be prohibited within 1 mile of Golden Eagle nests, as is recommended by Alternative B.	3038
1037	1037-44	The Bighorn Basin Draft RMP and SRMP fails to reference the Avian Power Line Interaction Committee. Audubon was one of the original members of this committee and has participated in recent training workshops. Please note that a newer APLIC guideline manual was released in 2012 and should be referenced. Suggest contacting Rick Loughery (rloughery@eei.org) as this committee has developed resources that should be incorporated in the FEIS.	3027-3

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1037	1037-42	For non-core/general habitat, protections should still be provided regarding powerlines. The Lander RMP FEIS Record #4102 (Alternative B): Prohibit new, permanent, high-profile structures (higher than 12 feet) within 1 mile of occupied greater sage-grouse nesting habitat (Map 64). FEIS at 130. Similarly in the Miles City Draft RMP, while high voltage power lines are allowed within General Habitat, they should avoid areas within 1 mile of a lek to minimize grouse avoidance behavior and increased predation pressure. Research indicates approximately one-third of juvenile sage-grouse mortality is directly attributed to collisions with power lines (Beck, Reese, Connelly, and Lucia 200617; Flake, Connelly, Kirschenmann, and Lindbloom 201018). Miles City DEIS at 4-133. In addition, a study in Idaho found that power line collisions resulted in 33 percent of juvenile sage-grouse deaths in the study area (Beck et al. 2006; Flake et al. 2010). Miles City DEIS at 4-158. We support this provision as a means to prevent area avoidance by sage-grouse. These powerline provisions should all be incorporated into BLM's final decision.	3035_8
1037	1037-41	High voltage powerlines should be avoided within high priority habitats, such as ACECs, as proposed in the SRMP. While they are allowed within general habitat, they should be prohibited within 1 mile of a lek to minimize grouse avoidance behavior and increased predation pressure. The SRMP also endorses burying powerlines. While eliminating perching opportunities for avian predators, burying power lines may well be more detrimental in regards to volume of surface disturbance occurring in such proximity to leks. Audubon requests additional analyses compare the impacts to sage-grouse from burying versus vertical structures. Audubon remains concerned at the amount of habitat lost or fragmented, resulting in direct and indirect impacts, resulting from a uniform stipulation of burying powerlines within 1 mile of leks.	3033-1
1037	1037-39	We recommend deterrent devices on H-frame structures because recent research indicates they are effective tools in reducing perch use of such structures (Lammers and Collopy 200715, Slater and Smith 201016). Record #17, which applies to both Alternative E and F, in the SRMP specifies that "Any existing towers must undergo review for adverse effects. Review will include minimizing wires and other collision hazards for sage grouse and migratory birds, as well as adverse impacts of night lights." [SRMP at 2-19]. While this is an important step forward, Audubon is cognizant that resources are limited and towers should be prioritized by distance from leks.	3033-2
1037	1037-38	Anti-perching devices should be required for on all new overhead powerlines in Greater Sage-grouse habitats to reduce predation from raptors. In addition, the BLM should work ROW holders to identify conflict areas and get anti-perching devices installed on existing overhead powerlines in these same habitats. These two minimizing techniques are noted in the Lander RMP (DEIS at 882). Because approximately 74-80% of sage-grouse females nest within 4 miles of leks (Moynahan 200413, Holloran and Anderson 200514), this measure will help to reduce predatory pressures on nesting and foraging grouse.	3033-1

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1037	1037-35	The USFWS recommends that all existing guy wires be marked with recommended bird deterrent devices. ¹¹ Although the use of bird deterrent devices has been particularly important in raptor and waterfowl concentration areas, such devices also are useful in preventing songbird and perhaps even sage-grouse collisions with guy wires. Sage-grouse probably are far more likely to strike met tower guy wires than wind turbines (efforts currently are underway to mark rangeland fencing, which accounted for 18% of sage-grouse deaths in a Utah study, ¹² to prevent grouse collisions with wires). Due to the impacts to raptor populations, we encourage strict exclusion language for raptor concentration areas.	3032
1037	1037-34	BLM should avoid siting new temporary meteorological (met) towers near leks and other important sage-grouse habitat. Where wind turbines or met towers are considered appropriate and properly sited, guy wires should be marked with recommended bird deterrent devices and other state-of-the-art best practices applied to minimize impacts. Guyed meteorological (met) towers have been known to cause more bird fatalities than associated wind turbines in a number of instances. For example, at Foote Creek Rim in Wyoming, researchers found an estimated 8.1 bird fatalities per met tower per year, whereas they found an estimated 1.5 bird fatalities per wind turbine per year. ¹⁰ Given these findings and the U.S. Fish and Wildlife Service (USFWS)'s recommendations for using bird diverters to prevent avian collisions and remain in compliance with the Migratory Bird Treaty Act (16 U.S.C. 703-712), bird diverters should be more commonly used met towers.	3032
1037	1037-33	In 2004, the USFWS used several scientific studies to develop recommendations about impacts of wind energy development on grouse species. Due to various structural factors, including height, the USFWS recommended avoiding placement of wind turbines within 5 miles of greater sage-grouse and Columbian sharp-tailed grouse leks. See, e.g., Comments of USFWS on Antelope Ridge Wind Project, May 17, 2010, at 3 (noting that the "5-mile protective zone for wind project features helps buffer sage-grouse against increased mortality (both human-caused and natural), habitat degradation and fragmentation, and disturbance"); Audubon supports these recommendations for placement of turbines within non-core/general habitat.	3032

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1037	1037-30	Audubon supports a proactive approach to systematically inventory and close unnecessary roads and trails, and prescribe rehabilitation/reclamation for them to benefit wildlife habitat. However, simply closing an eroding road without alleviating soil compaction and reseeded can be successful in some cases and very unsuccessful in others, leading to more adverse impacts from INNS invasion. Lander RMP FEIS at 810. We also recognize the BLM’s staff and resource limitations. A combination of protection (no new infrastructure), especially in relatively undeveloped areas, and rehabilitation will best achieve habitat goals. The HiLine RMP noted for the Grassland Bird/Greater Sage-Grouse ACEC and Greater Sage-grouse ACEC, that “Where leases or rights-of-way have some level of development (e.g., road, fence, well, etc.) that are no longer in use, the site would be reclaimed by removing the features and restoring the habitat. Upon project completion or right-of-way expiration, roads built and maintained for commercial use across BLM land would be reclaimed, unless based on site-specific analysis, the route provides specific benefits to the public and the continued public use does not contribute to resource conflicts.” DEIS at 156.	3039-1
1037	1037-29	Furthermore, BLM should specifically require that priority stretches of existing fences, especially those in proximity to leks, will be identified for use of sage-grouse fence diverters/markers to prevent collisions. BLM should adopt the provision which avoids construction of new infrastructure (such as fencing) and instead focuses on livestock grazing management throughout seasons of use and lower forage utilization. Lander RMP FEIS at 43.	3035_8
1037	1037-28	The BLM should also increase the visibility of existing fences to reduce hazards to flying greater sage-grouse and require the installation of fence markers on new wire fences constructed in greater sage-grouse habitat to increase fence visibility and reduce collision potential. When fences are authorized, the BLM should require a design that has the fewest adverse impacts to greater sage-grouse including features to reduce greater sage-grouse strikes and mortality. Audubon is very supportive of these requirements, all of which are in the Lander RMP FEIS (Record #4039, Record#4083, and Record #4101).	3035_8
1037	1037-27	In addition, fence surveys in the Lander and Rock Springs Wyoming BLM Field Office areas have shown that Greater Sage-grouse can be injured or killed as a result of flying into fence wires. Lander RMP FEIS at 969. To address this, the Bighorn Basin SRMP should include the option to remove identified wildlife hazard fences that are adversely affecting wildlife, such as sage-grouse where opportunities exist. This option was provided in the Miles City RMP, “Fences in high-risk areas (based on proximity to leks, lek size, and topography) would be removed, modified, or marked to reduce outright sage-grouse strikes and mortality.” DEIS at 2-49.	3035_8

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1037	1037-25	In addition, protective stipulations should be extended to maintenance and operations actions. Lander RMP FEIS notes that “wildlife seasonal protections from surface-disturbing and disruptive activities apply to maintenance and operations actions when the activity is determined to be detrimental to wildlife.” FEIS at 117. This is an important timing due to the longer period of time associated with maintenance and operations actions, beyond the usual development-specific stipulations. BLM supports this, “Beyond initial exploration (including geophysical activities), land clearing, and aboveground facility construction, continued human disturbance to special status wildlife could occur from activities such as equipment maintenance and site operations, which are especially disruptive during sensitive times (wintering, breeding, and nesting).” FEIS at 931. Furthermore, BLM notes that “it would not preclude development or limit the number of wells and would result in no more adverse impacts than management under Alternative A, which does not have timing limitations on O&M.” FEIS at 707. The Miles City Draft RMP noted that in areas where development occurred, “there would be no restrictions to operation and maintenance activities, which would potentially result in the reduction or extirpation of populations.” DEIS at 4-134 (emphasis added).	3035_9
1037	1037-24	Given the plethora of scientific research which has documented the negative impacts of energy development on sage-grouse, Audubon is strongly opposed to the delineation of Oil and Gas Management Areas. The pursuit of full development of resources in existing fields while exempting these areas from seasonal development and other restrictions flies in the face of the BLM’s sage-grouse conservation objectives.	3035_9
1037	1037-23	Pump stations and other permanent structures should be placed a minimum of 2 miles (3.2 km) from the nearest lek, with a preferred distance of greater than 4 miles (6.4 km) from active leks, based upon the best-available data from Naugle et al. (2011)9.	3035_9
1037	1037-22	The use of 0.6 mile buffer around leks and 0.25 mile NSO for leks in occupied habitat is inadequate to maintain lek activity, as has been repeatedly shown by science (Holloran 20056, Walker et al. 2007)7.The Lander RMP DEIS and FEIS both recognized this as did the Miles City RMP.	3035_9
1037	1037-21	Audubon commends the BLM’s approach for special status species management in Alternative E - which manages disturbances (e.g., roads, oil and gas wells, pipelines, etc.) in the Greater Sage-Grouse Key Habitat Areas ACEC to not exceed one disturbance per 640 acres and cover less than 3 percent of the total sage-grouse habitat [SRMP 2-13], thus protecting priority sage-grouse habitats from anthropogenic disturbances that will reduce distribution or abundance of sage-grouse. Recently released research by Knick et al. 20135, while they did not examine Wyoming, did further emphasize the intolerance of grouse to human disturbance and development. Specifically, the researchers reported that ninety-nine percent of active leks in the species’ western range were in landscapes with < 3% disturbance.	3001

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1037	1037-19	While Audubon commends the BLM for the recognition of the three new important sources of data that became available since the release of the draft RMP, in comparison to other recently released draft RMPs there is a startling lack of scientific background presented on the known development impacts to sage-grouse, despite the references made (as noted above) within the document as to the severity of the impacts. For example, oil and gas development has been identified as a cause of declining greater sage-grouse populations (Doherty et al. 2006, Walker et al. 2007, Naugle et al. 2009, Harju et al. 2009). Impacts to leks from energy development were most severe near the lek, remained discernible out to distances >6 km (Holloran 2005, Walker et al. 2007), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007). Surface disturbance is anticipated to have adverse impacts to sagebrush habitats including temporary and permanent loss of habitats across all alternatives. Fragmentation and degradation of habitat for greater sage-grouse also is anticipated from surface-disturbing activities and associated development. Therefore, protective stipulations within the planning area deserve careful attention.	3035_2
1037	1037-18	The designation of Restoration Habitat should be considered, as was proposed for the HiLine RMP. Audubon is extremely supporting of application of management actions within these areas that would emphasize restoration for the purpose of establishing or restoring sustainable sage-grouse populations.	3035_8
1037	1037-15	Audubon respectfully notes that specific records related to riparian/wetland resources appears to be missing from Table 2-5 in the SRMP, thus it is unclear the details of the protections being proposed. Given this missing information, Audubon presents the following protections proposed in other draft RMPs (many of which would be appropriate outside the ACEC): . Oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. Miles City DEIS at 2-23 and 2-24. . Surface disturbing activities should be prohibited within 1,329 feet (0.25 mile) of playas and 100-year floodplains where mapped. The Lander BLM noted that a set-back of 1,329 feet would not result in any substantial adverse impact because most drilling operations would be able to accommodate the setback distance and still adequately recover the oil and gas resources. Lander RMP FEIS at 706. New livestock water developments (troughs or tanks) would be located at least 0.25 miles from riparian and wetland areas, waterbodies, and streams. Miles City DEIS 2-24 and 2-25. This should be expanded to include no new range improvement projects within ½ mile of water and riparian-wetland areas, so as to avoid providing perching locations for raptors, while hens and their broods are foraging. Avoidance of introducing or expanding invasive nonnative species through disturbances/degraded habitat is another important land management consideration.	3034

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1037	1037-12	Because of the importance of this habitat to grouse, Audubon Rockies suggests protections for these areas based on what has been presented in the Lander RMP (Record # 3006): "In identified greater sage-grouse winter range, vegetation treatments should emphasize strategically reducing wildfire risk around or in the winter range and maintaining winter range habitat quality;" FEIS at 101;	3035_8
1037	1037-11	In addition to assessing the spatial distribution/acreage of current winter habitat and concentration areas for sage grouse, the BLM should also consider the current quality of this habitat as this will likely drive selection of appropriate protective measures and prioritize restoration activities. The Governor-appointed Wyoming Sage-grouse Implementation Team recently commissioned the Wyoming Chapter of the Wildlife Society, a non-profit organization of wildlife biologists, to review current protocol for identifying and mapping sage-grouse winter concentration areas. This report would be helpful for consideration in the Bighorn Basin's planning efforts going forward.	3035_2
1037	1037-10	Upon designation of special status species, the species's distribution, key habitat areas, and special management needs should be identified prior to developing resource management plans. While winter concentration areas were referenced in the document (Table 2-2, SRMP 2-4), maps displaying the location of these were not provided which seriously limited reviewers's understanding and ability to provide substantive comments.	3035_2
1037	1037-8	In June 2013, the BLM issued a new interim policy on regional mitigation, effective immediately (http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resource_s_Management/policy/im_attachments/2013.Par.57631.File.dat/IM2013-142_att1.pdf). The new manual covers regional mitigation strategies, planning, and implementation. In the planning portion, the goal is to incorporate sites and measures and mitigation strategies into land use plans, including a regional baseline, mitigation objectives, land use allocations or "areas for landscape-level conservation and management actions." Relevant to the HiLine RMP, ACECs and sage-grouse priority habitat are used as examples of these. In the implementation portion, this is described as part of approving specific land uses, which may be "within (onsite) or outside of the area of impact." The manual emphasizes that on-site mitigation is always the first choice (including a "mitigation priority order", then discusses off-site mitigation comprising replacing or providing similar or substitute resources or values through "restoration, enhancement, creation, or preservation." As the RMP process proceeds in the Bighorn Basin Planning Area, Audubon respectfully requests clarification on how this new interim regional policy on mitigation will be incorporated.	3035-7

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1037	1037-7	Given the number of times "mitigation" is referenced in DRMP/SRMP and the misconception that mitigation is limited to compensatory, the RMP should provide a clear description of the Mitigation Hierarchy (Council on Environmental Quality 2000). This has been done in other RMPs and is important to note in the Bighorn Basin RMP as well, that before impacts can be restored or off-set, good faith efforts must be made to avoid or minimize impacts. Environmentally responsible development will limit environmental impacts by guiding projects away from the most environmentally sensitive sites and species. Where avoidance is impossible or impracticable, mitigation measures should generally lead to increasing or stable populations in the project area, as well as at the regional/planning level. Mitigation, which should be monitored to determine effectiveness, should enhance long-term health and viability of the impacted populations through permanent protections and through other protections that last at least throughout the life of a proposed project.	3035-7
1037	1037-6	We are encouraged that the BLM and USFS are currently in the process of finalizing a Monitoring Framework, which will ultimately provide clarity on how the BLM and USFS will monitor and track implementation and effectiveness of planning decisions (e.g., tracking of waivers, modifications, site level actions) to meet conservation objectives. While it is in the process of being finalized, with a goal of being included in the FEIs, we stress that it must be meaningful and have specific measures/thresholds. It is imperative that the BLM require and enforce the implementation of a science-based adaptive management program. The purpose of an adaptive management program is to reduce uncertainty about the effects of specific development projects on wildlife and wildlife habitat.	3035-7
1037	1037-5	In addition, clarification is needed on how mitigation documents being currently developed by the BLM (this may be the Monitoring Framework) and USFWS, in regards to Greater Sage-grouse, will be applied to this proposed RMP.	3035-7

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1037	1037-4	<p>With the cooperation of key experts (including staff from Wyoming Game and Fish Department and WY BLM), the following Important Bird Areas were identified within the planning area. Several are described in greater detail due to overlap with GRSG Core Areas, thus further emphasizing their ecological importance.</p> <p>Chapman Bench IBA. This IBA overlaps GRSG Core Area. Land ownership is all federal. The area contains sagebrush habitat that supports at least 12 sensitive species, including three BLM sensitive species GRSG, long-billed curlew, and mountain plover. This area provides nesting habitat for one of the highest concentrations of sagebrush-obligate species in the Bighorn Basin. The area has limited development. This is a proposed ACEC and Audubon strongly supports its nomination for the retention, enhancement, and success of GRSG and mountain plover. Heart Mountain IBA. This IBA overlaps GRSG Core Area. Land ownership is a mix of federal, state, and private. Due to the wide elevational range, Heart Mountain is able to support abundant wildlife populations despite the presence of relatively little water. The Nature Conservancy maintains ranching operations on these lands. Ornithological species of note and BLM sensitive species in the area include GRSG, long-billed curlew (breeding), golden eagle (breeding), swainson's hawk, ferruginous hawk, prairie falcon, sage thrasher, and Brewer's sparrow. Loch Katrine Wetland IBA. This IBA overlaps GRSG Core Area. Land ownership is all federal. Prairie grassland and shrub communities surround the lake and the adjacent rock hills and cliffs provide raptor-nesting habitat. Because the site exists in a high desert ecosystem, Loch Katrine is the most productive lacustrine complex in Wyoming's Big Horn Basin and supports a diverse community of migratory and nesting waterfowl and shorebirds. The area produces an estimated 100-150 broods of waterfowl and 50-100 broods of shorebirds on a "normal year" and is considered to have an above average reproductive success rate. Breteche Creek IBA. Land ownership is a mix of federal and private. This IBA is noted for containing GRSG. Ornithological species of note and BLM sensitive species in the area include GRSG, Brewer's sparrow, golden eagle (breeding), and bald eagle. Beck Lake/Alkali Lake IBA. TenSleep Preserve IBA. Yellowtail Wildlife Habitat Management Area IBA.</p>	3049
1037	1037-3	<p>While two Important Bird Areas (IBAs) are briefly referenced in the DRMP and SRMP, others are missing. IBAs have been incorporated in other RMPs and BLM planning documents, and are increasingly being included in landscape scale planning efforts. This program, which reflect critical avian habitat, should be incorporated in BLM decisions going forward for the Bighorn Basin Planning Area.</p>	3049

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1039	1039-7	The Conservancy supports implementation of the Best Management Practices in the adopted Alternative, as specified in Appendix L and expressed in Alternatives E and F as required design features for all projects (Table 2-5, Record#1-2) to reduce disturbance and manage landscapes to benefit sage-grouse population health. We suggest, however, that these BMPs be updated and modified as needed to reflect the most recent sage-grouse science as reflected in the COT report and recent publications such as Baruch-Mordo et al. (2013), Knick et al. (2013), Manier et al. (2013), and Taylor et al. (2013). We also encourage BLM to be as specific as possible when implementing these BMPs (e.g., by providing quantitative guidelines and timeframes) in projects.	3035_3-1
1039	1039-6	In order to measure success at conserving sage-grouse, the Conservancy believes that the BLM Field Offices in each state and associated RMPs must demonstrate specific actions taken or implemented to reduce key threats to sage-grouse, as outlined in the COT report, to USFWS. Many specific measures are proposed in Alternatives E & F (Table 2-5) that could address threats to Greater Sage-Grouse (e.g., fire, invasive species) and that support the COT goal of “the long-term conservation of sage-grouse and healthy sagebrush shrub and native perennial grass and forb communities by maintaining viable, connected, and well-distributed populations and habitats across their range, through threat amelioration, conservation of key habitats, and restoration activities. (COT Report, Section 4.2)” While the Conservancy is not currently able to comment on or endorse the specific measures identified in Alternatives E & F relative to these threats, we acknowledge their importance and fundamental role in the mitigation hierarchy of avoid, minimize, restore and offset and strongly encourage the BLM to choose an alternative that tangibly supports goals outlined in the COT report and addresses these threats. More specifically, the Conservancy supports those measures proposed within Table 2-5 for Alternative F that recommend management of the ACEC to mitigate impacts on BLM land, including records 10, 18, 58, 79, and 115, and offers elements of a compensatory mitigation program, attached as Appendix A, for implementation in the adopted Alternative.	3035-7
1039	1039-4	The Conservancy also supports the recommendation detailed in Table 2-5, Record 7, under Alternative F to “Consolidate anthropogenic features from development and transmission on the landscape, regardless of land ownership patterns or whether proposed actions occur in the [...] ACEC” and recommends that this instruction be included in whichever Alternative is finally adopted. However, we believe that no exceptions for high-profile structures should be granted in the Core/Key Habitat ACEC under any circumstances, due to the well-documented tendency of sage-grouse to avoid such structures and their ability to provide predator perches.	3033-1

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1039	1039-3	In the calculation of the number and extent of disturbances in sage-grouse habitat to determine compliance with the cap, the Conservancy encourages the BLM to develop a methodology that, while maintaining the proposed restrictions on anthropogenic disturbance, allows measurement of other disturbances that render habitat unusable by sage-grouse. Particularly important in this regard are acres burned by wildfire; BLM should refine its calculations of the disturbance cap to include these other forms of disturbance in a way consistent with the Wyoming Core Area Strategy.	3035_4
1039	1039-2	The Conservancy recommends BLM follow the COT Report's recommendation and implement an avoidance first strategy in Priority Areas for Conservation (PACs) (COT Report, pg. 14). Since PAC boundaries correspond with boundaries from Version 3 of the Wyoming Governor's Executive Order (Greater Sage-grouse Core Area of Protection; WY EO 2010-4) and therefore the Greater Sage-Grouse Core Area ACEC and in general Key Habitat Areas (SEIS, pg. 89, Section 3-3; pg. 216, Section 4.7.1) proposed in Alternatives E and F, the Conservancy recommends limiting density of disturbance within the Greater Sage-Grouse Core/Key Habitat Areas ACEC in accordance with the Wyoming Core Area Strategy, to one disturbance per 640 acres and capping all disturbance at 3% or less of total sage-grouse habitat in accordance with recent scientific findings on sage-grouse sensitivity to human disturbance above 3% (Knick et al. 2013) (Table 2-5; Record #7). In our opinion, actions to reduce disturbance within sage-grouse core areas consistent with the Wyoming Core Area Strategy (Executive Orders 2010-4 and 2011-5) will be essential toward any effort to convince the USFWS that listing the sage-grouse is unwarranted.	3035_4
1042	1042-2	Lastly, Alternatives E and F are not only counterproductive to the resource, but would have a significant impact on local business. Our small rural communities are struggling. The loss of land use would greatly hinder the livelihood of those who exist in the communities adjacent to those resources.	3036-2
1042	1042-1	I also question most of the fire management in relation to grazing. While I do believe some rest after a fire might be needed, I think it is short-sighted and unwise to limit management tools across the board. Every sight is unique and should be managed as such by the people on the ground. These kinds of policies seem to give a no confidence vote to those in the local federal offices tasked with actually managing the resource. It is generally difficult to get the most qualified personnel to work under such conditions. I have little doubt that upon initiating policies such as these will bring an immediate and lengthy downward trend in the same areas you wish to improve.	3011
1043	1043-8	Page 2-32, Record #87 Alternative E "Close the Greater Sage-Grouse Key Habitat Areas ACEC to livestock Grazing." This is an unacceptable alternative because it goes against the BLM multiple use mandate. Also, there seems to be conflicting studies as to what affect grazing has on Greater Sage-Grouse populations.	3017-3

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1043	1043-7	Page 2-24, Record #49 Alternative F "Livestock grazing should be excluded from burned areas until woody and herbaceous plants achieve sage-grouse habitat objectives." In some cases in the Big Horn Basin woody plants can take decades to grow. In these cases livestock grazing will be eliminated entirely. This is an unacceptable alternative	3011
1043	1043-6	Page 2-24, Record #49 Alternative E Same as above. "Page 2-24, Record #48 Alternative F "Post fire recovery must include establishing adequately sized exclosures (free of livestock grazing) that can be used to asses recovery." Will these exclosures prevent grazing from wildlife as well? Grazing is a part of the system, and therefore, should not be excluded while assessing recovery"	3011
1043	1043-5	Page 2-24, Record #48 Alternative F "Post fire recovery must include establishing adequately sized exclosures (free of livestock grazing) that can be used to asses recovery." Will these exclosures prevent grazing from wildlife as well? Grazing is a part of the system, and therefore, should not be excluded while assessing recovery	3011
1043	1043-4	Page 2-24, Record #48 Alternative E "Close the Greater Sage-Grouse Key Habitat Areas ACEC to livestock grazing" This goes against the BLM's multiple-use mandate.	3017-3
1043	1043-3	Page 2-23, Record #40 Alternative F "Manage to achieve or make progress towards achieving 65 percent or more of Historical Climax Plant Community." Will it be determined if reaching Historical Climax Plant Community is even possible? For example, if cheatgrass is present Historical Climax Plant Community is probably no longer an option. What happens if this percentage is not reached or no progress is being made?	3011
1043	1043-2	Page 2-23, Record #40 Alternative E "Lands will be managed to be in good or better ecological condition to help minimize adverse impacts of fire." How is this assessment done? Is this even reasonable?	3011
1043	1043-1	Page 2-23, continuation of Record #39 Alternative F "Limit the use of fire to treat sagebrush in areas receiving less than 12 inches annual precipitation". Is this an average, if so over how many years? This is not stated. Fire is one of the most cost effective management tools for sagebrush treatment. All of the allotments Hoodoo Ranch uses have an annual "average" precipitation of less than 12". It would be a shame to throw a useful tool like fire out of the toolbox.	3011
1044	1044-2	Utilizing sage grouse, which may be present, ha, "also which may not be present", is a way of indoctrinating opinions rather than facts. Entries to public and desert lands already underutilized should be open to public and agricultural people as asset to living, working, and surviving within the state as a Wyoming Resident. No one single animal or bird should be constituted as necessity for closure to public land.	3016-1

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1045	1045-1	am strongly opposed to the possible negative effects of the two alternatives E and F in the final resource document. Closing off lands to multiple use, such as grazing and general public use of Public Land is unnecessary and unwarranted. Livestock, humans, horses and other users have co-existed for years. There is no substantial and credible scientific evidence that this type of multiple use cannot continue without harm to the sage grouse or the environment. If the grazing is an issue, then the Wild Horses will need to be removed because I have witnessed the horses of the McCullough Peak area chasing and harassing sage grouse. There is no need to over react and try to fabricate information to keep the best use of the PUBLIC LANDS viable and for the benefit of the people.	3017-3
1046	1046-14	Recommendations (In addition to management under the current IMP) · WWA Preferred Management Prescriptions—WSA lands containing Sage Grouse Core Area (See Map 1, Appendix A) are closed to motorized and mechanized vehicle use (Alternative B). · WWA Minimum Management Prescriptions—Motorized and mechanized vehicle use on WSA lands containing Sage Grouse Core Area is limited to existing roads and trails with seasonal closures from February 1st-July 31st (Alternative E).	3035_10
1046	1046-13	Given the focus on sage grouse conservation policy options, we have identified five WSA's that contain portions of sage grouse core areas stipulated by Version 3 of Wyoming Executive Order (WY EO) 2011-5 Greater Sage-grouse Core Area of Protection (See Map 1, Appendix A). In the interest of achieving the best management plan in light of the BLM's multiple use mandate, we recommend that these particular Sage Grouse Core Areas, which fall within WSA boundaries, have additional resource use restrictions placed upon them. The five Sage Grouse Core Areas contained within WSA boundaries are identified below, and detailed recommendations applicable to all five areas follow the descriptions of these areas	3035_10
1046	1046-12	There are nine designated Areas of Critical Environmental Concern (ACEC's) in the planning area. Of these, we have identified five that contain Sage Grouse Core Areas (proposed ACEC's under Alternatives E and F), one of which merits additional special management (See Map 4, Appendix D). We suggest that the following stipulation be incorporated into the preferred alternative in order to address both the needs of sage grouse and the unique features of the existing ACEC for which "special management attention is required:" ² Brown/Howe Dinosaur ACEC . Sage Grouse Core Areas within the Brown/Howe Dinosaur Area ACEC are administratively unavailable for mineral leasing and closed to mineral materials disposal.	3001

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1046	1046-11	In addition to providing comprehensive sage grouse preservation, implementing WWA's preferred stipulations on sage grouse core areas that fall within CWP boundaries would preserve wilderness qualities, including naturalness and excellent opportunities for solitude and primitive recreation. These delicate and easily disturbed values are especially apparent within Citizens' Proposed Wilderness boundaries, which stand out to Wyoming Wilderness Association and our constituency as exceptional among BLM wild lands. In fact, we contend that these areas possess all of the necessary qualities for a wilderness designation. However, current management is not sufficient to keep these values intact, so future wilderness designation may be in jeopardy. WWA's preferred stipulations, if incorporated into the agency preferred alternative, would help preserve CWP areas' eligibility for a wilderness designation while significantly benefitting sage grouse vitality.	3046
1046	1046-10	Our recommendations for sage grouse core areas located within CWP's emphasize the same points as our recommendations for core areas in LWC's, namely mitigation or elimination of motorized and mechanized vehicle use, mineral leasing, exploration, and disposal, and oil and gas leasing. As previous analysis has demonstrated, these land use activities pose a legitimate threat to sage grouse populations, notably during breeding and nesting seasons. Therefore, we recommend that policies implemented in our areas of interest within the planning area eliminate or mitigate these resource uses, thereby ensuring sage grouse vitality and complying with the multiple use mandate.	3046
1046	1046-9	We recommend that the Agency Preferred Alternative be modified to instate special management of Sage Grouse Core Areas that fall within Citizen's Proposed Wilderness areas. Specifically, we advise that these lands within the planning area be managed with the following stipulations. Suggested at minimum stipulations. Motorized and mechanized vehicle use in the Sage Grouse Core Areas within these CWP Boundaries is limited to existing roads and trails with seasonal closures from February 1st -July 31st (Alternative E) . Sage Grouse Core Areas within CWP's are managed as VRM Class II. . Sage Grouse Core Areas within CWP's are unavailable for oil and gas leasing. . Sage Grouse Core Areas within CWP's are closed to mineral leasing, but horizontal drilling that originates outside these boundaries and has no impact to surface may be allowed.. Sage Grouse Core Areas within CWP's are managed as ROW mitigation/avoidance zones. WWA preferred stipulations. Sage Grouse Core Areas within CWP Boundaries are closed to motorized and mechanized vehicle use. . Sage Grouse Core Areas within CWP's are managed as VRM Class I. . Sage Grouse Core Areas within CWP's are administratively unavailable for locatable, salable, and leasable mineral leasing. . Sage Grouse Core Areas within the CWP Boundaries are closed to mineral materials disposal and geophysical exploration (Alternative E). . Sage Grouse Core Areas within the CWP Boundaries are managed as ROW and Renewable Energy exclusion zones (Alternative E).	3046

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1046	1046-8	<p>Given the focus on sage grouse conservation policy options, we have identified six CWP's, five of which abut existing WSA's that contain portions of Version 3 of WY EO 2011-5 Greater Sage-grouse Core Area of Protection (See Map 2, Appendix B). In the interest of achieving the best management plan in light of the BLM's multiple use mandate, we recommend that these particular Sage Grouse Core Areas, which fall within CWP boundaries, have additional resource use restrictions placed upon them. The Sage Grouse Core Areas contained within CWP boundaries are identified below, and detailed recommendations applicable to all six areas follow. Alkali Creek CWP Abuts Alkali Creek WSA to the West. The BLM already recognizes most of the Alkali Creek CWP as part of the Alkali Creek NW CP LWC as of a 2011 inventory. According to Table 3.46 in the Draft RMP/EIS, oil and gas development potential within this LWC is low, and there are no valid existing rights (BLM, 2011). Bobcat Draw CWP Abuts Bobcat Draw WSA, primarily to the South. The BLM already recognizes nearly all of the Bobcat Draw CWP as part of the Bobcat Draw West CP and Bobcat Draw South II CP, 508 AK LWC's as of a 2011 inventory. According to Table 3.46 in the Draft RMP/EIS, oil and gas development potential within both of these LWC's is low and there is no locatable mineral development potential (BLM, 2011). Buffalo Creek CWP Buffalo Creek is a classic example of the wide open plains unique to and characteristic of Wyoming. The big game species inhabiting the area make it an excellent location for hunting, and 32 outfitters have permits for day use. Honeycombs CWP Surrounds Honeycombs WSA. The BLM already recognizes most of the Honeycombs CWP and nearly the entirety of the CWP portion we address in these comments as Lands with Wilderness Characteristics as of a 2011 inventory. The LWC Honeycombs South CP in particular overlaps a very substantial portion of the area we address in these comments. Moreover, according to Draft RMP/EIS Table 3.46, there is no locatable mineral development potential within any of the LWC's in the Honeycombs CWP region (BLM, 2011). Medicine Lodge CWP Abuts Medicine Lodge WSA to the North and South. According to a 2011 BLM inventory, most of the Medicine Lodge CWP is contained within the Medicine Lodge North CP LWC. This LWC has no valid existing rights or locatable mineral development potential and has low oil and gas development potential (BLM, 2011). McCullough Peaks CWP Abuts McCullough Peaks WSA, primarily to the Southwest. The McCullough Peaks WSA consists of pink badlands at the foot of cascading solitary peaks. The citizens's western addition includes striking breaks and additional winding drainages, which create beautiful patterns of erosion. Mule deer and white tail deer find winter habitat in the area, which also provides habitat for mountain lions, pronghorn antelope, jackrabbits, coyotes, a variety of raptors, and sage grouse. The National Park Service has identified this area as a potential National Natural Landmark. The BLM already recognizes most of the McCullough Peaks CWP as part of the Rough Gulch LWC, including the entire portion of the CWP addressed in these comments. According to Table 3.46 in the Draft RMP/EIS, oil and gas development potential is low within the Rough Gulch LWC, and no locatable mineral development potential exists (BLM, 2011).</p>	3046

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1046	1046-7	Figure 1. Decreasing nest site probability with increased gas field development (Holloran, 2005). Implementing WWA preferred stipulations on sage grouse core areas that fall within LWC's would provide the most comprehensive protection for sage grouse populations. Eliminating disruptions to breeding and nesting imposed by anthropogenic noise and infrastructure as well as related increases in predation is the only way to ensure lasting vitality of sage grouse populations in core areas. This, in turn, will help prevent listing of the sage grouse as an endangered species under the Endangered Species Act. Similarly, our recommended preferred management stipulations would preserve existing naturalness and excellent opportunities for solitude and primitive recreation.	3046
1046	1046-6	Our recommendations for sage grouse core areas located within LWC's focus on motorized and mechanized vehicle use, mineral leasing, exploration, and disposal, and oil and gas leasing, because limitation or elimination of these land uses within our recommended portions of the planning area would serve the dual purpose of preserving wilderness qualities and protecting sage grouse. In addition to suggesting that roads and traffic volume disturb sage grouse breeding and nesting, studies also show that the number of displaying males correspondingly decreases with decreased distance from gas field infrastructure (Holloran, 2005). Moreover, nest initiation rates for sage grouse hens at leks at least three kilometers (1.86 miles) from gas development sites are approximately 25% higher than initiation rates for hens at leks within three kilometers of gas development (Anderson & Lyon, 2003). Mineral extraction is similarly disruptive, and Holloran predicts that leks located near extractive mineral sites will eventually become unoccupied. Consequently, we recommend that policy implementations aim to reduce anthropogenic development and noise disturbances, especially oil and gas infrastructure, mineral extraction, and traffic volume within sage grouse core areas in LWC's.	3046
1046	1046-5	We recommend that the Agency Preferred Alternative be modified to instate special management of Sage Grouse Core Areas that fall within Lands with Wilderness Characteristics. Specifically, we advise that these lands within the planning area be managed with the following stipulations. Suggested at minimum stipulations. Motorized and mechanized vehicle use is limited to existing roads and trails with seasonal closures from February 1st-July 31st (Alternative E). . Sage Grouse Core Areas within LWC's are managed as VRM Class II. . Sage Grouse Core Areas within LWC's are designated No Surface Occupancy. WWA Preferred stipulations. Sage Grouse Core Areas within LWC's are closed to motorized and mechanized vehicle use. . Sage Grouse Core Areas within LWC's are managed as VRM Class I. . Sage Grouse Core Areas within LWC's are administratively unavailable to locatable, salable, and leasable mineral leasing. Sage Grouse Core Areas within LWC's are closed to mineral materials disposal and geophysical exploration (Alternative E). . Sage Grouse Core Areas within LWC's are managed as ROW and Renewable Energy exclusion zones (Alternative E).	3046

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1046	1046-4	Given the focus on sage grouse conservation policy options, we have identified 22 LWC's -Trout Creek; Rough Gulch; Whistle Creek; N. Yu Bench; Cedar Ridge; 639 AK; 652 Lower, Upper AK; 676 AK PR; Bobcat Draw West CP; Bobcat Draw South II CP, 508 AK; Bobcat Draw South CP, 626 AK; 665 CW; 0048 PR; Honeycombs South CP; 0008 DH; 130 JW; 069 JW; Honeycombs 164 CP; 005 PR; Medicine Lodge North CP; Alkali Creek NW CP - that contain portions of sage grouse core areas stipulated by Version 3 of WY EO Greater Sage-grouse Core Area of Protection (See Map 3, Appendix C). In the interest of achieving the best management plan in light of the BLM's multiple use mandate, we recommend that these particular Sage Grouse Core Areas, which fall within LWC boundaries, have additional resource use restrictions placed upon them.	3046
1046	1046-3	The best management directive, which we recommend be incorporated into the agency preferred alternative, is closure of the areas identified to motorized and mechanized vehicle use. However, at a minimum, motorized and mechanized vehicle use in these areas should be limited to existing roads and trails with seasonal closures during breeding and nesting seasons.	3035_10
1047	1047-9	Public Record #50" It is unrealistic and extreme to assert that an entire allotment/pasture should be shut off from grazing if the burned area can't be fenced. This is completely unnecessary and extreme. It reflects an absence of knowledge of on-the-ground realities. These allotments can be huge, burned areas can be huge and fencing unrealistic. It again reflects the obvious agenda against livestock grazing under the guise of caring about restoration. Neither the rangelands nor the livestock component deserve this clear bias.	3011
1047	1047-8	Public Record #49" Alternative F: It is counterproductive for sage grouse to exclude livestock from grazing in burned areas until woody and herbaceous plants achieve sage-grouse habitat objectives. Woody shrubs in this ecology could take as long as 60 years to reestablish and in the meantime grasses would compete with them. Having livestock graze these areas during the grow-back would be helpful to habitat not harmful appropriate grazing would lessen the competition for woody component to re-establish!	3011
1047	1047-7	Chapter 4.3 Fire and Fuels Management: Proactive Management section: Marginalizing and restricting the use of fire within areas of environmental concern will only exacerbate the invasive weed problem already ahead of land managers. We need all tools to help control invasive weeds and not worsen the weed problem by slowing management. Proactive fire management must not move slowly, it must continue at a rapid and consistent pace to improve habitat. Fire should be used and post fire conditions should be well managed, and that would include good livestock grazing to encourage range health and vigor.	3011

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1047	1047-6	Appendix L, Best Management Practices, Vegetation Treatments/Fire and Fuels Management, #24,-25, p L-7: The reference to "annual grasslands" under Best Management Practices seems inappropriate. Annual grasslands in this context are an ecosystem that exists in California and not in Wyoming. GOR suggests that you use wording more along the line of "areas infested with undesirable annual grasses". This change should help to minimize possible confusion.	3042
1047	1047-5	4.4.2 Vegetation Grassland and Shrubland Communities. 4.4.2.3 Detailed Analysis of Alternatives, Alternative F, Resource Uses, p. 4-46: This wording serves to require that the BLM ensure that standards and guidelines be met for wildlife including greater sage-grouse habitat. This is inappropriate. The agency already is required to make certain that allotments do meet standards and guidelines for healthy rangelands. To try and expand this for wildlife, including greater sage-grouse is not appropriate and should be removed. Again it seems to be another action with is fully intended to discriminate again livestock grazing under the guise of greater sage-grouse conservation	3042
1047	1047-4	Table 2.5. Detailed Alternatives, 7000 Special Designations (SD) "ACECs" Proposed Greater Sage-Grouse Priority Habitat Area (ACECs, Record #110, p 2-35. Alternative F " Again proposing action such as retirement of grazing allotments reflects clear bias and negative discriminatory actions toward livestock grazing as a valid management tool for sage-grouse conservation. This push to "retire" and identify allotments for retirement should not be part of the RMP. Such inclusion into the document seeks to include all allotments and to use the platform of an RMP as the place to proceed with such actions. This is inappropriate and insulting.	3017-1
1047	1047-3	Table 2.5. Detailed Alternatives, 7000 Special Designations (SD) "ACECs" Proposed Greater Sage Grouse Priority Habitat Area ACECs, Record #31, p. 2-21. Alternative E "The clear bias against all things livestock are alive and well in this. The wording clearly indicates that getting rid of livestock will solve any trampling damage to soils, mitigate spread of weeds and reduce the creation of thatch in an allotment; and this strongly infers that all are attributable to livestock grazing. Any credible environmental document should propose looking at more than one method of managing these factors. This bias against livestock grazing is appalling and should not be carried forward as an action item.	3042

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1047	1047-2	We request the BLM incorporate language into the final document that is consistent with EO 2013-3, Greater Sage-Grouse Core Area Grazing Adjustments, which supplements EO-2011-5. We support the suggested language of the Wyoming Department of Agriculture: "The BLM will collaborate with appropriate Federal agencies, and the State of Wyoming as contemplated under Governor Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-grouse conservation objectives are now being achieved on federal land, to determine if a significant causal relationship exist between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework." We strongly recommend the BLM add the above language as a standalone management action in the preferred alternative.	3017-1
1047	1047-1	We strongly oppose the designation of the Greater Sage-Grouse Key Habitat Areas ACEC (Alternative E), the Greater Sage-Grouse Core Habitat Areas ACEC (Alternative F) and their associated restrictions on livestock grazing and associated range improvements. These alternatives (E&F) are replete with actions that connote only negative impacts on sage-grouse associated with livestock grazing. This is patently unfair and incorrect. Where is the balance of good science and pragmatic assessment relative to livestock grazing and sage-grouse.	3017-3
1048	1048-36	Chapter I of the SEIS states "BLM will utilize the COT Report (USFWS 20 13), the Western Association of Fish and Wildlife Agencies (WAFWA) Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004), and any other appropriate resources, to identify greater sage-grouse habitat requirements and best management practices." It seems that the "other resources" and their inclusion in the document are limited at best. Page 3-2 clearly demonstrates this lack of consideration of additional data, as it reads "primary threats to this portion of the population are energy development and transfer. . . ." A significant amount of research clearly indicates this is not the case, but was not included in the document. For example, Ramey et al (20 11) and Taylor et al (2007) provide valuable data that was not included.	3035_2
1048	1048-35	Any additional restrictions to oil and gas development will have adverse effects on the Bighorn Basin communities. Alternatives E and F would impose additional constraints that seem to have no scientific basis and are instead based on the poor information contained in the NIT report. BLM should consider the severity of the economic impacts these new restrictions, especially the implementation of a new ACEC, would have on the communities in the Bighorn Basin.	3036-2

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Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1048	1048-34	Fidelity agrees with PLA's statements regarding monitoring, which read "the SEIS states that GSG would be monitored via site visits to leks on an annual basis to determine the number of males and females (emphasis added) as well as whether a lek is occupied/unoccupied. This data would be used to make a determination of whether there is a declining trend in the number of males and females. The document states that Wyoming Game and Fish is responsible for data collection. However, the Buffalo Draft RMP/EIS in Table B.I (Special Status Species, Wildf-6) states that GSG would be monitored via site visits and aerial and field inspections to leks on an annual basis to count the number of males and make a determination of whether there is a declining trend in the number of males. The document also states that Wyoming Game and Fish is responsible for data collection." We question why one document will track only males and the other both males and females, and why monitoring techniques will be different, especially since Wyoming Game and Fish will be collecting the data for both documents. There should be a single set of data used to detect changes in resource conditions.	3035-7
1048	1048-33	P. 2-31, Record 86, Alternative E, proposes to "Close the Greater Sage-Grouse Key Habitat ACEC to geophysical exploration." Fidelity questions why geophysical exploration would be prohibited in this vast area. There is no real explanation why this new restriction is necessary, and BLM does not acknowledge that there is virtually no surface disturbance associated with geophysical activities. Additionally, closing this area off could violate valid existing rights. Alternative F states it will "Allow geophysical exploration in the Greater Sage-Grouse Core Habitat Areas ACEC to obtain exploration information for areas outside of and adjacent to priority sage-grouse habitat areas." This is confusing, as it implies the prohibition of the use and interpretation of geophysical information for areas within core areas, which could violate valid existing lease rights. Alternative F would "Allow geophysical operations only by helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply." BLM must recognize this could be unfeasible and cost prohibitive. These operations may also cause more disturbance (i.e., noise) to habitat than other equally effective methods. The term "other restrictions" needs to be clearly explained, as it is unclear what would constitute these restrictions.	3023-4

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1048	1048-32	As mentioned above, BLM does not demonstrate any compelling reasons to designate the sage-grouse Core Habitat Areas an ACEC. We concur with PLA's statement that "According to BLM Manual 1613-ACEC, such designations are used to highlight areas where special management attention is needed to protect and prevent irreparable damage to important values or processes. The description cited in the SEIS is inadequate. The ACEC included in the SEIS needs to be discussed and justified in more detail, including recognition of the wide scope of mitigation measures BLM has at its disposal to lessen the impacts on the GSG in areas where it is believed they pose a threat." According to the BLM's Land Use Planning Manual and Land Use Planning Handbook, II.A.7, pg. 22 (Rei. 1-1693 03/11/05), BLM must identify how the Preferred Alternative best meets the multiple use and sustained yield requirements of FLPMA and creating this ACEC clearly conflicts with this mandate, as mineral leasing would be virtually eliminated. Fidelity also doubts the ability of BLM to manage the nearly 2 million acres of this proposed ACEC. The Core Habitat strategy in the EO provides a much more sensible framework for management. BLM should be consistent with the EO and eliminate this proposed ACEC.	3001
1048	1048-31	P. L-6, 7, Best Management Practices, "Power-washing all vehicles and equipment involved in vegetation treatment and firefighting activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species." There are many questions as to how this would function. What would operators need to do with the fluids used to wash vehicles? Would they need to dispose of it in a certain way or get a permit for the facility and/or disposal? How would the infrastructure for such a site look and how will an operator obtain the fluids needed for the wash station? Surely recreational vehicles, animals grazing, and local traffic will also bring invasive plant species in, so how will they be effected? How would one determine if they should wash the vehicle? Would it be within a certain radius or a certain number of travel miles? This entire statement seems unclear and unfeasible and should be removed.	3023-1
1048	1048-30	P. L-3, Best Management Practices, 22-"Use only close-loop systems for drilling operations, with no reserve pits." Closed-loop systems are appropriate in many situations, however not all rigs are equipped for closed-loop systems and require a reserve pit. A pit is necessary for cuttings even for closed-loop systems. BLM should allow for flexibility when a closed-loop system is not possible. BLM must review the document to make sure all of their proposed design features and mitigation are technically feasible.	3023-1
1048	1048-29	P. 2-31, record 84 - "Where the federal government owns the mineral estate and the surface is in non-federal ownership, apply the conservation measures applied on public lands." Fidelity is very disturbed by the concepts addressed in this record. The identified conservation measures clearly show intentions to limit future oil and gas activities in the planning area while all other multiple-uses may proceed as the surface owner chooses. As already discussed in these comments, this is based upon the incorrect assumptions contained in the NTT report. This concept should be omitted from the final document.	3023-2

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1048	1048-28	P. 2-31, Record 81 -"Include conditions that require relinquishment of leases/authorizations if doing so will mitigate the impact of a proposed development or mitigate the unanticipated impacts of an approved development." BLM does not have the authority to require relinquishment of leases/authorizations. Additionally, the term "unanticipated impacts" is very broad and open for interpretation. As noted above, the implication is that BLM will make a decision based on what they feel is in the best interest for the parties involved, which is inappropriate. This should be removed in the final document.	3027-1
1048	1048-27	P. 2-31, Record 80-"Consider offers to amend, cancel or buy out leases." This statement seems to indicate a "takings" or eminent domain, which is very concerning. The implication is that BLM will make a decision of what they feel is in the best interest of the parties involved. The lessee is currently the one who makes the decision to approve such offers. This could have serious implications and Fidelity asks BLM clarify its role in such decisions.	3023-2
1048	1048-26	P. 2-30, Record 78-"Complete Master Development Plans in lieu of APD-by-APD processing for all but wildcat wells." Fidelity strongly supports PLA 's statement that "this provision is inappropriate for use in the Bighorn Basin. While master development plans (MDP) may be acceptable and beneficial in areas where drilling takes place year round or where there is long term development planned, BLM has failed to consider the greater likelihood of periodic drilling or drilling within existing Federal Units on a well-by-well basis within the Bighorn Basin. Currently, the operator of a federal unit is required to submit a Plan of Development and a Review of Operations on a yearly basis. BLM needs to recognize that most Bighorn Basin operators drill only on occasion, rather than continuously. Very few, if any, are solely exploration companies. Therefore, we recommend BLM eliminate the requirement for an MDP within the Bighorn Basin."	3023-6
1048	1048-25	P. 2-29, Record 73 -"Require a full reclamation bond specific to the site in accordance with 43 CFR 3104.2, 3104.3, and 3104.5. Ensure bonds are sufficient for costs relative to reclamation that would result in full restoration of the lands to the condition it was found prior to disturbance. Base the reclamation costs on the assumption that contractors for the BLM or USFS will perform the work." This seems totally unnecessary, as current bonding requirements already address reclamation.	3027-1

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1048	1048-22	P. 2-29, Record 72 -"Require unitization when deemed necessary' for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to resources, including greater sage-grouse, so long as the unitization plan adequately protects the rights of all parties including the United States, according to the Federal Lease Form, 3100-11, Sections 4 and 6." Unitization generally takes place when, due to economics and reservoir engineering, all mineral owners will benefit. What are the benefits of unitizing, per the proposed Alternative E? Will other stipulations be relaxed if unitization occurs? BLM needs to discuss why this is beneficial, who would decide when this would occur, and how it will be applied. Fidelity also agrees with PLA's comments that "The State of Wyoming BLM Office knows that it cannot tell or require multiple owners to bond together under one (I) unit. How is this reflected in Record 72? This Record not only implies that the right to decide what is in the owner's best interest in fact will be dictated by the BLM, but it also implies that the BLM will require state and/or fee lands to additionally unitize. How does this protect the rights of all parties if the BLM determines what is in the owner's best interests?" and "Furthermore, the State of Wyoming has primacy over all well spacing. If a well comes in as non-producing in a unit and the BLM removes it from the unit, then the area goes back to spacing-then what? For example, will the unit dissolve immediately or contract in the middle of a unit? How are wells drilled still to pay for the unit?"	3023-3
1048	1048-21	P. 2-28, Record 71 -"Apply an NSO stipulation within 0.6 mile of occupied or undetermined sage-grouse leks (Map SEIS-15). Apply a minimum lease size of 640 contiguous acres of federal mineral estate within sage-grouse Core Habitat Areas. Lease smaller parcels only when 640 contiguous acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations, and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. Apply a TLS to restrict disruptive activity within 0.6 mile of occupied or undetermined sage-grouse leks from March 15 to June 30." BLM proposes the use of both an NSO and a timing stipulation within 0.6 miles of a lek. The TLS already provides an appropriate amount of protection, thus we are confused why BLM would need a TLS if surface activities are already precluded through the imposition of an NSO stipulation?"	3035_3-2
1048	1048-19	P. 2-20, Record 23 -"Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success. Where probability of success or adapted seed availability is low, nonnative seeds may be used as long as they support sage-grouse habitat objectives." We are pleased that BLM has recognized seeding is not a one-size-fits-all process and appreciate the flexibility to use different types of seed as is appropriate. We request that BLM provide a list or description of acceptable seed mixes for planning purposes.	3035-7

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1048	1048-18	P. 2-19, Record 17 -"Any existing towers must undergo review for adverse effects. Review will include minimizing wires and other collision hazards for sage-grouse and migratory birds, as well as adverse impacts of night lights (FAA requirement)." Fidelity questions the need for these reviews, as there is no data provided demonstrating high mortality rates for towers. This statement is also overly broad, and does not indicate what types of towers will need to undergo review. Additionally, BLM does not provide the height and/or size a tower would meet to warrant review.	3033-1
1048	1039-9	The Conservancy supports implementation of a compensatory mitigation program to offset impacts to sage-grouse habitat identified in Alternatives E and F (Table 2-5; Record #4-5) As stated previously, the Conservancy recommends BLM seek to avoid, to the greatest extent possible, impacts to high value ecological resources, fragmentation of intact habitats and conflicts with other uses, designations and legal mandates, while facilitating land uses including energy and mineral development. Where impacts to greater sage-grouse habitat are unavoidable, the Conservancy strongly recommends that BLM implement a compensatory mitigation program and, as a result, supports the recommendation in Alternative F of the SEIS where BLM will manage an extensive amount of the planning area as mitigation areas. The Conservancy believes such a program to be a critical part of successful sage-grouse conservation planning and recommends BLM consider implementing the attached elements of a compensatory mitigation program, attached as Appendix A. We also note that implementation of such a mitigation program could allow, and serve as an incentive for, resource developers to restore or reclaim habitat in areas that are presently over a disturbance cap so that such areas come under the cap and might therefore be developable at some future time. Please note; the attached recommendations (Appendix A) are made from Conservancy staff with expertise in mitigation policy and practice. However, the Conservancy recognizes that many of the following recommendations are consistent with BLM's interim Regional Mitigation Manual, which we support as a partial alternative to the recommendations we offer below. Additionally, we are aware that BLM's interim Manual has been, at least partially, incorporated into the Northwest Colorado Greater Sage-Grouse Draft Resource Management Amendment and EIS, and we believe this inclusion supports incorporation of a compensatory mitigation program in the Bighorn Basin RMP [or participation of the Bighorn Basin in a regional mitigation program involving other adjacent Field Offices].	3035-7
1048	1048-17	P. 2-17, Record 4 -In the Greater Sage-Grouse Core Habitat Areas ACEC, the density goal includes either: Maintain or reduce the existing level of density of energy production and/or transmission structures on the landscape in sagebrush communities, or Manage the existing level of density of disturbance on the landscape so that anthropogenic disturbances do not exceed one disturbance per 640 acres within the Density and Disturbance Calculation Tool (DDCT) analysis (or best available tool) and cover less than 3 percent of sagebrush habitat." How does BLM propose to honor valid existing lease rights while reducing the existing level of density? This is also inconsistent with the EO and should be removed.	3001

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1048	1048-16	P. 2-17, Record 4-"Designate greater sage-grouse priority habitat within Core Habitat Area as the Greater Sage-Grouse Core Habitat Areas ACEC (Map SEIS-31 and Appendix F of the Draft RMP and Draft EIS; 1,161,234 acres)." This ACEC is unreasonable, does not promote multiple-use, and is inconsistent with the EO.	3001
1048	1048-15	P. 2-17, Record 4-"Where suitable conservation actions cannot be achieved in priority habitat, seek to acquire state and private lands with intact subsurface mineral estate by donation, purchase, or exchange in order to best conserve, enhance, or restore sage -grouse habitat." There is already a lack of adequate BLM funding and Fidelity finds it difficult to believe the funds BLM already receives will be adequate to acquire state and private lands. BLM should instead focus on acknowledging valid existing lease rights and working with private landowners to find appropriate programs.	3016-2
1048	1048-14	P. 2-16, Record 3- "Examine applicability of categorical exclusions in priority habitat." Categorical exclusions (CX) are provided by law and are intended to benefit the operator as well as BLM during the permitting process. The decision to exclude the use of a CX must be made based upon site-specific conditions on a case-by-case basis and the proposed project. The use of CX's should therefore always be included in a general guidance document.	3027-1
1048	1048-13	There is no justification for the expansion of habitat under Alternative E. This would increase habitat by 72,000 acres with no scientific justification. An ACEC [Area of Critical Environmental Concern] designation with a 3% disturbance cap would essentially prohibit new oil and gas exploration and development. The final document should follow the plan outlined in the EO.	3035_1
1048	1048-12	Livestock grazing on federal land, for example, has been shown to have beneficial impacts on the surface as acknowledged by BLM. This should, therefore, not be considered as contributing to the surface disturbance cap. Since the surface disturbance cap is focused on limiting surface impacts from oil and gas operations, the only surface disturbance that should be included in the disturbance cap calculation is that caused by oil and gas development.	3017-1

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1048	1048-11	Page 2-30, Record 79, Alternatives E and F offer an exception to the surface disturbance caps "if additional mitigation is demonstrated to offset the resulting loss of sage-grouse habitat." There is no discussion as to what activities will constitute this additional mitigation, if it will apply to both on- and off-site mitigation, or if it will be a requirement in specific habitats. There is no description of how credit will be calculated for operators. BLM must also address reclamation credits for interim reclamation efforts toward the total disturbance cap allowance. In the EO, reclamation credit is to be given for completion of habitat enhancements on bond release or minimally functional habitat. Per the EO, these habitat enhancements may be used as credit for reclamation that is slow to establish in order to maintain the disturbance cap or to improve nearby sage-grouse habitat. It makes sense from a biological perspective to remove reclaimed and/or mitigated acres from the surface disturbance calculation because these acres are no longer disturbed BLM should also include reclamation as an exception to the surface disturbance caps. Fidelity requests BLM provide more detail regarding these processes. There is no discussion of what types of activities will be included in the surface disturbance calculation.	3035_4
1048	1048-10	As noted previously, BLM 's proposed 0.6 mile condition of approval (COA) directly conflicts with the 0.25 mile buffer provided for by the State for occupied leks, which would allow much needed flexibility in the application of this stipulation and potential land use. We urge BLM to remove "surface disturbance" and "disruptive activity" from these stipulations to achieve consistency with the State.	3035_1
1048	1048-9	BLM should clearly explain the significant difference between the requirement of 1.9 miles for a primary and secondary road and the 0.6 mile for a tertiary road and provide background as to where these numbers came from. If BLM chooses to include such stipulations, detailed information needs to be provided as to why scientific evidence shows a need for such restrictive management.	3039-1

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1048	1048-8	We are concerned that proposed management outside of Key Habitat Areas under Alternatives B and E greatly exceeds and is inconsistent with what is provided for under the EO. The 0.6 mile NSO around occupied sage-grouse leks, controlled surface use (CSU) for discretionary actions, Right-of-Way (ROW) exclusion areas around leks, and Timing-Limit Stipulations (TLS) in nesting and early brood rearing habitat within a 3-mile lek buffer were not included in the EO. These limitations contradict the core area concept to protect important habitat while promoting and incentivizing development in less desirable habitat outside of these areas. The restrictions in Alternatives B and E clearly conflict with this principal. We urge BLM to adopt the Core Area Strategy contained in the EO. The restrictions proposed under Alternatives E and F are very excessive and, as stated above, do not reflect those outlined in the EO. Alternative E proposes a 4-mile NSO around a lek, which is hardly reasonable. This 4-mile protective buffer around leks is more than twice the 1.9 mile buffer provided under the EO. The 0.6 mile NSO around the perimeter of occupied sage-grouse leks within key habitat areas provided under EO provides adequate protection. Increasing the size of a lek buffer by almost 700% is excessive, unjustified, and would prevent development on thousands of acres. New road construction within 4 miles of active sage-grouse leks and new road construction in occupied GSG habitat is also prohibited under Alternative E. No documentation is provided as to why this additional stipulation would be necessary, and this is entirely unreasonable.	3035_1
1048	1048-7	Fidelity is particularly concerned with the suggested 3% disturbance cap threshold, not exceeding one disturbance per 640 acres using the Density Disturbance Calculation Tool (DDCT) regardless of the use. The EO has a disturbance cap threshold of 5% per 640 acres using the DDCT and it does not limit such disturbance to one occurrence. This is very worrisome, as it will essentially shut off the Bighorn Basin to future oil and gas activities and other multiple uses. Alternatives D and F apply a surface disturbance cap, 5% and 3% respectively, to "sage brush habitat," while Alternative E applies a 3% cap to "total greater sage-grouse habitat." The EO applies a 5% surface disturbance cap to "suitable greater sage-grouse habitat." Alternatives D, E and F should all be modified to be consistent with the EO. Not all sage brush habitat is greater sage-grouse habitat and not all sage-grouse habitat is considered suitable sage-grouse habitat. In order to provide ample protection, the surface disturbance cap should only apply to suitable sage-grouse habitat.	3035_4
1048	1048-6	Many of the stipulations in DEIS/RMP are much more restrictive than the IM and EO, which leads Fidelity to wonder why BLM feels additional stipulations are necessary. Many sage-grouse management plans are currently being drafted and the State of Wyoming has become an example of what a good, comprehensive plan looks like; yet BLM seems to believe more stipulations are necessary, and do not provide reasons as to why this is so. Fidelity strongly recommends these unnecessary, inconsistent restrictions be removed and management instead follows the stipulations in the IM and EO.	3035_1

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1048	1048-5	Fidelity is concerned about BLM's reliance on data from the National Technical Team (NIT) report. A variety of peer-reviewed, scientific information should be included in the DEIS in order to produce the best planning effort. Instead, it seems BLM relies almost solely on information from the NIT report. The Northwest Mining Association (NWMA) recently published a report which questions the validity of the NIT report, as the USFWS' "warranted but precluded" determination was based on the conservation measures already in place in BLM manual 6840 - Special Status Species Management. Ramey et al (2011) ¹ report that the implication in the NTT report stating "impacts are universally negative and typically severe" clearly demonstrates a bias against the oil and gas industry. An overview of the Cooper Ornithological Society's Monograph: Studies in Avian Biology, the primary source of information relied upon by the NTT, was conducted by the Center for Environmental Science, Accuracy and Reliability (CESAR) in February 2012 and entitled "Science or Advocacy?". This found significant mischaracterization of previous research, errors and omissions, lack of independent authorship and peer review, methodological bias, invalid assumptions and analysis is and inadequate data. Separate reviews conducted by scientists commissioned by the State of Colorado found the same defects.	3027-1
1048	1048-4	Fidelity would like to remind BLM that new stipulations cannot be imposed on valid existing leases simply because a plan amendment has been prepared, as is implied in several statements in the document (please see the examples below). BLM must acknowledge that when a lease is issued, it constitutes a valid existing right which cannot be unilaterally changed, including surface and timing restrictions beyond those identified in 43 CFR 3101.0.	3027-1
1048	1048-3	Fidelity would also like to remind BLM that, Per the Energy Policy Act, the least restrictive stipulations necessary to protect resource values should be implemented. This was clearly not the case in the Supplement when it came to oil and gas resources. The Federal Land Policy and Management Act (FLPMA) identifies mineral exploration and development as a principal or major use of the public lands, thus BLM must consider mineral exploration in the plan. As written, the RMP seems to consider this development a problem, not a potential asset, in the planning area.	3027-1
1048	1048-2	We are also confused as to why BLM did not select a new preferred alternative, in light of Alternative E and F being proposed in the Supplement. By failing to identify a preferred alternative in the DEIS, BLM has caused a disservice to operators and the public. Without a known preferred alternative, it is difficult to properly comment on future development options within the project area. This leaves the public with only a 30 day window to review BLM's preferred alternative during the protest period, which is not a substantial amount of time for proper review. A preferred alternative should be selected to indicate the perceived appropriate balance of development and environmental protection and the public relies on BLM's expertise in such matters. Fidelity is very disappointed in BLM's decision to omit a new preferred alternative from the Supplement.	3027-1

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1048	1048-1	We therefore request BLM give an explanation of why they felt additional time and resources were necessary to supplement the previous draft.	3027-1
1049	1049-4	Finally, WSGA is concerned that the socioeconomic analysis of Alternative F fails to properly address the impacts of the ACEC designation on the ranching industry and, by extension, communities within the Big Horn Basin. While Table 4-17 indicates minimal loss of AUM's under Alternative F, the true long-term impacts of the proposed limitations on range improvements, including water development and fencing, and the management constraints resulting from travel restrictions will inevitably be a significant reduction in livestock grazing.	3036-1
1049	1049-3	The Supplement fails to acknowledge the Wyoming Governor's 2013 Executive Order (EO 2013-3) developed in close collaboration with Wyoming BLM. The EO states: 1. It is Wyoming's primary premise that grazing activities are compatible with Greater Sage-Grouse conservation and may improve habitat for Greater Sage-Grouse. Grazing is considered a de minimus practice (Executive Order 2011-5, Attachment C). Grazing management practices maintain or enhance Wyoming rangelands. Properly managed rangelands are capable of sustaining viable Greater Sage-Grouse populations and a diversity of plant species appropriate to suitable Greater Sage-Grouse habitat. 2. The State of Wyoming will collaborate with appropriate Federal agencies in defining a framework for evaluating situations to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives where conservation objectives are not being achieved on federal land. The State of Wyoming will also collaborate with appropriate federal agencies on appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework. Monitoring data will at minimum reflect 5 years of information, include rangeland health assessments and require conclusion or action to be based on 3 out of 5 years of data. WSGA requests that BLM incorporate the language of EO 2013-3 into Alternative F as the management prescription for livestock grazing within the Greater Sage Grouse Core Habitat Area.	3017-1
1049	1049-2	WSGA strongly opposes the designation of this entire area as an Area of Critical Environmental Concern. The flexibility and adaptation embodied in the Executive Order is lost through the ACEC designation. Specifically to the interest of our members, the proposed ACEC designation will inevitably lead to further restrictions on livestock grazing as recognized in Table 4-20. This is in direct contradiction to the recognition by the EO that grazing has a de minimus impact on sage grouse habitat.	3001
1050	1050-77	NWMA maintains that BLM's failure to include consideration and detailed analysis of conservation measures other than those in the NTT Report represents a pre-determined decision by BLM to implement the NTT conservation measures without giving proper and detailed analysis to alternative conservation measures – including those developed by USFWS and USGS, which may produce equal or better results for sage-grouse conservation, while complying with FLPMA.	3035_2

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1050	1050-76	In addition, throughout the DRMP and DSEIS, BLM seems to describe acreage subject to special designations and withdrawals in a way that is unclear or inconsistent with the total mineral acreage, which would be affected by the special designations or withdrawals. For example, the ACECs have overlapping boundaries, and under Alternatives B and E all ACECs are proposed for withdrawal; however it is unclear how much mineral acreage is actually subject to the withdrawal due to the overlapping boundaries. An example of this is where Alternative E carries over all management actions, outside the Sage Grouse Key Habitat ACEC, from Alternative B. Alternative B proposes 325,102 acres subject to withdrawal. The sage-grouse ACEC under Alternative E totals 1,231,383 surface acres and 1,519,859 mineral acres. If the sage-grouse ACEC mineral acres are added to the proposed withdrawals from Alternative B the proposed withdrawal would be 1,844,961; instead BLM reports that 1,764,621 acres are proposed for withdrawal under Alternative E (DSEIS Ch.4 at 4-101). One assumes this discrepancy is a result of overlapping boundaries; however this must be made clear in order for the reader to analyze the impact to hardrock mining due to land withdrawals.	3001
1050	1050-75	NWMA also contends that the NTT Report contains data that is not directly applicable to the planning area, and assumes that habitat and species conditions are consistent throughout the range, which may not be the case. For example, the NTT Report does not take into account that sage-grouse populations may be stable or even increasing in portions of the range in the Big Horn Basin resource area. In situations where this is the case, the conservation measures in the NTT Report are not warranted, regardless of whether they represent the “Best Available Science,” as required under 40 C.F.R §1502.24. Therefore additional baseline data, which includes population trends of sage-grouse, and alternative conservation measures should be analyzed specific to the planning area. BLM must explain why the NTT Report conservation measures are warranted, since reportedly, Wyoming contains the largest population of sage-grouse across its range and are at low risk for decline (See DSEIS Ch.3).	3035_2
1050	1050-73	The EIS Must Evaluate Ways to Minimize Adversely Affecting Private Property Rights-The land use restrictions, prohibitions, and withdrawals proposed pursuant IM 2012-044 and the NTT Report have significant potential to diminish landowners' rights to develop their private property if their lands have key/core sage-grouse habitat or are located near key/core sage-grouse habitat. The EIS must evaluate ways to minimize interfering with private property rights, including the rights associated with owning patented mining claims and fee mineral estates located in, adjacent to or near key/core sage-grouse habitat.	3020
1050	1050-72	For each alternative, the EIS documents must re-evaluate the socioeconomic benefit or harm each alternative will have and disclose and quantify any adverse effects to job creation and local economies in light of BLM's own assertion that implementation of Alternatives B, E, and F will have significant adverse impacts to locatable mineral development	3036-1

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1050	1050-71	The EIS documents for the Planning Area do not consider the adverse impact on small businesses of requiring validity exams in withdrawn or segregated lands, and are devoid of any analysis or discussion of the impact of sweeping and cumulative land withdrawals in key/core sage-grouse on small entities. This is a significant omission that must be addressed in the socioeconomic analysis in the final EIS documents, especially because the proposed land withdrawals are co-located in areas with moderate to high mineral potential. As BLM discovered in <i>Northwest Mining Association v. Babbitt</i> , 5 F.Supp.2d 9 (D.D.C. 1998), failure to comply with the RFA and SBREFA will invalidate a rulemaking. Therefore the Final EIS/RMP risks being invalidated if this issue is not addressed	3036-1
1050	1050-70	In addition, NWMA contends that the socioeconomic analysis related to locatable minerals is completely inadequate, especially with respect to small entities, and does not comply with the CEQ regulations as cited in BLM's NEPA Handbook	3036-2
1050	1050-69	The DSEIS also states: it is not possible to quantify effects from locatable and salable minerals management changes among the alternatives, for lack of reliable production forecasts (DSEIS Ch. 4 at 4-142). The above statement is not adequate and does not eliminate the requirement to include locatable minerals in the socioeconomic impact analysis, especially considering that BLM's own Mineral Report clearly establishes that bentonite production is expected to remain steady or increase based on demand trends (See Mineral Report Ch. 3). BLM's above claim shows a complete lack of due diligence; BLM could have obtained the necessary information to conduct a trend analysis from Wyoming's Department of Revenue, or the published USGS mineral reports, which would have provided a reasonable alternative to the "lack of reliable forecasts." It seems clear that Alternatives B, E, and, F will have an extremely adverse impact on the locatable mineral industry due to land withdrawals and surface use restrictions, which will in turn adversely affect the economic stability of the counties which rely on mining.	3027-1
1050	1050-68	the DSEIS and DRMP fail to include locatable minerals in the socioeconomic analysis, which is particularly perplexing in light of the above statements, and when locatable mineral mining contributes to 11% of the jobs and 22% of the earnings in Big Horn County. To that end, the Bighorn Basin EIS documents fail to adequately address the economic impact it will have on the counties in the Planning Area, especially Big Horn, Washakie and Hot Springs Counties, where the locatable mineral industry would be crippled if Alternatives B, E, or F, were implemented. In addition, BLM must explain its rationale for concluding that "no high impacts" were identified in the socioeconomic impact analysis especially when Alternative E proposes to withdrawal at least 43% of the mineral estate in the Planning Area, and subject existing mining claims to validity exams.	3020

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1050	1050-67	Analyze, Disclose, and Provide Convincing Rationale of the Impacts to Mineral Development Under Each Alternative-BLM failed to identify or provide useful explanation of impacts to locatable minerals required by 40 CFR §§1502.16(a)(b),1508.7 (See DSEIS Ch. 4; DRMP/DEIS Ch. 4). While NWMA agrees that land withdrawals and restrictions will have an adverse direct impact on locatable mineral development, NWMA contends that the cumulative impacts related to mineral withdrawals, and surface use restrictions in sage-grouse habitat across the range were not adequately considered, analyzed and disclosed. In Kettle Range Conservation Group v. U.S. Forest Service, 148 F. Supp.2d (D.C. Cir. 2001) the court held that agencies must locate, describe, and consider other projects (or in this case RMPs, and other special designations like Wilderness Study Areas) that could have cumulative impacts when combined with the project under consideration. In Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, (9th Cir. 1999) the court discusses in dicta “the problem is compounded by the very general and one-sided analysis of the cumulative impact information...these sections merely provide very broad and general statements devoid of specific, reasoned conclusions.” The court then held that the 12 cumulative impact statements contained in the EIS were “too general and one-sided to meet NEPA requirements.” NWMA maintains that the cumulative impact to locatable minerals from the combined land withdrawals, segregations, and de facto withdrawals currently in place, as well as the future land withdrawals proposed in dozens of RMP revisions will have an inadequately defined and significant adverse effect on the hardrock mining industry, and this must be given thorough analysis in the DSEIS; otherwise it represents a significant flaw that will render the final NEPA documents incomplete. NWMA further contends that the direct, indirect, and cumulative impact analysis is inadequate and lacks convincing data as well as rationale, as described above.	3020
1050	1050-66	Alternatives E and F propose surface use restrictions that are not proposed under Alternatives B and D, and which would debilitate mineral development that is co-located within special designation areas and key/core sage-grouse habitat. Simply referring the reader to the DRMP for the impacts of management actions proposed in the does not provide the detailed analysis required under NEPA, and thus is a fatal flaw that must be addressed before the final NEPA documents are released. The Final EIS must provide detailed analysis in order to withstand legal scrutiny,	3020

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1050	1050-65	the impact analysis lacks any useful discussion regarding locatable mineral development, surface use restrictions, and land withdrawals within key/core sage-grouse habitat, and instead uses overly simplistic and comparative terms like - adverse impacts to locatable mineral development would be substantially greater under Alternative E(DSEIS Ch. 4 at 4-19), and then describes impacts to minerals outside the proposed sage-grouse ACECs would be the same as those under Alternatives B and D (DSEIS Ch. 4 at 4-18, 4-19). The impact analyses under B and D are insufficient as well, as they describe the impacts to locatable minerals as "similar to Alternative A." BLM needs to explain the rationale for concluding that the impacts of withdrawing approximately 174,000 acres from mineral entry (Alternative A) and nearly two million acres (Alternative E) are similar. In addition, there is no meaningful discussion of how the proposed land withdrawals, prohibitions, and surface use restrictions will affect individuals attempting to assert their pre-discovery rights, as discussed above.	3020
1050	1050-64	BLM must evaluate the substantially adverse consequences of making it impossible to explore and develop pre-discovery unpatented mining claims and lands that are currently open to location on which there are no unpatented mining claims that would be withdrawn from mineral entry and location of mining claims. BLM must recognize the rights granted in Section 22 of the Mining Law and the Section 22 VERs associated with access to and use and occupancy of pre-discovery claims.	3027-1
1050	1050-63	The Bighorn Basin EIS documents should discuss how the conservation measures proposed in the NTT Report, and included in the DSEIS, as well as the proposed land withdrawals, validity exams, and surface use restrictions detailed in Alternatives B, E, and F are in compliance with rights under the General Mining Law to allow access to public lands for prospecting, mining and processing and uses reasonably incident thereto	3027-1
1050	1050-61	Furthermore, BLM provides no baseline data to provide context to these arbitrary thresholds. Do these thresholds apply to occupied habitat or potential habitat? At what scale are these thresholds applied -planning area wide, state-wide, range-wide, MZ-wide, key/core habitat only? How can the public possibly be expected to gauge the potential impacts as a result of these conservation measures, if there is insufficient baseline data? NWMA contends that the habitat thresholds (3% surface disturbance and 15% sagebrush canopy cover) are derived from flawed studies, and in some cases are completely arbitrary.28 BLM must provide how and where these thresholds were determined, and re-evaluate the impacts they will have on other resources in the planning area as well as the socioeconomic impact they will have on the planning area, or else the Final EIS documents will not likely withstand legal or scientific scrutiny.	3035_2
1050	1050-60	In addition, NWMA believes that the 3% disturbance threshold proposed in key/core sage-grouse habitat, and 1 disturbance per 640 acres, (DSEIS Ch.2 at 2-13) puts an overly restrictive and unrealistic burden on mining operators exercising their rights under the General Mining Law, and creates a de facto withdrawal which is outside BLM's authority and contrary to law.	3035_4

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1050	1050-59	BLM recommends the following substantial acreages be withdrawn from locatable mineral entry or subject to surface use and disturbance restrictions, and prohibitions primarily for the purpose of sage-grouse conservation (See Table 2. 6): . Alternative B: 325,102 acres (8%) of mineral estate (DRMP Ch. 4 at 4-48); . Alternative E:26 1,764,621 acres (42%) of mineral estate (DSEIS Ch.4 at 418); . Alternative F: 271,529,955 mineral acres (36% BLM mineral acres). BLM identifies locatable minerals as a principle industry or use in the decision area, especially in Big Horn County (DRMP/DEIS Ch. 3 at 3-2), yet BLM fails to identify compliance with the General Mining Law and the Mining and Minerals Policy Act as a way of addressing issues through policy or administrative action. NWMA contends that BLM has a legal obligation to comply with the General Mining Law, Mining and Minerals Policy Act, and FLPMA to recognize the Nation's need for domestic sources of minerals and the right to explore. It is at best careless and at worst remarkably disingenuous to identify locatable minerals as a "principle use" and then fail to identify the applicable laws for managing them and then propose management actions that are contrary to the General Mining Law and outside BLM's discretion as described above.	3020
1050	1050-58	NWMA contends recommendations contained in the Bighorn Basin EIS documents are not consistent with rights under the General Mining Law which allow citizens of the United States the opportunity to enter, use and occupy public lands open to location to explore for, discover, and develop certain valuable mineral deposits	3027-1
1050	1050-57	Furthermore, FLPMA expressly provides that none of its other provisions "shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to, rights of ingress and egress" (43 U.S.C. § 1732(b)). Therefore, the Bighorn Basin EIS documents proposed land withdrawals, prohibitions, and restrictions are contrary to provisions under FLPMA and Section 22 of the General Mining Law (discussed below) and must be revised.1. NWMA Recommendation No. 5: Demonstrate Compliance with FLPMA. The DRMP/DEIS/DSEIS should discuss how the proposed land withdrawals and surface disturbing restrictions in sage-grouse key/core and general habitat areas contained in Alternatives B, E, and F comply with the FLPMA mandate to balance a wide range of resource values and uses of public lands including the directive in the Mining and Minerals Policy Act at 43 U.S.C. §1701(a)(12) and 30 U.S.C. §21(a) to recognize the Nation's need for domestic sources of minerals. In addition, as previously discussed, BLM states that environmentally responsible mineral development is a primary goal and a key objective of the RMP; however, Alternatives B, E, and F severely limit the possibility of hardrock mineral development by way of land withdrawals, validity exams, and surface use restrictions in order to protect and conserve sage-grouse, which is inconsistent with the stated goals and objectives of the RMP. The Final EIS must eliminate this inconsistency.	3019

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1050	1050-56	BLM must recognize that the need for mineral development to reduce the Nation's reliance on foreign sources of the minerals, to maintain our way of life and defend the country, may in fact be greater than the need to conserve millions of acres of sage-grouse habitat. As such BLM must demonstrate its compliance with the mandate under the Mining and Minerals Policy Act	3019
1050	1050-55	Moreover, the proposed restrictions and withdrawals from mineral entry in the DSEIS directly conflict with FLPMA's requirement that the Secretary must manage public lands to respond to the Nation's needs for minerals. Instead, the proposed restrictions and withdrawals place more importance on aesthetics and conservation of resources over other uses, like mineral development. Again, BLM must acknowledge that it is required to fully consider the need for mineral development along side with the need for conservation of other resources.	3019
1050	1050-54	NWMA recognizes that BLM appropriately identified mineral development as a key issue in the DRMP/DEIS (Ch. 1 at 1-10). However, BLM fails to provide for environmentally responsible mineral exploration and development, or recognize the Nation's need for domestic mineral sources, under Alternatives, B, E, and F. BLM must acknowledge that it is required to fully consider the need for future mineral development along side with the need for conservation of resources.	3019
1050	1050-53	NWMA contends that applying an emphasis on one resource, sage-grouse, across an entire planning area is not consistent with FLPMA, and BLM must resolve this issue before the Final EIS is published. The EIS must evaluate how the land use restrictions, prohibitions, and withdrawals recommended in the DSEIS pursuant to IM 2012 -044 and the NTT Report achieve the required balance in managing the public lands.	3027-1
1050	1050-51	Based on these findings reported by BLM as the current status of sage-grouse within the Planning Area, and USFWS's findings in the biological assessment, the conservation measures to protect sage-grouse proposed under Alternatives B, E and F go beyond what is necessary or reasonable to protect sage-grouse within the Planning Area; and calls into question the appropriateness of the NTT conservation measures pursuant to IM 2012-044. BLM must provide convincing data to support the proposed land withdrawals, surface use restrictions, and explain its rationale for inappropriately targeting mineral development in the DSEIS, when it is not identified as a primary or secondary threat to sage-grouse in the Planning Area (DSEIS Ch.4 at 4-152), and where habitat fragmentation has not rendered habitat unsuitable.	3035_1

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1050	1050-50	Alternatives B, E, and F, severely limit the possibility of hardrock mineral development by way of land withdrawals, validity exams, and surface use restrictions in order to protect and conserve sage-grouse, despite the USFWS's conclusion that locatable mineral development with mitigation would not lead to a listing under the ESA. In addition, these proposed restrictions do nothing to address the primary threats to sage-grouse. The application of conservation measures or restrictions (to protect sage-grouse) placed upon locatable mineral development should be proportionate to the threat -if any-that responsible resource development with proper mitigation measures that include re-vegetation with appropriate species and monitoring plans to identify and eradicate invasive species in the reclaimed areas poses to sage-grouse. BLM's proposed prohibition against mineral development in key/core sage-grouse habitat areas is disproportional to the amount of land used for mineral development and the impacts associated with mineral exploration and development, especially considering that the projected long term surface disturbing activities related to locatable mineral development are small in the context of the habitat area.	3020
1050	1050-49	Policy Issues that Must be Evaluated in the EIS BLM policies regarding sage-grouse conservation measures must be consistent with the agency's statutory authorities and the regulations and policies that implement those authorities. As described below, NWMA is concerned that the land use restrictions and prohibitions incorporated into the DSEIS pursuant to IM 2012-044 and in the NTT Report exceed BLM's authority under FLPMA, or conflict with the multiple use mandate under FLPMA, rights under the General Mining Law, and BLM Manual 6840.	3027-1
1050	1050-47	The Alternatives Described in Detail Should Consider Other Conservation Measures Besides those in the NTT Report-NWMA recognizes that BLM reports that it will analyze all applicable conservation measures submitted to BLM and USFS by state governments and citizens during the public scoping process (DSEIS Ch.1 at 12); however NWMA contends that this is wholly inadequate given the emergence of new data - BLM's stated "Need" for the DSEIS--as well as newly implemented conservation measures by local working groups and private citizens. All current and applicable conservation measures must be considered, not just those presented during the scoping process which took place four years ago. 24 At least one additional alternative should be included that analyzes conservation measures and regulatory mechanisms that are not described in the NTT Report, and which have been updated and/or implemented since the original scoping process and release of the 2011 DRMP. Analysis of existing regulatory authorities including but not limited to BLM's Surface Management Regulations for locatable minerals at 43 CFR 3809 that allows for hardrock mineral development with mitigation to prevent unnecessary or undue degradation needs to be included. In addition, IM 2012044 itself even recognizes that the NTT Report conservation measures may not be appropriate in all situations:	3035_1

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1050	1050-46	The Council on Environmental Quality regulations require agencies to use the best available science when preparing EIS documents 40 C.F.R §1502.24.19 NWMA has learned a peer review of the NTT Report suggests that the NTT Report ²⁰ does not in fact represent the "Best Available Science" but rather relies on studies that have been criticized for: significant mischaracterization of previous research; . substantial errors and omissions; . lack of independent authorship and peer review; . methodological bias; . a lack of reproducibility; . invalid assumptions and analysis; and . inadequate data. ²¹ NWMA is concerned that the Alternatives described in the DSEIS rely entirely on the NTT Report conservation measures.	3035_2
1050	1050-45	In addition, BLM must demonstrate compliance with Manual 6840. The proposed fire management actions under Alternatives B, E, and F are likely to harm sage-grouse in the short-term and probably the long-term, as discussed above, which is contrary to BLM's obligations under Manual 6840 and the ESA.	3011
1050	1050-44	NWMA believes Manual 6840 goes beyond what the ESA requires for candidate species, like the sage-grouse, and is a significant formalized conservation effort if implemented properly. Therefore proper implementation of Manual 6840 must be included in the detailed Alternatives and Environmental Consequences analyses of the EIS documents as well as in the proposed alternatives suggested herein.	3035_1
1050	1050-43	b. NWMA Recommendation No. 3: The DRMP/DEIS Must Include a Manual 6840 Alternative (Better Implementation of Manual 6840) - Consideration of specific provisions pursuant to Manual 6840 must be referenced in the Alternatives and Environmental Consequences chapters, and described in detail in an appendix, so that the public can objectively evaluate the potential effectiveness of the sage-grouse conservation measures in Manual 6840. BLM should not ignore or replace the existing regulatory tools it already has without demonstrating why the existing regulations are not functioning properly or are inadequate. Important aspects of Manual 6840 that apply to sage-grouse and should be discussed include the following: [See bullet list in letter pg. 19]	3035_1
1050	1050-42	none of the alternatives give proper analysis to the existing conservation measures or authorities the BLM already has to protect sage-grouse and its habitat. BLM must not ignore Manual 6840. NWMA recognizes that BLM generally describes Manual 6840 (DRMP/DEIS Ch. 3 at 3-103), but then fails to provide a discussion within the context of impacts of how any of the specific provisions of Manual 6840 meet or fail to meet the objectives and goals set for the planning area. The DRMP/DEIS and DSEIS documents should evaluate the numerous directives in BLM Manual 6840 in the context of each Alternative Considered in Detail, and include an additional alternative that analyzes full and consistent implementation of Manual 6840, existing BMPs, 2004 Strategy, and Fundamentals for Standards for Rangeland Health	3027-1

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1050	1050-40	The Final EIS documents should not be published without a full and detailed analysis of an additional alternative, that incorporates and analyzes a full range of conservation measures, including existing strategies, and will provide future monitoring data that will satisfy USFWS's requirements. NWMA contends that this additional alternative would fit the Purpose, Need, and Objectives of the DRMP/DEIS and would be consistent with FLPMA, the Mining Law of 1872, the Mining, Minerals and Policy Act, and BLM's sage-grouse conservation goals and objectives.	3027-1
1050	1050-39	Contrary to the WBP finding which indicates that fire suppression activities can benefit sage-grouse, Alternatives B and E do not focus on fire suppression; rather they propose passive management which is expected to have adverse impacts to sage-grouse in the short-term. BLM must explain how subjecting sagebrush ecosystems/sage-grouse habitats to increased fire potential in the short-term will benefit sage-grouse in the long-term; especially if sage-grouse are incapable of persisting in fragmented habitat, devoid of sagebrush cover, which is what the NTT Report contends. Under this assumption, most if not all the sage-grouse would die; therefore there would not be sage-grouse in the long-term.	3011
1050	1050-37	NWMA agrees that the USFWS identified conservation measures in RMPs as BLM's primary mechanism for protecting sage-grouse; however, BLM continues to mischaracterize the USFWS's WBP determination by saying that USFWS's determination concluded that BLM lacks adequate regulatory tools to conserve sage-grouse, and therefore new regulatory mechanisms must be developed (See DSEIS Ch. 1 at 1-2; Ch.3-2). Using this as a premise, BLM maintains the NTT Report conservation measures are required to respond to the WBP determination. The NTT Report does not use Manual 6840 or ESA as a foundation upon which to build. In fact, the NTT Report never references Manual 6840, nor does it explain the need for an entirely new regulatory approach. As such, it inappropriately discards an existing agency policy without ever justifying the radical change advanced in the NTT Report, and is thus arbitrary and capricious. Throughout the Warranted but Precluded (WBP) determination, specific to BLM regulatory mechanisms, USFWS repeats over and over its inability to assess the regulatory mechanisms because of how information was being reported to them.	3035_1
1050	1050-35	The alternatives analysis in the DRMP/DEIS and DSEIS does not satisfy requirements under NEPA to analyze all reasonable and viable alternatives, BLM's own requirements for analyzing alternatives as set forth in its NEPA Handbook, H-1790-1, or the above-noted Purpose of the document because it fails to recognize the Nation's need for domestic sources of minerals, violates FLPMA, does not balance BLM's goals and objectives, and fails to incorporate appropriate management actions by opting for a one-size fits-all approach to conservation. The Final EIS documents must include a revised and expanded alternatives analysis.	3027-1

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1050	1050-34	This language is clear that mineral development is to be pursued and that exploration and development be conducted in an environmentally sound manner in compliance with the FLPMA mandate at 43 U.S.C. 1732(b) to prevent unnecessary or undue degradation of the lands. However, precluding mineral development by way of, surface use restrictions, validity exams and land withdrawals (See DSEIS Ch. 2 at 2-12; 2-19) does not accomplish the DRMP/DEIS' stated goal, or provide consistency with the mandate under FLPMA or the Mining and Mineral Policy Act to recognize the Nation's need for domestic mineral sources or balance resources. NWMA contends that full implementation of existing regulatory tools "including required conservation and mitigation measures" are adequate to ensure environmentally sound mineral development that is compatible with sage-grouse conservation. To that end, only alternatives that will incorporate appropriate and implementable management actions that will conserve sage-grouse and its habitat, and at the same time recognize the nation's needs for domestic sources of minerals, among other management goals described in the DRMP/DEIS can be considered in the DSEIS. The DSEIS should carefully evaluate a reasonable range of alternatives, which are consistent with the stated purpose of the RMP revision, and consider conservation measures that are within the boundaries of the law. Conservation measures that are inconsistent with the law are not implementable. They cannot be part of BLM's Preferred Alternative, must be rejected out of hand, and therefore must be eliminated from detailed analysis.	3019
1050	1050-33	NWMA contends that in order for the alternatives to be considered a "reasonable range" of alternatives, then the alternatives must provide a reasonable range of area-specific conservation measures appropriate for the Bighorn Basin Planning Area and not rely almost entirely on the conservation measures recommended in the NTT Report. Moreover the alternatives must consist of management actions that are supported by the "Best Available Science." NWMA contends that the NTT Report does not constitute the Best Available Science.	3035_1
1050	1050-32	In addition, BLM prepared the DSEIS to consider the conservation measures identified in the NTT Report pursuant BLM Instruction Memorandum No. 2012044 (DSEIS at ES-1). IM-2012-044 requires BLM to consider all applicable conservation measures when revising or amending its RMPs in sage-grouse habitat. The conservation measures developed by the NTT must be considered and analyzed, as appropriate, and a reasonable range of conservation measures must be considered in the land use planning alternatives.	3035_1

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1050	1050-31	The "alternatives" portion of an EIS is considered the "heart" of the NEPA process and requires an agency to rigorously explore and objectively evaluate all reasonable alternatives so that decision-makers and the public are fully informed (40 C.F.R. §1502.14(a)). ¹⁴ Substantial case law exists regarding the range of alternatives that need to be included in an EIS. For instance in <i>Natural Resource Defense Council v. Morton</i> , 458 F. 2d 827 (D.C. Cir. 1972) the court found that an agency must look at reasonable alternatives sufficient to allow for a reasoned decision; it is not appropriate to disregard an alternative merely because it does not offer a complete solution to a broad problem, like sage-grouse conservation. In <i>Dubois v. USDA</i> , 102 F. 3d 1273 (1st Cir. 1997) the court held that the Forest Service acted arbitrarily and capriciously when its Final EIS did not sufficiently explore all reasonable alternatives, and that an "agency has duty to study all alternatives that appear reasonable and appropriate for study... as well as significant alternatives suggested by other agencies or the public during the comment period." ¹⁵ Further, in <i>Resources Ltd. v. Robertson</i> , 35 F.3d 1300, 1307 (9th Cir. 1993) the court held "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." ¹⁶ To that end, BLM must examine the viable alternatives suggested herein, otherwise it will not likely withstand legal scrutiny pursuant to NEPA case law.	3027-1
1050	1050-30	Thoroughly Evaluate the No Action Alternative -The EIS documents must include a detailed discussion of the habitat conservation improvements currently being achieved under the existing policies, the socioeconomic benefits that would result from continued private-sector authorized uses of public lands with sage-grouse habitat, and the possibility that in light of the numerous habitat conservation measures already in place, the USFWS will determine in 2015 that the sage-grouse should not be listed as a threatened or endangered species. The No Action Alternative must discuss, in detail, specific conservation measures like those in Manual 6840 (see discussion infra at 17-20) and explain and quantify the deficiencies (if any) associated with these conservation measures/BMPs and/or the way in which they are being implemented and documented. Without this analysis, it is impossible for the public to gauge and understand the need (if any) for land use management changes in BLM's Preferred Alternative. The EIS documents must also include detailed discussion of the mitigation measures currently in place pursuant to FLPMA's "unnecessary or undue degradation" provisions (43 U.S.C. §1732(b)) within the context of the No Action Alternative. BLM must not propose new or different regulatory mechanisms if any of the apparent shortcomings or gaps in the existing regulations are due mainly to uneven or incomplete implementation of existing policies.	3035_1
1050	1050-29	However BLM fails to include other management actions or conservation measures currently in effect in the planning area that would have a positive effect on wildlife, such as habitat conservation improvements and the various conservation measures required under the Wyoming Sage-grouse Strategy.	3035_1

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1050	1050-28	The No Action Alternative analysis in the DRMP/DEIS should quantify the impacts associated with ongoing implementation of the many existing local, state, and federal conservation measures and the existing BLM policies to protect sage-grouse habitat.	3035_1
1050	1050-26	The continuation of existing management and conservation measures and existing regulatory policies including the directives in BLM Manual 6840 define the No Action Alternative and provide a baseline upon which useful analysis may take place. It seems apparent that BLM has prematurely concluded that these existing regulatory policies are inadequate. However, BLM provides no discussion based upon on-the-ground data that this is the case. BLM should not presume (as it currently has) that using the existing tools or better implementation of the existing regulatory tools would not provide adequate sage-grouse and sagebrush habitat conservation.	3035_1
1050	1050-25	BLM fails to fully explain or analyze adequately how existing regulatory mechanisms are either adequate to conserve sage-grouse or inadequate to conserve sage-grouse, and therefore provides no useful baseline against which each of the proposed alternatives can be compared.	3035_1
1050	1050-24	As the DRMP/DEIS currently stands, insufficient explanation and discussion of current regulatory mechanisms or conservation strategies are described with respect to sage-grouse, which makes it impossible to compare the effects of the management actions proposed in the DSEIS.	3027-1
1050	1050-23	NWMA contends that Alternatives B, E, and F are inconsistent with the language contained in the DRMP/DEIS relating to BLM policy on land withdrawals, fails to recognize the Nation's need for domestic mineral sources, and fails to comply with FLPMA, the General Mining Law, Mining and Minerals Policy Act, BLM's own policy pursuant Manual 6840, IM 2012-044, DOI 603 Departmental Manual 1, withdrawal regulations at 43 Code of Federal Regulations (CFR) Part 2300, and NEPA. Moreover, the alternatives contained in the DSEIS and Alternative B of the DRMP/DEIS do not satisfy the Purpose and Need for the RMP revision, and should therefore, be revised to demonstrate that they are legal and fit the Purpose and Need before the Final EIS documents are published	3027-1
1050	1050-22	Alternatives considered in detail address management actions that include closure or prohibition of various resource uses over portions of the Planning Area (Id. at 2-8, emphasis added). Following the same line of reasoning, BLM should have eliminated Alternatives B, E and F from detailed analysis rather than evaluate them as alternatives that could be selected.	3027-1
1050	1050-21	NWMA agrees with BLM that alternatives that pursue sweeping land withdrawals within the Planning Area are overly restrictive, unreasonable and contrary to law and BLM policy; which calls into question the validity of Alternatives B, E, and F, which propose sweeping land withdrawals, or de facto withdrawals due to special designations, or unreasonable surface use restrictions. As such, Alternatives B, E, and F are inconsistent with FLPMA, and the Property Clause of the United States Constitution, ¹³ which gives Congress sole power to regulate the public lands.	3027-1

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1050	1050-19	BLM has failed to demonstrate how any of the Alternatives best satisfy statutory requirements; balance BLM goals, objectives, and policies; and which alternative represents the best way to satisfy the Purpose and Need, addresses key issues, and considers cooperating agencies recommendations (DRMP/DEIS Ch. 2 at 2-2, 2-3). NWMA believes Alternatives B, E and F, do not satisfy statutory requirements, do not balance BLM goals, objectives and policies, and are not the best fit for the Purpose and Need. The lack of meaningful analysis contained in the DSEIS as well as the DRMP/DEIS constitutes a serious shortcoming that must be addressed. Consequently, the DSEIS and DRMP/DEIS are "inadequate as to preclude meaningful analysis" (40 CFR §1502.9(a)); and therefore the BLM must prepare and reissue a revised draft which provides the analysis necessary to support each of the management alternatives, including identifying the Preferred Alternative.	3027-1
1050	1050-18	BLM has failed to indicate whether Alternative D, the agency's Preferred Alternative in the DRMP/DEIS, remains the agency's Preferred Alternative in the DSEIS, or whether there is no longer a Preferred Alternative. Instead BLM states in the DRMP/DEIS "The Agency Preferred Alternative or new alternative may be a combination of existing alternatives or an alternative within the range of alternatives already analyzed" (DRMP/DEIS Ch. 2 at 2-3, emphasis added). NWMA recognizes that BLM is only required to identify a Preferred Alternative at the time the final EIS documents are published (40 CFR § 1502.14(e)); however NWMA contends that a "Preferred Alternative or new alternative" which is introduced at the time the final NEPA documents are published precludes public involvement and the detailed analysis/disclosure required under NEPA, and as a result does not satisfy the agency's procedural obligations under NEPA. BLM must provide detailed analysis that supports why the Preferred Alternative is in the best interest of the agency as well as the public.	3027-1
1050	1050-17	Additionally, the CEQ regulation at 40 CFR § 1502.16(c) requires BLM to include discussion of "[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies, and controls for the area concerned." NWMA contends that the surface use restrictions and land withdrawals proposed within sage-grouse habitat under Alternatives B, E and F described in the DSEIS conflict with BLM's own policy in Manual 6840, the General Mining Law, and its multiple use mandate under FLPMA (discussed in detail below), and represents a fatal flaw which renders the DRMP/DEIS and DSEIS both inadequate and inconsistent with existing laws and policies. The conflict between sage-grouse conservation and the prohibition through administrative fiat against mineral, oil and gas and other commodity development in the planning area must not be ignored. Unfortunately, the DSEIS fails to recognize and disclose this conflict. Detailed discussion of the impacts to each of the resources with respect to the proposed mitigation measures for sage-grouse found throughout the DSEIS must be thoroughly developed and analyzed before the Final EIS is published.	3027-1

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1050	1050-16	<p>Alternatives E and F, which are based on recommendations in the NTT Report, lead to an absurd outcome that makes long-term restoration of sagebrush habitat (which will take a couple of decades to achieve) BLM's primary objective - rather than protecting sage-grouse populations now and in the next decade or so. NWMA vehemently opposes this misguided objective and urges BLM to recognize that conservation measures to minimize habitat loss are the only logical path forward - as well as the best opportunity to minimize the likelihood of the USFWS determining it is necessary to list the Greater sage-grouse as a threatened or endangered species. The likelihood that USFWS will determine it is necessary to list the Greater sage-grouse increases significantly if BLM fails to develop appropriate conservation measures to address the fire and invasive species cycle - one of the main threats to sage-grouse habitat range wide. Unfortunately, the conservation measures in the NTT Report do not mainly address habitat threats due the wildfire - invasive species cycle and focus inappropriately on restrictions and prohibitions on land uses and the regulated community. NWMA is also concerned that the assumptions used in the Special Status Species analysis are flawed, partly due to the way in which the NTT Report mischaracterizes other studies in order to support arbitrary habitat and disturbance thresholds. The analysis also contains broad generalization that the level of disturbance directly correlates to the level of adverse impact to species generally (DSEIS Ch. 4 at 4-70), but does not provide data to support that assertion. Based on the above mentioned flaws, the DSEIS and DRMP/DEIS are "inadequate as to preclude meaningful analysis" (40 CFR §1502.9(a)); and therefore the BLM must prepare and re-issue a revised draft which provides the analysis necessary</p>	3035_1
1050	1050-15	<p>Surprisingly, the flawed impact analysis is not one-sided. The impacts to sage-grouse due to the passive management of invasive species proposed under Alternatives B, E, and F which severely limit fire suppression methods, is expected to adversely affect sage-grouse in the short term, but provide long-term beneficial impacts to sage-grouse habitat due to restoration of a natural fire regime. However, no rationale or evidence is provided. (DSEIS Ch. 4 at 4-78). BLM must explain its rationale for concluding that sage-grouse will benefit in the long term "but certainly not in the short term" because fire suppression restrictions are likely to increase the potential for catastrophic fire; which in turn would increase the potential for the spread of invasive species, which would then take decades to restore sagebrush ecosystems after wildfires.¹² The impact analysis is fatally flawed and must be revised before the final EIS documents are published.</p>	3011

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1050	1050-14	Furthermore, the DSEIS omits any discussion or analysis of impacts the proposed withdrawals, segregations, and restrictions will have on sage-grouse except to say they will be beneficial, but provides no quantitative analysis, data, convincing rationale or evidence of this assertion. There is no attempt to quantify the impacts whether beneficial or adverse, instead broad generalizations are used. NWMA opposes any impact analysis that does not quantify the cumulative impacts the proposed management decisions will have on all uses of public lands, including locatable minerals exploration and development. Detailed discussion of the impacts to locatable mineral operations and development, as well as to other land uses, must be thoroughly analyzed and developed, otherwise the Final EIS documents will be vulnerable to legal challenges.	3020
1050	1050-13	BLM may have presented impacts (i.e. environmental consequences) by resource and alternative in the DSEIS, however the DSEIS completely fails to include any detailed or meaningful analysis of the impacts to resources under Alternatives E and F, especially the socioeconomic impacts of withdrawing millions of acres to locatable mineral development (See DSEIS Chapter 4), which is discussed in detail below.	3020
1050	1050-12	Regrettably, DOI decision-makers did not heed warnings like this from DOI staff and peer reviewers and proceeded with publishing the NTT Report knowing that there were significant internal concerns about the report. If the legal, scientific and procedural flaws are not addressed and cured, the Final EIS and RMP will not stand up to legal challenges.	3035_2
1050	1050-9	Additionally, the failure to provide a detailed evaluation of Manual 6840 and other BLM policies pertaining to sage-grouse conservation is inconsistent with the guidance in Section 6.6 of BLM's NEPA Handbook(H-1790-1): The range of alternatives explores alternative means of meeting the purpose and need for the action...The broader the purpose and need statement, the broader the range of alternatives that must be analyzed. You must analyze those alternatives necessary to permit a reasoned choice (40 C.F.R 1502.14...In determining the alternative to be considered, the emphasis is on what is "reasonable"... Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense... (BLM Handbook H-1790-1 at 49 – 50). NWMA believes the entire DRMP/DEIS/DSEIS process is fraught with substantial procedural, legal and scientific flaws, which again, were recognized by DOI employees and discussed in internal emails questioning the legality of some of the conservation measures recommended in the NTT Report: But, does the NTT really want to recommend something that is blatantly illegal(?)...9	3027-1

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1050	1050-8	The NEPA process requires an agency to rigorously explore and objectively evaluate all reasonable alternatives so that decision-makers and the public are fully informed. NEPA documents are intended to be used as a tool during the planning and decision-making process (40 C.F.R. §§1502.14(a), 1502.14(b),(d)). Substantial case law exists regarding the range of alternatives that need to be included in an Environmental Impact Statement (EIS), and "[t]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate" (Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1993)). To that end, failing to analyze full and consistent implementation of existing policies and conservation measures, like those contained in Manual 6840, IM2005-024: National Sage-Grouse Habitat Conservation Strategy (2004 Strategy), Fundamentals for Standards for Rangeland Health (43 C.F.R §4180.1), and existing Best Management Practices (BMPs) as an alternative (a "Manual 6840 Alternative"), and an alternative which complies with USFWS's "Warranted but Precluded" finding for sage-grouse in the EIS documents is arbitrary and capricious and does not comply with NEPA requirements (discussed infra, Section II). Consequently, the Final EIS documents should not be published for public review until a detailed analysis of the above alternatives are included.	3027-1
1050	1050-7	We also believe that IM 2012-044 and the NTT Report inappropriately jettison BLM's existing policies to protect candidate species, including the policies contained in BLM Manual 6840, "Special Status Species Management" (Manual 6840). Instead, the DSEIS arbitrarily imposes a completely new regulatory framework without providing a reasonable explanation for doing so, and is therefore arbitrary and capricious.	3027-1
1050	1050-6	In addition to being inconsistent with FLPMA and the General Mining Law Alternatives E and F propose surface-disturbing restrictions that are not scientifically supported as required by the regulations that implement the National Environmental Policy Act (NEPA)	3027-1
1050	1050-5	As described below, NWMA does not support any of the Alternatives as they are drafted. Specifically, Alternative B, Alternative E, and Alternative F do not recognize rights provided to individuals under the Mining Law of 1872 (General Mining Law, 43 U.S.C. 21a et seq), and are not consistent with provisions under the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C 1701 et seq).	3027-1
1050	1050-4	However, Alternative B is reported as having the least potential for long-term beneficial impacts from restoration of historic fire regimes due to the threat of invasive species out-competing native species in fire disturbed areas,7 which seems odd because all the Alternatives are subject to the same post-fire stabilization and rehabilitation requirements. The above statement assumes post-fire stabilization will thus be more effective under Alternative E, without providing any support.	3011

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1050	1050-3	In addition, NWMA believes that in light of the May 16, 2013 letter the Western Association of Fish and Wildlife Agencies (WAFWA) sent to Department of the Interior Secretary, Sally Jewell, expressing concern with relying solely on the conservation measures recommended in the NTT Report, the DSEIS should be revised to consider other alternatives and reissued to give the public another opportunity to comment on the draft EIS documents. The concerns expressed in the WAFWA letter are echoed in NWMA's report entitled, BLM's NTT Report: Is It the Best Available Science or a Tool to Support a Pre-Determined Outcome, published in May 2013 which raises significant questions as to whether the NTT Report represents Best Available Science. Internal inconsistencies must be addressed. For example, BLM concludes: Compared to the other alternatives, management methods applied under Alternative E for the protection of greater sage-grouse (severe restrictions on fire suppression) may result in the greatest short-term adverse impact to fire and fuels management by limiting the types of treatments used, but would decrease the risk of large, catastrophic fires in the long term through a return to natural fire regimes (DSEIS at 4-31; 4-32).	3027-1

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1050	1050-2	<p>The conservation measures proposed by the Sage-grouse National Technical Team (NTT) in the NTT Report are draconian and will have severe negative impacts on NWMA members, other multiple-users of federal lands, and numerous resource-dependent communities in the ten state area . The limit in the NTT Report on the percent of land that can be disturbed is unsupported, arbitrary and will have a dramatic adverse impact on multiple-use activities; . The draconian conservation measures proposed in the NTT Report will further stifle investment in the U.S. mining industry and exacerbate the Nation's mineral import dependency. NWMA also encouraged BLM to address the following issues in subsequent EISs: . Incorporate the continuation of existing Federal, State and Local management and conservation measures into the No Action Alternative - "with an emphasis on specific provisions of Manual 6840 such as, Section 1(3); . Making State-led conservation measures a mandatory and enforceable alternative; . The EIS must analyze impacts to interference with expectation-backed investments; . Analyze the cost of validity exams and the cost of regulatory takings if lands are withdrawn from mineral entry; . The EIS documents must include a thorough discussion of how the NTT Report conservation measures are based on: 1) the best available scientific and commercial data; and 2) take into account the existing state and local conservation measures; . The EIS must evaluate whether and how the conservation measures and regulatory mechanisms recommended in the NTT Report achieve the required balance in managing the public lands.. The proposal to withdraw lands within key/core habitat from mineral entry is not supported by any authority under the ESA or FLPMA and should not be included as part of BLM's Preferred Alternative; . The EIS needs to include a full range of alternatives.2 However, BLM has failed to address any of these concerns or issues raised during the regional call for public comment (76 Fed. Reg. 77008 (December 9, 2011). NWMA believes Alternatives E and F, which were developed to incorporate the recommendations contained in the NTT Report, are inappropriate. The NTT Report creates policies that assume that sage-grouse conservation is the highest and best use of the land, while subordinating other interests, like locatable mineral exploration and development, without adequate analysis of the economic impacts these policies will have on the area as well as the hardrock mining industry as a whole (discussed in detail below), as recognized in internal emails between Department of the Interior (DOI) employees who were involved with developing the NTT Report:</p>	3035_1
1051	1051-3	<p>First, the overarching goals of the MLPs, which should be stated explicitly in the "vision," is to resolve potential resource conflicts within each of the analysis areas. Those conflicts include potential impacts on lands with wilderness characteristics, Greater sage-grouse "key" habitat (and other critical wildlife habitat), open space, recreation, and working ranches.</p>	3023-6

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1052	1052-18	We suggest BLM utilize additional published articles and guidance, particularly the use of the Western Association of Fish and Wildlife Agencies recommendations on mule deer habitat guidance and energy development (Lutz et al. 2011), the recently approved technical review by The Wildlife Society on impacts of oil and gas development on wildlife (Riley et al. 2012), and a recent USGS synthesis of sage grouse research (Manier et al. 2013). Other relevant articles on sage grouse we did not see in the RMP include Doherty et al. (2008, 2010), Holloran et al. (2010), Kirol (2012), Naugle et al. (2011), and Walker et al. (2007).	3049
1052	1052-17	The TRCP FACTS recommendations (see attached document) and recent economic studies on the impacts of hunting, fishing and the outdoor industry on the economy (Southwick Associates 20012 a, b) should be incorporated in the analysis and decision making process. We encourage the BBFOBLM to use of best available and most contemporary science, particularly for sage grouse and mule deer management, when making evaluations, developing alternatives, and finalizing decisions.	3036-1
1052	1052-15	We fully support a management action that would designate a Sagebrush Ecosystem ACEC: public lands within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter concentration areas.	3035_1
1052	1052-14	We support a stipulation that would impose an NSO restriction prohibiting surface-disturbing activities, disruptive activities, and occupancy within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and wintering areas.	3035_1
1052	1052-13	We suggest that prior to allowing such activities as additional development to take place, the BBFO must work with all appropriate wildlife management agencies, federal and state, to determine current populations and objectives while establishing criteria and developing thresholds to help minimize and mitigate any adverse impacts that could result from extraction and associated developments.	3006

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1052	1052-3	The report's findings identifies that natural resource development has been and will continue to be an important benefit to Wyoming's economic health. Employment in some of the commodity production on public lands has been cyclical, unlike the jobs and revenue generated by people fishing, hunting and recreating on public lands which have helped expand economic growth. The report showed that the case study community of Cody, WY, benefits by as much as \$30 million (2010-2011, Southwick Associates) through fish and wildlife related activities. The natural amenities have served as a magnet for and businesses looking for a high-quality lifestyle. The diverse economy provides a buffer against cyclical markets. This is dependent in part on the surrounding public-lands. Sustaining the economic diversity will depend on the conservation of the regions natural resources. Fishing, hunting, and wildlife related activities are a sustainable part of the economy and must be considered in the decision of whether or not to move forward with energy development and other activities, and to what level in the BBFO administered area. The importance of our public lands - is identified in the TRCP's Sportsman Values Mapping Project where sportsmen and women from around the state participated in a data collection that prioritized areas of importance for their passions of hunting and angling. In this case, the area in and around the proposed project area is important to sportsmen.[see figure in comment] The highlighted areas demonstrate an importance to sportsmen. More importantly, the area possesses high fish and wildlife values.	3036-1
1052	1052-2	This guidance clearly indicates BLM already has policy in place to work in close coordination with state agencies to set population goals for wildlife species and that important habitats for game species, as well other species of wildlife, should be designated for special management or protection. We recommend the BLM's BBFO 1) coordinate with Wyoming Game and Fish Department more closely to establish land use planning and habitat management objectives that are tied to achieving and maintaining the state wildlife agency's population management objectives, and 2) ensure commitments made in the proposed RMP are flexible enough to change if state needs require such management flexibility. This includes coordination with WAFWA recommended dates for big game restrictions and for sage grouse management.	3006

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1054	1054-1	MY CONCERNS IS WITH ALTERNATIVE E, F OF THE E.I S. THE PRIMARY IMPACTS TO LIVESTOCK GRAZING WOULD RESULT FROM MANAGEMENT THAT ALTERS THE AREA AVAILABLE TO LIVESTOCK GRAZING, CONSTRAINS ON THE PLACEMENT OR TYPES OF RANGE IMPROVEMENTS, OR CHANGES THE NUMBER OF ANIMALS UNIT MONTHS (AUMS) AVAILABLE TO THE OPERATORS. THE REASONS FOR THESE REGULATION ARE NOT BASED ON GOOD SCIENTIFIC DATA. WHEN I WORKED ON COPPER MTN IN 1956-57 AND AGAIN IN 1960-63. THERE WERE A LOT OF SAGE GROUSE. THERE WAS MORE PEOPLE, SHEEP AND COWS THERE AND MORE ACTIVITY THEN, THEN THERE IS NOW. WE MOVED ON TO THIS PLACE IN 1968. (AT THE END OF COUNTY RD 9, HOT SPRINGS CO.) IN 1970 WE PLANTED POTATOES ON THE SOUTH SIDE OF MUD CREEK AND THE SAGE GROUSE DUG THEM UP AND ATE THEM. THERE WERE PLENTY OF SAGE GROUSE UNTIL SOME TIME IN THE 80'S. THE COONS SKUNKS AND RAVENS WERE NONEXISTING, ON MUD CREEK AT THAT TIME. THERE WAS A LOT OF ACTIVITY THEN AND MORE EVEN THEN NOW.	3017-3
1057	1057-15	Annual grasslands are referenced throughout the document Wyoming doesn't really have much in the way of annual grasslands, even following fire disturbance. Annual Grassland ecosystems in the West are predominately found in California. Changing the language to "areas with undesirable annual grasses" will differentiate the discrete areas of annual grasses occurring on Wyoming's rangelands from the "ecosystem type" that is generally associated with the term Annual Grasslands.	3042
1057	1057-14	We would like to see 4.4.2 Vegetation - Grassland and Shrubland Communities. 4.4.2.3 Detailed Analysis of Alternatives, Alternative F, Resource Uses, page 4-46 removed ("Livestock grazing management in this ACEC includes multiple management actions that would benefit grasslands and shrublands, including requirements for land health assessments to determine whether rangeland health standards are being met"). BLM is currently required to determine whether rangeland health standards are being met for wildlife habitat, including the sage grouse. Alternative F does not change or enhance this requirement its inclusion here is redundant.	3042
1057	1057-13	There is so much in this document that expresses a bias against livestock grazing. Grazing is not a surface disturbing activity; it is a management tool. In table 2.5, Detailed Alternatives, 7000 Special Designations (SD) "ACECs" Proposed Greater Sage Grouse Priority Habitat Area ACECs, Record #110, page 2-35 it states, "Identify the specific allotment(s) where retirement of grazing privileges is potentially beneficial". Appendix P goes on to list all grazing allotments in the Core Habitat Area; not just those currently identified for retirement. WyFB is concerned about identifying allotments through a resource management planning process in which retirement of grazing privileges is "potentially beneficial". Rangelands have always been grazed - removing grazing tends to have a detrimental effect over the medium and long term.	3017-1

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1057	1057-10	In the third paragraph on page 3-3, it states "Declines of sage grouse near oil and gas fields in this area have been well documented (USFWS 2013). However, recent conservation actions, including the Wyoming Governor's EO designating protective stipulations for Core habitat Areas and the implementation of conservation easements within these areas have reduced the threat risk to populations in the Wyoming portion of the Wyoming Basin Management Zone (USFWS 2013). Designated state Core Habitat Areas adequately capture redundancy and representation for the Wyoming portion of the Wyoming Basin Management Zone population. Due to the large size of this population, the presence of large, contiguous habitats, and regulatory measures providing habitat protection, this population is considered low risk (USFWS 2013). Within the planning area, greater sage grouse are distributed in habitat that has not been rendered unsuitable due to fragmentation and degradation". We feel this discussion supports our comment that you defer to the state and state agencies in determining management strategies for the greater sage grouse in your planning area.	3035_1
1057	1057-9	Oil and gas development and conversion of sagebrush to grasslands are also identified as a primary source of decline in MZ I (Great Plains Management Zone). Why are they included when the majority of your planning area lies within MZ II (Wyoming Basin Management Zone), and the majority of the sage grouse habitat managed by the BLM in the planning area also lies within MZ II, which covers about two thirds of the State of Wyoming? Primary threats in MZ II are identified as energy development and transfer, including both renewable and non-renewable resources, long-term drought and brush eradication programs; quite different from those in MZ I.	3035_2
1057	1057-8	Encroachment of conifers and juniper is blamed on changes in fire return intervals and overstocking of domestic livestock (page 3-3). Where is this overstocking? Permitted AUMs and actual use AUMs have declined on federally managed lands over the last several decades. Proper stocking rates and use of the land by domestic livestock actually serves to alleviate some of the things on your list, including weed and annual grass invasion and conifer and juniper encroachment	3017-3
1057	1057-6	The closure of priority sage grouse habitat to surface uses under Alternative E and B is unacceptable (page 2-14). Even the moderate constraints on resource uses under Alternatives F and D may prove detrimental to the sage grouse. These restraints are not supported by scientific data, especially in the case of livestock grazing and range improvements. Livestock grazing can be managed to meet sage-grouse habitat objectives and management considerations. This has been proven over a long period of time on Wyoming's privately managed agricultural lands.	3017-3

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1057	1057-5	We ask that Wyoming Executive Order 2011-5 and its supplement 2013-3; the Bighorn Basin Sage Grouse Conservation Plan, and the individual county Land Use and Management Plans be published in their entirety in the Final RMP. The economy of the basin relies greatly on the proper management of BLM lands occurring in Big Horn, Hot Springs, Park and Washakie counties. As stipulated in Executive Order 2011-5 (and all other orders before it), "State and federal agencies, including the U.S. Fish and Wildlife Service, Bureau of Land Management, U.S. Forest Service, and other federal agencies shall work collaboratively to ensure a uniform and consistent application of this Executive Order to maintain and enhance Greater Sage Grouse habitats and populations"§.	3027-2
1057	1057-4	On page 2-1 in paragraph 3, the supplement 2013-3 to Wyoming Executive Order 2011-5 is badly misrepresented as outlining a process to remove livestock grazing if sage grouse conservation objectives are not achieved and improper livestock grazing is suspected. What it really says is "The State of Wyoming will collaborate with Federal agencies in defining a framework for evaluating situations to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives where conservation objectives are not being achieved on federal land. The State of Wyoming will also collaborate with appropriate federal agencies on appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework. Monitoring data will at minimum reflect 5 years of information, include rangeland health assessments and require conclusion or action to be based on 3 out of 5 years of data". It also states that "It is Wyoming's primary premise that grazing activities are compatible with Greater Sage-Grouse conservation and may improve habitat for Greater Sage-Grouse. Grazing is considered a de minimus practice (Executive Order 2011-5, Attachment C). Grazing management practices maintain or enhance Wyoming rangelands. Properly managed rangelands are capable of sustaining viable Greater Sage-Grouse populations and a diversity of plant species appropriate to suitable Greater Sage-Grouse habitat". The true focus of the supplement is coordination among Land Management Agencies when Grazing Adjustments are Believed Necessary to Benefit Greater Sage-Grouse; not the removal of livestock grazing. We are more likely to experience damaging grazing practices from feral horses than from domestic livestock.	3017-1

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1057	1057-3	Throughout the supplement it is stated that "BLM manages the density of disturbance to not exceed an average of one disruptive activity location per 640 acres and cover less than 3 percent of the total greater sage grouse Core Habitat Areas". Wyoming Executive Orders state, "Surface disturbance will be limited to 5% of suitable sage grouse habitat per an average of 640 acres". We would like to remind the BLM that U.S. Fish and Wildlife Service has been collaborating with the State of Wyoming and the Wyoming Game and Fish Department, and that BLM has agreed to this process. We would like to see you defer to Wyoming's management desires for the sage-grouse. It is far more beneficial to the sage grouse if Wyoming's sage grouse management scheme; the Bighorn Basin Sage Grouse Conservation Plan, and the individual counties' Land Use and Management Plans are relied upon to inform management decisions made by BLM. These documents are appropriate resources to use to identify sage grouse habitat requirements and best management practices in the Bighorn Basin, and should be included in section 1.4.2 Planning Criteria #33.	3035_4
1057	1057-2	We strongly object to the use of Areas of Critical Environmental Concerns (ACECs) as a management approach for sage grouse. ACECs tend to not move across the landscape; sage grouse do, and so does their habitat. The proposed increased restrictions of activities (grazing, oil and gas, recreation, etc.), on ACECs promotes a single dominant use of 1.4 million acres (under Alternative F; page ES-4); almost 45 percent of the surface acres managed by BLM in the Bighorn Basin. This violates your mandate to manage for multiple uses. The increased restrictions also violate the management desires set forth in every Wyoming Executive Order issued.	3001
1057	1057-1	On page ES-1 in the third paragraph, there is a discussion of the State of Wyoming Executive Orders used to determine the boundaries and potential management of the greater sage grouse Key Habitat Areas ACEC (Alternative E), and the greater sage grouse Core Habitat Areas ACEC under Alternative F. WY Executive Order 2008-02 used for Alternative E; and WY Executive Order 2010-04, used for Alternative F were made available at the time of the ACEC nomination. These two Executive Orders have been replaced (2011-05 replaces 2010-04), or rescinded (2008-02) was rescinded on April 27, 2011. The current Executive Order in place is 2011-5. This order remains in effect until August 18, 2015; we feel EO 2011-5 should be used to inform sage grouse management decisions by the BLM in the Big Horn Basin.	3001
1062	1062-4	Record # 50" It is unrealistic to assert that an entire allotment/pasture should be shut off from grazing if the burned area can't be fenced. This is completely unnecessary and extreme. It reflects an absence of on the ground realities. These allotments can be huge, burned areas can be huge and fencing unrealistic. It again reflects the obvious agenda against livestock grazing under the guise of caring about restoration.	3011

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1062	1062-3	Record #49 " Alternative F: It is counterproductive for sage grouse to exclude livestock from grazing in burned areas until wood and herbaceous plants achieve sage-grouse habitat objectives. Woody shrubs in this ecology could take as long as 60 years to re-establish and in the meantime grasses could compete with them. Livestock grazing should be permitted during this time frame, in fact sage-grouse stewardship is on the radar screen.	3011
1062	1062-2	Proactive Management section - Marginalizing and restricting the use of fire within areas of environmental concern will only worsen the invasive weed problem already ahead of land managers. We need all tools to help control invasive weeds and not worsen the weed problem by slowing management. Proactive fire management must not move slowly, it must continue at a rapid and consistent pace to improve habitat.	3011
1062	1062-1	Alternatives E&F Not necessary to put 1,857,485 acres or 1,786,241 acres under the restrictions of Areas of Environmental Concern (ACECs). While sage-grouse may be present, it does not mean that they will be negatively impacted or the area degraded if left open to the public. This document and these alternatives seek to manage for one species---the sage-grouse to the detriment of all other resources	3001
1063	1063-6	Record#50 - It is unrealistic to assert that an entire allotment/pasture should be shut off from grazing if the burned area can't be fenced. This is completely unnecessary, extreme, and reflects an absence for consideration of on-the-ground realities. The allotments can be huge; burned areas can be huge; fencing costly and unrealistic.	3011
1063	1063-5	Record#49-(Alternative F) would exclude livestock from grazing on burned areas until woody and herbaceous plants have reached projected goals for sage grouse habitat objectives. In some areas, that could take 60 years for re-establishment of all woody type cover, during which time, livestock could and should be grazing off competitive grasses and forbs, thereby allowing for earlier realization of expected goal	3011
1063	1063-4	Chapter 2, Table 2.3 (Alternatives E & F): Both of these Alternatives would seek to manage for one species (sage grouse) to the detriment of all other resource uses. It is not necessary to put 1,857,485 acres or 1,786,241 acres under the restrictions of Areas of Critical Environmental Concern. This maneuver has been used in the past to create defacto wilderness areas in perpetuity, a power given only to the Congress of the United States. While sage grouse MAY BE present on the proposed lands, livestock, the oil & gas industry, the mining extraction industry, and the public in general can and have demonstrated co-existence is readily accomplished and has been for decades. Where is the justification and science to support the closeout of nine additional areas as proposed by Alternative E?	3001
1063	1063-3	Chapter 2, Table 2.2 (Alternative E), would lock up Desert Land Entry opportunities to the public. Though these entries have been under utilized, not allowing this option would be unjustified. Any entry would be supposedly managed so as to consider the life cycle of sage grouse, IF they were present, before any grants were made.	3016-1

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1063	1063-2	In particular, Chapter 2, Table 2.2, (Alternative E), would result in the closure of 1,988,927 acres of grazing land. The greatest impact would immediately be reduced oil and gas exploration and development, constraints on mineral exploration and mining operations, as well as huge reductions in livestock grazing. Livestock and sage grouse, as well as other wildlife, have co-existed sustainably on public and private lands for decades. There is no credible scientific data included in the EIS to support or back up this land use proposal, but appears to be only an idea dreamed up by someone very biased.	3001
1064	1064-2	Chapter 2, Table 2.3: Alternatives E & F It is not necessary to put 1,857,485 acres or 1,786,241 acres under the restriction of Areas of Environmental Concerns. While sage-grouse may be present, it does not mean that they will be negatively impacted or the area destroyed if left open to the public. This document and these alternatives seek to be managed for one species - the sage-grouse to the detriment of all other resources.	3001
1065	1065-2	Chapter 2, Table 2.3: Alternatives E & F It is not necessary to put 1,857,485 acres or 1,786,241 acres under the restriction of Areas of Environmental Concerns. While sage-grouse may be present, it does not mean that they will be negatively impacted or the area destroyed if left open to the public. This document and these alternatives seek to be managed for one species - the sage-grouse to the detriment of all other resources.	3001
1068	1068-3	Moreover, when examining the difference between Alternatives D and F there exists a \$5 million net reduction (a calculation the four counties call into question as being significantly undervalued) to the counties' bottom line. Further, all analytical values should aspire to represent current conditions to avoid relying on an inaccurate baseline analysis. To aid in achieving this, we encourage BLM to use present dollar value rather than undertaking its analysis based on 2008 dollars.	3036-2
1068	1068-2	Socioeconomic concerns of the counties in the Planning Area. In examining two proposed alternatives, Alternative D (BLM's preferred alternative) and Alternative E, the contrast and potential implications for the counties in the Planning Area could not be more distinct. BLM projects earnings from resource development in the Planning Area to be \$70.8 million under Alternative D; while under Alternative E BLM projects earnings \$36.9 million. No doubt a reduction in revenue to the tune of \$34 million will affect the four counties' fiscal bottom line, and will bring with it significant impacts to the social and cultural fabric of the Planning Area.	3036-2

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1068	1068-1	Consistency with the Wyoming Sage Grouse Executive Order. We ask that BLM ensure full consistency with the Wyoming Greater Sage-Grouse Core Area Protection Executive Order (EO). The EO has been recognized by the Fish and Wildlife Service as a "sound framework for a policy by which to conserve greater sage-grouse in Wyoming." Further, the EO was developed in partnership with key stakeholders, including BLM, and represents an agreement made by all parties to implement and abide by the core area strategy, including any subsequent EO supplements. Actions that require core area protections outside of core areas, or actions that add additional protective stipulations inside of core areas are inconsistent with the EO and are therefore contrary to the fundamental agreements included in the EO that the stakeholders, again, including BLM, reached.	3035_1
1069	1069-15	There is no way to disconnect the path pursued by the BLM from the economic future of the cities, towns and counties in the Bighorn Basin. The alternatives analyzed in the Supplement, if adopted in whole, will have severe consequences to the economic base of Bighorn, Hot Springs, Park and Washakie Counties and inextricably alter the custom and culture of the Bighorn Basin. Now is the time to pursue an alternative that promotes additional employment and revenue opportunities and celebrates Wyoming's historic fabric. I	3036-2
1069	1069-14	In the Summary of Environmental Consequences by Alternative (p. 2-43), Table 2-6, the BLM projects annual earnings of \$75 million under the no action alternative, Alternative A. For comparison, the BLM projects annual earnings under Alternative C (BLM's resource development alternative) to be \$83.4, Alternative D (BLM's preferred alternative) to be \$70.8 million and under Alternative E to be \$36.9 million. Over the life of the RMP (projected to be 20 years) the overall impact of implementing Alternative E would be a reduction of more than \$678 million, in comparison to the BLM's preferred alternative. In consideration of impacts to quality of life and local culture the BLM considers the selection of Alternative C to have a medium impact, while the selection of Alternative E to have low impact. The BLM does not justify this conclusion. A reduction of more than half of all revenues generated from BLM lands does not constitute a "low impact" to the quality of life and local culture in the Bighorn Basin. The BLM has significantly understated the impact such an action would have. The impact will not just be felt by these sectors. Industries supporting energy, as well as government services, recreation, local businesses and other indirect beneficiaries and local communities will feel the impact. Collectively, energy, tourism, and agriculture in the Bighorn Basin form a balanced economic base that, when supported by federal land management agencies, will grow, expanding into the future. Alternatives E and F disrupt that balanced use in major ways and should be rejected.	3036-2

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1069	1069-13	Hot Springs County estimates that approximately 80 percent of its operating budget is generated from oil and gas revenues and property taxes. The majority of oil and gas production in Hot Springs County is production on BLM lands. In the Bighorn Basin Draft RMP and EIS (p. 3241) the BLM reported that mineral and severance taxes and federal mineral royalties represented 49 percent of total state revenues in fiscal year 2009. The BLM's analysis, as indicated in Table 4-25 (p. 4-142), provides that under Alternative E federal mineral royalties' will be reduced by approximately \$20 million per year in comparison to the BLM's preferred alternative, Alternative D. Further, there would be a reduction of \$9.5 million in state severance taxes and a reduction of \$11 million in local ad valorem production taxes. These are significant figures and are not easily replaced by other revenue streams.	3036-2
1069	1069-11	Record# 9 (p. 2-18) was developed to conform with EO 2011-5. I request that it be modified as follows: Allow only below ground ROWs within designated ROW corridors that cross Greater Sage-Grouse core area. Do not limit the width of below ground ROW corridors as long as new linear facilities are constructed adjacent to existing linear facilities accounting for adequate separation for operating system integrity; safety (construction and operations); appropriate federal, state, and local statutes, regulations, and policies; and land use constraints. If a linear facility is moved away from an adjacent utility to avoid a resource conflict, the new linear facility will still be considered to be within the ROW corridor. Construct new transmission lines between July 1 and March 14 (or between July 1 and November 30 in mapped Greater Sage-Grouse winter concentration areas) and within 0.5 miles on either side of existing 15 kV or larger transmission lines (Map SEIS-23).	3033-1

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1069	1069-10	Grazing management practices maintain or enhance Wyoming rangelands. Properly managed rangelands are capable of sustaining GSG populations and a diversity of plant species appropriate to suitable GSG habitat. EO 2013-3 is consistent with the 2010 FWS identification of improper grazing practices as a potential threat. The language recently added to EO 2013-3 addresses this issue in a manner acceptable to permittees, land management agencies and conservation interests. I request that the BLM incorporate the following language in the section for Sensitive Species: The BLM will collaborate with appropriate Federal agencies, and the State of Wyoming as contemplated under Governor Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a significant causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework. While this language is not a verbatim recitation of the directive contained in EO 2013-3, it is, however, generally consistent with EO 2013-3 and was developed in consultation with the BLM. As contemplated in the proposed language, the State and BLM Wyoming, along with other appropriate federal agencies, will need to coordinate actions during implementation of the Final RMP in order to achieve maximum consistency with EO 2013-3.	3017-1
1069	1069-9	Under Alternative E, the BLM analyzes the closure of the Greater Sage-Grouse Key Habitat Areas ACEC [Area of Critical Environmental Concern] to livestock grazing, even where rangeland health standards have been achieved. This management prescription would apply to 1,988,927 acres—nearly two-thirds of the 3.2 million acres of the public lands managed by the BLM in the Bighorn Basin. Alternative F, although not as egregious, layers additional and unreasonable management constraints on livestock producers. These management actions are not consistent with the BLM's multiple-use mandate and should be dismissed from further consideration.	3017-3
1069	1069-8	Alternative E of the Supplement analyzes the withdrawal of 1,764,621 acres from locatable mineral development. This action would preclude locatable mineral development in areas of known occurrence, including 141,563 acres of bentonite (41 percent reduction) and 17,867 acres of uranium (97 percent reduction). Such an action will have far-reaching impacts on the bentonite industry, which is important to the Bighorn Basin economy. Uranium production which is increasing throughout Wyoming will be eliminated on federal land. Producers of locatable minerals will face additional constraints (i.e., timing) under the management prescriptions outlined in Alternative F. The mining industry, including bentonite producers, has contributed to our understanding of the Greater Sage-Grouse. The BLM should reject Alternatives E and F.	3020

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1069	1069-7	In Record# 76 (p. 2-30) the BLM considers applying a no surface occupancy (NSO) stipulation on all existing leases with lease acreage within 0.6 miles of occupied or undetermined Greater Sage-Grouse leks as a condition of approval. This is contrary to EO 2011-5, stipulation 9, which states: "Existing rights should be recognized and respected." The BLM should dismiss from further consideration this management action.	3019
1069	1069-6	The BLM introduced Record# 72 (p. 2-29) in the Proposed Lander RMP and Final EIS. If the BLM carries this management action forward I request the following modification: Encourage Require unitization when deemed advantageous necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to resources, including greater sage-grouse, so long as the unitization plan adequately protects the rights of all parties including the United States, according to the Federal Lease Form, 3100-11, Sections 4 and 6.	3019
1069	1069-5	It appears that Record# 71 (p. 2-28) was intended to conform to EO 2011-5 stipulations. If the BLM carries Record# 71 forward I request the following modifications: Apply an NSO stipulation within 0.6 mile of occupied or undetermined sagegrouse leks (Map SEIS-15). Lease fluid minerals dependent upon lease location and habitat suitability. Ensure that leasing activities in core and connectivity areas comply with Greater SageGrouse resource management plan actions and remain in compliance with laws, regulations, and policy. Apply a minimum lease size of 640 contiguous acres of federal mineral estate within sage grouse Core Habitat Areas. Lease smaller parcels only when 640 contiguous acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations, and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or commtmitization agreement Apply a TLS to restrict disruptive activity within 0.6 mile of occupied or undetermined sage-grouse leks from March 15 to June 30.	3019
1069	1069-4	EO 2011-5, Attachment A, Sage-Grouse Core Breeding Areas Version 3, defines boundaries of Greater Sage-Grouse core areas in the Bighorn Basin. The core area delineation in Attachment A was not analyzed in the Draft RMP and EIS. This analysis was conducted in the Supplement, Alternative F. I request that the BLM adopt the Version 3 core area geographic boundaries in its final plan.	3035_1
1069	1069-2	Unfortunately, Alternatives E and F of the draft Bighorn Basin RMP Supplement, if adopted, will erode the multiple-use balance Wyoming has achieved. Ninety-seven percent (5,483,281 acres) of the Bighorn Basin planning area is Greater Sage-Grouse occupied habitat. I request that the BLM reject Alternatives E and F. These Alternatives are unreasonable and are inconsistent with EO 2011-5 and 2013-3. The Federal Land Policy and Management Act (FLPMA) provides that land use plans of the BLM "shall be consistent with State and local plans to the maximum extent possible he [Secretary of the Interior] finds consistent with federal law and the purpose of this Act." (43 U.S.C. § 1712 (c)(9)) If the BLM is unable to achieve consistency with EO 2011-5 and 2013-3, I request the BLM to explain how achieving consistency would have resulted in a violation of federal law.	3027-1

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1069	1069-1	I request that the BLM provide its analysis of NTT management actions and other conservation measures as set forth in the BLM's Proposed Lander RMP and Final EIS and noted above in the BLM's Proposed Bighorn Basin RMP and Final EIS. Further, the BLM should provide consideration of other wildlife protections or protections of other resources analyzed which would provide secondary benefit to Greater Sage-Grouse.	3035_1
1070	1070-7	In Alternative E and F, folks will need special permits to recreate, in the proposed Greater Sage-Grouse Key Habitat Areas ACEC - would those permits apply to hunting and trapping? For example could you restrict wolf or cougar hunting in Key Habitat Areas ACEC?	3030
1071	1071-5	In Alternative E and F, folks will need special permits to recreate, in the proposed Greater Sage-Grouse Key Habitat Areas ACEC - would those permits apply to hunting and trapping - for example could you restrict wolf or cougar hunting in Key Habitat Areas ACEC?	3030
1073	1073-15	The purposes of the BLM's Resource Management Plans are "to ensure the best balance of uses and resource protections for America's public lands". Wind farms provide clean, renewable energy for the nation and generate lease revenue on public lands. Power lines provide needed electricity to residential, agricultural and industrial customers. PacifiCorp urges the BLM to recognize the values of wind energy to the American public in conjunction with available and effective management of potential impact to the landscape. Wind energy does not necessarily constitute an industrial setting to citizens enjoying public land. Observing a wind turbine can create a profound reminder of the strength of natural forces in on lookers, and it should not be assumed that siting wind turbines will create an industrial setting for everyone who sees them. The value of wind development for the public good should be evaluated in comparison to the value of visual areas for the public good. PacifiCorp encourages BLM not to automatically override one resource over another.	3032
1073	1073-14	Wind energy projects typically have surface disturbance of less than 3% of the project area, leaving most of the land and vegetation within a project undisturbed. Road and turbine site locations can be designed to minimize surface impacts near water resources, and erosion mitigation techniques can be effectively utilized to reduce erosion during construction. If forest cover needs to be removed for development of a wind project, turbine site, and associated infrastructure layout can be designed to minimize disturbed areas. Areas used only during construction, such as equipment laydown areas, could be restored and allowed to grow to forest after construction was complete. Assuming that all habitats within a wind facility project boundary would be impacted for the life of the project is incorrect. Additionally, wind farm construction can be scheduled to limit disturbance to big game, sage-grouse and other pertinent wildlife habitat, particularly during crucial winter months, or breeding seasons.	3032
1073	1073-13	Co-location of transmission lines in existing or designated corridors can be applied in some circumstances, but may not always be feasible due to conflicts with other mandated reliability and redundancy requirements. PacifiCorp recommends that co-location be considered a possible BMP, but not a requirement.	3033-1

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1073	1073-11	Pacificorp supports the statement in BLM's Alternative F, that allows motor vehicle access to existing roads, however discourages the prohibition of new road construction within 1.9 miles of Greater Sage-Grouse Core Habitat Areas as it may have a negative impact on Pacificorp customers by limiting access for outage response and maintenance activities.	3039-1
1073	1073-10	In order to provide reliable service to customers, and maintain access to power lines, Pacificorp requests the BLM to provide exceptions to Alternative E that currently prohibit new road construction within four miles of an active lek site, and currently restrict motorized use from February 1 through July 31. Additionally, Alternative E would prevent upgrading existing routes and would change route categories. Pacificorp requests the use of existing roads and the authority to make maintenance improvements to access roads associated with our facilities and ROWs. Access to respond to outages and emergencies is necessary in order for Pacificorp and other electric utilities to meet federal mandates for reliability.	3039-1
1073	1073-9	Consequently, utilities often seek conservation partnerships that serve a specific conservation need, provide a benefit to the species and/or habitats considered, provide a cost-effective benefit to ratepayers, and are reasonably commensurate with the level of impact. Pacificorp encourages the BLM to develop incentives for industry that meet these conservation and customer goals. Numerous state sage-grouse plans have either included or are developing incentive programs for industry and private landowners, as these are critical to the overall conservation of sage-grouse and their habitat. Pacificorp encourages the BLM to consider mitigation banks and offsite mitigation as mechanisms to pool habitat conservation resources and target conservation efforts in highest priority areas. Likewise, Pacificorp encourages the BLM to adopt measures consistent with the Wyoming state's efforts regarding mitigation efforts and incentives for early mitigation. Because habitat is the primary factor influencing sage-grouse populations, habitat conservation and enhancement efforts should be a primary focus of minimization and mitigation efforts. For unknown impacts of power lines, Pacificorp recommends that the BLM provide opportunities and incentives to conduct additional research using the research protocols developed by Utah Wildlife in Need (UWIN) in 2012 and endorsed by the Western Association of Fish and Wildlife Agencies (WAFWA). As indicated by WAFWA, such research should be acceptable as a component of a mitigation package for unknown project impacts. In addition, Pacificorp encourages the BLM to continue to work with APLIC to identify potential sage-grouse conservation partnership opportunities with the electric utility industry.	3027-3

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1073	1073-8	APLIC has been working with a group of member utilities and state/federal agency representatives including the BLM to develop Best Management Practices for electric utilities in sage-grouse areas. The APLIC model of collaborative, voluntary efforts -such as the Avian Protection Plan Guidelines, short courses, and guidance documents developed in partnership with the FWS -is serving as a framework for the sage-grouse BMPs. These BMPs are intended to be a living document that is updated and refined as new research is available. Consequently, these BMPs would be easier to update (compared to a RMP) to reflect new science and technology. PacifiCorp and its peers in APLIC are interested in working with the BLM, FWS, and other agencies to develop measures that are practical, effective, science-based, and justifiable to customers and public service commissions. PacifiCorp applauds the BLM for its continued involvement in this BMP effort and encourages the BLM to recognize these BMPs in the Big Horn Basin RMP as an adaptive tool to address sage-grouse/power line issues	3033-1
1073	1073-7	PacifiCorp has agreements in place with FWS regarding our Avian Protection Plans (APP) and efforts to prevent electrocutions of raptors and other protected migratory birds. The use of perch discouragers is precluded in our APPs and agreements with FWS due to associated electrocution concerns. Therefore, PacifiCorp recommends that the BLM remove stipulations that require or recommend perch discourager use in the RMP revision. PacifiCorp also recommends that the BLM seek additional information from APLIC and FWS regarding these concerns; PacifiCorp environmental staff are also available to discuss these concerns with BLM staff and provided associated documentation. Rather than call for the use of perch discouragers, PacifiCorp recommends that the BLM reference the BMPs (see below) currently being developed for power lines in sage-grouse habitat. Likewise, current APLIC guidance should be applied to minimize avian electrocution and collision risks.	3033-1

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1073	1073-6	Perch discouragers were originally designed to reduce raptor electrocutions by moving birds from an unsafe (electrocution risk) perching location to a safer alternative, either on the same structure or an alternate structure located nearby. Recent data has documented poor effectiveness in perch discouragers and greater effectiveness of covers for preventing electrocutions (see Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006), pages 17-18). Despite their declining use by electric utilities, perch discouragers have been installed in attempts to dissuade raptors and corvids from perching or nesting on power poles in areas with sage-grouse or other sensitive prey species. Perch discourager research has shown limited effectiveness in preventing perching, potential for increased nesting on discouragers, and increased electrocution risk associated with perch discouragers. In areas where raven predation on sage-grouse nests is a concern, perch discouragers may aid in the accumulation of nest material (APLIC 2006), and could potentially increase raven predation pressure due to nest construction on discouragers in sensitive areas. The negative impacts of perch discouragers must be weighed against the limited benefits they may provide, particularly if they are contributing to mortalities of protected birds and facilitating increases in predator nesting populations. The avian predators of sage-grouse should also be considered, as different species “exhibit different hunting strategies, and employ different hunting techniques for different prey species. For example, golden eagle diet is largely mammalian (80-90%, Kochert et al. 2002). Golden eagles prey on sage-grouse opportunistically, and typically hunt sage-grouse by stooping from a high soar (Watson 1997, Kochert et al. 2002). Consequently, power poles may not play an important role in eagle predation of sage-grouse. Golden eagles are vulnerable to electrocution mortality (APLIC 2006) and perch discouragers have been correlated with increased eagle electrocution risk (PacifiCorp, in prep.). Common ravens are known predators of sage-grouse nests, yet ravens are able to overcome perch discouragers and may experience higher nesting rates on poles with perch discouragers. Because of these concerns, Pacificorp requests that the BLM consider other more effective alternatives to sage-grouse conservation, such as habitat conservation or enhancement efforts, that are compatible with conservation measures for other protected species (e.g. electrocution prevention measures for raptors and other migratory birds).	3033-1

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1073	1073-5	Installing new power lines underground or converting existing lines from overhead to underground are often raised as possible permit stipulations or mitigation options. However, underground power lines result in increased cost, reduced reliability, greater ground disturbance during construction and repairs, and longer outage periods for customers, and may not always be feasible from an engineering and operations perspective. Underground power lines require a continuous excavation through all habitat types. In sagebrush habitat, this would result in ground disturbance for the entire line route. This is in contrast to overhead lines, which result in a disturbance only at the structure locations. Underground lines would also require excavation for repairs or maintenance, which would result in ground disturbance occurring temporally over the life of the line, not just during initial construction. Ground disturbance during construction, repairs, and maintenance can result in large, permanent displacement of excavated soil and subsequent issues with re-establishing native vegetation and preventing the overgrowth of invasive species. A University of California study (Bumby et al. 2009) found that underground power lines have more environmental impacts than overhead power lines for all categories and most scenarios in southern California. For more detailed discussion of environmental and engineering constraints associated with underground power lines, see Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012), pages 62-63. PacifiCorp encourages the BLM to allow overhead power lines an acceptable alternative in the Wind River/Big Horn Basin District and requests that requirement for placement of lines underground be removed.	3033-2
1073	1073-4	PacifiCorp has been actively engaged with the U.S. Fish and Wildlife Service, BLM, and state agencies on sage-grouse conservation efforts related to projects, planning documents, and utility Best Management Practices (BMPs). This has resulted in consideration of sage-grouse habitat in line siting, efforts to schedule activities to minimize disturbance impacts to sage-grouse, and other conservation measures. PacifiCorp is also working with other APLIC-member utilities and resource agencies (including the BLM, FWS, and state agencies) in the development of Best Management Practices for electric utilities in sage-grouse areas (see discussion below). PacifiCorp encourages the BLM to reference these BMPs in the Big Horn Basin RMP.	3035-7
1073	1073-3	PacifiCorp encourages the BLM to ensure that sage-grouse stipulations included in the Big Horn Basin RMP are consistent with the Wyoming Governor's Executive Order for Sage-grouse.	3035_1
1073	1073-2	PacifiCorp requests that the BLM consider these studies, which use current telemetry techniques and specifically investigate sage-grouse responses to power lines, when addressing power lines in its RMP update.	3033-1

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1074	1074-14	We urge the agency to focus further analysis on an improved Alternative E and the designation of Areas of Critical Environmental Concern for Greater Sage-Grouse and to make these the basis for the final Big Horn Basin RMP. The draft EIS analyzed conservation measures that can be included in the final plan to ensure sustainable management and provide an adequate regulatory mechanism to ensure conservation of the grouse. These include requiring a three percent disturbance standard and designating protected areas.	3035_4
1074	1074-12	e. The Wyoming Core Area Strategies are unlikely to conserve sage-grouse. The new Sage-Grouse Conservation Objectives Draft Report (COT), an accompaniment to the NTT report prepared by a team of federal and state sage-grouse scientists, recommends conserving all sage-grouse populations and avoiding anthropogenic disturbances in key sage-grouse habitat (COT 2012, draft: 29, 33, 35). The COT report indicates that Wyoming's sage-grouse populations must be maintained or restored to help support the species's long-term persistence (COT 2012, draft: 35). The Wyoming Core Area strategies will fail to achieve these goals. New research (Copeland et al, submitted) projects continued sage-grouse population declines at 14-29 percent in Wyoming. The same study estimates that, even when bolstered by \$250 million in targeted conservation easements on private property (a very unlikely assumption), the Core Area policies would only cut anticipated sage-grouse population declines by half in Wyoming, and by two-thirds within high abundance areas.	3035_2
1074	1074-11	d. The Wyoming BLM Core Area strategy's 11-square-mile fluid mineral leasing loophole leaves much core sage-grouse habitat unprotected. The Wyoming BLM Core Area strategy proscribes future leasing of fluid minerals in Core Areas, but only in areas of 11 contiguous square miles of unleased, BLM-managed minerals (BLM IM WY-2012-019). Unfortunately, many sage-grouse Core Areas were already encumbered with prior existing oil and gas leases at the time of their establishment, and the BLM is in many cases citing the existence of these prior existing leases (the majority of which are undeveloped paper assets that have yet to have any effect on sage-grouse habitat on the ground) as a justification for allowing new leasing inside Core Areas. As of July 10, 2012, twelve of the 31 Core Areas in Wyoming were at least 20 percent leased according to WGFD data, ranging up to 66 percent leased. These 12 Core Areas represent almost 4.5 million acres of sage-grouse habitat. Compounding this problem, all but three of the 31 Core Areas have at least 20 percent non-federal mineral ownership, meaning that a large proportion of Core Area is exempt from protection from future leasing. The NTT report takes a much stricter approach to future mineral leasing. It recommends two alternatives: closing all priority habitat (Core Areas) to future leasing, or closing all priority habitat to future leasing unless it could be shown that proposed development would result in a net gain in sage-grouse populations for that Core Area.	3023-3

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1074	1074-10	c. Sage-grouse lek buffers in the Wyoming Core Area strategies are too small. Protecting sage-grouse leks and associated nesting and brooding habitat are fundamental to conserving the species. The best available science has recorded significant negative impacts from producing oil and gas wells drilled within 1.9 miles from active leks (Holloran 2005), [footnote:1 Calculations derived from data presented in the Lost Creek In Situ Recovery Project Final EIS at ES-2, 4.9-8, 4.9-27, and Appendix D.] measureable impacts from coalbed methane fields extend out to 4 miles (Walker 2008), and new research has recorded effects as far away as 12.4 miles from leks (Taylor et al. 2012). WGFD, using lek buffers of 0.25 mile, 0.5 mile, 0.6 mile, 1.0 mile, and 2.0 mile, estimated lek persistence of 4, 5, 6, 10, and 28 percent, respectively (Christiansen and Bohne 2008, memorandum). Unfortunately, both the State and Wyoming BLM Core Area strategies only require protective buffers of 0.6 miles around leks in designated core habitat. By comparison, the NTT report generally recommends a 4-mile lek buffer for siting industrial development in sage-grouse habitat (SGNTT 2011), a prescription in greater accord with the science.	3035_9
1074	1074-9	b. The Wyoming Core Area strategies allow too much development density in core sage-grouse habitat. Scientific research has determined that one energy site per square mile is the density threshold at which significant impacts to sage-grouse populations begin to occur. In accordance with these findings, the Wyoming Core Area strategies set a limit of one energy development site per square mile in core habitat. The same DDCT area used to determine a project's disturbance limit is also used to calculate the density of sites (e.g., number of well sites) that may be developed per square mile. But the DDCT only calculates site density per square mile, rather than capping density at one site per square-mile of land. In cases where the DDCT area is very large, the Core Area strategies may allow more than one well or mine site to be developed in a given square mile as long as the surrounding Core Area lands are relatively free from other development disturbance.	3035_4

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1074	1074-8	The five percent disturbance threshold is not known to conserve sage-grouse long-term and is only a best guess by agencies and others seeking to accommodate development in sage-grouse habitat. Past projects approved prior to implementation of the Wyoming Core Area strategies indicate that sage-grouse are adversely affected at lower levels of disturbance. For example, for the Continental Divide/Wamsutter II Natural Gas Project approved in 2000, 3,000 wells were proposed with 22,400 acres of new surface disturbance, representing 2.1 percent of the planning area (with an average well density of 4 well sites per square mile) (BLM 2000); today, sage-grouse are virtually extirpated in this area, although more than 50 leks existed prior to the project. In contrast to the Wyoming Core Area strategies, the NTT report recommends managing priority sage-grouse habitat so that discrete anthropogenic disturbances cover less than three percent of any single square-mile section regardless of ownership (SGNTT 2011 at 7). Furthermore, once the three percent limit is reached, additional surface-disturbing projects are precluded, and in cases where the three percent limit is already exceeded, restoration must occur to meet this threshold under the NTT recommendations.	3035_4
1074	1074-7	The Wyoming Core Area Strategy Needs Strengthening A study by Copeland et al. (2013) assessing the Wyoming "core area" conservation strategy, which Bureau of Land Management (BLM) plans including the Buffalo draft RMP have generally adopted as the preferred alternative, predicted that recommended conservation measures will reduce the rate of sage-grouse's decline, but will not stabilize grouse numbers or provide for the species's recovery. This indicates that the preferred alternative must be modified. Another study by Knick et al. (2013) concluded that sage-grouse appear to need greater protection, a three percent disturbance standard, rather than the five percent standard provided by the Wyoming core area strategy. The State and Wyoming BLM have failed to incorporate new scientific information in their strategies to enhance sage-grouse conservation "even, in the case of Wyoming BLM, that produced by their own agency. In 2011, the BLM convened a Sage-Grouse National Technical Team (NTT) to review scientific and management information on sage-grouse and sagebrush steppe and produce" A Report on National Greater Sage-grouse Conservation Measures" (SGNTT 2011). The report recommended new management prescriptions that are more conservative than the Wyoming Core Area strategies. The NTT report is a scientific benchmark against which the Wyoming Core Area strategies can be measured.	3035_2
1074	1074-6	Proposed measures for livestock grazing management under Alternatives F represent a strong step in the right direction, and they need to be further strengthened. There are a number of allotments in the Bighorn Basin that are not meeting Healthy Rangeland standards, and these sites of overgrazing are having a negative impact on sage grouse populations and their habitats.	3017-3

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1074	1074-5	Protection measures remain a bit weak for oil and gas development in priority sage grouse habitats, particularly the 0.6-mile NSO buffer to be applied as a Condition of Approval. The one wellpad per square mile and 3% overall disturbance percentage are the appropriate thresholds for sage grouse habitat management, but they need to be applied on a per-square-mile basis and not using a DDCT calculation, which allows for inflation of disturbance density inside the project area.	3023-3
1074	1074-4	We recommend the adoption of the following measures which are proposed for adoption in the Preferred Alternative of other BLM plan revisions or sage grouse amendments (note: comment lists 31 measures, see letter #1074):	3035_8
1074	1074-3	We are concerned that the cumulative impacts section of the draft was incomplete and did not include information from the USGS baseline study. Our review the USGS study finds extensive and overlapping direct and indirect impacts on nearly every acre of priority sage grouse habitat. It is important to analyze these overlapping threats and develop solutions, such as the creation of protected areas that will alleviate these threats and provide an adequate mechanism to conserve the species.	3008
1074	1074-2	In the Douglas Core Area, the State of Wyoming has proposed to subdivide Core Area boundaries into subunits (most of which do not get full Core Area protections) and grant exceptions for development density criteria, timing limitations, and other Core Area protections contained in EO 2011-5 or IM 2012-019 to facilitate oil drilling and production by Chesapeake and other companies. There is no sound scientific basis for these exceptions; proposed compensatory funds cannot reliably purchase the increase of sage grouse populations elsewhere in the Core Area (or indeed anywhere), and the loss of sage grouse populations in this Core Area is not readily remediated. The Bighorn Basin RMP should cure these problems for BLM-managed lands and projects on BLM-managed minerals by establishing Priority and General Habitat boundaries as inviolate and permanent designations (at least throughout the life of the Plan) and by precluding exceptions or waivers of sage grouse measures within these respective habitats. BLM must ensure that all Core Area/Priority Habitat/ACEC protections are nondiscretionary standards, so the agency can rely on them as conservation measures that are adequate and reliable in the context of Endangered Species decisionmaking by the U.S. Fish and Wildlife Service.	3023-3

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Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1074	1074-1	We strongly urge the BLM that Priority Habitats should be withdrawn from future oil and gas leasing, allowing existing leases to lapse as they expire, as in Alternative E. SDEIS at 2-29. From the standpoint of scientific supportability, the Alternative E measures on development density (3% cap, and per square mile section rather than using a DDCT) are scientifically sound, while other Alternatives are inconsistent with scientific findings. Similarly, the one pad per 640-acre section in Alternative E is the proper limit; the 1 pad per 640 acres averaged across a DDCT area does not comport with any of the scientific analyses, each one of which specified that disturbance density calculations were made on a per-section basis and none of which used a DDCT. The NSO/CSU Condition of Approval of 0.25 to 0.6 miles from a lek in the various alternatives will likely result in major impacts to active leks within the Core Areas themselves, as this proximity results in significant impacts to breeding grouse on the lek and will result in development occurring in the midst of the most prime nesting habitats that surround the affected lek.	3023-3
1075	1075-10	Co-location of transmission lines in existing or designated corridors can be applied in some circumstances, but may not always be feasible due to conflicts with other mandated reliability and redundancy requirements. APLIC recommends that co-location be considered a possible BMP, but not a requirement.	3033-2
1075	1075-9	APLIC encourages the BLM to follow Alternative F, which allows motor vehicle access to existing roads, however the prohibition of new road construction within 1.9 miles of Greater Sage-Grouse Core Habitat Areas may have a negative impact for electric utility customers due to limiting access for outage responses and maintenance activities. Rather, BMPs should be applied on a case-by case basis to minimize potential impacts to sage-grouse and their habitat.	3039-1

**Attachment D – Supplement to the Draft Resource Management Plan and
Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1075	1075-7	If mitigating for environmental impacts associated with new construction, utilities often seek conservation partnerships that serve a specific conservation need, provide a benefit to the species and/or habitats considered, provide a cost-effective benefit to ratepayers, and are reasonably commensurate with the level of impact. APLIC encourages the BLM to develop incentives for industry that meet these conservation and customer goals. Numerous state sage-grouse plans have either included or are developing incentive programs for industry and private landowners, as these are critical to the overall conservation of sage-grouse and their habitat. Because habitat is the primary factor influencing sage-grouse populations, habitat conservation and enhancement efforts should be a primary focus of minimization and mitigation efforts. APLIC encourages the BLM to consider mitigation banks and offsite mitigation as mechanisms to pool habitat conservation resources and target conservation efforts in highest priority areas. In the development of such mitigation banks, the potential for future power line corridors should be considered. For unknown impacts of power lines, APLIC recommends that the BLM provide opportunities and incentives to conduct additional studies using the research protocols developed by Utah Wildlife in Need in 2012 and endorsed by the Western Association of Fish and Wildlife Agencies (WAFWA). As indicated by WAFWA, such research should be acceptable as a component of a mitigation package for unknown project impacts. In addition, APLIC encourages the BLM to jointly identify potential sage-grouse incentives and partnerships with the electric utility industry.	3027-3

**Attachment D – Supplement to the Draft Resource Management Plan
and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1075	1075-6	<p>Perch discouragers were originally designed to reduce raptor electrocutions by moving birds from an unsafe (electrocution risk) perching location to a safer alternative, either on the same structure or a nearby structure. Recent data has documented poor effectiveness of perch discouragers and greater effectiveness of covers for preventing electrocutions (see Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 [APLIC 2006], pages 17-18). Despite their declining use by electric utilities, perch discouragers have been required by resource agencies and installed to dissuade raptors and corvids from perching or nesting on power poles in areas with sage-grouse or other special status species. Perch discourager research has shown limited effectiveness in preventing perching. Discouragers can actually increase the potential for nesting on structures because they provide a firm foundation for nest material. Furthermore, use of discouragers to avoid perching on a structure increases electrocution risk by forcing birds to perch in unsafe areas. Perch discouragers may aid in the accumulation of nest material (APLIC 2006), and could potentially increase raven predation pressure due to nest construction on discouragers in areas where raven predation on sage-grouse nests is a concern. The negative impacts of perch discouragers must be weighed against the limited benefits, if any, they may provide, particularly if they contribute to mortalities of protected birds and facilitate increases in predator nesting opportunities. Hunting techniques and strategies of avian predators of sage-grouse should also be considered, because they differ for different prey species. For example, golden eagle diet is largely mammalian (80-90%, Kochert et al. 2002). Golden eagles prey on sage-grouse opportunistically, and typically hunt sage-grouse by stooping from a high soar (Watson 1997, Kochert et al. 2002). Consequently, power poles may not play an important role in eagle predation of sage-grouse. Golden eagles are vulnerable to electrocution mortality (APLIC 2006) and perch discouragers have been correlated with increased eagle electrocution risk (PacifiCorp, in prep.). Common ravens are known predators of sage-grouse nests, yet ravens are able to overcome perch discouragers, will perch on wires, and may experience higher nesting rates on poles with perch discouragers. Because of these concerns, APLIC requests that the BLM consider other more effective alternatives to sage-grouse conservation, such as habitat conservation or enhancement efforts, that are compatible with conservation measures for other protected species (e.g. electrocution prevention measures for raptors and other migratory birds). APLIC supports BLM's integration of the Suggested Practices for Avian Protection on Power Lines: The State of the Art 2006 (APLIC 2006) manual to reduce avian electrocutions and mortality.</p>	3033-1

**Attachment D – Supplement to the Draft Resource Management Plan and
Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1075	1075-5	Installing new power lines underground or converting existing lines from overhead to underground are often raised as possible permit stipulations or mitigation options. However, underground power lines result in significant cost increases, reduced reliability, greater ground disturbance during construction and repairs, longer outage periods for customers, and may not always be feasible from an engineering and operations perspective. Underground power lines can result in impacts to other federally listed species, pose a threat of negative impacts on cultural resources, and may have a negative impact to waterways. Underground power lines require a continuous excavation, including blasting in rocky terrain, through all habitat types. In sagebrush habitat, this would result in ground disturbance for the entire line route and associated access roads. This is in contrast to overhead lines, which result in a disturbance only at the structure locations, and the power line's associated access. Underground lines would also require excavation for repairs or maintenance, which would result in ground disturbance occurring temporarily over the life of the line, not just during initial construction. Ground disturbance during construction, repairs, and maintenance can result in large, permanent displacement of excavated soil and subsequent issues with re-establishing native vegetation and preventing the overgrowth of invasive species. A University of California study (Bumby et al 2009) found that underground power lines have more environmental impacts than overhead power lines for all categories and most scenarios in southern California. For more detailed discussion of environmental and engineering constraints associated with underground power lines, see Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012), pages 62-63. APLIC supports BLM alternatives that allow overhead power lines to minimize habitat impacts versus installing underground power lines.	3033-2
1075	1075-4	APLIC submits that stipulations for sage-grouse included in the Big Horn Basin RMP revision should not include any mitigation requirement unless it is based on valid science, not anecdotal or casual observation, and is specific to sage-grouse. APLIC encourages the BLM to apply the APLIC/agency sage-grouse BMPs, much like the BLM has for APPs, to serve as the current best practices for sage-grouse issues related to electric utility facilities.	3033-1
1075	1075-3	APLIC requests that the BLM consider these studies, which use current telemetry techniques and specifically investigate sage-grouse responses to power lines, when addressing power lines in its RMP updates.	3033-1

**Attachment D – Supplement to the Draft Resource Management Plan
and Draft Environmental Impact Statement
Individual Comments and Index to Summary Comments and Summary Responses**

Table D-1. Individual Comments and BLM Response Index (Continued)

Comment Document Number	Individual Comment Number	Comment Text	Summary Comment Response Number
1075	1075-2	APLIC has been working with a group of member utilities and state/federal agency representatives including the BLM, to develop BMPs for electric utilities in sage-grouse areas. The APLIC model of collaborative, voluntary efforts -such as the Avian Protection Plan Guidelines, short courses, and guidance documents developed in partnership with the FWS -is serving as a framework for the sagegrouse BMPs. These BMPs are intended to be a living document that is updated and refined as new research becomes available. APLIC is interested in working with federal and state agencies to develop measures that are practical, effective, science-based, and justifiable to customers and public service commissions. APLIC encourages BLM to recognize this continued positive partnership in its RMP revision.	3035-7
1075	1075-1	Likewise, APLIC encourages the BLM to ensure that Greater sage-grouse stipulations included in the Big Horn Basin RMP are consistent with the Wyoming Governor's Executive Order for Sage-grouse.	3035_1
1076	1076-2	2) We have concerns of the suggestion that exploration drilling for bentonite, in either core or non-core areas, be elevated from a notice level to a plan of operations level. Bentonite drilling is fairly low impact, and we feel that the activity can easily be managed within the notice-level structure.	3020
1076	1076-1	1) Of the two new supplement options, we support Alternative F as it more closely mirrors the boundaries set forth by the Governor's Executive Order core areas. Conversely, Alternative E is neither a viable or realistic option for our industry. Should the final alternative become a blend of all six options, we would ask that the size of the core area does not exceed the recommendations of the Executive Order.	3035_1
1079	1079-2	Designation of additional areas of critical environmental concern would, however, have negative socioeconomic impacts. The Committee has received testimony from both local government cooperating agencies and state officials to that effect. We support those entities formal comments to the BLM regarding those effects and ask that the BLM consider those impacts and impacts on the local culture in adopting a resource management plan.	3036-2
1079	1079-1	We ask that the BLM work with Governor Mead and state agencies to ensure the Big Horn RMP is fully consistent with the original Executive Order and those modifications made by Executive Orders 2011-5 and 2013-3, Greater Sage-Grouse Area Protection. The Committee further believes the executive orders encompass all of the lands in Wyoming which require additional land use restrictions to ensure a thriving and sustainable greater sage-grouse population in Wyoming. For these reasons, we urge that the BLM reject both alternative E and F. The designation of additional areas as areas of critical environmental concern, whether based upon BLM's "key habitat" labeling or Wyoming's "core area" strategy simply is not necessary given the State's actions in this area.	3035_1

PLACEHOLDER FOR ATTACHMENT E

COMPLETE COMMENTS DOCUMENTS

See the Bighorn Basin RMP Revision website:

<http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn.html>

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix B

Laws, Regulations, Policies, and Guidance

APPENDIX B

LAWS, REGULATIONS, POLICIES, AND GUIDANCE

Appendix B lists the various laws, regulations, policies, and directives applicable to management of Bureau of Land Management-administered lands within the Planning Area, including the following:

- Table B-1: Federal Laws and Statutes;
- Table B-2: Bureau of Land Management Regulations and Policies;
- Table B-3: Applicable Wyoming State Laws and Regulations; and
- Table B-4: Memoranda and Agreements.

Table B-1. Federal Laws and Statutes

Federal Law or Statute	Year
Acquired Lands Act – Act of August 7, 1947; 61 Stat. 913	1947
Act of April 23, 1932; 47 Stat. 136	1932
Act of August 13, 1954 (68 Stat. 708, 30 U.S.C. 521 subpart)	1954
Act of July 23, 1955 (Pub. L. 167; 43 CFR 3710)	1955
Act of June 30, 1950 (16 U.S.C. 508(C) and (e))	1950
Act of October 30, 1978 (92 Stat. 2073-2075)	1978
Act of September 1, 1949, Section 3 (30 U.S.C. 192c)	1949
Act of September 28, 1962 (Pub. L. 87-713, 76 Stat. 652)	1962
American Indian Religious Freedom Act (42 U.S.C. 1996)	1978
Antiquities Act (P.L. 59-209; 34 Stat. 225; 16 U.S.C. 431-433)	1906
Archaeological Resources Protection Act (P.L. 96-95; 93 Stat. 721; 16 U.S.C. 470aa et seq.) as amended (P.L. 100-555; P.L. 100-588)	1979
Archeological and Historic Preservation Act (16 U.S.C. 469-469c-1, P.L. 86-523, 74 Stat. 220, 88 Stat. 174)	1974
Archeological and Paleontological Salvage for Federal Highway Projects (23 U.S.C. 305; 72 Stat. 913 (1958), 74 Stat. 525 (1960))	1960
Bald Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250)	1940
Carey Act of August 18, 1894 as amended (43 U.S.C. 641 et seq.)	1894
Carlson-Foley Act of 1968 (42 U.S.C. 1241-1243)	1968
Classification and Multiple Use Act of September 19, 1964 (78 Stat. 986, 43 U.S.C. 1411–18)	1964
Clean Air Act, as amended	1963
Coastal Zone Management Act (P.L. 92-583, 16 U.S.C. 1451-1456)	1972
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601)	1980
Department of the Interior Secretarial Order 3226, Climate Change and the Department of the Interior	2001
Department of the Interior Secretarial Order 3336, Rangeland Fire Prevention, Management and Restoration	2015
Desert Land Act (19 Stat. 377; 43 U.S.C. 321-323), as amended	1877
Domestic Minerals Program Extension Act	1953
Earl Douglass, 44 L.D. 325, August 6, 1915	1915
Economy Act 1932, as amended, (P.L. 72-211; 47 Stat. 417; 31 U.S.C. 686)	1932
Emergency Planning and Community Right-to-Know Act (42 U.S.C. 11001-11050)	1986
Emergency Wetland Resources Act	1986
Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended	1973

Table B-1. Federal Laws and Statutes (Continued)

Federal Law or Statute	Year
Energy Independence and Security Act	2007
Energy Policy Act (P.L. 109-58)	2005
Executive Order – Public Water Reserve 107	1926
Executive Order 10355 – Delegating to the Secretary of the Interior the Authority of the President to withdraw or reserve lands of the United States for public purposes	1952
Executive Order 11514 – Protection and Enhancement of Environmental Quality	1970
Executive Order 11593 – Protection and Enhancement of the Cultural Environment	1971
Executive Order 11644 – Use of Off-Road Vehicles on the Public Lands	1972
Executive Order 11738 – Administration of the Clean Air Act and the Federal Water Pollution Control Act	1973
Executive Order 11987 – Exotic Organisms	1977
Executive Order 11988 – Floodplain Management	1977
Executive Order 11989 – Off-road Vehicles on Public Lands	1977
Executive Order 11990 – Protection of Wetlands	1977
Executive Order 11991 – Relating to protection and Enhancement of Environmental Quality	1977
Executive Order 12088 – Federal Compliance with Applicable Pollution Control	1978
Executive Order 12580 – Superfund Implementation and 13016 – Amendment to Executive Orders 12580	1987 and 1996
Executive Order 13007 – Indian Sacred Sites	1996
Executive Order 13084 – Consultation and Coordination with Indian Tribal Governments	1998
Executive Order 13112 – Invasive Species	1999
Executive Order 13148 – Greening of the Government through Leadership in Environmental Management	2000
Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments	2000
Executive Order 13816 – Responsibilities of Federal Agencies to Protect Migratory Birds	2001
Executive Order 13195 – Trails for America in the 21st Century	2001
Executive Order 13212 – Actions to Expedite Energy-Related Projects	2003
Executive Order 13287 – Preserve America	2003
Executive Order 6910 and Executive Order 6964, and amendments	1934
Federal Aid Highway Act (23 U.S.C. 107(d) and 317)	1958
Federal Cave Resources Preservation Act (16 U.S.C. 4301 – 4309)	1988
Federal Coal Leasing Amendments Act (90 Stat. 1083-1092), as amended	1976
Federal Coal Management Program Coal Screening Process (43 Code of Federal Regulations [CFR] 3420.1-4)	1997
Federal Facilities Compliance Act of 1992	1992
Federal Land Policy and Management Act	1976
Federal Lands Recreation Enhancement Act	2004
Federal Noxious Weed Act of 1974 (section 15), as amended (7 U.S.C. 2801 et seq.); the first section and section 15 of that Act (7 U.S.C. 2801 note and 7 U.S.C. 2814)	1974
Federal Oil and Gas Royalty Management Act	1982
Federal Plant Pest Act (7 U.S.C. 150aa et seq.)	1957
Federal Property and Administrative Services Act of 1949	1949
Federal Water Pollution Control Act (33 U.S.C. 1251 - 1376), as amended	1948
Federal Water Projects Recreation Act (16 U.S.C 460(L)(12)- 460(L)(21)), as amended	1965
Federal Wildland Fire Management Policy	2001
Fish and Wildlife Conservation Act (16 U.S.C. 2901-2911)	1980
Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e), as amended	1934
Food Security Act of 1985 (16 U.S.C. 3801-3862)	1985

Table B-1. Federal Laws and Statutes (Continued)

Federal Law or Statute	Year
General Allotment Act, Section 4 (25 U.S.C 334), as amended	1887
General Mining Law of 1872, as amended	1872
Healthy Forests Restoration Act (P.L. 108-148)	2003
Historic Sites Act of 1935 (16 U.S.C. 461 et seq.)	1935
Independent Offices Appropriation Act of 1952 (31 United States Code [U.S.C.] 9701)	1952
Lacey Act (18 U.S.C. 42), as amended	1988
Land and Water Conservation Act, as amended (16 U.S.C. 4601-4)	1965
Lode Law Act of 1866 (14 Statute 251)	1866
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715r)	1929
Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 et seq.)	1918
Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351 et seq.)	1947
Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et seq.)	1920
Mining and Mineral Policy Act of 1970 (30 U.S.C. 181 et seq.)	1970
Mining Claim Rights Restoration Act (30 U.S.C. 621-625)	1955
Multiple Mineral Development Act of August 13, 1954 (30 U.S.C. 521-531 et seq.)	1954
National Environmental Policy Act	1969
National Fire Plan	2000
National Historic Preservation Act of 1966 (16 U.S.C. 470)	1966
National Trails System Act (16 U.S.C. 1241-1249), as amended	1968
National Materials and Minerals Policy, Research and Development Act of 1980 (Pub. L. 96-479, 94 Stat. 2305)	1980
National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300)	1998
National Parks and Recreation Act of 1978 (16 U.S.C. 1242 and 1243)	1978
National Trails System Act of 1968 (16 U.S.C. 1241 et seq.), as amended	1968
National Wild & Scenic Rivers Act (16 U.S.C. 1271 et seq.)	1968
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.)	1990
Naval Petroleum Reserves Production Act (43 CFR 2361.1(f))	1976
Neotropical Migratory Bird Conservation Act (P.L. 106-247)	2000
Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.)	1990
Noxious Weed Control Act of 2004 (P.L. 108-412)	2004
O&C Lands Act of 1937 (62 Stat. 162)	1948
Occupational Safety and Health Act (29 U.S.C. 651 et seq.)	1970
Oil Pollution Act (33 U.S.C. 2701 et seq.)	1990
Paleontological Resources Preservation Act of 2009 (P.L.111-11)	2009
Placer Law - Act of July 9, 1870 (16 Stat. 217)	1870
Plant Protection Act (7 U.S.C. 7701-7772)	2000
Pollution Prevention Act (42 U.S.C. 13101)	1990
Public Range Improvement Act (43 U.S.C. 1901 et seq.)	1978
Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.)	1978
Reorganization Plan No. 3 of 1946 (5 U.S.C. Section 402)	1946
Reservoir Salvage Act of 1960 (16 U.S.C. 469), as amended by Archeological and Historic Preservation Act of 1974	1960
Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.) and the Bevill Amendment (Section 3001(b) (3) (A) (ii) and 40 CFR 261.4(b)(7))	1976

Table B-1. Federal Laws and Statutes (Continued)

Federal Law or Statute	Year
Riparian-Wetlands Initiative for the 1990s, The U.S. Department of the Interior, Bureau of Land Management, January 22, 1992	1992
Rivers and Harbors Act of 1899 (10 U.S.C. 1899, Section 10)	1899
Safe Drinking Water Act, as amended 1977 (Pub. L. 95-190; 42 U.S.C. 201, 300 et seq.)	1977
San Juan Basin Wilderness Protection Act of 1984 (16 U.S.C. § 1132)	1984
Sikes Act of 1974, as amended (16 U.S.C. 670 et seq.)	1974
Soil and Water Resources Conservation Act of 1977 (16 U.S.C. 2001 et seq.)	1977
Soil Conservation and Domestic Allotment Act of 1935, as amended (16 U.S.C. 590)	1935
Soil Information Assistance for Community Planning and Resource Development Act of 1966 (42 U.S.C. 3271)	1966
Stock Raising Homestead Act of 1916 as amended (43 U.S.C. 299)	1916
Surface Mining Control and Reclamation Act (30 U.S.C. 1201 et seq.)	1977
Surface Resources Act of 1955 (30 U.S.C. 611-614)	1955
The Act of June 28, 1934; Section 7 (43 U.S.C. 315f), as amended	1934
The Airport and Airway Improvement Act, Section 516 (49 U.S.C. 2215)	1982
The Department of Energy Organization Act (42 U.S.C. 7101 et seq.)	1977
The Engle Act (43 U.S.C. 155 et seq.)	1958
The Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.), as amended	1970
The Land and Water Conservation Fund (43 U.S.C. 460 et seq.)	1965
The Materials Act of July 31, 1947 (30 U.S.C. 601-604), as amended	1947
The Mining and Minerals Policy Act of 1970	1970
The Multiple Mineral Development Act (30 U.S.C. 521-531 et seq.)	1954
The Recreation and Public Purposes Act (43 U.S.C. 869), as amended in 1988	1926
The Wilderness Act of 1964 (16 U.S.C. 1131), as amended	1964
Toxic Substance and Control Act of 1976 (PL104-66), as amended in 1995	1976
U.S. v. Peck, No. 97-8122, 1999 WL 33022	1999
Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management	2000
U.S. Onshore Orders: Onshore Order No. 1 – Approval of operations on onshore Federal and Indian oil & gas leases Onshore Order No. 2 – Onshore oil and gas drilling operations on Federal and Indian oil and gas leases Onshore Order No. 3 – Site security on Federal oil and gas leases Onshore Order No. 4 – Measurement of oil on Federal oil and gas leases Onshore Order No. 5 – Measurement of gas on Federal oil and gas leases Onshore Order No. 6 – Hydrogen sulfide operations on Federal oil and gas leases Onshore Order No. 7 – Disposal of produced water from Federal oil and gas leases	2007 1988 1989 1989 1989 1991 1993
Water Quality Act of 1987, as amended from the Federal Water Pollution Control Act of 1977 (Clean Water Act) as amended (33 U.S.C. 1251 et seq.)	1987
Water Resources Development Act	1974
Water Resources Planning Act (42 U.S.C. 1962a - 1962(a)(4)(e)), as amended	1965
Watershed Protection and Flood Protection Act, as amended (16 U.S.C. 1001 et seq.)	1954
Watershed Restoration and Enhancement Agreements (“Wyden Amendment”) (Public Law (PL)-104-208, Sec. 124, PL 10-5-277, Sec. 136 of the 1999 Interior Appropriations Act of 1998)	1998
Wild and Free Roaming Horse and Burro Act (P.L. 92-195)	1971
Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.)	1968

Table B-2. Bureau of Land Management Regulations and Policies

BLM Directive	Year
Abandoned Mine Lands (AML) National Strategic Plan	2006
Applications for Permit to Drill (APD)	2007
Applications for Permit to Drill Fees	2007
BLM National Greater Sage-Grouse Habitat Conservation Strategy	2004
BLM National Greater Sage-Grouse Planning Strategy Charter	2011
BLM Policy Statement on Riparian Area Management	1987
BLM Wyoming Riparian Management Activity Guide	1991
BLM Wyoming Sensitive Species Policy and List	2002
Cave Management (43 CFR 37.4(c) and (37.11(c)(3)(iii))	1988
Competitive Leasing (43 CFR 3120)	2002
Delegation of Authority, Cooperative Agreements, & Contracts for Oil & Gas Inspection (43 CFR 3190)	1987
Federal Coal Management Program Regulations (43 CFR Group 3400)	1979
Federal Manual for Identifying and Delineating Jurisdictional Wetlands	1991
Fish and Wildlife 2000 BLM National, State and District policies	2000
Geothermal Resource Leasing (43 CFR 3200)	1998
Geothermal Resources Unit Agreements (43 CFR 3280)	1973
Grazing Administration Range Improvements and Water Rights (43 CFR 4100 et seq.)	2002 (revised)
Handbook H-1112-2, Safety and Health for Field Operations Manual	1998
Handbook H-1601-1, Land Use Planning	2005
Handbook H-1703-1, Response Actions NCP/CERCLA	2001
Handbook H-1734-1, Interagency Ecological Site Handbook for Rangelands	2013
Handbook H-1740-2, Integrated Vegetation Management	2008
Handbook H-1741-1, Fencing	1989
Handbook H-1741-2, Water Developments	1990
Handbook H-1742-1, Burned Area Emergency Stabilization and Rehabilitation Handbook	2007
Handbook H-1745-1, Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife & Plants	2001
Handbook H-1790-1, National Environmental Policy Act	2008
Handbook H-2101-4, Pre-Acquisition Environmental Site Assessments	2000
Handbook H-2101-5, Environmental Site Assessments for Disposal of Real Property	2004
Handbook H-2200-1, Land Exchange Handbook	2005
Handbook H-3042-1, Solid Minerals Reclamation Handbook	1992
Handbook H-3101-1, Issuance of Leases	1987
Handbook H-3109-1, Leasing under Special Acts	1995
Handbook H-3110-1, Noncompetitive Leases	1993
Handbook H-3120-1, Competitive Leases (Revised)	2013
Handbook H-3150-1, Onshore Oil and Gas Geophysical Exploration Surface Management Requirements	2007
Handbook H-3160-9, Communitization	1988
Handbook H-3600-1, Mineral Materials Disposal	2002
Handbook H-3720-1, Abandoned Mine Land Program Policy	2007
Handbook H-3809-1, for Mineral Examiners, v. 3-332, Sept., 11, 2007	2007
Handbook H-3809-3, Validity Mineral Reports, June 1969	1969
Handbook H-4180-1, Rangeland Health Standards	2001

Table B-2. Bureau of Land Management Regulations and Policies (Continued)

BLM Directive	Year
Handbook H-4700-1, Wild Horses and Burros Management Handbook	2010
Handbook H-8120-1, General Procedural Guidance for Native American Consultation	2004
Handbook H-8270-1, General Procedural Guidance for Paleontological Resource Management	1998
Handbook H-8342, Travel and Transportation Handbook	2012
Handbook H-9011, Chemical Pest Control	2013
Handbook H-9112, Bridges and Major Culverts	2011
Handbook H-9211-1, Fire Planning Handbook	2012
Instruction Memorandum 1989-201, Legal Responsibilities of BLM for Oil and Gas Leasing and Operations on Split Estate Lands	1989
Instruction Memorandum 99-039, Issuance of Grazing Permits in Compliance with Applicable Laws, Regulations and Policy	1999
Instruction Memorandum 1999-076, Policy on the Use of Certified Weed-Free Hay, Straw, and Mulch on BLM Lands	1999
Information Bulletin 2002-101, Cultural Resource Considerations in Resource Management Plans	2002
Instruction Memorandum 2002-034, Recent Changes in Management Direction: Federal Wildland Fire Management Policy, National Fire Plan	2002
Instruction Memorandum 2002-164, Guidance to Address Environmental Justice (EJ) in Land Use Plans and Related National Environmental Policy Act (NEPA) Documents	2002
Instruction Memorandum 2002-196, Right-of-Way Management-Land Use Planning	2002
Instruction Memorandum 2003-020, Interim Wind Energy Development Policy	2003
Instruction Memorandum 2003-131, Permitting Oil and Gas on Split Estate Lands and Guidance for Onshore Oil and Gas Order No. 1	2003
Instruction Memorandum 2003-147, Application for Permit to Drill – Process Improvement #3 – Cultural Resources	2003
Instruction Memorandum 2005-003, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing	2005
Instruction Memorandum 2005-014, Water Disposal and Land Application Disposal (LAD) in the Powder River Basin	2005
Instruction Memorandum 2005-069, Offsite Compensatory Mitigation Guidelines	2005
Instruction Memorandum 2005-176, Filing of Protests on lands Included in Oil and Gas Lease Sales	2005
Instruction Memorandum 2005-210, Energy Policy and Conservation Act (EPCA) Inventory – Data Compilation for Phases III and IV	2005
Instruction Memorandum 2005-227, NHPA Section 106 and Oil and Gas Permitting	2005
Instruction Memorandum 2005-247, National Environmental Policy Act (NEPA) Compliance for Oil, Gas, and Geothermal Development	2005
Instruction Memorandum 2006-071, Process Improvement for Oil, Gas, Geothermal, Geophysical, and Related Rights-of-Way Approvals	2006
Instruction Memorandum 2006-073, Weed-Free Seed Use on Lands Administered by the Bureau of Land Management	2006
Instruction Memorandum 2006-145, Cooperative Conservation Based Strategic Plan for the Abandoned Mine Lands Program	2006
Instruction Memorandum 2006-060, Incorporating Benefits-Based Management within Recreation and Visitor Services Program Policy Change	2006
Instruction Memorandum 2006-197, BLM Energy and Non-Energy Mineral Policy	2006
Instruction Memorandum 2006-206, Oil and Gas Bond Adequacy Reviews	2006
Instruction Memorandum 2006-216, Wind Energy Development Policy	2006
Instruction Memorandum 2007-043, A Unified Strategy to Implement “BLM’s Priorities for Recreation and Visitor Services” Workplan (Purple Book)	2007

Table B-2. Bureau of Land Management Regulations and Policies (Continued)

BLM Directive	Year
Instruction Memorandum 2007-096, Refinement of the Methodology to Identify Abandoned Mine Land Sites Near Populated Places and High Use Areas	2007
Instruction Memorandum 2007-097, Solar Energy Development Policy	2007
Instruction Memorandum 2008-009, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands	2007
Instruction Memorandum 2008-014, Clarification of Guidance and Integration of Comprehensive Travel and Transportation Management Planning into Land Use Planning	2008
Instruction Memorandum 2008-030, Instructions for Implementing the Final Programmatic Environmental Impact Statement (Final PEIS) Record of Decision	2008
Instruction Memorandum 2008-032, Exceptions, Waivers, and Modifications of Fluid Minerals Stipulations and Conditions of Approval, and Associated Rights-of-way Terms and Conditions	2007
Instruction Memorandum 2008-190, Ensuring Compliance with all Abandoned Mine Lands (AML) Program Policies and Procedures	2008
Instruction Memorandum 2009-011, Assessment and Mitigation of Potential Impacts to Paleontological Resources	2008
Instruction Memorandum 2009-113, Casual Collecting of Common Invertebrate and Plant Paleontological Resources under the Paleontological Resources Preservation Act of 2009	2009
Instruction Memorandum 2009-018, Process for Setting Priorities for Issuing Grazing Permits and Leases	2008
Instruction Memorandum 2009-039, Transmittal of Revised 6840 Special Status Species Manual and Direction for State Directors to Review and Revise Existing Bureau Sensitive Species Lists	2009
Instruction Memorandum 2009-043, Wind Energy Development Policy	2009
Instruction Memorandum 2009-078, Processing Oil and Gas Applications for Permit to Drill for Directional Drilling into Federal Mineral Estate from Multiple-Well Pads on Non-Federal Surface and Mineral Estate Locations	2009
Instruction Memorandum 2009-153, Financial Guarantees for Notices and Plans of Operations	2009
Instruction Memorandum 2010-022, Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken	2010
Instruction Memorandum 2010-088, Guidance on 43 CFR 3809.100 and its Application	2010
Instruction Memorandum 2010-113, Areas of Critical Environmental Concern Boundary Data Standard	2010
Instruction Memorandum 2010-117, Oil and Gas Leasing Reform Land Use Planning and Lease Parcel Reviews	2010
Instruction Memorandum 2010-181, White-nose Syndrome	2010
Instruction Memorandum 2011-004, Transmittal of Revised Recreation and Visitor Services Land Use Planning Guidance	2010
Instruction Memorandum 2012-043, Greater Sage-Grouse Interim Management Policies and Procedures	2011
Instruction Memorandum 2012-044, BLM National Greater Sage-Grouse Land Use Planning Strategy	2011
Instruction Memorandum 2012-067, Clarification of Cultural Resource Considerations for Off-Highway Vehicle Designations and Travel Management	2012
Instruction Memorandum 2012-140, Collecting Paleontological Resources Under the Paleontological Resources Preservation Act of 2009	2012
Instruction Memorandum 2012-141, Confidentiality of Paleontological Locality Information Under the Omnibus Public Lands Act of 2009	2012
Instruction Memorandum 2012-169, Resource Management Plan Alternative Development for Livestock Grazing	2012
Instruction Memorandum 2013-106, Bureau of Land Management Manual No. 6310 and 6320 - Additional Guidance Regarding Public and Cooperating Agency Involvement in and Access to Wilderness Characteristics Inventory Information and the Land Use Planning Process	2013
Instruction Memorandum 2013-142, Interim Policy, Draft - Regional Mitigation Manual Section - 1794	2013
Instruction Memorandum 2013-184, Relinquishment of Grazing Permitted Use on the Bureau of Land Management Administered Lands	2013

Table B-2. Bureau of Land Management Regulations and Policies (Continued)

BLM Directive	Year
Instruction Memorandum WY-98-061, Guidance for Water Quality Assessment and Monitoring for the Implementation of Standard Number Five of the Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing	1998
Instruction Memorandum WY-2001-040, Issuance of BLM (Wyoming) Sensitive Species Policy and List	2001
Instruction Memorandum WY-2003-011	2002
Instruction Memorandum WY-2005-034, Travel Management Guidelines for the Public Lands in Wyoming	2005
Instruction Memorandum WY-2005-046, Conservation Measures and Best Management Practices for the Management of Potential Gray Wolf Habitat	2005
Instruction Memorandum WY-2005-058, Conservation Measures and Best Management Practices for the Management of Potential Canada Lynx Habitat	2005
Instruction Memorandum WY-2006-009, Mass Appraisal – Wyoming Minimum Rental Rates (Small Site Appraisals) – Appraisal Services Directorate	2006
Instruction Memorandum WY-2006-037, Conservation Measures and Best Management Practices for the Management of Potential Black-footed Ferret Habitat	2006
Instruction Memorandum WY-2006-049, Conservation Measures and Best Management Practices for the Management of Grizzly Bear Habitat	2006
Instruction Memorandum WY-2007-018, Conservation Measures and Best Management Practices for the Management of Mountain Plover Habitat	2007
Instruction Memorandum WY-2010-012, Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management Administered Public Lands including the Federal Mineral Estate	2010
Instruction Memorandum WY-2010-013, Oil and Gas Leasing Screen for Greater Sage-Grouse	2010
Instructional Memorandum WY-2012-019, Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management Administered Public Lands Including the Federal Mineral Estate	2011
Instruction Memorandum WY-2012-032, Wyoming BLM Reclamation Policy	2012
Instruction Memorandum WY-2013-046, Transmittal of Mineral Materials Memorandum of Understanding	2013
Instruction Memorandum WY-87-672, August 26, 1987	1987
Instruction Memorandum WY-89-402, Inspection and Enforcement Program for Locatable Minerals Activities	1989
Instruction Memorandum WY-97-111, Report of Conformance of BLM Land Use Plans with the Standards and Guidelines on the Public Lands; Follow-up Maintenance of Land Use Plans	1997
Instruction Memorandum WY-99-20, Complying with Section 106 in Conformance with IM-99-039	1999
Manual Section 1601, Land Use Planning	2000
Manual Section 1613, Areas of Critical Environmental Concern	1988
Manual Section 1626, Travel and Transportation Manual	2011
Manual Section 1703, Hazardous Materials Management	2007
Manual Section 1734, Rangeland Interagency Ecological Site Manual	2010
Manual Section 1740, Renewable Resource Improvements and Treatments	2008
Manual Section 1745, Introduction, Transplant, Augmentation & Reestablishment of Fish, Wildlife & Plants	1992
Manual Section 2220, Land Exchanges	2005
Manual Section 2800, Cadastral Surveys – General	1985
Manual Section 2880, Mineral Leasing Act Rights-of-Way, Glossary of Terms	2012
Manual Section 3060, Mineral Reports – Preparation and Review, April 7, 1994	1994
Manual Section 3809, Surface Management (1985, revised 2001, 2012)	2012
Manual Section 4100, Grazing Administration – Exclusive of Alaska	2009
Manual Section 4180, Land Health	2001
Manual Section 4700, Wild Free-Roaming Horses and Burros Management	2010
Manual Section 3600, Mineral Materials Disposal	2013

Table B-2. Bureau of Land Management Regulations and Policies (Continued)

BLM Directive	Year
Manual Section 6250, National Scenic and Historic Trail Administration	2012
Manual Section 6280, Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation	2012
Manual Section 6301, Wilderness Characteristics Inventory	2011
Manual Section 6310, Conducting Wilderness Characteristics Inventory on BLM Lands	2012
Manual Section 6320, Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process	2012
Manual Section 6330, Management of Wilderness Study Areas	2012
Manual Section 6400, Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management	2012
Manual Section 6500, Manual of Wildlife, Fish and Plant Resources	2002
Manual Section 6840, Special Status Species Management	1988
Manual Section 6840, Special Status Species Policy	2008
Manual Section 7240, Water Quality	1978
Manual Section 7250, Water Rights	1984
Manual Section 7300 Air Resource Management Program Manual	2009
Manual Section 8100, Cultural Resource Management	2004
Manual Section 8110, Identifying Cultural Resources	2004
Manual Section 8120, Tribal Consultation Under Cultural Resource Authorities	2004
Manual Section 8130, Planning for Uses of Cultural Resources	2004
Manual Section 8140, Protecting Cultural Resources	2004
Manual Section 8160, Native American Consultation and Coordination	1990
Manual Section 8270, Paleontological Resource Management	1998
Manual Section 8340, Off-Road Vehicles	1982
Manual Section 8341, Conditions of Use (Off-Road Vehicles)	1979
Manual Section 8342, Designation of Roads and Trails	1988
Manual Section 8343, Vehicle Operations	1979
Manual Section 8344, Permits	1979
Manual Section 8380, Cave and Karst Resources Management	2008
Manual Section 8400, Visual Resource Management	1980
Manual Section 8410-1, Visual Resource Inventory	1986
Manual Section 8431-1, Visual Resource Contrast Rating	1986
Manual Section 9112, Bridges and Major Culverts	2011
Manual Section 9113, Roads Manual	2011
Manual Section 9211, Fire Planning Manual	2012
Mineral Leasing Act of 1920 (43 CFR 2006 3425.1-7(a)(2)(iv, v))	1920
Mineral Leasing Act of 1920 (43 CFR 2006 3461.5(h)(2)(i))	1920
Mineral Leasing Act of 1920 (43 CFR From 3100-11 (July 2006), 43 CFR Part 3160)	1920
Mineral Leasing Act of 1920 and others (43 CFR 2006 3591.1(b)(10))	1920
Mineral Leasing Act of 1920 and others (43 CFR 2006 3430.4-4(a)(10); 43 CFR 2006 3430.4-4(b)(8))	1920
Minerals Management, Generally (43 CFR 3000)	1983
National Contingency Plan Regulations (40 CFR 300)	1994
National Management Strategy for Motorized Off-highway Vehicle Use on BLM Public Lands	2001
National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties	1990
Natural Resource Damage Assessment Regulations (43 CFR Part 11)	1986

Table B-2. Bureau of Land Management Regulations and Policies (Continued)

BLM Directive	Year
Noncompetitive Leasing (43 CFR 3110)	1988
Off-Road Vehicle Implementation Strategy Washakie Resource Area	1994
Oil and Gas Leasing (43 CFR 3100)	1983
Onshore Oil and Gas Geophysical Exploration (43 CFR 3150)	1988
Onshore Oil and Gas Operations (43 CFR 3160)	1982
Onshore Oil and Gas Unit Agreements; Unproven Areas (43 CFR 3180)	1983
Permits for Recreation on Public Lands (43 CFR 2930)	2004
Riparian-Wetlands Initiative for the 1990's, The U.S. Department of the Interior, Bureau of Land Management	1992
Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming	2004
Standards for Healthy Rangelands, Standard #2	1997
Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book	2007
Technical Reference 1734-6 Version 4: Interpreting Indicators of Rangeland Health	2005
Technical Reference 1737 Series: Riparian Area Management Assessing Proper Functioning Condition (PFC) for Lotic and Lentic areas	1998
The Standards for Healthy Rangelands and Guidance for Livestock Grazing Management (43 CFR 4180)	1997
Wyoming BLM Coal/Coal Bed Methane Policy	2000
Wyoming Bureau of Land Management Soil Program Ten Year Strategy	2003

Table B-3. Applicable Wyoming State Laws and Regulations

Wyoming State Laws and Regulations
State of Wyoming Occupational Health and Safety Rules and Regulations
State of Wyoming Oil and Gas Conservation Commission Rules and Regulations
Wyoming Department of Environmental Quality Rules and Regulations
Wyoming State Engineer's Office Statutes, Rules and Regulations
State of Wyoming Water Quality Rules and Regulations
Wyoming Executive Order 2011-5, Greater Sage-Grouse Core Area Protection
Wyoming Executive Order 2013-3, Greater Sage-Grouse Core Area – Grazing Adjustments

Table B-4. Memoranda and Agreements

Memoranda and Agreements	Description	Year
Assistance agreement KAA990028- Abandoned Mine Land (AML) Reclamation Agreement	The AML program in Wyoming currently operates pursuant to this assistance agreement between the Wyoming State Office of the BLM and the Wyoming DEQ. It provides for the cooperative effort between the two agencies for a long-term relationship to efficiently and economically plan for, and share responsibilities to ensure, effective abandoned mine land reclamation on public lands in Wyoming.	
Association of Fish and Wildlife Agencies (AFWA), United States Forest Service (USFS), Bureau of Land Management (BLM), United States Fish and Wildlife Service (FWS)	Policies and guidelines for fish and wildlife management in National Forest and BLM Wilderness.	2006
BLM Memorandum of Understanding WO300-2006-07, April 2006	Facilitate interagency coordination and establish policies and procedures to implement Section 225 of the Energy Policy Act of 2005.	2006
BLM Memorandum of Understanding WO-230-2010-04	Between the U.S. Department of the Interior Bureau of Land Management and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds.	2010
Memorandum of Understanding among federal land managers and U.S. EPA on oil and gas development and NEPA	Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process.	2011
Clean and Diversified Energy Initiative	Recommends initiatives to facilitate the timely leasing and permitting of geothermal resources.	2005
Cooperative Agreements with Weed and Pest Districts: Bighorn County, Hot Springs County, Park County, Washakie County	Details cooperative efforts for noxious weed control on BLM-administered lands by the county weed and pest districts.	
Cooperative Management Agreement between BLM, Worland District, LU Sheep Company, WGFD, Wyoming State Board of Land Commissioners	Details cooperative efforts for road and motor vehicle management for the benefit of watershed and big game within the upper Grass and Enos creek drainages.	1989
Cooperative Management Agreement between BLM, Worland District, WGFD, Wyoming State Board of Land Commissioners, Double-H Ranch	Details cooperative efforts for road and motor vehicle management for the benefit of watershed and big game within the upper Grass, Enos, Lefthand and Middle creek drainages.	June 1994
Double H Ranch Access Area	BLM, Double H Ranch, WG&F – Public Access.	
Grass Creek Travel Management Area	BLM, Wyoming State Board of Land Commissioners, WGFD, LU Sheep Company, Travel Management in Grass Creek area.	
Interagency Agreement between the USFS and the BLM	Establishes procedures for the administration of oil and gas operations on federal leases within the National Forest System.	2006
Interagency between BLM and Bureau of Reclamation Agreement	The BLM has jurisdiction over NOIs to conduct geophysical exploration which involve Bureau of Reclamation (BOR) lands. The BOR will be contacted for their conditions of approval.	
Medicine Lodge Habitat Management Unit Areas	BLM, WGFD – Public Access.	
Memorandum of Agreement WY-117	Memorandum of Agreement among the BLM and the Wyoming Board of Land Commissioners, the Wyoming SHPO and the Advisory Council on Historic Preservation, addresses cultural resource protection in state exchanges.	

Table B-5. Memoranda and Agreements (Continued)

Memoranda and Agreements	Description	Year
Memorandum of Agreement WY-118	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses processing state exchanges.	
Memorandum of Agreement WY-119	Memorandum of Agreement between the BLM and the ASCS, addresses management of agricultural trespass.	
Memorandum of Agreement WY-121	Memorandum of Agreement between the BLM and the National Park Service, addresses management of the Oregon National Historic Trails.	
Memorandum of Agreement WY-122	Memorandum of Agreement among the BLM and the USFS, Wyoming Department of Public Lands, Wyoming Game and Fish Commission, Wyoming Recreation Commission, Wyoming Department of Agriculture, and the Wyoming State Planning Coordinator’s Office, addresses access to public land.	
Memorandum of Agreement WY-131	Memorandum of Agreement between the BLM and the Wyoming Game and Fish Department (WGFD), addresses overall coordination on land and resource management.	
Memorandum of Agreement WY-19	Memorandum of Agreement between the BLM and the Wyoming Governor, addresses overall cooperation in public and state land management efforts.	
Memorandum of Agreement WY-20	Memorandum of Agreement between the BLM and the Wyoming Game and Fish Commission, addresses a myriad of land and resource management issues, including classifications, land acquisition and disposal, and access.	
Memorandum of Agreement WY-21	Memorandum of Agreement between the BLM and Region II and Region IV of the USFS, addresses overall coordination on a myriad of land and resource management issues.	
Memorandum of Agreement WY-63	Memorandum of Agreement among the BLM, the USFS, Wyoming Department of Public Lands and the Wyoming Game and Fish Commission, addresses public land access and management of access problems.	
Memorandum of Agreement WY-65	Memorandum of Agreement between the BLM and the Agricultural Stabilization and Conservation Service (ASCS), addresses overall coordination on a myriad of land and resource management issues.	
Memorandum of Agreement WY-7	Memorandum of Agreement between the BLM and the Wyoming Recreation Commission; addresses land classifications and withdrawals to protect public lands generally, and specifically to protect historic trails.	
Memorandum of Agreement WY-77	Memorandum of Agreement among the BLM, the ASCS, USFS, AES, and Wyoming State Conservation Commission, addresses overall coordination on conservation planning projects.	
Memorandum of Agreement WY930-91-06-38	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses exchange pooling.	
Memorandum of Agreement WY930-91-06-39	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses exchange of state land in holdings in wilderness areas.	
Memorandum of Agreement, between the Wyoming DEQ and the State of Wyoming Oil and Gas Conservation Commission	Wyoming DEQ delegated permitting of road applications for oilfield wastes when the wastes are to be applied on the lease, unit, or communitized area. Wyoming DEQ still has the jurisdiction for permitting road application of oil field wastes outside of the lease, unit, or communitized area.	1999

Table B-5. Memoranda and Agreements (Continued)

Memoranda and Agreements	Description	Year
Memorandum of Understanding between BLM and State of Wyoming Oil and Gas Conservation Commission	Outlines the handling of NOIs to conduct geophysical exploration and sharing of information and compliance inspections. The State of Wyoming Oil and Gas Conservation Commission has jurisdiction over injection wells and spacing.	
Memorandum of Understanding between the BLM and the Department of Agriculture (60F26045-48)	Predator control protocols were formalized in this Interagency Memorandum of Understanding.	1995
Memorandum of Understanding BLM/APHIS-Wildlife Services (ADC)	Detailing cooperative efforts between the two groups on suppression of grasshoppers and Mormon crickets on BLM lands (Document #03-8100-0870-MU, February 27, 2003), and local National Resource conservation Service (NRCS).	2003
Memorandum of Understanding No. WY 19	Between the United States Department of the Interior (DOI) BLM and the Wyoming Department of Environmental Quality (DEQ) Land Quality Division (LQD) and addresses Management Of Surface Mining and Exploration for Locatable Minerals On Public Lands. It was signed November 11, 2003. This is a Supplemental Memorandum to the General Statewide Memorandum of Understanding (Memorandum of Understanding) dated October, 1975, between the Governor of Wyoming and the United States, by and through the State Director, BLM, United States DOI.	2003
Memorandum of Understanding No. WY-920-1301	Between the United States Department of the Interior (DOI) BLM and the Wyoming Department of Environmental Quality (DEQ) Land Quality Division (LQD) for Management of Surface Mining and Exploration for Mineral Materials (Salable Minerals) on Public Lands, signed on September 11, 2013. This is a Supplemental Memorandum to the General Statewide Memorandum of Understanding (Memorandum of Understanding) dated October, 1975, between the Governor of Wyoming and the United States, by and through the State Director, BLM, United States DOI.	2013
Memorandum of Understanding WY920-02-09-108	Between the BLM, the FHWA, and the Wyoming Department of Transportation that defines each agency's responsibilities in regard to processing federal-aid highway appropriations.	2002
Memorandum of Understanding WY920-08-07-192	Memorandum of Understanding WY920-08-07-192 between BLM, the Federal Highway Administration (FHWA), and the Wyoming Department of Transportation, addresses each agency's responsibilities in regard to processing federal-aid highway appropriations. To implement Sections 107(d) and 317 of the federal Aid Highway Act (23 U.S.C. 107(d) and 317), as amended, the agencies operate under this Memorandum of Understanding (updated in August 2007). All appropriations under the Federal Aid Highway Act are required to be consistent with the referenced Memorandum of Understanding.	2007
National Memorandum of Understanding between the BLM and the Department of Defense	This Memorandum of Understanding outlines procedures for processing Notices of Intent (NOIs) to conduct geophysical operations when Air Force, Army, and Navy lands are involved. The Department of Defense will be the lead agency when their lands are involved in an NOI.	
Nowater Off-highway Vehicle (OHV) Trail System	BLM, Wyoming State Trails Program, Worland chamber of Commerce, Ten Sleep Chamber of Commerce.	

Table B-5. Memoranda and Agreements (Continued)

Memoranda and Agreements	Description	Year
Programmatic Agreement Among BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Offices (SHPOs)	Regarding the Manner in which BLM will meet its Responsibilities Under the National Historic Policy Act (NHPA).	2012
Public Access Area Agreements Between BLM and WGFD	Public access area agreements to numerous BLM parcels on South Fork, Shoshone, North Fork Shoshone, Clarks Fork of the Yellowstone River, and Luce and Hogan Reservoirs.	
Renner, Carter Billy Miles Tensleep Public Access Area	BLM, WGFD – Public Access.	
State Protocol Agreement Between the Wyoming BLM State Director and the Wyoming SHPO	Programmatic agreement among the BLM Advisory Council on historic preservation, and the national conference of state historic preservation officers regarding the manner in which BLM will meet its responsibilities under the National Historic Preservation Act.	2014
Western Association of Fish and Wildlife Agencies (WAFWA)/USFS/BLM/USFWS Memorandum of Understanding (08-31-2000)	Involving the management of sage grouse and their habitat.	2000
Wyoming DEQ	There are currently no agreements between BLM and the State of Wyoming DEQ-LQD regarding exploration for or development of non-energy leasable minerals. Wyoming DEQ-LQD processes applications for these minerals under their “Non-Coal” rules and regulations. It is possible that the same Memorandum of Understanding between BLM and Wyoming DEQ-LQD for locatable minerals would have some valuable application should these two agencies need to work together to process applications related to non-energy leasable minerals.	
Yellowstone River Compact	Between the states of Wyoming, Montana, and North Dakota was agreed upon to create an equitable division and apportionment of such waters; this compact ultimately controls the future and current uses of water resources in the basin.	1950

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix C

Monitoring and Evaluation

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APPENDIX C

MONITORING AND EVALUATION

1.0 INTRODUCTION

This appendix provides an overview of the Bighorn Basin Monitoring and Evaluation protocol. Conditions may change over the life of the land use plan and these changes may require different management actions to protect resources and minimize resource conflicts. To address the changing conditions and provide management flexibility that incorporates best management practices (BMP), the Bureau of Land Management (BLM) reviews effectiveness of management actions, assesses the current resource conditions and, if needed, alters management actions.

Due to staffing and funding levels, monitoring will be prioritized consistent with the goals and objectives of the Resource Management Plan (RMP) in cooperation with local, state, and other federal agencies. A system should be established to regularly collect, coordinate and distribute monitoring data collected by other federal and state agencies. Changes to monitoring may result from developing technologies or a better understanding of information.

The monitoring framework for greater sage-grouse is provided in Appendix Y.

2.0 DATA COLLECTION

In cooperation with local, state and other federal agencies, the BLM will collect, analyze, and report monitoring data that allows for the determination of cause and effect, conditions, trends and predictive modeling of land use authorizations. Monitoring methods are implemented to collect data that establish current conditions and reveal any change in the indicators. Monitoring techniques consider when, where, and frequency. The data collected through monitoring provide a variety of information applicable to one or more resource uses. To increase effectiveness, efficiency and eliminate duplication, monitoring methods should be designed to address as many uses as possible. The BLM will collaborate with cooperating agencies and permittees to assist in or perform this data collection.

3.0 DATA ANALYSIS

Data will be analyzed to determine the change that has occurred as a result of management actions. Data analysis will be conducted on a predetermined schedule that considers the data collection frequency for detecting change. Data will also be recorded and organized to facilitate analysis to be used in assessing management actions. Analyzed data will be assessed to determine whether the resource conditions are meeting the planned goals; whether a change has occurred, and if so, identify the cause; and what appropriate action should be taken to achieve the desired outcome if the objective is not being met. New technology and management methods will be reviewed to determine their applicability in modifying or replacing current management actions. The BLM will collaborate with cooperating agencies to assist in or perform this data analysis.

4.0 DECISION

When the assessment shows that the goals are still valid but the outcome is not being achieved, the cause of non-achievement will be documented and a change or modification in management actions would be warranted to address the causal factors. The assessment will develop recommendations to be considered by management for continuation, modification, or replacement of current management actions. Because adoption of a new management action may require changes in the monitoring plan, the assessment will also evaluate the effectiveness of the monitoring and data collection methods and recommend continued use, modification, or elimination of those methods.

5.0 ESTABLISHMENT OF MONITORING PROTOCOLS

Establishing monitoring protocols will follow BLM program specific policy and, where appropriate, the general seven step principles outlined in the Regional Framework for Water-Resources Monitoring Related to Energy Exploration and Development. Those steps are:

1. Specify monitoring goals and objectives.
2. Characterize anthropogenic stressors that may affect receptors and parameters of interest.
3. Develop regional questions and conceptual models to describe the process and pathways anthropogenic stressors may affect receptors.
4. Suggest indicators to measure the effects of anthropogenic stressors, and define existing information availability and needs.
5. Estimate the sensitivity of the indicators to detect change, to guide final indicator choice, and monitoring design.
6. Describe a process by which management can identify thresholds of change requiring a management response as indicated by causal factors.
7. Identify clear connections between the overall monitoring program and management decision process.

6.0 RESOURCE MONITORING TABLE

The resource monitoring table (Table C-1) identifies the indicator that will be monitored to detect change in resource conditions, the method or technique of monitoring, the locations for monitoring, the unit of measurement for monitoring, the frequency for monitoring, and the action triggers that indicate the effectiveness of the management action. Footnotes in Table C-1 indicate where monitoring is generally conducted by stakeholders or cooperating agencies.

Table C-1. Resource Monitoring Table

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Air Quality ¹	M-1	Air quality.	Ambient air sampling and air quality modeling.	Established Monitoring Stations.	Parts per million.	Hourly to 24-hour samples in accordance with standards.	Samples exceeding National Ambient Air Quality Standards.
	M-2	Gaseous and particulate critical air pollutants.	Emission inventory.	Established Monitoring Stations.	Pounds per hour and tons per year.	Annually.	Samples exceeding Ambient Air Quality Standards or levels of concern.
Cultural ²	M-3	National Register eligible sites.	Site inspection.	Area wide.	Disturbance.	Annually.	Disturbance as a result of land uses or vandalism, fire, and severe weather events such as flooding and erosion.
Fire	M-4	Fire fuels.	Site inspection.	Wildland-urban interface and industrial interface areas.	Acres.	Annually.	Presence of fire fuels that present a risk to communities and industrial sites.
	M-5	Vegetation condition.	Ecological site condition and trend studies.	Vegetation types where there is a history of fire in the ecosystem.	Representative sample.	Annually.	Vegetation growth trend is moving away from desired conditions for the vegetation type.
	M-6	Resource and property damage.	Fire behavior.	Individual fire.	Fire temperature, flame length, burn rate, and acres burned.	While the fire is burning.	Acres burned and fire intensity that exceed prescription.
Forestry	M-7	Forest Health.	Ecological site condition and trend.	Forested lands.	Representative sample area.	Every 3 to 5 years.	Disease, insect infestation, or encroachment of undesirable plant species threatens forest health.
	M-8	Timber stands.	Timber stand examination.	Commercial forested areas.	Board feet, age class, and damages.	Every 10 to 20 years.	Basal area growth does not meet timber type standards.
Lands and Realty	M-9	Realty authorization compliance.	Site compliance inspection.	Area wide.	Number of site inspections.	Annually.	Non-compliance or non-use.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Livestock Grazing	M-10	Vegetation condition	BLM approved monitoring methods; monitoring plans are included in Allotment Management Plans.	All areas being grazed.	Representative sample of grazed area.	Every 5 to 10 years On a priority basis monitor allotments before livestock turnout.	Conditions are not meeting goals and objectives for vegetation due specifically to livestock grazing management. Inconsistent with Guidelines for Livestock Grazing Management, and Wyoming Rangeland Monitoring Guide, and similar guidance updated over time. Not meeting or moving towards Wyoming Standards for Healthy Rangelands.
	M-11	Forage utilization	Utilization study plot or site visit; monitoring plans are included in Allotment Management Plans.	Priority allotments or as needed.	Representative sample of grazed area.	On a priority basis, monitor during and after the area has been grazed.	Utilization consistently exceeds prescribed levels identified in the utilization Appendix W or the vigor of key plant species is declining.
	M-12	Livestock numbers.	Counts and site visits; monitoring plans are included in Allotment Management Plans.	Varies by allotment.	Number of allotments or operators inspected.	Annually or when livestock are moved on or off the allotment.	Livestock numbers exceeding permitted numbers or in areas unauthorized.
Minerals	M-13	Surface disturbance.	Remote sensing or site inspection.	Mineral development sites.	Acres disturbed.	Bi-annual or more.	Acres disturbed exceeding the range established for the area.
	M-14	Compliance with authorization.	Area inspection.	Area wide.	Compliance.	During operations at least bi-annually.	Non-compliance.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Off-Highway Vehicles	M-15	Off-highway vehicle disturbance; establishment of unauthorized vehicle routes.	Remote sensing or site visit; traffic counter data.	Travel Management Area; site-specific to area of disturbance.	Miles of routes; acres of disturbance.	Prioritize areas and monitor higher priority areas every 1-3 years and lower priority areas every 2-4 years.	Disturbance exceeding the baseline, accelerated soil erosion occurring, and vegetation being removed.
Paleontology	M-16	Significant paleontological resources.	Site inspection.	Site.	Degradation or loss of significant fossil resources.	Annually.	Loss or damage to significant fossil resources as a result of human or natural causes.
Recreation	M-17	General recreation use; realization of desired beneficial outcomes.	Onsite Inspection, visitor use data, surveys; document user conflicts or complaints.	Area wide with emphasis on SRMAs and ERMA's with high visitation; areas not managed as recreation management areas but recognized for recreational use and resources.	Changes to desired recreation setting characteristics; changes in experiences and realized desired beneficial outcomes; changes in types, seasons or levels of use.	Prioritize areas and monitor higher priority areas (SRMAs and ERMA's) every 1-3 years and lower priority areas every 3-5 years.	When visitor surveys or public comments indicate that recreation area management objectives are not met; when desired settings, experiences, and beneficial outcomes are not realized; when change is causing undue or unnecessary degradation of the site or area; when change is causing goal interference and conflicts.
	M-18	Concentrated recreation use.	Inspect developed recreation sites or areas that have facilities.	Recreation site.	Condition of recreation site, facilities, visits and visitor days.	Annually.	When change is causing undue or unnecessary degradation of facilities and use areas; public complaints.
	M-19	Compliance with commercial authorization.	Administrative review, site inspection.	Activity site.	Permit stipulations, resource conditions, and site restoration.	During and after an event; annually for other commercial users.	When non-compliance is determined or degradation of resources is occurring.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Special Designations and Management Areas	M-20	Resource condition.	Site visit or remote sensing.	Special designation and management area.	Amount of degradation or loss of resources; impacts to important and relevant resources.	The BLM will monitor the impacts that Resource Management Plan implementation and other approved projects have on National Trail resources, qualities, values, and associated settings and the primary use or uses, including determining the effectiveness of design features, project stipulations, and mitigation measures on a regular basis as the Resource Management Plan and projects are implemented.	Undue or unnecessary degradation or loss of resources or important and relevant resources as a result of human or natural causes.
Wilderness Study Areas	M-21	Wilderness Characteristics (size, naturalness, outstanding opportunities for primitive and unconfined recreation or solitude, supplemental values).	Site visits; aerial monitoring.	Wilderness Study Areas (141,068 acres).	Miles of linear human intrusions; acres disturbed; impacts to wilderness characteristics identified by onsite visit or public comment.	Annually.	Failure to meet the non-impairment standard or other objectives outlined in Manual 6330.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Travel and Transportation Management	M-22	Roads and trails. ³	Route management categories and maintenance levels; onsite inspection or remote sensing; traffic counter data.	Area wide.	Miles.	Per Facility Asset Management System Condition Assessment Plans.	Conditions represent a hazard to life and property; route conditions do not meet identified road standards.
	M-23	Seasonal closures. ⁶	Aerial and field inspections.	Travel Management Areas with seasonal closures for wildlife.	Acres.	Every 5 years.	Changes in use of seasonal habitat requiring closure.
Vegetation	M-24	Trend.	BLM approved monitoring methods.	Area wide.	Representative sample.	Every 2 to 10 years.	Not meeting or moving towards the goals and objectives for 4000 Biological Resources (BR) Vegetation-Grassland and Shrubland Communities or the Wyoming Standards for Healthy Rangelands.
	M-25	Precipitation. ¹	Weather stations.	Representative sample to detect precipitation patterns.	Inches of precipitation.	Monthly and annually.	N/A.
	M-26	Climate. ¹	Weather stations.	Representative sample to detect patterns.	Degrees.	Monthly and annually.	N/A.
	M-27	Noxious weed and invasive plant trends. ⁴	Remote sensing or site visit.	Priority areas.	Acres of established weeds and potential habitat areas.	Annually.	Spreading or establishment of invasive species in new areas.
	M-28	Special Status Species.	Site inspection.	Special Status Species' habitats.	Population and trend.	Annually.	A declining trend in populations.
	M-29	Wetland/riparian condition.	Proper Functioning Condition.	Priority wetlands/riparian areas.	Stream miles and acres along with rating.	Every 1 to 3 years.	Not achieving Proper Functioning Condition or not exhibiting and upward trend.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Visual Resource Management	M-30	Project conformance with VRM Class Objectives.	Remote sensing or site visit; Visual Resource Contrast Rating from Key Observation Points; Visual simulations.	Class I, II, and sensitive III and IV areas.	Measure the degree of contrasting elements against the surrounding natural elements of the landscape (color, form, line, etc.) before and after implementation of an action.	Visual Contrast Ratings will be prepared for projects in visually sensitive areas; comparison of pre and post implementation data will evaluate the sufficiency of project design features in meeting VRM Class Objectives.	Intrusion that exceeds thresholds for meeting VRM Class Objectives.
Water Quality, Watershed and Soils Management	M-31	Surface water quality. ⁵	Water sampling.	All surface water.	Milligrams per liter and tons per day.	On a priority basis.	Water quality does not meet state standards.
	M-32	Groundwater quality. ⁵	Groundwater sampling.	Established monitoring stations.	Representative sample of water quality.	Annually.	Water quality does not meet state standards and water is migrating from one aquifer to another.
	M-33	Channel geometry.	Riparian cross sections.	Priority streams.	Change in stream channel (width, depth, side channel modification, and bank sloughing).	Every 1 to 3 years.	Conditions are moving away from Proper Functioning Condition.
	M-34	Soil erosion uplands.	Visual observation and surveyed erosion pins.	Area wide where land use activities are occurring.	Soil loss in tons per acre.	Visual examination while land use activity is active and annual site surveys.	When soil loss is accelerated beyond natural levels.
	M-35	Soil erosion on stream banks and floodplains.	Visual observation and surveyed erosion pins.	Area wide where land use activities are occurring.	Area affected in square feet or acres.	Visual examination while land use activity is active and annual site surveys.	Water table is shrinking beyond average precipitation fluctuations.
	M-36	Soil compaction.	Penetrometer or visual inspection.	Area affected by land use activities.	Pounds per square inch.	1 to 2 times annually.	Compaction restricts water infiltration and plant growth.
	M-37	Soil compaction, porosity, permeability, and depth to water.	Monitoring wells (peizometers).	Riparian areas.	Depth to water table.	Every 2 to 3 years.	Accelerated stream bank soil loss.

Table C-1. Resource Monitoring Table (Continued)

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Wildlife and Fisheries ⁶	M-38	Big game seasonal habitat.	Aerial and field inspections.	Crucial wildlife habitat areas.	Numbers during occupancy periods.	Annually.	A change in numbers beyond the normal fluctuations.
	M-39	Special Status Species occupancy and productivity.	Aerial and field inspections.	Habitat areas and established buffer zones.	Numbers during occupancy periods.	Annually.	A decline in numbers beyond the normal fluctuations.
	M-40	Threatened and endangered species occupancy and productivity.	Aerial and field inspections.	Habitat areas and established buffer zones.	Numbers during occupancy periods.	Annually.	A decline in numbers beyond the normal fluctuations.
	M-41	Macroinvertebrate indicator species.	Collecting macroinvertebrate species.	Perennial streams.	Species and condition of macroinvertebrates.	Every 2 to 10 years.	No presence of macroinvertebrates that represent good quality water in the stream.
	M-42	Neo-tropical bird habitat.	Site visit.	Area wide.	Numbers during occupancy period.	Every 2 to 3 years.	Declining trend in habitat occupancy.
	M-43	Raptors.	Site visit.	Area wide.	Nest occupancy rate.	Every 2 to 5 years.	Declining trend in nest site occupancy.
Waterway corridors eligible for inclusion into the National Wild and Scenic River System	M-44	Waterway-specific identified ORV.	Site visits, monitoring, and project proposals.	Eligible waterway corridors.	Miles of linear human intrusions; acres disturbed, impacts to corridor specific ORVs as observed by onsite visit, public comment, or project proposals.	Annually, or when site specific issue arises.	Impacts to corridor specific identified ORVs.

¹Wyoming Department of Environmental Quality, Air Quality Division is responsible for data collection.

²The State Historic Preservation Officer is responsible for data collection.

³The County with jurisdiction is responsible for data collection.

⁴The Weed and Pest District and the Animal and Plant Health Inspection Service are responsible for data collection.

⁵Wyoming Department of Environmental Quality, Water Division is responsible for data collection.

⁶Wyoming Game and Fish Department is responsible for data collection.

BLM Bureau of Land Management
 ERMA Extensive Recreation Management Area
 N/A Not Applicable

ORV Outstandingly Remarkable Value
 SRMA Special Recreation Management Area
 VRM Visual Resource Management

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix D

Implementation

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APPENDIX D

IMPLEMENTATION

1.0 GENERAL

Implementation of the Bighorn Basin Resource Management Plan (RMP) will require continued involvement of cooperating agencies, both in terms of funding and time, and continued public participation. This appendix describes the basic elements of implementing the Bighorn Basin RMP.

2.0 IMPLEMENTATION WORKING GROUP

Each field office will implement its respective RMP. To ensure overall coordination, Bureau of Land Management (BLM) and the cooperating agencies should meet at least yearly to provide support for the implementation prioritization, review recommendations for changes to implementation strategies and review monitoring evaluation results. This group is called the Implementation Working Group. Implementation Working Groups will serve in a recommending capacity as the BLM cannot relinquish its decision-making authority or responsibility. A single Implementation Working Group may serve both field offices, or an Implementation Working Group may be convened for each field office. All Implementation Working Group meetings will be open to the public, and announced on the BLM website.

The Implementation Working Group will ensure implementation is orderly and without duplication or confusion. The Implementation Working Group will look at interdisciplinary and interagency implementation rather than resource-by-resource implementation to make recommendations regarding the best use of funding and personnel from both cooperating agencies and the BLM.

3.0 IMPLEMENTATION TRACKING DATABASE

A database has been developed for both the Cody and Worland Field Offices to track the budget, monitoring, and implementation actions. Once the database has been populated, it will require continual maintenance and updates to accurately track the implementation process. Information will be collected based on quarterly performance evaluation (PE) accomplishment reporting, and complete fiscal year reports will be published with analysis on the BLM website by December 31 of each calendar year.

4.0 MONITORING WORKING GROUP

To ensure that monitoring methods are in place, a Monitoring Working Group will be assembled to develop an overall monitoring plan, utilizing existing monitoring information from the various members of the Implementation Working Group. The team's guidance and direction will be provided through Appendix C, Monitoring and Evaluation. The BLM is responsible to apply monitoring procedures and protocols that are based on BLM policies, field office priorities and available funding. The BLM intends to monitor the **implementation** of the entire RMP as a separate process from monitoring the impacts. The appropriate field manager will make final decisions on the monitoring plans, monitoring priorities, and whether or not monitoring data collected by other agencies meets the specific needs of the BLM.

The BLM Field Manager will assess the monitoring needs and consider additions or changes proposed by the Monitoring Working Group.

Since some monitoring data is being collected and provided by other federal and state agencies to the extent of their specific missions and expertise, a system will be established to regularly collect and coordinate this data. The team will also be responsible for collecting data to determine if the implemented actions are meeting stated goals and objectives or desired outcomes.

5.0 ACTIVITY PLAN WORKING GROUPS

Activity Plan Working Groups (APWG) consisting of local, state, and federal governments will be formed for new projects when circumstances dictate. Cooperating agencies in these APWGs will assist the BLM in developing alternatives and preparing environmental analyses. APWGs will serve in a recommending capacity as the BLM cannot relinquish its decision-making authority or responsibility. As an example, travel management plans would be developed with an APWG.

The objectives of APWGs include the following:

- Minimizing analysis and decision making controversy by being proactive rather than reactive to public land use and resource conflicts.
- Providing effective, cost-efficient, and collaboratively-based solutions to resource conflicts.
- Improving resource conditions by recommending practices appropriate to special situations.
- Streamlining public land authorizations, increasing implementation flexibility, and notifying public land users of required practices.
- All APWG meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any APWG meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

6.0 PUBLIC INVOLVEMENT

A website where the public can quickly and easily access data concerning implementation should be developed and kept current. Creating this website and maintaining it through the implementation cycle will be a vital part of implementation success. The public is welcome to provide implementation comments to the BLM any time during the cycle, but schedules for implementation planning decisions will be posted so the public can make timely comments. All APWG meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any APWG meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

***Proposed Resource Management Plan and
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Bighorn Basin Resource Management Plan Revision Project

Appendix E

Consultation Letters and Cooperating Agency
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APPENDIX E

**CONSULTATION LETTERS AND COOPERATING AGENCY
POSITION STATEMENTS**

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1.0 CONSULTATION LETTERS

Section 7 Consultation Letters


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Alex_Schubert@fws.gov
 11/17/2008 12:04 PM
 To: BBRMP_WYMail@blm.gov
 cc: Caleb_hiner@blm.gov
 Subject: Scoping comments on Bighorn Basin RMP

Please see attached comments.
 (See attached file: WY09FA0023 scoping for Bighorn Basin RMP.pdf)

Alex L. S. Schubert
 Fish and Wildlife Biologist
 USFWS Wyoming FO
 307.772.2374 ext. 238
 (See attached file: WY09FA0023 scoping for Bighorn Basin RMP.pdf)

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United States Department of the Interior
 FISH AND WILDLIFE SERVICE
 Ecological Services
 5353 Yellowstone Road, Suite 308A
 Cheyenne, Wyoming 82009

In Reply Refer To:
 ES-61411/W.02/WY09FA0023
 November 13, 2008

Memorandum

To: Field Managers; Bureau of Land Management; Cody and Worland Field Offices; Cody, Wyoming; Worland, Wyoming

From: Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming /s/ Scott Hicks for Brian T. Kelly

Subject: Scoping Comments for Bighorn Basin Resource Management Plan

Thank you for the opportunity to provide scoping comments on the proposed Bighorn Basin Resource Management Plan (RMP). The Bighorn Basin RMP will be a combined effort of the U.S. Bureau of Land Management's (BLM) Cody and Worland Field Offices and will replace the current Cody and Worland RMPs. The Bighorn Basin RMP will provide future direction for approximately 3.2 million surface acres and 4.2 million acres of Federal mineral estate in north-west Wyoming. The Bighorn Basin RMP will establish goals and objectives for resource management; identify lands that are open or available for certain uses, including any restrictions and lands that are administratively unavailable to certain uses; provide comprehensive management direction for all resources and uses; and make broad scale decisions guiding future site-specific implementation decisions. The area covered by the Bighorn Basin RMP includes 12 Wilderness Study Areas, nine Areas of Critical Environmental Concern, two areas of special designation, and seven special recreation management areas. The planning area for the Bighorn Basin RMP includes part of Hot Springs County, and all of Park, Washakie, and Big Horn Counties, Wyoming.

In response to your request to review the proposed action, we are providing you with comments on (1) threatened and endangered species, (2) migratory birds, and (3) wetlands and riparian areas. The Service provides recommendations for protective measures for threatened and endangered species in accordance with the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Protective measures for migratory birds are provided in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703 and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956, as amended, 70 Stat. 1119, 16 U.S.C. 742a-742j.

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Threatened and Endangered Species

The following threatened or endangered species could occur in the project area:

Black-footed ferret: Black-footed ferrets (*Mustela nigripes*) may be affected if prairie dog towns are impacted. Please be aware that black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns (see our February 2, 2004, letter previously provided to your office). However, we encourage the Bureau to protect all prairie dog towns for their value to the prairie ecosystem and the many species that rely on them. We further encourage you to analyze potentially disturbed prairie dog towns for their value to future black-footed ferret reintroduction.

If white-tailed prairie dog towns or complexes greater than 200 acres will be disturbed, surveys for ferrets may be recommended in order to determine if the action will result in an adverse effect to the species. Surveys are recommended even if only a portion of the white-tailed prairie dog town or complex, as identified in our enclosed letter, will be disturbed. According to the *Black-Footed Ferret Survey Guidelines* (USFWS 1989), a prairie dog complex consists of two or more neighboring prairie dog towns less than 7 km (4.3 miles) from each other. If a field check indicates that prairie dog towns may be affected, you should contact this office for guidance on ferret surveys.

Canada lynx: Canada lynx (*Lynx canadensis*) and their primary prey, snowshoe hare (*Lepus americanus*), are strongly associated with boreal forest comprised of conifer species, in particular, spruce and fir types. Within critical habitat, four primary constituent elements necessary for the conservation of lynx have been identified. These include: (1) presence of snowshoe hares and their preferred habitat conditions, including dense understories of young trees or shrubs tall enough to protrude above the snow; (2) winter snow conditions that are generally deep and fluffy for extended periods of time; (3) sites for denning having abundant, coarse, woody debris, such as downed trees and root wads; and (4) matrix habitat (other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition such that lynx are likely to travel through such habitat unimpeded.

Canada lynx were listed on March 24, 2000 (65 FR 16052) in the contiguous United States as threatened. Concentrations of lynx observations occur in western Wyoming in the Wyoming and Salt River ranges and continue north through the Tetons and Absaroka ranges in and around Yellowstone National Park. Numerous records have also come from the west slope of the Wind River Range, with fewer observations in the Bighorn and Uinta mountains (Reeve *et al.* 1986). To most benefit lynx, habitats should retain an overstory for concealment and forested connectivity between feeding, security, and denning habitats. We recommend that you adequately assess the potential effects of this proposal to lynx and snowshoe hare in order to ensure the project does not result in loss of valuable lynx habitat.

Proposed revised Canada lynx critical habitat: On February 28, 2008, the Service published a Proposed Rule (73 FR 10860) to revise the designated critical habitat for the contiguous United States distinct population segment of the Canada lynx. Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing activities that result in the destruction or adverse modification of critical habitat. Section 7 of the Act requires consultation on Federal actions that may affect critical habitat. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to result in destruction or adverse modification of proposed critical habitat.

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The proposed revised critical habitat occurs in areas that are considered to be occupied by lynx and currently contain the physical and biological features essential to the conservation of lynx. In Wyoming, which is part of Unit 5 – Greater Yellowstone Area, critical habitat for lynx has been proposed for portions Fremont, Lincoln, Park, Sublette, and Teton Counties, including parts of Yellowstone National Park and Bridger-Teton and Shoshone National Forests, and small areas of Bureau of Land Management and private lands.

Maps of the proposed revised critical habitat and more detailed location information are available at <http://mountain-prairie.fws.gov/species/mammals/lynx/>.

Gray wolf: The Service had removed the Northern Rocky Mountain Distinct Population Segment of the gray wolf (*Canis lupus*) from the list of threatened and endangered species under the Act (73 FR 10514). On July 18, 2008, a Federal District Court issued a preliminary injunction that immediately reinstated the Act's protections for wolves in the northern Rocky Mountains. In September 2008, the Service requested the court vacate and remand the final delisting rule back to the Service. The court granted the Service's request on October 13, 2008. The Service recently reopened the public comment period on its proposal to delist the gray wolf in the northern Rocky Mountains and intends to make a new final listing determination. At this time, the Act's provisions currently in effect are the same ones in effect before wolves were delisted on March 28, 2008. All wolves within Wyoming are now considered part of the nonessential, experimental population. Although wolves in Wyoming currently remain listed and protected under the Act, additional flexibility is provided for their management under the provisions of the special regulations promulgated for the nonessential experimental population on January 6, 2005 (70 FR 1286) and January 28, 2008 (73 FR 4720).

Requirements for interagency consultation under section 7 of the Act differ based on the land ownership and/or management responsibility where the animals occur. Except on National Park Service or National Wildlife Refuge lands, wolves in Wyoming are treated as proposed for listing rather than listed. Two provisions of section 7 apply to Federal actions outside National Parks or National Wildlife Refuges: (1) section 7 (a)(1), which states all Federal agencies shall utilize their authorities to carry out programs for the conservation of listed species; and, (2) section 7 (a)(4), which requires Federal agencies to confer with the Service on actions that are likely to jeopardize the continued existence of the species. On National Park Service or National Wildlife Refuge lands wolves in the nonessential experimental population are treated as threatened species for the purposes of section 7. Wolves are dependant on movements of big game populations and may occur in large ungulate migration, wintering, or parturition areas. During project activities wolves may change their use of the project areas based upon changes to big game population numbers and changes in movement of herds. Project planning should consider impacts to big game populations, including wintering grounds and migration corridors.

Ute ladies'-tresses: Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial, terrestrial orchid, 8 to 20 inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. *S. diluvialis* typically blooms from late July through August; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October. *S. diluvialis* is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams where it colonizes early successional point bars or sandy edges. The elevation range of known occurrences is 4,200 to 7,000 feet (although no known populations in Wyoming occur above 5,500 feet) in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where *S. diluvialis* have been found typically range from fine

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silt/sand, to gravels and cobbles, as well as to highly organic and peaty soil types. *S. diluvialis* is not found in heavy or tight clay soils or in extremely saline or alkaline soils. *S. diluvialis* seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. *S. diluvialis* is difficult to survey for primarily due to its unpredictability of emergence of flowering parts and subsequent rapid desiccation of specimens. The Service does not maintain a list of “qualified” surveyors but can refer those wishing to become familiar with the orchid to experts who can provide training or services.

Species of Concern

Greater Sage-grouse: The Service is currently conducting a review to determine if the greater sage-grouse (*Centrocercus urophasianus*) warrants listing. Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation, as well as loss of population connectivity have been identified as important factors contributing to the decline of greater sage-grouse populations rangewide (Braun 1998, Wisdom *et al.* 2002). Therefore, any activities that result in loss or degradation of sagebrush habitats that are important to this species should be closely evaluated for their impacts to sage-grouse. If important breeding habitat (leks, nesting, or brood rearing habitat) is present in the project area, the Service recommends no project-related disturbance March 1 through June 30, annually. Minimization of disturbance during lek activity, nesting, and brood rearing is critical to sage-grouse persistence within these areas. Likewise, if important winter habitats are present (Doherty *et al.* 2008), we recommend no project-related disturbance November 15 through March 14, annually.

We recommend you contact the Wyoming Game and Fish Department to identify important greater sage-grouse habitats within the project area, and appropriate mitigative measures to minimize potential impacts from the proposed project. The Service recommends surveys and mapping of important greater sage-grouse habitats where local information is not available. The results of these surveys should be used in project planning, to minimize potential impacts to this species. No project activities that may exacerbate habitat loss or degradation should be permitted in important habitats. Additionally, unless site-specific information is available, greater sage-grouse habitat should be managed following the guidelines by Connelly *et al.* 2000 (also known as the Western Association of Fish and Wildlife Agencies [WAFWA] guidelines).

In Wyoming, information suggests that greater sage-grouse populations are negatively affected by energy development activities, especially those that degrade important sagebrush habitat, even when mitigative measures are implemented (Braun 1998, Lyon 2000, Naugle *et al.* 2006). Greater sage-grouse populations can repopulate areas developed for resource extraction after habitat reclamation for the species (Braun 1987). However, there is no evidence that populations attain their previous levels and reestablishment of sage-grouse in a reclaimed area may take 20 to 30 years, or longer (Braun 1998). Therefore, this project should be carefully evaluated for long-term and cumulative effects on the greater sage-grouse, since reclamation may not restore populations to pre-activity levels. The Bureau should ensure this activity does not exacerbate greater sage-grouse declines on either a local or range-wide level.

Migratory Birds

In addition to requirements to consult on projects affecting threatened and endangered species, agencies also have obligations to protect migratory bird species, including eagles and other raptors, protected under the MBTA and BGEPA. Of particular focus are the species identified in the Service’s *Birds of Conservation Concern 2002*. In accordance with the Fish and Wildlife

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Coordination Act (16 USC 2912 (a)(3)), this report identifies “species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing” under the Act. This report is intended to stimulate coordinated and proactive conservation actions among Federal, State, and private partners and is available at <http://www.fws.gov/migratorybirds/reports/bcc2002.pdf>.

The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations and does not require intent to be proven. Section 703 of the MBTA states, “Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird...” The BGEPA, prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing.

In order to promote the conservation of migratory bird populations and their habitats, the Service recommends that the Bureau implement those strategies outlined within the Memorandum of Understanding directed by the President of the U.S. under the Executive Order 13186, where possible. Work that could lead to the take of a migratory bird or eagle, their young, eggs, or nests (for example, if you are going to erect new roads, or power lines in the vicinity of a nest), should be coordinated with our office before any actions are taken.

Wetlands

The functions and values of wetlands are well documented and are especially important in the arid west. Substantial degradation diminishes the effectiveness of wetlands to function as food, cover, and breeding sites for wetland dependent species; sediment transport systems; water retention/storage sites; contaminant sinks; and chemical exchange sites. To ensure the Service has sufficient information to assess project impacts on wetlands, assessments should include:

1. An enumeration of the acreage of wetlands, by type, impacted by the proposed action.
2. A discussion of why wetlands cannot be avoided.
3. A description of the functions and values of the wetlands, including sediment transport, water storage, habitat for aquatic and terrestrial organisms, and contaminant sinks, as well as the potential risks of water removal for these functions and values.
4. Measures that will reduce or eliminate adverse impacts to wetlands such as a mitigation plan to offset unavoidable impacts, protective buffers, seasonal and physical restrictions, maintenance of the natural hydrograph, and development and implementation of a monitoring program to track the effectiveness of mitigation measures.
5. Results of wetland monitoring or management activities in, or adjacent to, the proposed project site.
6. The anticipated short and long term effects to wetland and riparian areas during and after project completion.

We recommend addressing each of the above concerns where applicable to the project. We appreciate your efforts to ensure the conservation of Wyoming’s natural resources. If you have questions regarding this letter or resources described above, please contact Alex Schubert of my office at the letterhead address or phone (307) 772-2374, extension 238.

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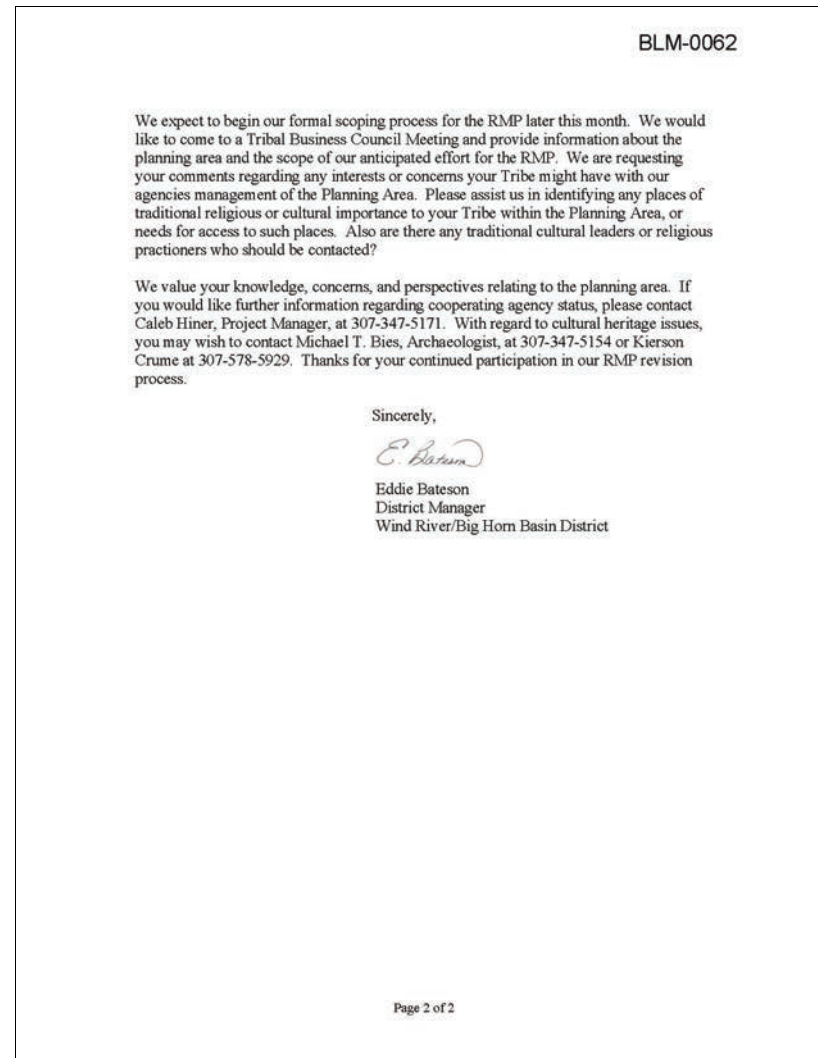
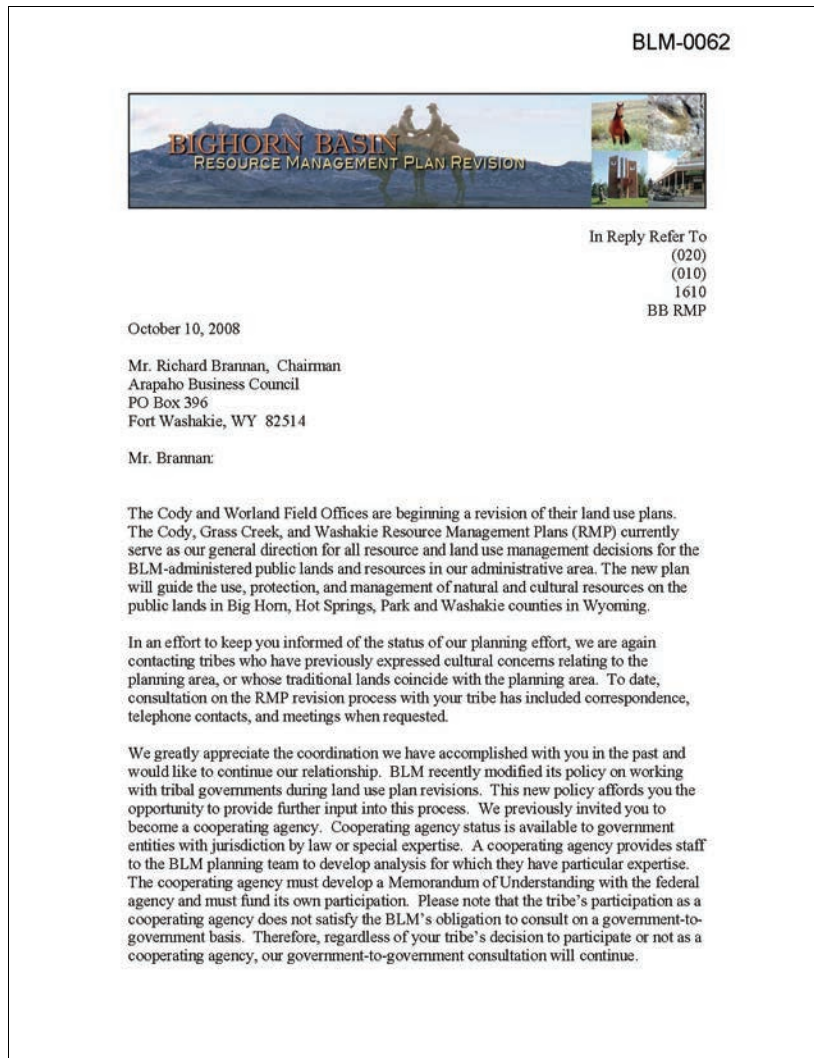
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cc: WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (V. Stelter)
WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)

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Example: Tribal Consultation Initiation Letters



Appendix E – Consultation Letters and Cooperating Agency Position Statements

Example: Tribal Consultation Initiation Letters

SURNAME	
NAME	DATE
M. [Signature]	3/6/13

In Reply Refer To:
1610 (WYR00)

March 29, 2013

CERTIFIED MAIL NUMBER 7009 2250 0000 9893 1818
RETURN RECEIPT REQUESTED
Silas C. Whitman, Chairman
Nez Perce Tribal Executive Committee
P.O. Box 305
Lapwai, ID 83540

Dear Mr. Whitman:

The Cody and Worland Field Offices of the Bureau of Land Management (BLM) wish to update you on the status of the Bighorn Basin Proposed Resource Management Plan (PRMP) revision.

The BLM most recently contacted you in February, 2012, in anticipation of issuance of the Final Environmental Impact Statement (FEIS) for the Bighorn Basin RMP revision.

In response to the National Technical Team's (NTT) focus on Alternative Development and analysis of Sage-Grouse conservation measures, the BLM is entering into a Draft Supplemental Environmental Impact Statement (DSEIS) phase for Proposed Sage-Grouse Priority Habitat, Area of Critical Environmental Concern (ACEC), nominations.

The newly designed ACEC nominations are the Key Area Boundary and the Core Area (V. 3) Boundary. These nominations are based on the Wyoming Governor's Core Area and Executive Order 2011-5, the NTT conservation measures, and citizen proposed alternatives.

In an effort to keep you informed about the DSEIS, we are again contacting tribes who have expressed cultural concerns relating to the planning area, or whose traditional lands

coincide with the planning area. To date, consultation on the RMP revision process with your tribe has included correspondence, telephone contacts, and meetings when requested.

The BLM prepared the PRMP/DSEIS in consultation with cooperating agencies, and Native American groups, taking into account public comments received during this planning effort. The PRMP provides a framework for the future management direction and appropriate use of the Bighorn Basin planning area, located in portions of Big Horn, Hot Springs, Park, and Washakie Counties, Wyoming. The document contains both land use planning decisions and implementation decisions to guide the BLM's management of the Bighorn Basin.

The BLM will again move to the Final EIS phase of the proposed RMP revision upon completion of the DSEIS comment period.

We value your knowledge, concerns, and perspectives relating to the planning area. If you would like further information on the planning process, please contact Holly Elliott at (307) 347-5193, email- helliott@blm.gov.

With regard to cultural heritage issues, you may wish to contact Kierson Crume, Cody Field Office Archaeologist, at (307) 578-5929 or Marit Bovee, Worland Field Office Archaeologist, at (307) 347-5114. If you or your representatives would like to visit the planning area or meet with BLM managers and specialists please let us know. Thank you for your continued participation in our RMP planning process.

Sincerely,

s/Steve Dondero

Steve Dondero
District Manager

cc: Keith "Pat" Baird, THPO
Nez Perce Tribe
P.O. Box 365
Lapwai, ID 83540

WFO:03/27/13:u:\helliott\word\NA_DSEIS_letter_4_mar_13.docx
Final:mlr:03/28/13

2.0 COOPERATING AGENCY POSITION STATEMENTS

2.1 Washakie County Conservation District

The Washakie County Conservation District shall continue to promote and encourage the motive and means for the optimum production and conservation of resources to enhance economic opportunity and the quality of life. The Washakie County Conservation District shall strive to promote a clean and healthy environment.

2.2 Wyoming Department of Agriculture

The Wyoming Department of Agriculture (WDA) offers the following statements in regard to the Bureau of Land Management (BLM) Bighorn Basin Resource Management Plan revision:

The WDA supports no net loss of Animal Unit Months (AUMs). A net loss of AUMs may negatively impact livestock producers and Wyoming agriculture. We do not support the permanent closure of any area to livestock grazing, including the Alternative B proposal to close crucial winter range for elk and bighorn sheep and key areas for greater sage-grouse, or the proposal to prohibit new domestic sheep grazing on pronghorn crucial winter range. Instead, the WDA believes that the BLM should work with livestock grazing permittees to incorporate specific livestock management plans to address conflicts. The WDA supports the Alternative D proposal to allow livestock grazing in areas closed to grazing (e.g., the Bighorn River tracts) as a tool to maintain or improve resource conditions.

The WDA supports the BLM's decision to conduct all wild horse activities to remain compliant with the Wyoming Consent Decree (August 2003), including striving to maintain Appropriate Management Levels.

The WDA also supports BLM proposals to follow current best management practices and recommendations made by the Wyoming State Brucellosis Coordination Team. This helps reduce the spread of brucellosis and maintain viable livestock operations.

These positions are a reflection of the WDA mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources and contribution to Wyoming quality of life.

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix F

Special Designations: Wild and Scenic Rivers and
Areas of Critical Environmental Concern

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APPENDIX F

SPECIAL DESIGNATIONS

1.0 INTRODUCTION

This appendix includes a brief description of the Wild and Scenic River (WSR) and Area of Critical Environmental Concern (ACEC) designation and evaluation processes. This appendix also contains information on where to obtain the full reports that provided additional information on these processes.

2.0 WILD AND SCENIC RIVER DESIGNATION PROCESS

The Bureau of Land Management (BLM) initiated a WSR review of all BLM-administered public lands along waterways within the Worland and Cody planning areas. This review was to determine eligibility, assign a tentative classification, and screen for suitability factors, as identified in the Wild and Scenic Rivers Act (WSRA) of 1968, as amended (see Table F-1). No waterway segments were determined eligible during this review in the Grass Creek Resource Area. The review process and decisions can be reviewed in the Grass Creek Resource Management Plan (RMP) (1999). Those segments in the remainder of the Planning Area determined eligible and assessed for suitability are all recommended as suitable for inclusion in the National Wild and Scenic River System under alternatives B and E.

The BLM WSR review includes a three-step process:

1. Determining whether public lands along waterways meet the WSR eligibility criteria to be tentatively classified as wild, scenic, or recreational.
2. Determining whether any of those public lands that meet the eligibility criteria are also assessed for suitability.
3. Determining what rivers and adjacent public lands are determined suitable and recommended for designation and how they will be managed.

The WSR review was conducted separately from the RMP planning process to expedite the review process, resulting in a stand-alone WSR review report. The BLM will use this land use planning process to gather additional data, in the form of public comments and the impact analysis contained in Chapter 4 of this Proposed RMP and Final Environmental Impact Statement (EIS), to support eligibility and suitability findings. This WSR suitability assessment may be modified as a result of public comments. Following the review and response to any public comments on the Draft RMP and Draft EIS that address WSR recommendations presented in this document, the BLM will release the map and Record of Decision that contain the agency's WSR findings.

The Worland and Cody *Wild and Scenic River* reports may be viewed online at:
<http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs/wsr.html>

Table F-1. Characteristics for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area

Name	Length of Segment on BLM-administered Lands (miles) ²	Outstandingly Remarkable Values	Tentative Classification	Suitability Screening from BLM WSR Review	Justification for Determination of Not Suitable ^{3, 4}
Cody Field Office					
Clarks Fork of the Yellowstone (2 segments) ¹	8.51	Cultural; Fish; Geologic; Historic; Other Values (whitewater); Recreational; Scenic; Wildlife	Scenic	Suitable (4.79 miles) Not Suitable (3.72 miles)	Segment 2: Majority private surface land and mineral estate Segment 3: Waterway segments met suitability factors
Cottonwood Creek ¹	4.05	Geologic; Historic; Other Values (endemic/rare vegetation, aspen stands, riparian); Scenic; Wildlife	Scenic	Suitable	Waterway segment met suitability factors
Cow Creek (2 segments) ¹	1.92	Cultural; Geologic; Historic; Other Values (aspen stands, riparian, endemic/rare vegetation); Scenic; Wildlife	Wild	Suitable	Waterway segments met suitability factors
Deer Creek	1.46	Cultural; Fish; Recreational; Scenic	Scenic	Suitable	Waterway segment met suitability factors
Meeteetse Creek ¹	2.78	Geologic; Historic; Other Values (riparian, alpine vegetation, volcanic-specialized vegetation); Wildlife	Wild	Not Suitable	Private mineral estate
North Fork Shoshone River ¹	0.85	Cultural; Fish; Geologic; Historic; Recreational; Scenic; Wildlife	Recreational	Not Suitable	Majority private surface land and mineral estate
Oasis Spring Creek	2.07	Cultural; Fish; Recreational; Scenic	Wild	Suitable	Waterway segment met suitability factors ⁵
Pat O’Hara Creek ¹	2.17	Cultural; Historic	Scenic	Not Suitable	Effective current management
Porcupine Creek	10.8	Cultural; Fish; Other Values (riparian); Recreational; Scenic	Wild/Scenic	Suitable	Waterway segment met suitability factors
South Fork Shoshone River ¹	1.99	Cultural; Fish; Geologic; Historic; Recreational; Scenic; Wildlife	Recreational	Not Suitable	Majority private surface land and mineral estate
Trout Creek	0.96	Cultural; Fish; Other Values (riparian); Recreational; Scenic	Wild	Suitable	Waterway segment met suitability factors
Worland Field Office					
Canyon Creek	1.30	Cultural	Scenic	Not Suitable	Land ownership conflicts; manageability
Deep Creek	5.20	Fish; Recreational; Scenic	Wild	Suitable	Waterway segment met suitability factors

Table F-1. Characteristics for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Length of Segment on BLM-administered Lands (miles) ²	Outstandingly Remarkable Values	Tentative Classification	Suitability Determination	Justification for Determination of Not Suitable ^{3, 4}
Dry Medicine Lodge Creek	10.59	Cultural; Geologic; Other Values (caving, aquifer recharge); Recreational; Scenic	Scenic	Suitable	Waterway segment met suitability factors
Kirby Creek (3 segments)	0.10	Historic	Recreational	Not Suitable	Majority private surface land and mineral estate
Medicine Lodge Creek	5.70	Cultural; Geologic; Other Values (sinking streams, aquifer recharge); Recreational; Scenic	Wild	Suitable	Waterway segment met suitability factors
Laddie Creek (2 segments, part of Paint Rock Creek unit)	1.37	Cultural	Recreational	Suitable (0.63 miles) Not Suitable (0.74 miles)	Segment 1: Land ownership conflicts and manageability Segment 2: Waterway segments met suitability factors
Paint Rock Creek (2 segments, part of Paint Rock Creek unit)	7.02	Cultural; Recreational; Scenic	Recreational	Suitable	Waterway segment met suitability factors
Paint Rock Creek, South Fork (2 segments, part of Paint Rock Creek unit)	3.46	Cultural; Fish	Recreational	Suitable	Waterway segment met suitability factors
Powder River (Middle Fork)	2.53	Recreational	Recreational	Suitable	Waterway segment met suitability factors
Trapper Creek	10.91	Cultural; Geologic; Other Values (caving area); Recreational; Scenic	Wild	Suitable	Waterway segment met suitability factors
White Creek (4 segments)	6.98	Cultural; Scenic	Wild	Suitable (5.70 miles) Not suitable (1.28 miles)	Segments 1-3: Land ownership conflicts; manageability Segment 4: Waterway segment met suitability factors

Sources: BLM 2002; BLM 2003; BLM 2009a; BLM 2009b

¹Waterway Segment Revaluated as part the 2009 Cody Field Office Wild and Scenic River Addendum Report.

²Approximate length based on available geographic information system data; segment lengths have been rounded to the nearest hundredth of a mile.

³To provide for a range of alternatives, all Wild and Scenic River eligible segments are recommended as suitable under alternatives B and E, and none of the Wild and Scenic River eligible segments are recommended as suitable under Alternative C.

⁴Detailed explanations of how suitable waterways met each of the suitability factors appears in the Worland and Cody Field Office Wild and Scenic River Reports, available on the project website.

⁵The 2003 Wild and Scenic Rivers Review Report found Oasis Spring Creek eligible, tentatively classified as Wild, and suitable for inclusion. However, the 2009 Wild and Scenic Rivers Review Addendum Report found Oasis Spring Creek not eligible because the waterway is identified as ephemeral, which also means that Oasis Spring Creek does not have a tentative classification, and is not suitable. The BLM decided to keep Oasis Spring Creek in the RMP for analysis and alternatives.

BLM Bureau of Land Management
WSR Wild and Scenic River

In following the WSR process, the BLM used the Bighorn Basin Resource RMP Revision as the vehicle to identify the suitability of each of the eligible waterway corridors. Each element of the revision process, including but not limited to scoping, RMP tours, workshops, cooperators meetings, and public comments, was used to for determining suitability. As identified earlier as the third process, the BLM determined that none of the eligible waterway corridors are suitable for inclusion into the National Wild and Scenic Rivers System. Refer to Table F-2 for suitability determination for each of the waterway corridors.

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
Cody Field Office		
Clarks Fork of the Yellowstone (Segment 1)	No	<p>Factor 1: Scenic and recreation quality are outstanding. However, the amount of private land interspersed with BLM may make it difficult to maintain ORV's.</p> <p>Factor 2: BLM-administered mineral/surface estate interspersed with private land. Not suitable due to the preponderance of private land, dominating this portion of the waterway.</p> <p>Factors 2, 4, 5, 7, 9: Difficult to administer, due to the preponderance of private land interspersed with smaller segments of river on public land.</p> <p>Factors 3, 7, 8, 9, 11: Local interest would include those Valid Existing Rights to allow for irrigation water out of the Clarks Fork of the Yellowstone River. Those rights would be honored.</p> <p>Factors 3, 9: Irrigation uses off the Clarks Fork.</p> <p>Factors 3, 13: In 1993, during the first inventory, there was interest by the state to develop these waters into a dam/reservoir. Recent conversations with the governor's office reflected a change in that interest.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Clarks Fork of the Yellowstone River, Segment 1 as suitable for inclusion into the NWSRS.</p>
Clarks Fork of the Yellowstone (Segment 2)	No	<p>Factor 1: Includes outstanding scenic and recreation values.</p> <p>Factor 2: The majority of land along this waterway is privately owned. The BLM does not control actions on private property, so this preponderance of private ownership would make the maintenance of the identified ORVs difficult.</p> <p>Factor 3: State of Wyoming expressed interest in developing this waterway through the construction of a dam and reservoir. However, recent communication with the Governor's Office indicates that the state may no longer be considering this option; Valid existing water rights would be allowed to continue for the remainder of the permit term, and could potentially be renewed after the term ends. However, new irrigation rights-of-way would only be granted if they were designed to limit effects on the identified ORVs that make this waterway eligible.</p> <p>Factors 3, 8, 9, 10, 11, 13: Local interest in the potential designation of the Clarks Fork of the Yellowstone River includes concerns related to the withdrawal of irrigation water from the river.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Clarks Fork of the Yellowstone River, Segment 2 as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
Clarks Fork of the Yellowstone (Segment 2)	No	<p>Factor 1: Outstanding area. Scenery, water sports, fisheries, geology, history, and recreation.</p> <p>Factor 2: BLM administers both surface and mineral estate.</p> <p>Factors 3, 7, 8, 11: Some water rights may include using this area for irrigation (pumping water out of the river). These are Valid Existing Rights and should not be affected.</p> <p>Factors 3, 8, 11, 13: Powersite Reservation 26 and Powersite Classification 201 currently apply to this portion of the Clarks Fork of the Yellowstone River. The suitable determination for Segment 3 is based on a revocation of this power site withdrawal. The decision to revoke this withdrawal would be made by the Federal Energy Regulatory Commission;</p> <p>Several ditches take water out with head-gates, one head-gate pumps water out of the river. Public Water reserve in segments.</p> <p>Factors 3, 13: In 1993, during the first inventory, there was interest by the state to develop these waters into a dam/reservoir. Recent conversations with the governor’s office reflected a change in that interest.</p> <p>Factor 6: With the abutment of this segment of the river with the designated WSR on USFS, the BLM will be consistent with surrounding management and retention of those values that make this area suitable.</p> <p>Factors 8, 11: The RMP revision’s preferred alternative manage this area under a CSU (historic trails) and NSO (Recreation), which will aid in protecting the identified ORVs within the waterway corridor. These underlying prescriptions negate the need to recommend this waterway corridor for inclusion into the National Wild and Scenic Rivers System.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Clarks Fork of the Yellowstone, Segment 3 as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Cottonwood Creek	No	<p>Factor 1: Class A scenic area. Dramatic rise of canyon walls, good trail management for horseback rides and non-motorized vehicles.</p> <p>Factors 2, 4: BLM administers both surface and mineral estate and the water rights.</p> <p>Factor 3: Historically, this canyon water was diverted for irrigation 50-80 years ago, ending at Pete's Cabin.</p> <p>Factors 8, 11: The river corridor is within the Little Mountain ACEC and the Craig Thomas Special Management Area, which management prescriptions (such as administratively unavailable for oil and gas leasing, ROW avoidance, renewable exclusion area) in the BLM’s preferred alternatives will benefit the identified ORVs within Cottonwood Creek.</p> <p>Factor 10: Public interest in this canyon has been supportive of this area receiving some special management. Cooperators, and local, state, and other affected federal agencies did not see the need to designate Cow Creek as suitable for inclusion into the NWSRS.</p>
Cow Creek (Segment 1)	No	<p>Factors 1, 12: This area is similar to other canyons in Little Mountain area - but it ties to Porcupine Creek which was already recommended as eligible and suitable in the 1993 inventory. This area will continue to be remote and inaccessible - very difficult to get to unless hiking.</p> <p>Factors 2, 4: BLM administers both estates (surface/mineral).</p> <p>Factors 2, 4, 11: BLM is currently managing the area and it is staying in character.</p> <p>Factors 8, 11: The river corridor is within the Little Mountain ACEC and the Craig Thomas Special Management Area, which management prescriptions (such as administratively unavailable for oil and gas leasing, ROW avoidance, renewable exclusion area) in the</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
		<p>BLM’s preferred alternatives will benefit the identified ORVs within Cow Creek.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Cow Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Cow Creek – Segment 2	No	<p>Factor 1: Historic Area, Geological features.</p> <p>Factor 2: BLM-administered surface and minerals.</p> <p>Factor 3: Continued grazing and recreation opportunities.</p> <p>Factors 8, 11: The river corridor is within the Little Mountain ACEC and the Craig Thomas Special Management Area, which management prescriptions (such as administratively unavailable for oil and gas leasing, ROW avoidance, renewable exclusion area) in the BLM’s preferred alternatives will benefit the identified ORVs within Cow Creek (Segment 2).</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Cow Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Deer Creek, Porcupine Creek, and Trout Creek River Corridors	No	<p>Factors 1, 12: As determined during the ORV analysis for Porcupine Creek and its eligible tributaries, the scenic and recreational value of this river is very unique, particularly when compared to other rivers of this type in the region. The addition of the Porcupine Creek and its tributaries into the WSR system would provide a creditable addition. The scenic qualities are extremely unique when viewed from a regional perspective, since few canyons in the region have walls as high or as vertical, and remain in such an undisturbed pristine condition.</p> <p>Factor 2: With the exception of two small tracts of private land on Porcupine Creek encompassing a total of 0.5 miles, the remainder of Porcupine Creek and its eligible tributaries are public land administered by the BLM. This includes 9.7 miles on Porcupine Creek, 1.3 miles on Deer Creek, 2.4 miles on Oasis Spring Creek and 0.9 miles on Trout Creek, for a total of 14.3 miles. This abundance of public lands presents minimal land ownership conflict and would ensure effective manageability if the river is designated as a WSR.</p> <p>Factors 2, 6: As previously indicated, the majority of the analyzed portion of Porcupine Creek and its tributaries is public land. Acquisition of the existing 0.5 miles of private property is not deemed necessary to effectively manage the area as a WSR. Because of this large degree of public land, and no need to acquire the property to administer the river, estimates have not been prepared indicating the cost of federal acquisition of the involved private property.</p> <p>Factors 3, 5, 7: The United States Department of Interior, Bureau of Mines, indicates the areas adjacent to Porcupine Creek and its associated tributaries have occurrences of numerous mineral resources, and further indicate depending on the configuration of any associated withdrawal, may impact mineral development.</p> <p>The United States Department of Interior, Bureau of Indian Affairs, indicates they want to ensure continued involvement of the Bureau of Indian Affairs and the Crow Tribe during any analysis of this section of river for Wild and Scenic values.</p> <p>Correspondence has also been received from the Wyoming Water Development Commission opposing the designation of this river as a WSR, since it would mean more federal control of water resources.</p> <p>Factors 3, 7, 11: No known conflicts have been identified on the section of river under analysis in this document. Potential conflicts may exist upstream on lands administered by the USFS, or downstream on Crow Tribal Lands. The Bureau of Indian Affairs, representing the Crow Tribe, has indicated concern with potential conflict with Crow Tribal Lands in Montana as a result of this analysis. There are no known potential</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
		<p>conflicts which would result from inclusion of Porcupine Creek and its associated tributaries in the WSR system. There are also no known projects or proposals which would be foreclosed or diminished if the area were not protected under the WSR system. Of course, the designation would provide congressional protection to the area.</p> <p>Factors 3, 8, 11: The river corridors are within the Little Mountain ACEC and the Craig Thomas Special Management Area, which management prescriptions (such as administratively unavailable for oil and gas leasing, ROW avoidance, renewable exclusion area) in the BLM’s preferred alternatives will benefit the identified ORVs within these river corridors.</p> <p>Factors 3, 8, 12, 13: There are no known historical or existing rights which would be adversely affected by designation of Porcupine Creek or its associated tributaries. There is existing livestock trailing and a primitive access road occurring in the scenic section of the river, and it is not anticipated that the designation would adversely impact either of these ongoing uses. Infringement of other potential future land uses in the corridor; i.e., grazing privileges, mining claims, and rights-of-way, may occur to some degree. Wild and scenic characteristics now present in the river corridor would be protected from alteration resulting from future land uses and development.</p> <p>Factors 3, 9, 13: The WGFD has voiced concerns about maintaining the ability to do riparian habitat management adjacent to the river, but has not indicated opposition or support for designation.</p> <p>Factors 4, 7, 9: Porcupine Creek and its associated tributaries, if designated a WSR could be effectively managed by the BLM. If ongoing studies would determine portions of the creek administered by the USFS, are also suitable, the entire river could be effectively managed by either agency or jointly by both.</p> <p>Factor 5: There is no known interest, by any entity, in sharing the cost of administering the river as a WSR.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Porcupine Creek, Deer Creek, Trout Creek, or any waterway corridor as suitable for inclusion into the NWSRS, or to manage any river corridors to maintain or enhance the identified ORVs. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Meeteetse Creek	No	<p>Factor 1: Scenic, geologic, wildlife, historic values in waterway corridor. Currently, there is no legal vehicular access. However, Carter Mountain and the Meeteetse Creek drainage are accessible via hiking from USFS.</p> <p>Factor 2: BLM-administered surface; private mineral estate.</p> <p>Factors 2, 4, 7, 11: The mineral estate along Meeteetse Creek is privately owned, and this ownership pattern is the primary reason a suitability determination was not supported for this waterway. While the BLM could impose certain conditions of approval for minerals development in this area, the preservation of the identified ORVs would be difficult if such development occurred.</p> <p>Factors 2, 7, 8: Segments 1 & 2 are divided by a parcel of Wyoming State Land.</p> <p>Factors 3, 7, 8, 11: Continued use for grazing, recreation, and wildlife. In the Carter Mountain ACEC. Hunt Oil could develop their mineral interest, but the BLM would have administrative control on surface conditions of approval.</p> <p>Factor 8: Agency can manage these resources with other than WSR designation.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Meeteetse Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
North Fork Shoshone River		<p>Factor 1: Scenic, recreation and geology. Yellowstone National Park corridor leading to the East Gate of the park.</p> <p>Factors 1, 2, 7, 8, 9, 10: In the areas where the river crosses BLM-administered surface, the agency manages both the surface and the mineral estate. Public lands along this waterway provide important river access points and habitat for animals such as grizzly bears. However, the majority of land along this waterway is privately owned. The BLM does not control actions on private property, so this preponderance of private ownership would make the maintenance of the identified ORVs difficult.</p> <p>Factor 2: The BLM administers both surface and mineral estate. However, with the preponderance of private land interspersed along the river corridor, ORV's may be hard to maintain in the present state.</p> <p>Factor 3: No reasonably foreseeable potential uses known beyond current multiple uses.</p> <p>Factors 5, 6, 8, 9: Management of WSR in this area would be onerous due to the amount of private land and traffic.</p> <p>Factor 10: Heavy recreation area along the highway to Yellowstone National Park.</p> <p>Cooperators, and local, state, and other affected federal agencies did not see the need to designate North Fork Shoshone River as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Oasis Spring Creek	No	<p>Factor 1: The 2003 WSR eligibility analysis originally found Oasis Spring Creek as eligible. The 2009 Cody Field Office Addendum found that Oasis Spring Creek is not eligible because it is ephemeral, not intermittent.</p> <p>Factors 8, 11: The river corridor is within the Little Mountain ACEC, which management prescriptions (such as administratively unavailable for oil and gas leasing, ROW avoidance, renewable exclusion area). These underlying management prescriptions will benefit the identified ORVs within the river corridor.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate the upstream portions of White Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Pat O'Hara Creek		<p>Factor 2: BLM-administered (surface/mineral) with private interspersed.</p> <p>Factor 3: Active grazing leases.</p> <p>Factors 8, 11: The BLM is successfully managing the identified ORVs using existing cultural resource laws. The protection these laws afford the cultural and historic sites associated with this waterway is sufficient, making inclusion in the NWSRS unnecessary.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Pat O'Hara Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
South Fork Shoshone River		<p>Factor 1: Very beautiful scenery and heavily used by recreationists and homeowners in the area.</p> <p>Factor 2: In the areas where the river crosses BLM-administered surface, the agency manages both the surface and the mineral estate. However, the majority of land along this waterway is privately owned. The BLM does not control actions on private property, so this preponderance of private ownership would make the maintenance of the identified ORVs difficult.</p> <p>Factor 3: Continued urban interface with BLM land interspersed with private. A large number of private residences and vacation homes have been built on private land along this waterway in recent years. Designation as part of the NWSRS would not stop the</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
		<p>expansion of the wildland urban interface in this area, which would further complicate maintenance of the identified ORVs.</p> <p>Factors 5, 6, 8, 9: The agency would have a difficult time preserving the ORV's for this area, due to the preponderance of private land and continued growth of the area.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate South Fork Shoshone River as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Worland Field Office		
Canyon Creek	No	<p>Factor 2: Potential management conflicts with interspersed and adjacent private lands that may compromise suitability of waterway.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Canyon Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Deep Creek	No	<p>Factor 2: Majority of surface ownership up stream is private; Irrigation diversions and interests upstream of segment; Designated as WSR may prevent upstream water rights.</p> <p>Factors 3, 7, 8, 9, 13: Irrigation diversions and interests upstream of segment.</p> <p>Designated as WSR may prevent upstream water rights; WGFD interested in maintaining cutthroat species. Have done treatments in the past. In addition, WGFD has in-stream flow protection area within corridor. This allows WGFD to protect stream for minimum base flow requirements.</p> <p>Factors 8, 11: Entire waterway corridor within existing CSUs to manage for Big Game Migration Corridors, Raptors, and Rock Art Sites.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Deep Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Dry Medicine Lodge Creek	No	<p>Factor 1: Downstream portion of Dry Medicine Lodge is intermittent, and perennial the upper half.</p> <p>Factors 3, 13: WGFD interested in maintaining cutthroat species, which at this location is one of few exceptional areas along the West Slope of the Bighorn of which support cutthroat trout.</p> <p>Factors 8, 11: Entire waterway corridor under CSU stipulations, majority from Canyons RMZ, Rock Art Sites, cutthroat trout, the remainder from big game migration corridors, Blue and Red Ribbon streams, raptor buffers, and sage-grouse. Approximately 9 miles (majority) within Spanish Point ACEC with an unavailable stipulation; 8.1 miles within the lands with wilderness characteristics.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Dry Medicine Lodge Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Kirby Creek	No	<p>Factor 2: Land-locked by private lands and inaccessible to the public; unlikelihood of obtaining public access to the public lands via private property.</p> <p>Factors 2, 3, 11: Potential management conflicts with interspersed and adjacent private lands that may compromise suitability of waterway.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Kirby Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
Medicine Lodge Creek	No	<p>Factors 3, 8, 11: Entire waterway corridor is within the Medicine Lodge WSA, and most of the waterway corridor is within the Spanish Point ACEC. Cave and Karst resources will benefit from WSR designation. ACEC and WSA are currently adequately managing resources.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Medicine Lodge Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Powder River (Middle Fork)	No	<p>Factor 1: The identified area is too small to adequately manage as a WSR.</p> <p>Factors 1, 8, 11: The waterway corridor is too small to adequately manage as a WSR. The Buffalo Field Office manages the waterway downstream and proposes in the RMP revision to continue to retain the free-flowing characteristics and ORVs if Congress denies the Middle Fork Powder River WSR nomination. Entire waterway corridor within CSU stipulation for Class 1 and 2 streams; NSO stipulations within a segment of the corridor for recreation sites.</p> <p>Factor 2: Huge amount of private lands upstream of identified waterway corridor; Drainages in private lands upstream of corridor are scoured.</p> <p>Factors 3, 7, 9, 11, 13: BLM-administered lands immediately to the west of waterway is managed as a stock driveway; WGFD have implemented fish treatments, and wish to maintain fish management to sustain cutthroat species.</p> <p>Factor 3: Vegetation treatments such as mastication treatments will be precluded.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate the Middle Fork of the Powder River as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Paint Rock Creek Unit	No	<p>Factors 2, 7, 11: The Bighorn USFS allows for motorized use within the valley bottom upstream of the identified waterway segment.</p> <p>Private lands within waterway segment.</p> <p>Factors 3, 7, 9, 11, 13: Historic livestock uses, and current livestock operations are observed in the Paint Rock Unit. Middle Fork Paint Rock is used to trail cattle, as well as motorized vehicles are used to support ranching activities. WGFD currently managing for cutthroat trout.</p> <p>Factors 3, 11, 13: South Fork Paint Rock contains pure strain of cutthroat trout which WGFD manages for. WSR designation may preclude appropriate management to maintain or enhance this resource.</p> <p>Factors 8, 11, 13: Management of identified ORVs will conflict with WSR criteria (cutthroat trout); CSU stipulations in place within the Middle Fork Paint Rock, Laddie Creek, and South Paint Rock from Class I and 2 streams and Canyons RMZ; Upper watershed in South Paint Rock under CSU from cutthroat trout stipulations; Major portion of Paint Rock under CSU stipulation from rocks art sites.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate the Paint Rock Creek Unit as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
Paint Rock Creek Unit (upstream portion of Laddie Creek)	No	<p>Factor 2: Land-locked by private lands and inaccessible to the public; unlikelihood of obtaining public access to the public lands via private property.</p> <p>Factors 8, 11: the potential management conflicts with interspersed and adjacent private lands that may compromise suitability of waterway.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see</p>

Table F-2. Suitability Determinations for Waterways Determined Eligible for Wild and Scenic River Designation in the Planning Area (Continued)

Name	Suitable	Suitability Factors (refer to BLM Manual 6400)
		the need to designate this unit as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.
Trapper Creek	No	<p>Factor 1: Great X (significant cave resource) is located upstream of Trapper Creek segment, and exits within the WSA.</p> <p>Factors 1, 3, 12, 13: In-stream flow in Trapper Creek.</p> <p>Factor 2: Large amount of private surface ownership up stream.</p> <p>Factors 8, 11: Entire waterway segment is within the Trapper Creek WSA. This waterway segment will be suitable if Congress decides to release the WSA to multiple use.</p> <p>Upper reaches of corridor under an unavailable stipulation from Spanish Point ACEC.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate Trapper Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p> <p>Factor 11: Currently managed under WSA objectives. WSR designation will create redundant management designations.</p>
White Creek	No	<p>Factors 2, 3, 7, 11, 13: Majority of surface ownership up stream is private.</p> <p>Diversion located at mouth of the Canyon; Two-track located within proximity to the upstream boundary used for livestock use and other operations. Designation of WSR will preclude use on the two-track; Proposed vegetation treatment project within proximity to the corridor located on top of the rims.</p> <p>Factor 3: Livestock use surrounding waterway, but managing livestock use within the waterway corridor will not be an issue.</p> <p>Factor 8, 11: NSO found in tiny portion in lower reaches from riparian areas, CSU on entire corridor from Canyon RMZ, as well as raptors, big game corridors, and wetland/riparian buffers.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate White Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>
White Creek (upstream portions)	No	<p>Factor 2: Land-locked by private lands and inaccessible to the public; unlikelihood of obtaining public access to the public lands via private property.</p> <p>Factors 3, 8, 11: Potential management conflicts with interspersed and adjacent private lands that may compromise suitability of waterway.</p> <p>Factor 10: Cooperators, and local, state, and other affected federal agencies did not see the need to designate the upstream portions of White Creek as suitable for inclusion into the NWSRS. In addition, there were no comments during the Land Use Plan that supported the WSR designation.</p>

Sources: BLM 2002; BLM 2003; BLM 2009a; BLM 2009b

ACEC	Areas of Critical Environmental Concern	RMZ	Recreation Management Zone
BLM	Bureau of Land Management	ROW	Rights-of-Way
CSU	Controlled Surface Use	USFS	United States Forest Service
NSO	No Surface Occupancy	WGFD	Wyoming Game and Fish Department
NWSRS	National Wild and Scenic River System	WSA	Wilderness Study Area
ORV	Outstandingly Remarkable Value	WSR	Wild and Scenic River

3.0 ACEC NOMINATION PROCESS

Part of the planning process for the Bighorn Basin RMP Revision Project included a review of BLM-administered lands to determine whether they met the criteria for designation as ACECs. The ACEC designation is an administrative designation used by the BLM that is accomplished through the land use planning process. It is unique to the BLM in that no other agency uses this form of designation. The Federal Land Policy and Management Act (FLPMA), states that the BLM will give priority to the designation and protection of ACECs in the development and revision of land use plans.

ACECs are composed of only BLM-administered lands, and private lands and lands administered by other agencies are not included in the boundaries of ACECs. Unlike other special designations, such as wilderness study areas (WSAs), the designation of an area as an ACEC does not by itself automatically prohibit or restrict other uses in the area (with the exception that a mining plan of operation is required for any proposed mining activity within a designated ACEC). However, to be considered for designation, special management beyond the standard provisions established by the RMP must be required to protect the BLM-administered public lands that meet the important and relevant criteria (described below).

Several steps are required to identify and evaluate ACECs. These steps include (1) the nomination of areas by the public during scoping or by BLM resource specialists, (2) evaluation of the nominated areas to determine if they meet the importance and relevance criteria described below, and (3) consideration of the potential ACECs as management scenarios analyzed in the RMP and EIS. As part of this evaluation, the BLM also considers whether the existing ACEC designations should be modified or terminated. The Draft RMP and Draft EIS contained recommendations proposing potential ACECs for designation. Following the closure of the comment period on the Draft RMP and Draft EIS, the BLM published a Notice of Intent (NOI) to begin preparation of EISs and Supplemental EISs to Incorporate Greater Sage-grouse Conservation Measures into Land Use Plans and Land Management Plans (76 FR 77008, December 9, 2011) in accordance with the BLM National Greater Sage-grouse Planning Strategy Charter released in August 2011 (BLM 2011). Nominations for greater sage-grouse-related ACECs were submitted by members of the public in response to the NOI. The Supplement to the Draft RMP and Draft EIS contains recommendations proposing Greater Sage-Grouse Key Habitat Area and Priority Habitat Management Area ACECs for designation and public comment.

Public comments on the Draft RMP and Draft EIS as well as the Supplement to that document were reviewed and adjustments were made as necessary before the release of this Proposed RMP and Final EIS. Designation of ACECs will be incorporated into the Record of Decision (ROD) approving the RMP.

Regulations at 43 Code of Federal Regulations (CFR) part § 1610.7-2 state that during the resource management planning process, inventory data should be analyzed to determine whether there are areas within the Planning Area containing resources, values, systems or processes or hazards eligible for further consideration for designation as ACECs. In order to be eligible for designation as an ACEC, an area must meet at least one of both the relevance and importance criteria described below.

3.1 Relevance

An area meets the relevance criteria if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).

2. A fish and wildlife resource (including but not limited to habitat for threatened, endangered, or sensitive species, or habitat essential for maintaining species diversity).
3. A natural process or system (including but not limited to threatened, endangered, or sensitive plant species; rare, endemic, or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features).
4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the RMP process that it has become part of a natural process.

3.2 Importance

The values, resources, system, processes, and/or hazards that allowed the area to meet the relevance criteria must have qualities that are in need of protection or special attention in order for the area to meet the importance criteria. The area meets the importance criteria if its relevance qualities can be characterized by one or more of the following:

- A. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- B. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- C. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.
- D. Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- E. Poses a substantial threat to human life and safety or to property.

Based on comments received during scoping and internal recommendations from BLM specialists, nine existing ACECs were nominated for continued designation and five expansion areas associated with these existing ACECs were proposed, as were 14 new ACEC nominations. These 28 nominated areas were evaluated using the relevance and importance criteria described above. Twenty-two of the nominations met both the relevance and importance criteria and were analyzed in the Draft RMP and Draft EIS. Additionally, two ACECs were analyzed in the Supplement to the Draft RMP and Draft EIS.

Table F-3 lists the 28 nominations that were considered. This table lists the acreage of the proposed areas, the values of concern that warranted the nominations, the relevance and importance criteria that each area meets (numbers and letters correspond to the lists above), and whether the area was recommended for analysis in the Draft RMP and Draft EIS or the Supplement to the Draft RMP and Draft EIS.

Additional information relevant to ACECs in the Planning Area, including the original completed ACEC Evaluation Forms and detailed maps of the existing or proposed ACECs, can be viewed in the *Areas of Critical Environmental Concern Evaluation Report*, which is available online at: <http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs.html>.

Table F-3. Summary Results of the ACEC Evaluation Process

Area	Acres	Value(s) of Concern	Relevance Criteria ¹	Importance Criteria ¹	Recommended	Comments
Existing ACECs (no expansion proposed)						
Big Cedar Ridge	264	Paleontological	1	A, B	Yes	The area contains abundant paleontological resources, in particular, fossilized plants. Sites with such in situ preservation of entire plant communities are extremely rare, both regionally and nationally.
Red Gulch Dinosaur Tracksite	1,798	Paleontological	1, 3	A, B	Yes	The area contains the largest tracksite in Wyoming, and one of only a few worldwide from the Middle Jurassic Period.
Sheep Mountain Anticline	11,520	Geologic; Caves; Cultural; Scenic	1, 3	A, B	Yes	This area is composed of a classic Laramide anticline featured in textbooks nationwide and studied by geology classes from all over the world. The area also contains several caves, some of international significance, which provide recreational, educational, and research opportunities.
Spanish Point Karst	6,298	Caves; Recreational; Sinking Stream Segments; Water Quality	1, 3	A, B	Yes	The cave/karst system in the area is an important recharge area for the Madison aquifer. The area also contains recreational qualities due to good public access, scenic values, and varied potential recreation activities (primarily hiking, rock climbing, and caving).
Existing ACECs with Proposed Expansions						
Brown/Howe (existing)	5,501	Paleontological	1, 3	A, B	Yes	This area contains paleontological values in the form of dinosaur fossils (primarily of Jurassic age), most notably from the suborder Theropoda and Sauropoda.
Brown/Howe (proposed expansion)	15,233	Paleontological	1, 3	A, B	Yes	The values of the expansion area are similar to the existing, but also includes vertebrate fossils and scientifically important paleobotanical, palynological (pollen), mammalian fossil, and dinosaur eggshell site resources.
Carter Mountain (existing)	10,867	Vegetation; Wildlife	1, 2, 3	B	Yes	This area contains alpine tundra and rare plants, and also includes for big game habitat (crucial winter range).
Carter Mountain (proposed expansion)	5,707	Cultural; Recreational; Special Status Species; Vegetation; Watershed; Wildlife; Soils	1, 2, 3, 4	A, B, C	Yes	The values of the expansion area are similar to the existing, but also include habitat for wildlife transition, and summer ranges. The area also includes special status species, and fragile and unstable soils and intense weather conditions that can cause hazards to visitors.

Table F-3. Summary Results of the ACEC Evaluation Process (Continued)

Area	Acres	Value(s) of Concern	Relevance Criteria ¹	Importance Criteria ¹	Recommended	Comments
Five Springs Falls (existing)	163	Recreational; Scenic; Special Status Species	1, 3	A, B	Yes	Five Springs Falls area provides unique habitat for four plant species that are known to occur only in Wyoming and one other state. This unique habitat is composed of vertical cliff walls that are kept moist by spray from the waterfall. The Five Springs Falls Campground and waterfalls in the area are of recreational and scenic value.
Five Springs Falls (proposed expansion)	1,646	Geologic; Scenic; Public Safety	1, 3, 4	A, B	Yes	Geologic strata situated in the proposed ACEC expansion have been severely uplifted, folded, and faulted, resulting in an area of exceptional scenic and geologic interest and value; the steep topography is unstable, and downslope movements of soil and rock presents a public safety risk.
Little Mountain (existing)	21,476	Caves; Cultural; Paleontological; Scenic	1, 3	A, B, E	Yes	The karst topography has resulted in the capture and preservation of animal fossils, and the area contains sites from Prehistoric occupation. The mine shafts and tailings from uranium mining are a safety hazard.
Little Mountain expansion area (proposed expansion)	50,575	Wildlife; Special Status Species; Recreational; Vegetation; Scenic	1, 2, 3	A, B, C	Yes	This area contains big game seasonal and migration corridors, and known or potentially occurring BLM Sensitive Species and rare plant species habitat; these habitats are under threat from invasive species, human development, and livestock-wildlife disease transfer. The area includes numerous cultural sites (e.g., rock shelters, vision quest sites) and is an important area for hunting, fishing, wildlife viewing, and scenic geologic features.
Upper Owl Creek Area (existing)	13,758	Cultural; Fish; Recreational; Scenic; Soils; Special Status Species; Vegetation; Wildlife	1, 2, 3	A, B	Yes	The ACEC contains wildlife resources and special status species (including migratory birds, wolves, grizzly bears, moose, and wolverines), cultural resources, and primitive recreational opportunities (e.g., hiking, camping, fishing, and horseback riding). Vegetation communities include endemic plant species growing in “moonscapes” where rocky, sparsely-vegetated soils support low-growing, cushion plant communities, as well as forested areas that include old-growth tree stands.
Upper Owl Creek Area (proposed expansion)	18,975	Cultural; Fish; Recreational; Scenic; Soils; Special Status Species; Vegetation; Wildlife	1, 2, 3	A, B	Yes	The values of the expansion area are similar to the existing.

Table F-3. Summary Results of the ACEC Evaluation Process (Continued)

Area	Acres	Value(s) of Concern	Relevance Criteria ¹	Importance Criteria ¹	Recommended	Comments
Proposed ACECs						
Black-tailed Prairie Dog Complex	182	Wildlife; Special Status Species	2, 3	-	No	The area met the relevance criteria for fish and wildlife resources (black-tailed prairie dog, a species that has been petitioned for listing under the ESA) and natural process (potential habitat for black-footed ferret, an Endangered species). It did not meet the importance criteria because special management attention is not required to protect the black-tailed prairie dog complex; standard and routine management prescriptions afforded to special status wildlife species are sufficient.
Chapman Bench	23,326	Special Status Species; Vegetation; Wildlife	2, 3	A, B, C	Yes	The area contains sagebrush habitat used by sensitive bird species and other wildlife.
Clarks Fork Basin/Polecat Bench West Paleontological Area	23,895	Paleontological; Scenic	1, 3	A, B	Yes	The area contains a stratigraphic contact zone and the paleontological and geochemical values associated with these rock layers that are exposed in only a few areas worldwide.
Clarks Fork Canyon	12,249	Geologic; Open Space; Recreational; Special Status Species; Wildlife	2, 3	A, B	Yes	The area contains geologic, crucial winter range for big game, one of only two ranges for mountain goats in the state and one of the largest bighorn sheep ranges in the country, special status species habitat (including plant, sagebrush obligate wildlife, and Yellowstone cutthroat trout), open space, and recreational resources and uses including along the Clarks Fork of the Yellowstone River.
Fifteen Mile and Manderson White-tailed Prairie Dog Complex	7,917	Wildlife; Special Status Species	2	-	No	The area met the relevance criteria for fish and wildlife resources (BLM Sensitive white-tailed prairie dog). It did not meet the importance criteria special management attention is not required to protect the white-tailed prairie dog complex; standard and routine management prescriptions afforded to special status wildlife species are sufficient.
Foster Gulch Paleontological Area	27,302	Paleontological; Scenic	1, 3	A, B	Yes	The area contains a stratigraphic contact zone and the paleontological and geochemical values associated with these rock layers that are exposed in only a few areas worldwide.

Table F-3. Summary Results of the ACEC Evaluation Process (Continued)

Area	Acres	Value(s) of Concern	Relevance Criteria ¹	Importance Criteria ¹	Recommended	Comments
Greater Sage-Grouse Priority Habitat Management Areas	1,116,698	Special Status Species; Vegetation	2, 3	A, B, C	Yes	The area contains sagebrush habitat used by sensitive bird species and other wildlife, including the greater sage-grouse, a candidate species for listing under provisions of the ESA. These habitats are under threat from surface disturbance associated with mineral (including gravel pits) and ROW development, renewable energy developments, heavy recreational and motorized vehicle use, and invasive and nonnative species infestations. These activities threaten important greater sage-grouse habitats, including breeding, later brood-rearing, and winter concentration areas.
Greater Sage-Grouse Key Habitat Area	1,232,583	Special Status Species; Vegetation	2, 3	A, B, C	Yes	Same as above.
McCullough Peaks South Paleontological Area	6,994	Paleontological; Scenic	1, 3	A, B	Yes	The area contains a stratigraphic contact zone and the paleontological and geochemical values associated with these rock layers that are exposed in only a few areas worldwide.
McCullough Peaks/ YU Bench	298,402	Scenic; Historic; Cultural; Wildlife; Recreational; Geologic	1, 2, 3, 4	-	No	The area met the relevance criteria for significant historic, cultural, or scenic value; fish and wildlife resources; natural process or system (for sage-grouse and wild horse habitat and geology); and natural hazards. It did not meet the importance criteria as management concerns are similar to other locations and can be addressed through other means (e.g., Herd Management Areas).
Rainbow Canyon	1,433	Paleontological; Geologic; Scenic	1, 3	A, B	Yes	The area contains scenic and geologic resources, as well as paleontological resources that include dinosaurian and paleobotanical fossils.
Rattlesnake Mountain	19,137	Special Status Species; Vegetation; Wildlife	2, 3	A, B, C	Yes	The area contains wildlife habitat (big game seasonal habitat and migration corridors), vegetation communities associated with the volcanic and limestone soils, and special status wildlife and plant species habitat.
Sheep Mountain	25,153	Vegetation; Wildlife; Special Status Species	1, 2, 3	A, B, C	Yes	The area contains wildlife habitat (big game seasonal habitat and migration corridors) and vegetation communities associated with the volcanic and limestone soils.

Table F-3. Summary Results of the ACEC Evaluation Process (Continued)

Area	Acres	Value(s) of Concern	Relevance Criteria ¹	Importance Criteria ¹	Recommended	Comments
Shoshone River Parcels	424	Wildlife	1, 2, 3, 4	-	No	The area contains riparian and river related values. Met the relevance criteria for significant historic, cultural, or scenic value; fish and wildlife resources; natural process or system; and natural hazards. It did not meet the importance criteria as management and other concerns are similar to other riparian areas in the Planning Area.

¹Values in these columns correspond to the numbers or letters in the lists provided previously in this appendix.

- Not applicable
- ACEC Area of Critical Environmental Concern
- BLM Bureau of Land Management
- ESA Endangered Species Act
- ROW right-of-way

4.0 REFERENCES

- BLM. 2002. Worland Field Office Review of Potential Wild and Scenic Rivers in the Washakie Resource Management Plan Planning Area. U.S. Department of the Interior, Bureau of Land Management, Worland, Wyoming.
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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix G

Lease Stipulations, including Exception, Modification,
and Waiver Criteria

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APPENDIX G

LEASE STIPULATIONS, INCLUDING EXCEPTION, MODIFICATION, AND WAIVER CRITERIA

1.0 INTRODUCTION

This appendix lists the stipulations applicable under the Bureau of Land Management's (BLM's) Proposed Resource Management Plan (RMP) (Alternative D) on oil and gas leasing referenced in Chapter 2 of this Proposed RMP and Final Environmental Impact Statement (EIS).

The RMP determines which areas of the Planning Area are open to fluid mineral leasing, including the constraints or conditions open areas are subject to, and which areas are closed to fluid mineral leasing. Alternative D proposes to close the following areas to mineral leasing: Wilderness Study Areas, recommended Wild and Scenic Rivers, and certain Special Recreation Management Areas (Burnt Hollow, Dry Creek Petrified Tree, Middle Fork Powder River, Mosier Gulch, and Hole-in-the-Wall).

In areas open to leasing, the BLM may impose lease stipulations. A lease stipulation is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations, or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. These resource values and land uses generally include air, wildlife, soil, water, recreation, visual, and cultural resources. A stipulation is an enforceable term of the lease contract, which supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the BLM's regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process. "The authorized officer may require stipulations as conditions of lease issuance. Stipulations shall become part of the lease and shall supersede inconsistent provisions of the standard lease form. Any party submitting a bid... shall be deemed to have agreed to stipulations applicable to the specific parcel..." (43 CFR 3101.1-3).

Exceptions, waivers, and modifications provide an effective means of applying "Adaptive Management" techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of exceptions, waivers, and modifications should be supported by National Environmental Policy Act (NEPA) analysis, either through the land use planning process or site-specific environmental review.

This appendix identifies fluid mineral lease stipulations and addresses the procedure for providing exceptions, modifications, and waivers of lease stipulations. Procedures for changing Conditions of Approval (COAs) placed on surface disturbance and disruptive activity authorizations to protect resource values are the same. The BLM cannot apply a NSO restriction after lease issuance. The BLM can apply TLS and CSU restrictions, as COAs on an Application for Permit to Drill (APD) consistent with lease rights. The criteria for exceptions to COAs on APDs is the same as that for leasing in Table G-1. Additionally, COAs on APDs do not apply to other portions of the lease such as maintenance and operation of existing facilities.

The RMP serves as the vehicle for explaining the conditions under which waivers, exceptions, or modifications of lease stipulations may be granted.

Definitions

The three types of surface stipulations the BLM applies are: (1) no surface occupancy (NSO), (2) timing limitation stipulation (TLS), and (3) controlled surface use (CSU).

- **NSO:** Use or occupancy of the land surface for fluid mineral exploration or development is prohibited in order to protect identified resource values. The minerals under NSO lands may potentially be developed by directionally or horizontally drilling from nearby lands that do not have the NSO limitation.
- **TLS:** Prohibits surface use during a specified time period to protect identified resource values. (Seasonal restriction).
- **CSU:** Use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify lease rights.

Surface use rights are described in more detail at 43 CFR 3101.1-2.

2.0 EXCEPTIONS, MODIFICATIONS, AND WAIVERS

An applicant may request an exception, modification, or waiver of a stipulation or restriction included in a lease or applied as a COA.

- **Exception:** A one-time exemption to a lease stipulation or COA determined on a case-by-case basis.
- **Modification:** A change to the provisions of a lease stipulation, either temporarily or for the term of the lease.
- **Waiver:** A permanent exemption to a lease stipulation.

2.1 Processing Exceptions, Modifications, and Waivers

An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, “A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the authorized officer determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts.” Waiver, exceptions, or modifications must be supported by appropriate environmental analysis and documentation.

The person requesting the exception, modification, or waiver is responsible to submit a written request including information that might assist the authorized official in making a decision. The authorized officer will review the information submitted in support of the request along with other pertinent information. Requests must be submitted to the BLM field office in which the lease is located. Modification and waiver requests will be forwarded to the BLM-Wyoming Deputy State Director for Minerals and Lands along with the Field Office’s recommendation. Requests shall be subject to at least a 30-day public review if the authorized officer determines that a stipulation involves an issue of major concern to the public (43 CFR 3101.1-4).

The request is considered a unique action and is analyzed and documented individually for RMP and NEPA compliance. Processing may include coordination or consultation with the Wyoming Game and Fish Department (WGFD), U.S. Fish and Wildlife Service (USFWS), State Historic Preservation Office, or other agencies. For example, requests will not be granted for stipulations designed to protect

Threatened and Endangered species, unless the BLM consults with the USFWS and reinitiates consultation, if necessary. Consultation with other agencies requires additional time and resources to process.

The request must include the lease number and effective date, the stipulation(s) the request is for, the change in circumstances that lead the lessee or operator to believe the request is appropriate, and the name and/or number of any applicable authorization(s) (i.e., application for permit to drill, sundry, right-of-way). A map is strongly recommended. The following information must be addressed, when applicable, in the written request:

1. **WHY** the public land user wants the request. For example with a timing limitation exception request, include the reason(s) why an action could not be completed within the original stipulation period, any evidence of why the action would not adversely affect the resource or species being protected, or any other information (additional mitigation measures or alternatives) that would help the BLM (and WGFD or USFWS) in reviewing the request.
2. **WHO** is filing the request. This must include the company name, the name of the contact person, and the address, telephone number, e-mail address (if available), and fax number of the contact person.
3. **WHAT** is being requested. For example with a timing limitation request, include a detailed description of the activity including types of equipment or vehicles required and the number of trips expected.
4. **WHERE** the activity would take place. This must include the legal description of the activity and a map clearly depicting these areas. Proponent prepared Geographic Information System layers meeting BLM requirements can expedite the processing.
5. **WHEN** the activity would occur and it's duration. This must include the start date, end date, and time of day/night when activities would occur.

Requests must be made in writing and hard copy delivered to the Field Manager at the physical address of the office. When time is of the essence, the process may be initiated by fax or electronic delivery of a scanned copy but the original must be received by the Field Office within three working days. No exception, waiver, or modification will be issued until the hard copy request is received.

An exception request must be initiated near the time of the proposed activity. As a general rule, the request should be made within two weeks of conducting the proposed activity. The unpredictability of weather, animal movement and condition, and so on precludes analysis of requests related to wildlife far in advance of the time periods in question. The BLM uses a set of criteria when considering an exception request. Professional judgment plays a key part in the BLM's decisions on whether to grant exceptions. There is no clear-cut formula.

The following example describes some of the factors considered by the BLM when determining whether a request for a big game winter range timing limitation exception should be granted.

Factors Considered

1. Resource Concern
 - Animal presence or absence
 - Additional or new resource concerns
 - Potential for increased wildlife accidents or poaching

2. Animal Conditions

- Physical condition of individual animals (e.g., fat reserves)
- Local animal population condition (animal density)
- Potential for additive mortality
- Likelihood of introduction or increased incidence of disease
- Likelihood of decreased recruitment/natality

3. Climate/Weather

- Snow conditions (depth, crusting, longevity)
- Current and historic local precipitation patterns
- Current and historical seasonal weather patterns
- Recent and current wind-chill factors (indication of animals energy use)
- Duration of condition
- Short- and long-range forecasts

4. Habitat Condition and Availability

- Water and forage condition (availability, quality, and quantity)
- Competition (interspecific, intraspecific)
- Animal use of available forage
- Suitable and ample forage immediately available and accessible

5. Spatial Considerations

- Migration/travel corridors
- Winter range, foraging, calving or breeding
- Topography (plains vs. mountains)
- Topographic/geographic limitations (barriers)
- Presence of thermal cover (e.g., protection from wind)
- Proportion of range impacted
- Juxtaposition and density of other activities/disturbances in the vicinity
- Cumulative impacts

6. Timing

- When proposed activity would occur in the stipulation period
- Kind and duration of potentially disruptive activity
- Likelihood of animals habituating to the proposed activity

A determination will be fully documented in the case file with an appropriate level of environmental review after asking not one, but a series of questions, such as:

- Would the BLM remain in compliance with laws and regulations?
- Is the proposal in conformance with the objectives of the RMP?
- What would be the level of harm to the protected resource, both locally and regionally?

- What would be the economic or public safety concerns if an active operation near completion was shut in to comply with a seasonal closure? (For example: economic, multi-stage fracturing not completed; safety, casing and cementing of fresh water zones not completed.)
- Are the impacts temporary, rather than long term?
- Is the resource being protected rare, or is it relatively common? Is it a special status species?
- Based on existing knowledge of a species and its use of an area, would impacts be confined to single or a small number of individuals, or would there be impacts on local or regional populations?
- Would impacts be allowed under existing law and policy?
- Is offsite mitigation an appropriate option? (For example, where individual or cumulative impacts cannot be effectively mitigated on site?)
- Can the impacts be reduced to an acceptable level through intensive use of environmental Best Management Practices?

The following table lists RMP leasing stipulations and possible exceptions, modifications, and waivers to those stipulations under Alternative D. Table G-1 describes each stipulation, provides the Management Action record number, and the criteria for considering exceptions, modifications, and waivers.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area

Management Action	2038
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat outside elk crucial winter range
Text of Management Action	<p>Zone 1 -- outside elk crucial winter range are subject to CSU. Oil and gas-related surface disturbances are restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 32 acres. A minimum lease size of 640 noncontiguous acres of federal mineral estate would be applied outside elk crucial winter range. Smaller parcels may be leased only when 640 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements.</p> <ul style="list-style-type: none"> • Allow additional disturbance pending acceptable final reclamation. • Co-locate new disturbance where technically feasible. • Utilize unitization to minimize surface disturbance in elk crucial winter range.
Stipulation Type	CSU
RMP Acres Affected	24,500 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within Zone 1 outside elk crucial winter range of the Absaroka Front MLP analysis area ((1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 32 acres; (2) as mapped on the Cody Field Office GIS database; (3) protecting wildlife habitat in Zone 1 of the Absaroka Front MLP analysis area.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within elk habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	2039
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat inside elk crucial winter range
Text of Management Action	<p>Zones 1 and 3 -- Within elk crucial winter range, oil and gas-related surface disturbances would be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. A minimum lease size of 1,280 noncontiguous acres of federal mineral estate would be required. Total surface disturbance per lease will not exceed 64 acres. Smaller parcels may be leased only when 1,280 acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements.</p> <ul style="list-style-type: none"> • Allow additional disturbance pending acceptable final reclamation. • Co-locate new disturbance where technically feasible. • Utilize unitization to minimize surface disturbance in crucial winter range.
Stipulation Type	CSU
RMP Acres Affected	49,950 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within Zones 1 and 3 inside elk crucial winter range of the Absaroka Front MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting wildlife habitat in elk crucial winter range within Zones 1 and 3 of the Absaroka Front MLP analysis area.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within elk habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>
Management Action	2040
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat adjoining USFS and State Lands
Text of Management Action	<p>Zone 2 -- Require a Master Development Plan to minimize impacts to big game crucial winter range or transitional habitat.</p> <p>Co-locate new disturbance where technically feasible.</p> <p>Utilize unitization to minimize surface disturbance in big game winter range.</p>
Stipulation Type	Lease Notice
RMP Acres Affected	4,763 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within Zone 2 of the Absaroka Front MLP analysis area (1) Prior to surface disturbance within Zone 2, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate).
Management Action	2042
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat
Text of Management Action	Zone 3 -- Apply a CSU to avoid locating new surface disturbance within forest type vegetation in areas identified as habitat for big game crucial winter range.
Stipulation Type	CSU
RMP Acres Affected	26,567 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within Zone 3 of the Absaroka Front MLP analysis area within forest type vegetation in areas identified as habitat for big game crucial winter range (1) Prior to surface disturbance within Zone 3 forest type vegetation, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <p>Design oil and gas development to avoid or reduce unnecessary disturbances to forest type vegetation.</p> <p>(2) as mapped in Worland Field Office GIS database; (3) to protect forest type vegetation in areas identified as habitat for big game crucial winter range within Zone 3 of the Absaroka Front MLP analysis area.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of big game. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of big game. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within big game habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.in accordance with the land use plan and/or the regulatory provisions for such changes.</p>
Management Action	2043
Protected Resource	Absaroka Front MLP analysis area: Recreation
Text of Management Action	Zone 3 -- Apply a Timing Limitation Stipulation (TLS) for surface disturbing or disruptive activity from September 1-November 15 to maintain recreational settings for hunting within the Absaroka Mountain Foothills SRMA.
Stipulation Type	TLS
RMP Acres Affected	10,584 acres
Stipulation Description	Avoid surface-disturbing and disruptive activities within Absaroka Mountain Foothills SRMA (1) September 1 to November 15; (2) as mapped on the Worland Field Office GIS database; (3) protecting recreational settings.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resource use, considering health and safety.</p> <p>Modification: This stipulation may be modified if a portion of the lease is determined by the BLM authorized officer to not be located within the Absaroka Mountain Foothills SRMA.</p> <p>Waiver: This stipulation may be waived if the BLM authorized officer determines that the entire lease is no longer managed for recreational settings for hunting or is not located within the Absaroka Mountain Foothills SRMA.</p>
Management Action	2045
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Text of Management Action	<p>Within the Fifteen Mile MLP analysis area apply a CSU restriction. Allow no more than 1 surface disturbance per lease, to include 1 well pad and ancillary facilities, to maintain recreational settings, and conserve geologic features, LRP soils, allow no more than 1 surface disturbance per lease Total surface disturbance per lease will not exceed 32 acres. A minimum lease size of 640 noncontiguous acres of federal mineral estate would be applied within the analysis area. Smaller parcels may be leased only when 640 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements.</p> <ul style="list-style-type: none"> • Allow additional disturbance pending acceptable final reclamation. • Co-locate new disturbance where technically feasible. • Utilize unitization to control the pace and density of development.
Stipulation Type	CSU
RMP Acres Affected	180,816 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Fifteen Mile MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 surface disturbance per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 32 acres; (2) as mapped on the Worland Field Office GIS database; (3) protecting recreational setting, LRP soils, and geologic features within the Fifteen Mile MLP Analysis Area.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for geologic features or LRP soils. The BLM can and does grant exceptions if the BLM determines that granting an exception would not adversely impact the resource being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the resource. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if it is determined that the site is no longer considered in the land use plan to be within LRP soils or geologic features. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	2046
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Text of Management Action	<p>Apply a lease notice to restrict surface disturbance on LRP soils and unique geologic features unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts, which may include, but not be limited to include an Erosion, Revegetation and Restoration Plan.</p> <p>The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • The disturbed area will be stabilized with no evidence of accelerated erosion features. • The disturbed area shall be managed to ensure soil characteristics approximate an appropriate reference site with regard to erosional features to maintain soil productivity and sustainability. • Slope stability is maintained preventing slope failure and erosion. • Sufficient viable topsoil is maintained for ensuring successful final reclamation. At locations where interim reclamation will be completed, this will be accomplished by respreading all salvaged topsoil over the areas of interim reclamation. • The original landform and site productivity will be partially restored during interim reclamation and fully restored as a result of final reclamation.
Stipulation Type	Lease Notice
RMP Acres Affected	180,816 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Fifteen Mile MLP analysis area (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts, which may include, but not be limited to include an Erosion, Revegetation and Restoration Plan.</p> <p>Prior to surface disturbance on limited reclamation potential areas a site-specific construction, stabilization, and reclamation plan (Plan) must be submitted to the BLM by the applicant as a component of the APD (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The Plan must include designs approved and stamped by a licensed engineer. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the Plan (with conditions, as appropriate).</p>
Management Action	2047
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Text of Management Action	Limit off-road vehicular use for Notice of Staking (NOS) level casual use actions within the Fifteen Mile MLP analysis area. Allow off-road motorized (OHV) and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Stipulation Type	Lease Notice
RMP Acres Affected	230,699 acres
Stipulation Description	Limit off-road vehicular use for Notice of Staking (NOS) level casual use actions within the Fifteen Mile MLP analysis area. Allow off-road motorized (OHV) and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer. Casual use within the Fifteen Mile MLP Analysis Area is allowed within 300 feet of established roadways provided that such access is not otherwise prohibited by the BLM authorized officer.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	2049
Protected Resource	Big Horn Front MLP analysis area: Wildlife migration corridors
Text of Management Action	Prohibit surface-disturbing activities within ½ mile of big game migration corridors within the Big Horn Front MLP analysis area.
Stipulation Type	NSO
RMP Acres Affected	18,698 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within ½ mile of big game migration corridors within the Big Horn Front MLP analysis area; (2) as mapped on the Cody/Worland Field Office GIS database.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that that the entire leasehold is greater than ½ mile from big game migration corridors within the Big Horn Front MLP Analysis Area Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>
Management Action	2050
Protected Resource	Big Horn Front MLP analysis area: Wildlife habitat inside elk crucial winter range
Text of Management Action	<p>Within elk crucial winter range, oil and gas-related surface disturbances would be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. A minimum lease size of 1280 noncontiguous acres of federal mineral estate would be required. Total surface disturbance per lease will not exceed 64 acres. Smaller parcels may be leased only when 1280 acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements.</p> <ul style="list-style-type: none"> • Allow additional disturbance pending acceptable final reclamation. • Co-locate new disturbance where technically feasible. • Utilize unitization to minimize surface disturbance in crucial winter range.
Stipulation Type	CSU
RMP Acres Affected	81,630 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited inside elk crucial winter range within the Big Horn Front MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting wildlife habitat in elk crucial winter range the Big Horn Front MLP Analysis Area.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within elk habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>
Management Action	2050
Protected Resource	Big Horn Front MLP analysis area – Elk winter range
Text of Management Action	Avoid surface-disturbing and disruptive activities within elk winter range from November 15 through April 30.
Stipulation Type	TLS
RMP Acres Affected	113,688 acres
Stipulation Description	<p>Avoid surface-disturbing and disruptive activities within elk winter range (1) from Nov 15 to Apr 30; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting elk winter range.</p> <p>Exception: The BLM authorized officer may grant an exception if the operator demonstrates that the crucial winter range areas are not occupied during the period of concern, subject to confirmation by the BLM, in coordination with WGFD.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that the crucial winter range is not present or boundaries of the subject winter range areas have been refined. The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that the crucial winter range is not present or boundaries of the subject winter range areas have been refined.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer managed as crucial winter range, in coordination with WGFD.</p>
Management Action	2051
Protected Resource	Big Horn Front MLP analysis area: Recreational settings
Text of Management Action	Limit off-road vehicular use for Notice of Staking (NOS) level casual use actions within the Big Horn Front MLP analysis area. Allow off-road motorized (OHV) and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Stipulation Type	Lease Notice
RMP Acres Affected	285,796 acres
Stipulation Description	Limit off-road vehicular use for Notice of Staking (NOS) level casual use actions within the Big Horn Front MLP analysis area. Allow off-road motorized (OHV) and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer. Casual use within the Big Horn Front MLP Analysis Area is allowed within 300 feet of established roadways provided that such access is not otherwise prohibited by the BLM authorized officer.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	4036
Protected Resource	Water, Riparian/Wetland: Within 500 feet perennial surface water, and riparian/wetland areas
Text of Management Action	Prohibit surface-disturbing activities within 500 feet of surface water and riparian/wetland areas (97,894 acres) except when such activities are necessary and when their impacts can be mitigated.
Stipulation Type	NSO
RMP Acres Affected	120,781 acres
Stipulation Description	<p>No surface occupancy (1) within 500 feet of perennial surface water, riparian/wetland areas, and playas; (2) as mapped on the Cody and Worland Field Office GIS database.</p> <p>Exception: The authorized officer may grant an exception if, based upon an evaluation by the BLM, it is determined that the proposal would not adversely affect perennial surface waters, riparian/wetland areas and/or playas.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation if, based upon an evaluation by the BLM, it is determined that the proposal is not located within 500 feet of perennial surface waters, riparian/wetland areas and/or playas.</p> <p>Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area is not within 500 feet of perennial surface waters, riparian/wetland areas and/or playas. This determination will be based upon an evaluation by the BLM.</p>
Management Action	4055
Protected Resource	Water, Riparian/Wetland, Fish and Wildlife
Text of Management Action	Apply a NSO restriction and prohibit surface-disturbing activities within 500 feet and apply a CSU and avoid surface-disturbing activities within ¼ mile of any waters rated by the WGFD as Blue Ribbon or Red Ribbon (trout streams of national or statewide importance).
Stipulation Type	CSU
RMP Acres Affected	7,033 acres
Stipulation Description	<p>Surface occupancy or use is restricted within ¼ mile of waters rated by the WGFD as Class 1 or 2 fisheries. (1) Prior to surface disturbance within ¼ mile of waters rated by the WGFD as Class 1 or 2 fisheries, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • Reserve pits should be designed to prevent possible contamination of soil and groundwater. • Drill pad sites should be designed to disperse storm water runoff onto upland sites using proper erosion and sediment control techniques. • Design road crossing of streams to allow fish passage at all flows. • Design crossings such that they do not destabilize the channel or increase water velocity. <p>(2) as mapped by the WGFD or Worland/Cody Field Office GIS database; (3) to protect designated Blue Ribbon and Red Ribbon fisheries habitat and fish populations.</p> <p>Exception: The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the proposed action would not result in a decline in fish abundance or range.</p> <p>Modification: The BLM authorized officer may grant a modification if it is determined that a portion of the lease is no longer located within ¼ mile of WGFD-designated Blue or Red Ribbon fisheries.</p> <p>Waiver: This stipulation may be waived if the BLM authorized officer determines that the entire leasehold is not located within ¼ mile of WGFD-designated Blue or Red Ribbon fisheries.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	4062
Protected Resource	Fish and Wildlife: Bighorn River HMP/RAMP tracts and the BLM-administered tracts in Yellowtail WHMA
Text of Management Action	Prohibit surface-disturbing and disruptive activities in the Bighorn River HMP/RAMP tracts and the BLM-administered tracts in Yellowtail WHMA and apply an NSO restriction as appropriate.
Stipulation Type	NSO
RMP Acres Affected	5,835 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within Bighorn River HMP/RAMP tracts and the BLM-administered tracts in Yellowtail WHMA (2) protecting fish and wildlife resources.</p> <p>Exception: The BLM authorized officer may grant an exception if, in coordination with the WGFD, it is determined that the action as proposed or conditioned would meet the HMP/RAMP and/or WHMA management objectives.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if, in coordination with the WGFD, it is determined that a portion of the lease is not located within the Bighorn River HMP/RAMP tracts or BLM-administered tracts in Yellowtail WHMA.</p> <p>Waiver: The BLM authorized officer may grant a waiver if, in coordination with the WGFD, it is determined that the entire lease area is no longer located within the Bighorn River HMP/RAMP tracts or BLM-administered tracts in Yellowtail WHMA.</p>
Management Action	4076
Protected Resource	Fish and Wildlife: Big game crucial winter range habitat outside of Oil and Gas Management Areas
Text of Management Action	Avoid surface-disturbing and disruptive activities within big game crucial winter range (1,638,732 acres) from November 15 through April 30.
Stipulation Type	TLS
RMP Acres Affected	1,638,732 acres
Stipulation Description	<p>No surface use is allowed during the following time periods. This stipulation does not apply to operation and maintenance of production facilities.</p> <p>Timing Limitation Stipulation (TLS) (1) Nov 15 to Apr 30; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting big game on crucial winter range.</p> <p>Exception: The BLM authorized officer may grant an exception if the operator demonstrates that the crucial winter range areas are not occupied during the period of concern, subject to confirmation by the BLM, in coordination with WGFD.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that the crucial winter range is not present or boundaries of the subject winter range areas have been refined.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer managed as crucial winter range, in coordination with WGFD.</p>
Management Action	4077
Protected Resource	Fish and Wildlife: Federal mineral estate within the Absaroka Front Management Area
Text of Management Action	On federal mineral estate within the Absaroka Front Management Area, apply a mix of CSU/TLS/NSO stipulations.
Stipulation Type	TLS
RMP Acres Affected	4,857 acres
Stipulation Description	No surface occupancy (1) within overlapping migration corridors and big game crucial winter range in the Absaroka Front Management Area (2) as mapped on the Worland/Cody Field Office GIS

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>database.</p> <p>Exception: The BLM authorized officer may grant an exception if the operator demonstrates that the crucial winter range areas are not occupied during the period of concern, subject to confirmation by the BLM, in coordination with WGFD.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that the crucial winter range is not present or boundaries of the subject winter range areas have been refined, or within the Absaroka Front Management Area.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer managed as crucial winter range, in coordination with WGFD, or within the Absaroka Front Management Area.</p>
Management Action	4077
Protected Resource	Fish and Wildlife: Federal mineral estate within the Absaroka Front Management Area
Text of Management Action	On federal mineral estate within the Absaroka Front Management Area, apply a mix of CSU/TLS/NSO stipulations.
Stipulation Type	CSU
RMP Acres Affected	111,410 acres
Stipulation Description	<p>Surface occupancy or use is restricted within the Absaroka Front Management Area. (1) Prior to surface disturbance within big game crucial habitat, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • Design oil and gas development to avoid or reduce unnecessary disturbances, wildlife conflicts, and habitat impacts. • Plan the pattern and rate of development to avoid the most important habitats and generally reduce the extent and severity of impacts. • Cluster drill pads, roads and facilities in specific, “low-impact” areas, if geologically feasible. • Consider “liquid gathering systems” (LGS) to eliminate surface storage tanks and reduce truck trips for removal of liquids. • To the extent practicable, place infrastructure within or near previously disturbed locations. • Minimize infrastructure development and operational activity during life of field by using consolidation (e.g., “unitized”) development techniques. <p>(2) as mapped in Worland/Cody Field Office GIS database; (3) to protect big game crucial habitat.</p> <p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be fully mitigated or there are not practical alternatives.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if (1) a portion of the area is not being used as protected range by the identified species, (2) habitat outside of stipulation boundaries is being used and needs to be protected, or (3) the migration patterns have changed causing a difference in the season of use.</p> <p>Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold can be occupied without adversely affecting the resources.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	4077
Protected Resource	Fish and Wildlife: Federal mineral estate within the Absaroka Front Management Area
Text of Management Action	On federal mineral estate within the Absaroka Front Management Area, apply a mix of CSU/TLS/NSO stipulations.
Stipulation Type	NSO
RMP Acres Affected	41,177 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within the Absaroka Front Management Area (2) protecting overlapping migration corridors and big game crucial winter range.</p> <p>Exception: The BLM authorized officer may grant an exception if, in coordination with the WGFD, it is determined that the action as proposed or conditioned would meet wildlife management objectives.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if, in coordination with the WGFD, it is determined that a portion of the lease is not located within migration corridors or overlapping big game crucial winter range.</p> <p>Waiver: The BLM authorized officer may grant a waiver if, in coordination with the WGFD, it is determined that the entire lease area is no longer located within migration corridors or overlapping big game crucial winter range.</p>
Management Action	4113
Protected Resource	Special Status Species
Text of Management Action	Control surface-disturbing activities to avoid or mitigate adverse effects on about 1,300 BLM-administered surface acres of active prairie dog colonies within the Meeteetse complex. This requirement will remain in effect until completion of a site-specific activity plan being prepared to manage ferrets in this area. The restriction will then be reassessed for its continued appropriateness. This restriction applies to such things as mineral leasing, geophysical exploration (except casual use), and construction activities.
Stipulation Type	CSU
RMP Acres Affected	1,300 acres
Stipulation Description	<p>Surface occupancy or use is restricted within the Meeteetse prairie dog complex. (1) Prior to surface disturbance within the Meeteetse prairie dog complex, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • Verify the presence or absence of prairie dogs within the colony boundary. • New access roads should avoid intersecting a prairie dog colony or bisecting two adjacent colonies. • For multiple –well programs, if geologically and technically feasible, drill from the same pad using directional drilling technologies. • Salvage topsoil from all facilities and re-apply during interim and final reclamation. Native seed mixes will be required to re-establish short grass prairie vegetation during reclamation. <p>(2) as mapped by the WGFD or Worland/Cody Field Office GIS database; (3) to retain habitat characteristics within the Meeteetse prairie dog complex for black-footed ferret reintroduction.</p> <p>Exception: The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the proposed action would not impair the function or utility of the site for reoccupation by black-footed ferret.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if, after consultation with the USFWS, it is determined that a portion of the NSO</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>area is nonessential for possible reintroduction of black-footed ferret, or is determined not to be located within the Meeteetse prairie dog complex.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined by the BLM, in consultation with the USFWS, that the entire lease area is nonessential for possible reintroduction of black-footed ferret, or it is determined the entire lease area is not located within the Meeteetse prairie dog complex.</p>
Management Action	4117
Protected Resource	Special Status Species: Within 0.6-mile radius of the perimeter greater sage-grouse leks within PHMAs
Text of Management Action	Surface occupancy and surface-disturbing activities would be prohibited on or within 0.6-mile radius of the perimeter of occupied sage-grouse leks.
Stipulation Type	NSO
RMP Acres Affected	120,019 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within 0.6-mile radius of the perimeter of occupied greater sage-grouse leks inside PHMAs (2) protection of greater sage-grouse leks within PHMAs.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Modification: The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a Greater Sage-Grouse designated PHMAs or connectivity area, or Greater Sage-Grouse are no longer a BLM sensitive or special status species and are not listed by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p>
Management Action	4117
Protected Resource	Special Status Species: Within ¼-mile radius of the perimeter of greater sage-grouse leks outside of PHMAs
Text of Management Action	Apply a NSO stipulation to prohibit or restrict surface-disturbing activities or surface occupancy within ¼-mile radius of the perimeter of occupied sage-grouse leks.
Stipulation Type	NSO
RMP Acres Affected	4,077 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within ¼-mile radius of the perimeter of occupied greater sage-grouse leks outside PHMA (2) protection of greater sage-grouse leks outside PHMAs.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Modification: The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a Greater Sage-Grouse designated PHMAs or connectivity area, or Greater Sage-Grouse are no longer a BLM sensitive or special status species and are not listed by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p>
Management Action	4118
Protected Resource	Special Status Species: Within 0.6-mile radius of the perimeter greater sage-grouse leks within PHMAs
Text of Management Action	Restrict disruptive activity within 0.6-mile radius of the perimeter of occupied sage-grouse leks from March 15 to June 30.
Stipulation Type	TLS
RMP Acres Affected	All PHMAs – 1,446,042 acres
Stipulation Description	<p>Avoid disruptive activities within PHMAs (1) March 1 to June 30 within 0.6-mile radius of the perimeter of occupied sage-grouse leks; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting greater sage-grouse leks within PHMAs from disruptive activities.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Modification: The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a Greater Sage-Grouse designated PHMAs, or are incapable of serving the long-</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	term requirements of Greater Sage-Grouse nesting habitat and that these ranges no longer warrant consideration as components of Greater Sage-Grouse nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)
Management Action	4118
Protected Resource	Special Status Species: Greater sage-grouse nesting and early brood-rearing habitats inside PHMAs
Text of Management Action	Apply a TLS to prohibit or restrict surface-disturbing and/or disruptive activities in sage-grouse nesting and early brood-rearing habitat within PHMAs from March 15 to June 30.
Stipulation Type	TLS
RMP Acres Affected	All PHMAs – 1,446,042 acres
Stipulation Description	<p>Prohibit or restrict surface-disturbing and/or disruptive activities (1) March 1 to June 30; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting sage-grouse nesting and early brood-rearing habitat within PHMAs.</p> <p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being used during the TLS period of concern for any given year. Additionally this restriction will not apply to maintenance and operation of existing facilities.</p> <p>Sage-grouse specific exception criteria for application of greater or lesser restrictions to short or long-term activities. Exception evaluation factors may include, but are not limited to, condition of the habitat, presence of sage-grouse or their sign, presence of other activities in the area, importance for migration or connectivity, duration and timing of proposed activity, local topography, severity and forecast of weather, beneficial aspects of the project for sage-grouse, including possible reclamation activities, and cover and forage availability.</p> <p>Modification: The authorized officer may modify the boundaries in the stipulation area if it is determined that the actual habitat suitability for nesting/early brood-rearing is greater or less than the identified boundary. Timeframes may be modified based on studies documenting local periods of actual use.</p> <p>Waiver: This stipulation may be waived, if after consultation with the WGFD, it is determined that the described lands are incapable of serving the long-term requirements of sage-grouse nesting habitat and these ranges no longer warrant consideration as components of sage-grouse nesting habitat.</p>
Management Action	4118
Protected Resource	Special Status Species: Within ¼ mile of greater sage-grouse leks outside of PHMAs
Text of Management Action	Apply a TLS to restrict disruptive activity within ¼ mile of occupied sage-grouse leks from March 15 to June 30.
Stipulation Type	TLS
RMP Acres Affected	59,456 acres
Stipulation Description	<p>Prohibit or restrict disruptive activities outside PHMAs (1) within ¼ mile of greater sage-grouse leks outside of PHMAs from March 1 to June 30; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting sage-grouse nesting and early brood-rearing habitat outside PHMAs.</p> <p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being used during the TLS period of concern for any given year. Additionally this restriction will not apply to maintenance and operation of existing facilities. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Sage-grouse specific exception criteria for application of greater or lesser restrictions to short or long-term activities. Exception evaluation factors may include, but are not limited to, condition of</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>the habitat, presence of sage-grouse or their sign, presence of other activities in the area, importance for migration or connectivity, duration and timing of proposed activity, local topography, severity and forecast of weather, beneficial aspects of the project for sage-grouse, including possible reclamation activities, and cover and forage availability.</p> <p>Modification: The authorized officer may modify the boundaries in the stipulation area if it is determined that the actual habitat suitability for nesting/early brood-rearing is greater or less than the identified boundary. Timeframes may be modified based on studies documenting local periods of actual use. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived, if after consultation with the Wyoming Game and Fish Department, it is determined that the described lands are incapable of serving the long-term requirements of sage-grouse nesting habitat and these ranges no longer warrant consideration as components of sage-grouse nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p>
Management Action	4118
Protected Resource	Special Status Species: Greater sage-grouse nesting and early brood-rearing habitat outside PHMAs
Text of Management Action	Apply a TLS to prohibit or restrict surface-disturbing and/or disruptive activities in sage-grouse nesting and early brood-rearing habitat within 2 miles of the lek or lek perimeter of any occupied lek from March 15 to June 30.
Stipulation Type	TLS
RMP Acres Affected	303,329 acres
Stipulation Description	<p>Prohibit or restrict surface-disturbing and/or disruptive activities in sage-grouse nesting and early brood-rearing habitat within 2 miles of the lek or lek perimeter of any occupied lek (1) from March 1 to June 30; (2) as mapped on the Worland/Cody Field Office GIS database; (3) Greater sage-grouse nesting and early brood-rearing habitat outside PHMAs.</p> <p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being used during the TLS period of concern for any given year. Additionally this restriction will not apply to maintenance and operation of existing facilities. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Sage-grouse specific exception criteria for application of greater or lesser restrictions to short or long-term activities. Exception evaluation factors may include, but are not limited to, condition of the habitat, presence of sage-grouse or their sign, presence of other activities in the area, importance for migration or connectivity, duration and timing of proposed activity, local topography, severity and forecast of weather, beneficial aspects of the project for sage-grouse, including possible reclamation activities, and cover and forage availability.</p> <p>Modification: The authorized officer may modify the boundaries in the stipulation area if it is determined that the actual habitat suitability for nesting/early brood-rearing is greater or less than the identified boundary. Timeframes may be modified based on studies documenting local periods of actual use. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived, if after consultation with the Wyoming Game and Fish Department, it is determined that the described lands are incapable of serving the long-term requirements of sage-grouse nesting habitat and these ranges no longer warrant consideration as components of sage-grouse nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	4119
Protected Resource	Special Status Species: Mapped greater sage-grouse winter habitats/concentration areas
Text of Management Action	Apply a TLS to prohibit or restrict surface-disturbing and disruptive activities in mapped sage-grouse winter habitats/concentration areas from December 1 to March 14.
Stipulation Type	TLS
RMP Acres Affected	167,774 acres
Stipulation Description	<p>Prohibit or restrict surface-disturbing and/or disruptive activities within sage-grouse winter concentration areas (1) from December 1 to March 14; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting Mapped greater sage-grouse winter habitats/concentration areas.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of Greater Sage- Grouse during the period of concern. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Modification: The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of Greater Sage-Grouse winter habitat and that these ranges no longer warrant consideration as components of Greater Sage-Grouse winter habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)</p>
Management Action	4120
Protected Resource	Special Status Species: Density Disturbance within PHMAs
Text of Management Action	In greater sage-grouse PHMAs, limit the density of disturbances to an average of one oil and gas or mining facility per 640 acres. The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat. Utilize the most current greater sage-grouse density disturbance process or other state and/or federal agreed upon process for compliance evaluations. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the Disturbance Density Calculation Tool (DDCT) area using the DDCT process.
Stipulation Type	CSU
RMP Acres Affected	All PHMAs – 1,446,042 acres
Stipulation Description	Surface occupancy or use will be restricted to (1) no more than an average of one disturbance facility per 640 acres using the DDCT, and the cumulative value of all applicable surface disturbances, existing or future, must not exceed 5 percent of the DDCT area, as described in the DDCT; (2) as calculated using the DDCT; (3) To protect Greater Sage-Grouse designated PHMAs

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>from habitat fragmentation and loss.</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing oil and natural gas within Greater Sage-Grouse designated PHMAs. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on Federal, State, or private lands within designated PHMAs or surface disturbance created by other land users. The BLM may require the lessee or operator to enter into a unit agreement or drilling easement to facilitate the equitable development of this and surrounding leases.</p> <p>Exception: The authorized officer may grant an exception if an environmental record of review determines that, the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to Greater Sage-Grouse habitat and populations. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101.)</p> <p>Modification: The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101.)</p> <p>Waiver: The authorized officer may grant a waiver if it is determined by the BLM, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a Greater Sage-Grouse designated PHMAs or Greater Sage-Grouse are no longer a BLM sensitive or special status species and are not listed by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101.)</p>
Management Action	4123
Protected Resource	Special Status Species: Nesting Raptors
Text of Management Action	<p>To protect nesting raptors, apply a TLS on 126,241 acres to prohibit surface-disturbing and disruptive activities within:</p> <ul style="list-style-type: none"> • ¼ mile of active raptor nests and ½ mile of active golden eagle, bald eagle, northern goshawk, merlin, and prairie and peregrine falcon nests during specific species nesting period or until young birds have fledged. See Appendix K for species nesting periods. • 1 mile of active ferruginous hawk nests from March 1 to July 31 or until young birds have fledged.
Stipulation Type	TLS
RMP Acres Affected	113,826 acres
Stipulation Description	<p>No surface use is allowed within ¼ mile of active raptor nests and ½ mile of active golden eagle, bald eagle, northern goshawk, merlin, and prairie and peregrine falcon nests and 1 mile of active ferruginous hawk nests during specific species nesting period or until young birds have fledged. This stipulation does not apply to operation and maintenance of production facilities.</p> <p>Timing Limitation Stipulation (1) during the following time periods:</p> <ul style="list-style-type: none"> • American Kestrel April 1 – August 15

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<ul style="list-style-type: none"> • Bald Eagle January 1 – August 15 • Boreal Owl February 1 – July 31 • Burrowing Owl April 1 – September 15 • Common Barn Owl February 1 – September 15 • Cooper's Hawk March 15 – August 31 • Eastern Screech-owl March 1 – August 15 • Ferruginous Hawk March 15 – July 31 • Golden Eagle January 15 – July 31 • Great Gray Owl March 15 – August 31 • Great Horned Owl December 1 – September 31 • Long-eared Owl February 1 – August 15 • Merlin April 1 – August 15 • Northern Goshawk April 1 – August 15 • Northern Harrier April 1 – August 15 • Northern Pygmy-Owl April 1 – August 1 • Northern Saw-whet Owl March 1 – August 31 • Osprey April 1 – August 31 • Peregrine Falcon March 1 – August 15 • Prairie Falcon March 1 – August 15 • Red-tailed Hawk February 1 – August 15 • Sharp-shinned Hawk March 15 – August 31 • Short-eared Owl March 15 – August 1 • Swainson's Hawk April 1 – August 31 • Western Screech-owl March 1 – August 15 • All other raptors February 1 – July 31 <p>(2) as mapped on the Worland/Cody Field Office GIS database or as determined by field evaluation; (3) protecting active raptor nests.</p> <p>Exception: The BLM authorized officer may grant an exception if it is determined that the raptor nest(s) are not active or the proposed action is of a scale, sited in a location, or otherwise designed so that the proposed action would not disturb (be likely to cause: physical injury; a decrease in productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior) nesting raptors of conservation concern. The determination may include consultation with the WGFD or USFWS.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulations based upon a BLM evaluation in coordination with WGFD and/or USFWS, as necessary. The stipulation may be modified based on negative or positive monitoring results; or if it is determined that the action will not impair the function or the suitability of the habitat, or cause nest abandonment.</p> <p>Waiver: The stipulation may be waived if the BLM authorized officer determines that the entire lease area does not include seasonal buffer zones for nests of raptor species of conservation concern. This determination shall be based upon field studies of the area by a qualified representative and subject to confirmation from BLM, in coordination with the WGFD and/or USFWS, as necessary.</p>
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Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	4123
Protected Resource	Special Status Species: ¼ mile from raptor nest sites
Text of Management Action	To protect the actual nest site, apply a year-round CSU stipulation within ¼ mile of all raptor nests (47,651 acres).
Stipulation Type	CSU
RMP Acres Affected	57,897 acres
Stipulation Description	<p>Surface occupancy or use within ¼ mile of raptor nest sites will be restricted. (1) Prior to surface disturbance within ¼ mile of raptor nests a mitigation plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator may not initiate surface disturbing activities unless the BLM authorized officer has approved the plan or approved it with conditions. The plan must demonstrate to the BLM authorized officer’s satisfaction that nesting raptors of conservation concern would not be agitated or bothered to a degree that causes or is likely to cause:</p> <ul style="list-style-type: none"> • physical injury; • a decrease in productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or • nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior, or preclude nest reoccupation; <p>(2) as mapped on the Worland/Cody Field Office GIS database or determined by BLM field evaluation; (3) protecting raptor nest sites.</p> <p>Exception: The BLM authorized officer may grant an exception if a staff review determines that the proposed action is of a scale, sited in a location, or otherwise designed so that the proposed action would not result in a failure to meet the performance standards above. The determination may include coordination with the WGFD and/or USFWS.</p> <p>Modification: A modification may be granted if the BLM authorized officer determines that portions of the leasehold can be occupied without adversely affecting the nest site or suitable nesting habitat, based on topography, species, season of use, and other pertinent factors. The determination may include coordination with the WGFD and/or USFWS.</p> <p>Waiver: The stipulation may be waived if the BLM authorized officer determines that the entire lease area is not within ¼ mile of a raptor nest or suitable nesting habitat. This determination shall be based upon a field evaluation of the area by a qualified representative and subject to confirmation from the BLM. Confirmation may include coordination with the WGFD and/or USFWS.</p>
Management Action	4124 and 7087
Protected Resource	Special Status Species: Chapman Bench Management Area
Text of Management Action	<p>Manage a portion of the Chapman Bench area as the Chapman Bench Management Area (3,425 acres of BLM-administered surface ownership):</p> <ul style="list-style-type: none"> • manage for the retention and success of the mountain plover, long-billed curlew, and other sensitive species habitat • apply a NSO restriction
Stipulation Type	NSO
RMP Acres Affected	3,425 acres
Stipulation Description	<p>No surface occupancy or use is allowed (1) within the Chapman Bench Management Area as mapped on the Cody Field Office GIS database; (2) protecting mountain plover, long-billed curlew, and other sensitive species habitat.</p> <p>Exception: The BLM authorized officer may grant an exception if it is determined that the action, as proposed or conditioned, would not impair the function or utility of sensitive species habitats, in</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>coordination with the WGFD.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if after coordination with the WGFD is the BLM determines that the NSO area is not located in habitat for sensitive species.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined by the BLM, in coordination with the WGFD, that the lease area is not located within the Chapman Bench Management Area.</p>
Management Action	4127
Protected Resource	Special Status Species: Sage Creek Prairie Dog Town
Text of Management Action	Implement conservation measures outlined in the Biological Evaluation for black-tailed prairie dogs in the Sage Creek Prairie Dog Town. Apply an NSO restriction on the Sage Creek Prairie Dog Town.
Stipulation Type	NSO
RMP Acres Affected	182 acres
Stipulation Description	<p>No surface occupancy is permitted within the Sage Creek Prairie Dog Town (1) as mapped on the Cody Field Office GIS database; (2) protection of prairie dog habitat.</p> <p>Exception: The BLM authorized officer may grant an exception if it is determined that the action, as proposed or conditioned, would not impair the function or utility of sensitive species habitats, in coordination with the WGFD.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if after coordination with the WGFD is the BLM determines that the NSO area is not located in habitat for sensitive species.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined by the BLM, in coordination with the WGFD, that the lease area is not located within complexes are suitable for black-footed ferret reintroduction.</p>
Management Action	4133
Protected Resource	Surface Water: Riparian habitat supporting special status fish species
Text of Management Action	Prohibit surface-disturbing activities within 500 feet and avoid surface-disturbing activities within ¼ mile of perennial surface water and riparian/wetland areas except when their impacts can be mitigated to an acceptable level.
Stipulation Type	CSU
RMP Acres Affected	277,744 acres
Stipulation Description	<p>Surface occupancy or use within ¼ mile of perennial surface water, and riparian/wetland areas will be restricted where determined to support special status fish species. (1) Prior to surface disturbance within ¼ mile of waters of the state, perennial surface water, and riparian/wetland areas where determined to support special status fish species, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • Prevent contamination of soil and groundwater. • Upland sites are protected from storm water runoff using proper erosion and sediment control techniques. • Stabilization of channel crossings. <p>(2) as mapped on the Worland/Cody Field Office GIS database; (3) to protect waters of the state, perennial surface water, and riparian/wetland areas.</p> <p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be fully mitigated or there are not</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>practical alternatives.</p> <p>Modification: Consider modifications if (1) there are no practical alternatives, (2) impacts can be fully mitigated, and (3) the action is designed to enhance the protected resource(s).</p> <p>Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold can be occupied without adversely affecting riparian resources.</p>
Management Action	4153
Protected Resource	Wild Horses: McCullough Peaks and Fifteenmile HMAs foaling season
Text of Management Action	Avoid and discourage organized special recreation permits using domestic horses in the McCullough Peaks and Fifteenmile HMAs.
Stipulation Type	TLS
RMP Acres Affected	180,371 acres
Stipulation Description	<p>No surface use is allowed (1) Feb 1 to July 31; (2) within the McCullough Peaks and Fifteenmile HMAs as mapped on the Worland/Cody Field Office GIS database; (3) protecting McCullough Peaks and Fifteenmile HMAs foaling season.</p> <p>Exception: The BLM authorized officer may grant an exception the BLM determines the area is not likely to be occupied during the period of concern and the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulations based upon BLM determination that suitable foaling range is not present or boundaries of the HMA have changed.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer within the HMA, or is not located within suitable foaling range.</p>
Management Action	5014
Protected Resource	Cultural Resources: Legend Rock Petroglyph Site
Text of Management Action	Apply a NSO restriction on the Legend Rock Petroglyph Site.
Stipulation Type	NSO
RMP Acres Affected	783 acres
Stipulation Description	<p>No surface occupancy or use is permitted allowed on within the designated Legend Rock Petroglyph Site.</p> <p>No Surface Occupancy (NSO) (1) within the designated Legend Rock Petroglyph site as mapped on the Worland Field Office GIS database; (2) for the protection of cultural resources.</p> <p>Exception: The BLM authorized officer may grant an exception if, after consultation with Indian tribes and SHPO, it is determined that the proposed action will result in a no adverse effect determination to the sacred, spiritual, and/or traditional nature of the property(s).</p> <p>Modification: This stipulation may be modified by the BLM authorized officer if, in consultation with Indian tribes and SHPO, the site is no longer considered eligible for NRHP or if, in consultation with Indian tribes and SHPO, it is determined that the identified property’s sacred, spiritual, and/or traditional values have been downgraded and/or the tribes have reduced the previous avoidance distance around the site.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined, in consultation with Indian tribes and SHPO, that the identified site is no longer considered sacred, spiritual, and/or traditional.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	5021
Protected Resource	Cultural Resources: Foreground of important cultural sites (defined in Glossary) up to 3 miles or the visual horizon
Text of Management Action	Avoid surface-disturbing activities and protect the foreground of important cultural sites (defined in Glossary) up to 3 miles or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the site. Use BMPs (Appendix L) to avoid or mitigate adverse effects.
Stipulation Type	CSU
RMP Acres Affected	25,733 acres
Stipulation Description	<p>(1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 32 acres; (2) as mapped on the Cody Field Office GIS database; (3) protecting wildlife habitat in Zone 1 of the Absaroka Front MLP analysis area.</p> <p>Exception: The BLM authorized officer may grant an exception if, after consultation with Indian tribes and/or SHPO, it is determined that the proposed action will result in a no adverse effect determination to the sacred, spiritual, and/or traditional nature of the property(s).</p> <p>Modification: This stipulation may be modified by the BLM authorized officer if, in consultation with Indian tribes and SHPO, the site is no longer considered eligible for NRHP or if, in consultation with Indian tribes and/or SHPO, it is determined that the identified property’s sacred, spiritual, and/or traditional values have been downgraded and/or the tribes have reduced the previous avoidance distance around the site.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined, in consultation with Indian tribes and/or SHPO, that the identified site is no longer considered sacred, spiritual, and/or traditional.</p>
Management Action	5049
Protected Resource	VRM: Class II
Text of Management Action	Allow surface-disturbing activities in areas managed as VRM Class II only if the level of change to the landscape from the activities are low, and will not attract the attention of the casual observer, or the project can be mitigated to meet these objectives.
Stipulation Type	CSU
RMP Acres Affected	1,163,380 acres
Stipulation Description	<p>Controlled Surface Use (CSU) --Surface occupancy or use will be restricted within Class I and/or Class II Visual Resource Management VRM) areas. (1) Prior to surface disturbance within Visual Resource Management Class I and/or II areas, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • A visual contrast rating must demonstrate that VRM Class I and/or II objectives will be met. • Where required by the BLM authorized officer, a visual simulation must be prepared and must demonstrate that VRM Class I and/or II objectives will be met through practices such as siting of permanent facilities. • Where present and feasible, existing surface disturbances shall be utilized; new surface disturbances shall be minimized to the extent practicable. • All permanent above-ground facilities (such as production tanks or other production facilities) not having specific coloration requirements for safety must be painted or designed using a BLM-approved color.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>(2) as mapped in the Worland/Cody Field Office GIS database; (3) protecting Class II Visual Resource Management Areas.</p> <p>Exception: The BLM authorized officer may grant an exception if it is demonstrated through a BLM-approved visual simulation and contrast rating worksheet that the project or identified mitigation will meet or exceed VRM Class I or II objectives. This restriction does not apply to temporary structures such as drilling rigs.</p> <p>Modification: The BLM authorized officer may modify the area subject to the stipulation if it is demonstrated that VRM Class I or II objectives have been modified through appropriate RMP planning procedures, or if a portion of the lease is not located within a VRM Class II area.</p> <p>Waiver: The BLM authorized officer may grant a waiver if it is determined that the entire leasehold is no longer managed for VRM Class I or II objectives based on planning, or if the entire leasehold is not located within a Class I or II area.</p>
Management Action	6067
Protected Resource	Recreational Resources: Campgrounds, trailheads, day use areas, and similar recreation sites
Text of Management Action	<p>Apply a NSO restriction at the time of lease offering on the following:</p> <ul style="list-style-type: none"> • Fishing and hunting access areas (8,034 acres) • Five Springs Falls Campground (approximately 372 acres) • The Cody Archery Range (374 acres) • Lovell Rod and Gun Club shooting range (139 acres) • Areas within ¼ mile of campgrounds, trailheads, day use areas, and similar recreational sites
Stipulation Type	NSO
RMP Acres Affected	<p>Fishing and hunting access areas (8,034 acres)</p> <p>Five Springs Falls Campground (approximately 372 acres)</p> <p>The Cody Archery Range (374 acres)</p> <p>R&PP lease the Lovell Rod and Gun Club shooting range (139 acres)</p>
Stipulation Description	<p>No surface occupancy or use is permitted (1) on developed recreation sites (2) for the protection of designated campgrounds, trailheads, day use areas, and similar recreation sites.</p> <p>Exception: An exception to this stipulation may be granted by the BLM authorized officer if the BLM determines that the function and utility of the recreational resources are not adversely affected.</p> <p>Modification: The BLM authorized officer may modify the stipulation if the boundaries of recreational sites are changed or a portion of the lease area is determined not to be located within a designated recreational site.</p> <p>Waiver: This BLM authorized officer may waive this stipulation if it is determined that the entire leasehold no longer contains developed recreation areas.</p>
Management Action	6077
Protected Resource	Scenic and Recreational Resources: Absaroka Mountain Foothills SRMA
Text of Management Action	Apply a CSU stipulation on the Absaroka Mountain Foothills SRMA and Absaroka ERMA.
Stipulation Type	CSU
RMP Acres Affected	71,705 acres
Stipulation Description	<p>Surface occupancy or use will be restricted within the Absaroka Mountain Foothills SRMA and Absaroka ERMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6087
Protected Resource	Scenic and Recreational Resources: Areas within the Bighorn River SRMA and Bighorn River ERMA
Text of Management Action	Apply an NSO restriction on lands within the Bighorn River SRMA and the Bighorn River ERMA.
Stipulation Type	NSO
RMP Acres Affected	3,976 acres
Stipulation Description	<p>No surface occupancy is permitted (1) on lands within the Bighorn River SRMA and the Bighorn River ERMA (2) protecting the Bighorn River SRMA and the Bighorn River ERMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.</p>
Management Action	6109
Protected Resource	Scenic and Recreational Resources: Tatman Mountain RMZ
Text of Management Action	Apply a CSU stipulation on the Tatman Mountain RMZ.
Stipulation Type	CSU
RMP Acres Affected	49,393 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Tatman Mountain RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	6127
Protected Resource	Scenic and Recreational Resources: Canyons RMZ
Text of Management Action	Apply a CSU stipulation on the Canyons RMZ.
Stipulation Type	CSU
RMP Acres Affected	3,679 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Canyons RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6148
Protected Resource	Scenic and Recreational Resources: Brokenback/Logging Road RMZ
Text of Management Action	Apply a CSU stipulation on the Brokenback/Logging Road RMZ.
Stipulation Type	CSU
RMP Acres Affected	49,328 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Brokenback/Logging Road RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6159
Protected Resource	Scenic and Recreational Resources: Middle Fork of the Powder River SRMA
Text of Management Action	<p>Apply a CSU stipulation on the Middle Fork of the Powder River SRMA.</p> <p>Review mineral leases on a case-by-case basis and apply mitigation through activity level planning in the Southern Bighorns ERMA.</p>
Stipulation Type	CSU
RMP Acres Affected	13,368 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Middle Fork of the Powder River SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6170
Protected Resource	Scenic and Recreational Resources: Canyon Creek SRMA
Text of Management Action	Apply a CSU stipulation on the Canyon Creek SRMA.
Stipulation Type	CSU
RMP Acres Affected	3,679 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Canyon Creek SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6189
Protected Resource	Scenic and Recreational Resources: Within ¼ mile of campgrounds, trailheads, day use areas, river access sites, and similar recreational sites in The Rivers SRMA
Text of Management Action	Apply an NSO restriction on areas within ¼ mile of campgrounds, trailheads, day use areas, river access sites, and similar recreational sites within The Rivers SRMA.
Stipulation Type	NSO
RMP Acres Affected	197 acres
Stipulation Description	<p>No surface occupancy is permitted (1) Within ¼ mile of campgrounds, trailheads, day use areas, river access sites, and similar recreational sites in The Rivers SRMA (2) for protection of developed recreation sites.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	6200
Protected Resource	Scenic and Recreational Resources: McCullough Peaks SRMA
Text of Management Action	Apply a NSO restriction on 41,653 acres within the McCullough Peaks SRMA.
Stipulation Type	NSO
RMP Acres Affected	65,552 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within the McCullough Peaks SRMA (2) for the protection of Scenic and Recreational Resources.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6208
Protected Resource	Recreational Resources: Basin Gardens Play Area RMZ
Text of Management Action	Apply a CSU stipulation on the Basin Gardens Play Area SRMA.
Stipulation Type	CSU
RMP Acres Affected	4,426 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Basin Gardens Play Area RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	6227
Protected Resource	Recreational Resources: Horse Pasture SRMA.
Text of Management Action	Apply a CSU stipulation on the Horse Pasture SRMA.
Stipulation Type	CSU
RMP Acres Affected	144 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Horse Pasture SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Worland Field Office GIS database; (3) protecting Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6237
Protected Resource	Scenic and Recreational Resources: Beck Lake SRMA
Text of Management Action	Apply a CSU stipulation on the Beck Lake SRMA.
Stipulation Type	CSU
RMP Acres Affected	6,475 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Beck Lake SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p> <p>(2) as mapped on the Cody Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA.</p> <p>Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	6245
Protected Resource	Scenic and Recreational Resources: Newton Lake Ridge SRMA
Text of Management Action	The Newton Lake Ridge SRMA is open to oil and gas leasing with a CSU restriction.
Stipulation Type	CSU
RMP Acres Affected	1,949 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Newton Lake Ridge SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate to the authorized officer’s satisfaction that the proposed action is consistent with the prescribed management for the SRMA.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	(2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. Exception: Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed. Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.
Management Action	7007
Protected Resource	Special Designations (Paleontological Resources): Fossil concentration area in the Big Cedar Ridge ACEC
Text of Management Action	Apply an NSO restriction on the 264-acre fossil concentration area in the Big Cedar Ridge ACEC.
Stipulation Type	NSO
RMP Acres Affected	264 acres
Stipulation Description	No surface occupancy is permitted (1) on the 264-acre fossil concentration area in the Big Cedar Ridge ACEC (2) protection of paleontological resources. Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated. Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed. Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold no longer contains designated ACECs.
Management Action	7021
Protected Resource	Special Designations (Paleontological Resources): Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC
Text of Management Action	Apply an NSO restriction for mineral leasing, exploration, and development on BLM-administered lands in the Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC.
Stipulation Type	NSO
RMP Acres Affected	1,798 acres
Stipulation Description	No surface occupancy is permitted (1) within Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC (2) protection of paleontological resources. Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated. Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed. Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold no longer contains designated ACECs.
Management Action	7029
Protected Resource	Special Designations (Geologic Resources): Center of the Sheep Mountain Anticline ACEC
Text of Management Action	Apply an NSO restriction on the center of the Sheep Mountain Anticline.
Stipulation Type	NSO
RMP Acres Affected	9,034 acres
Stipulation Description	No surface occupancy is permitted (1) within the center of the Sheep Mountain Anticline ACEC (2) protection of geologic resources.

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	<p>Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold no longer contains designated ACECs.</p>
Management Action	7029
Protected Resource	Special Designations (Geologic Resources): Northern and southern portions of the Sheep Mountain Anticline ACEC
Text of Management Action	Apply a CSU on the northern portion and the southern portion of the Sheep Mountain Anticline ACEC.
Stipulation Type	CSU
RMP Acres Affected	2,227 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the Northern and southern portion of the Sheep Mountain Anticline ACEC (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting Special Designations (Geologic Resources).</p> <p>Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold no longer contains designated ACECs.</p>
Management Action	7154
Protected Resource	Special Designations (Geologic; Paleontological): Paleocene, Eocene Thermal Maximum ACEC
Text of Management Action	Apply an NSO restriction on the PETM ACEC. Grant exceptions on a case-by-case basis.
Stipulation Type	NSO
RMP Acres Affected	14,908 acres
Stipulation Description	<p>No surface occupancy is permitted (1) within the PETM ACEC (2) protection of geologic and paleontological resources.</p> <p>Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: This stipulation may be waived, if the authorized officer determines that the entire leasehold no longer contains designated ACECs.</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

Management Action	7296
Protected Resource	Special Designations (Cultural Resources): Within the viewshed from the Heart Mountain Relocation Camp National Historic Landmark toward Heart Mountain
Text of Management Action	Apply a CSU stipulation and BMPs (Appendix L) to avoid or mitigate adverse effects within the viewshed from the Heart Mountain Relocation Camp National Historic Landmark toward Heart Mountain.
Stipulation Type	CSU
RMP Acres Affected	7,365 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within the viewshed of the Heart Mountain Relocation Camp National Historic Landmark (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; (2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting the viewshed from the Heart Mountain Relocation Camp National Historic Landmark toward Heart Mountain.</p> <p>Exception: An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.</p> <p>Modification: The stipulated area may be modified by the authorized officer if the boundaries are changed.</p> <p>Waiver: A waiver may be granted if the restriction violates the leaseholder/operator lease rights.</p>
Management Action	7299
Protected Resource	Special Designations (Scenic and Cultural Resources): Up to 3 miles from the Nez Perce (Neeme-poo) NHT
Text of Management Action	Protect the foreground of National Historic Trails (defined in Glossary) up to 3 miles or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail. Use BMPs (Appendix L) to avoid or mitigate adverse effects.
Stipulation Type	CSU
RMP Acres Affected	25,733 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited within 3 miles from the Nez Perce (Neeme-poo) NHT or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate proposed infrastructure is either not visible or will result in a weak contrast rating.</p> <p>(2) as mapped on the Cody Field Office GIS database; (3) protecting Special Designations (Scenic and Cultural Resources) the Nez Perce (Neeme-poo) NHT</p> <p>Exception: The authorized officer may consider a lease stipulation exception within the National Trails Management Corridor if 1) an action is at least 3 miles from a National Trail, a significant National Trail historical or recreational site, or Trail-related recreational activities; or, 2) all components and effects of the action are in compliance with the RMP-designated VRM standard in consultation with appropriate federal agency. The proposal must be capable of attaining a no adverse-affect determination in consultation with SHPO.</p> <p>Modification: The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if it is determined by the BLM, after consultation with the appropriate federal and/or agency that a portion of the NSO area does not contribute, as determined by Section 106, to the trails’ nature and purpose or their setting or if the proposed action can be developed in a way that meets the management objectives for the NHTs. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM.</p> <p>Waiver: The authorized officer may grant a waiver if it is determined, in consultation with the</p>

Table G-1. Oil and Gas Lease Stipulations – Bighorn Basin Planning Area (Continued)

	appropriate federal and/or state agency, that the area is no longer considered to contribute to the trails' nature and purpose or setting or if the proposed action can be developed in a way that meets the management objectives for the NHTs. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM.
Management Action	7303
Protected Resource	Special Designations (Scenic and Cultural Resources): Up to 2 miles from Other Trails
Text of Management Action	Protect the foreground of Historic Trails (defined in glossary) up to 2 miles or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail, and use BMPs (Appendix L) to avoid or mitigate adverse effects.
Stipulation Type	CSU
RMP Acres Affected	414,586 acres
Stipulation Description	<p>Surface occupancy or use will be restricted or prohibited up to 2 miles where setting is an important aspect of the integrity for the trail.</p> <p>(1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts;</p> <p>The Plan must demonstrate proposed infrastructure is either not visible or will result in a weak contrast rating.</p> <p>(2) as mapped on the Worland/Cody Field Office GIS database; (3) protecting other historic trails.</p> <p>Exception: The authorized officer may grant an exception if surveys determine that other historic trail remnants are not present or it is determined that the section of trail is sufficiently compromised that the action will not result in an adverse effect to the trail.</p> <p>Modification: If surveys determine that a portion of the lease area does not contain contributing trail segments, then the stipulation may be modified. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM.</p> <p>Waiver: The authorized officer may grant a waiver if surveys determine that the entire lease area does not contain contributing trail segments, then the stipulation may be waived. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM.</p>

ACEC	Area of Critical Environmental Concern	NSO	No Surface Occupancy
APD	Application for Permit to Drill	PETM	Paleocene, Eocene Thermal Maximum
BLM	Bureau of Land Management	PHMAs	Priority Habitat Management Areas
BMP	Best Management Practice	RAMP	Recreation Area Management Plan
CSU	Controlled Surface Use	RMZ	Recreation Management Zone
dBA	Decibels with an A-weighted scale	SCZ	Setting Consideration Zone
ERMA	Extensive Recreation Management Area	SHPO	State Historic Preservation Office
GIS	Geographic Information System	SRMA	Special Recreation Management Area
HMA	Herd Management Area	SSURGO	Soil Survey Geographic
HMP	Habitat Management Plan	TLS	Timing Limitation Stipulation
LRP	Limited Reclamation Potential	USFS	United States Forest Service
MLP	Master Leasing Plan	USFWS	United States Fish and Wildlife Service
NHT	National Historic Trail	VRM	Visual Resource Management
NRCS	Natural Resources Conservation Service	WGFD	Wyoming Game and Fish Department
NRHP	National Register of Historic Places	WHMA	Wildlife Habitat Management Area

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix H

Wyoming Bureau of Land Management Mitigation
Guidelines for Surface-Disturbing and Disruptive Activities

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APPENDIX H

WYOMING BUREAU OF LAND MANAGEMENT MITIGATION GUIDELINES FOR SURFACE-DISTURBING AND DISRUPTIVE ACTIVITIES

1.0 INTRODUCTION

Wyoming Mitigation Guidelines are a compilation of practices employed by Bureau of Land Management (BLM) to mitigate impacts from surface disturbance. They apply to activities such as, but not limited to, road or pipeline construction, range improvements, and permitted recreation activities. The guidelines are designed to protect resources such as soils and vegetation, wildlife habitat, and cultural or historic properties. The guidelines are presented as an appendix of this Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) for easy reference as they apply to many resources and derive from many laws. All BLM RMPs have included these guidelines as appendices. The guidelines are not land use decisions; rather they are examples of mitigation measures that could be applied, as appropriate, based on site-specific National Environmental Policy Act (NEPA) analysis for individual proposals. Comment on the use and application of specific mitigation measures can be made during the NEPA process for individual proposals. Because mitigation measures change or are modified, based on new information, the guidelines are updated periodically for all field offices in Wyoming.

These guidelines are primarily for the purpose of attaining statewide consistency in how requirements are determined for avoiding and mitigating environmental impacts and resource and land use conflicts. Consistency in this sense does not mean that identical requirements would be applied for all similar types of land use activities that may cause similar types of impacts. Nor does it mean that the requirements or guidelines for a single land use activity would be identical in all areas.

The EIS for the RMP does not decide or dictate the exact wording or inclusion of these guidelines. Rather, the guidelines are used in the RMP EIS process as a tool to help develop the RMP alternatives and to provide a baseline for comparative impact analysis in arriving at RMP decisions. These guidelines will be used in the same manner in analyzing activity plans and other site-specific proposals. These guidelines and their wording are matters of policy. As such, specific wording is subject to change primarily through administrative review, not through the RMP EIS process. Any further changes that may be made in the continuing refinement of these guidelines and any development of program-specific standard stipulations will be handled in another forum, including appropriate public involvement and input.

2.0 PURPOSE

The purpose of the “Wyoming BLM Mitigation Guidelines” is to inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands. These guidelines have been written in a format that will allow for the addition of specific or specialized mitigation following the submission of a detailed plan of development or other project proposal, and an environmental analysis.

Those resource activities or programs currently without a standardized set of permit or operation stipulations can use the mitigation guidelines as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program.

Because use of the mitigation guidelines was integrated into the RMP EIS process and will be integrated into the site-specific environmental analysis process, the application of stipulations or mitigation requirements derived through the guidelines will facilitate consistency with planning decisions at plan implementation.

3.0 MITIGATION GUIDELINES

3.1 Surface Disturbance Mitigation Guideline

Surface disturbance will be controlled or prohibited in the following areas or conditions. For Federal oil and gas lease operations, under 43 CFR 3101.1-2 and the terms of the lease (BLM Form 3100-11), the authorized officer may require reasonable measures to minimize adverse impacts to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. At a minimum, measures shall be deemed consistent with lease rights granted provided they do not: require relocation of proposed operations by more than 200 meters; require that operations be sited off the leasehold; or prohibit new surface disturbing operations for a period in excess of 60 days in any lease year.

- Slopes in excess of 25 percent.
- Within important scenic areas (Class I and II Visual Resource Management Areas).
- Within 500 feet of surface water and/or riparian areas.
- Construction with frozen material or during periods when the soil material is saturated or when watershed damage is likely to occur.
- Within 500 feet of Interstate highways and 200 feet of other existing rights-of-way (i.e., U.S. and State highways, roads, railroads, pipelines, power lines).
- Within ¼-mile of occupied dwellings.

Guidance

The intent of the surface disturbance mitigation guideline is to inform interested parties (potential lessees, permittees, or operators) that when one or more of the above conditions exist, surface-disturbing activities will be prohibited unless or until a permittee or the designated representative and the surface management agency arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development.

Specific criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods must be delineated at the field level.

3.2 Wildlife Mitigation Guideline

- A. To protect important big game winter habitat, activities or surface use will not be allowed from November 15 to April 30 within certain areas encompassed by the authorization.

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

- B. To protect important raptor and/or sage and sharp-tailed grouse nesting habitat, activities or surface use will not be allowed from February 1 to July 31 within certain areas encompassed by the authorization. The same criteria apply to defined raptor and game bird winter concentration areas from November 15 to April 30.

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

- C. No activities or surface use will be allowed on that portion of the authorization area identified within (legal description) for the purpose of protecting (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) habitat.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

- D. Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and United States Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

Guidance

The Wildlife Mitigation Guideline is intended to provide two basic types of protection: seasonal restriction and prohibition of activities or surface use (2c). Item 2d is specific to situations involving threatened or endangered species. Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated can and should be defined as necessary, based upon current biological data, prior to the time of processing an application and issuing the use authorization. The legal description must eventually become a part of the condition for approval of the permit, plan of development, and/or other use authorization.

The seasonal restriction section identifies three example groups of species and delineates three similar timeframe restrictions. The big game species including elk, moose, deer, pronghorn, and bighorn sheep, all require protection of crucial winter range between November 15 and April 30. Elk and bighorn sheep also require protection from disturbance from May 1 to June 30, when they typically occupy distinct

calving and lambing areas. Raptors include eagles, accipiters, falcons (peregrine, prairie, and merlin), buteos (ferruginous and Swainson’s hawks), osprey, and burrowing owls. The raptors and sage and sharp-tailed grouse require nesting protection between February 1 and July 31. The same birds often require protection from disturbance from November 15 through April 30 while they occupy winter concentration areas.

Item 2c, the prohibition of activity or surface use, is intended for protection of specific wildlife habitat areas or values within the use area that cannot be protected by using seasonal restrictions. These areas or values must be factors that limit life-cycle activities (e.g., sage-grouse strutting grounds, known threatened and endangered species habitat).

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

3.3 Cultural Resource Mitigation Guideline

When a proposed land use has potential for affecting the characteristics which qualify a cultural property for the National Register of Historic Places (NRHP), mitigation will be considered. In accordance with Section 106 of the National Historic Preservation Act, procedures specified in 36 Code of Federal Regulation (CFR) 800 will be used in consultation with the Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation in arriving at determinations regarding the need and type of mitigation to be required.

Guidance

The preferred strategy for treating potential adverse effects on cultural properties is “avoidance.” If avoidance involves project relocation, the new project area may also require cultural resources survey. If avoidance is imprudent or unfeasible, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, or other physical and administrative measures.

Reports documenting results of cultural resources survey, evaluation, and the establishment of mitigation alternatives (if necessary) shall be written according to standards contained in BLM Manuals, the cultural resource permit stipulations, and in other policy issued by the BLM. These reports must provide sufficient information for Section 106 consultation. Reports shall be reviewed for adequacy by the appropriate BLM cultural resource specialist. If cultural properties on, or eligible for, the NRHP are located within these areas of potential impact and cannot be avoided, the authorized officer shall begin the Section 106 consultation process in accordance with the procedures contained in 36 CFR 800.

Mitigation measures shall be implemented according to the mitigation plan approved by the BLM authorized officer. Such plans are usually prepared by the land use applicant according to BLM specifications. Mitigation plans will be reviewed as part of Section 106 consultation for NRHP eligible or listed properties. The extent and nature of recommended mitigation shall be commensurate with the significance of the cultural resource involved and the anticipated extent of damage. Reasonable costs for mitigation will be borne by the land use applicant. Mitigation must be cost effective and realistic. It must consider project requirements and limitations, input from concerned parties, and be BLM approved or BLM formulated.

Mitigation of paleontological and natural history sites will be treated on a case-by-case basis. Factors such as site significance, economics, safety, and project urgency must be taken into account when making a decision to mitigate. Authority to protect (through mitigation) such values is provided for in FLPMA, Section 102(a)(8). When avoidance is not possible, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, or other physical and administrative protection measures.

3.4 Special Resource Mitigation Guideline

To protect (resource value), activities or surface use will not be allowed (i.e., within a specific distance of the resource value or between date to date) in (legal description).

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

Example Resource Categories (Select or identify category and specific resource value):

- a. Recreation areas
- b. Special natural history or paleontological features
- c. Special management areas
- d. Sections of major rivers
- e. Prior existing rights-of-way
- f. Occupied dwellings
- g. Other (specify)

Guidance

The *Special Resource Mitigation Guideline* is intended for use only in site-specific situations where one of the first three general mitigation guidelines will not adequately address the concern. The resource value, location, and specific restrictions must be clearly identified. A detailed plan addressing specific mitigation and special restrictions will be required prior to disturbance or development and will become a condition for approval of the permit, plan of development, or other use authorization.

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

3.5 No Surface Occupancy Guideline

No Surface Occupancy (NSO) will be allowed on the following described lands (legal description) because of (resource value).

Example Resource Categories (Select or identify category and specific resource value):

- a. Recreation areas (e.g., campgrounds, historic trails, national monuments)
- b. Major reservoirs/dams
- c. Special management area (e.g., known threatened or endangered species habitat, areas suitable for consideration for wild and scenic rivers designation)
- d. Other (specify)

Guidance

The *No Surface Occupancy Mitigation Guideline* is intended for use only when other mitigation is determined insufficient to adequately protect the public interest and is the only alternative to “no development” or “no leasing.” The legal description and resource value of concern must be identified and be tied to an NSO land use planning decision.

Waiver of, or exception(s) to, the NSO requirement will be subject to the same test used to initially justify its imposition. If, upon evaluation of a site-specific proposal, it is found that less restrictive mitigation would adequately protect the public interest or value of concern, then a waiver or exception to the NSO requirement is possible. The record must show that because conditions or uses have changed, less restrictive requirements will protect the public interest. An environmental analysis must be conducted and documented (e.g., environmental assessment, environmental impact statement, etc., as necessary) in order to provide the basis for a waiver or exception to an NSO planning decision.

Modification of the NSO requirement will pertain only to refinement or correction of the location(s) to which it applied. If the waiver, exception, or modification is found to be consistent with the intent of the planning decision, it may be granted. If found inconsistent with the intent of the planning decision, a plan amendment would be required before the waiver, exception, or modification could be granted.

When considering the “no development” or “no leasing” option, a rigorous test must be met and fully documented in the record. This test must be based upon stringent standards described in the land use planning document. Since rejection of all development rights is more severe than the most restrictive mitigation requirement, the record must show that consideration was given to development subject to reasonable mitigation, including “no surface occupancy.” The record must also show that other mitigation was determined to be insufficient to adequately protect the public interest. A “no development” or “no leasing” decision should not be made solely because it appears that conventional methods of development would be unfeasible, especially where an NSO restriction may be acceptable to a potential permittee. In such cases, the potential permittee should have the opportunity to decide whether or not to go ahead with the proposal (or accept the use authorization), recognizing that an NSO restriction is involved.

3.6 Regional Mitigation Guideline

For information on Regional Mitigation, please refer to Section 2.3.6 of this RMP.

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Appendix I

Standard Oil and Gas Stipulations

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APPENDIX I

STANDARD OIL AND GAS STIPULATIONS

1.0 MULTIPLE MINERAL DEVELOPMENT STIPULATION

1.1 Standard Lease Stipulation No. 1: Cultural Resources

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

1.2 Standard Lease Stipulation No. 2: Endangered Species Act Section 7 Consultation

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 United States Code (U.S.C.) § 1531 et seq., including completion of any required procedure for conference or consultation.

1.3 Standard Lease Stipulation No. 3: Multiple Mineral Development

Operations will not be approved that, in the opinion of the authorized officer, would unreasonably interfere with the orderly development and/or production from a valid existing mineral lease issued prior to this one for the same lands.

1.4 Lease Notice 1

Under Regulation 43 Code of Federal Regulations (CFR) 3101.1 2 and terms of the lease (BLM Form 3100 11), the authorized officer may require reasonable measures to minimize adverse impacts to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of operations, and specification of interim and final reclamation measures, which may require relocating proposed operations up to 200 meters, but not off the leasehold, and prohibiting surface-disturbing activities for up to 60 days.

The lands within this lease may include areas not specifically addressed by lease stipulations that may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled or, if absolutely necessary, prohibited. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing wells.

1. Slopes in excess of 25 percent.
2. Within 500 feet of surface water and/or riparian areas.
3. Construction with frozen material or during periods when the soil material is saturated or when watershed damage is likely to occur.
4. Within 500 feet of Interstate highways and 200 feet of other existing rights-of-way (i.e., United States and State highways, roads, railroads, pipelines, power lines).
5. Within ¼ mile of occupied dwellings.
6. Material sites.

Guidance

The intent of this notice is to inform interested parties (potential lessees, permittees, operators) that when one or more of the above conditions exist, surface-disturbing activities will be prohibited unless or until the permittee or the designated representative and the surface management agency arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action. Specific threshold criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods of concern must be delineated at the field level (i.e., “surface water and/or riparian areas” may include both intermittent and ephemeral water sources or may be limited to perennial surface water). The referenced oil and gas leases on these lands are hereby made subject to the stipulation that the exploration or drilling activities will not interfere materially with the use of the area as a materials site/free use permit. At the time operations on the above lands are commenced, notification will be made to the appropriate agency. The name of the appropriate agency may be obtained from the proper BLM Field Office.

1.5 Lease Notice 2

Background

The BLM, by including National Historic Trails (NHTs) within its National Landscape Conservation System, has recognized these trails as national treasures. The BLM's responsibility is to review the strategy for management, protection, and preservation of these trails. The NHTs in Wyoming, which include the Oregon, California, Mormon Pioneer, and Pony Express Trails, as well as the Nez Perce Trail, were designated by Congress through the National Trails System Act (Public Law (Pub. L.) 90-543; 16 U.S.C. 1241-1251) as amended through Pub. L. 106-509 dated November 13, 2000.

Protection of the NHTs is normally considered under the National Historic Preservation Act (Pub. L. 89-665; 16 U.S.C. 470 et seq.) as amended through 1992 and the National Trails System Act. Additionally, Executive Order 13195, "Trails for America in the 21st Century," signed January 18, 2001, states in Section 1: "Federal agencies will...protect, connect, promote, and assist trails of all types throughout the United States (U.S.). This will be accomplished by...(b) Protecting the trail corridors associated with national scenic trails and the high priority potential sites and segments of national historic trails to the degrees necessary to ensure that the values for which each trail was established remain intact." Therefore, the BLM will be considering all impacts and intrusions to the NHTs, their associated historic landscapes, and all associated features, such as trail traces, grave sites, historic encampments, inscriptions, natural features frequently commented on by emigrants in journals, letters and diaries, or any other feature contributing to the historic significance of the trails. Additional NHTs will likely be designated amending the National Trails System Act. When these amendments occur, this notice will apply to those newly designated NHTs as well.

Strategy

The BLM will proceed in this objective by conducting a viewshed analysis on either side of the designated centerline of the NHTs in Wyoming for the purpose of identifying and evaluating potential impacts to the trails, their associated historic landscapes, and their associated historic features. Subject to the viewshed analysis and archeological inventory, reasonable mitigation measures may be applied. These may include, but are not limited to, modification of siting or design of facilities to camouflage or otherwise hide the proposed operations within the viewshed. Additionally, specification of interim and final reclamation measures may require relocating the proposed operations within the leasehold. Surface-disturbing activities will be analyzed in accordance with the National Environmental Policy Act (NEPA) of 1969 (Pub. L. 91-190; 42 U.S.C. 4321-4347) as amended through Pub. L. 94-52, July 3, 1975 and Pub. L. 94-83, August 9, 1975, and the National Historic Preservation Act, *supra*, to determine if any design, siting, timing, or reclamation requirements are necessary). This strategy is necessary until the BLM determines that, based on the results of the completed viewshed analysis and archeological inventory, the existing land use plans (Resource Management Plans [RMP]) have to be amended.

The use of this lease notice is a predecisional action, necessary until final decisions regarding surface-disturbing restrictions are made. Final decisions regarding surface-disturbing restrictions will take place with full public disclosure and public involvement over the next several years if BLM determines that it is necessary to amend existing land use plans.

Guidance

The intent of this notice is to inform interested parties (potential lessees, permittees, operators) that when any oil and gas lease contains remnants of NHTs, or is located within the viewshed of a NHTs' designated centerline, surface-disturbing activities will require the lessee, permittee, operator or their designated representative, and the surface management agency to arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action.

1.6 Lease Notice 3

Greater Sage-Grouse Habitat: The lease may in part, or in total, contain important greater sage-grouse habitats as identified by the BLM, either currently or prospectively. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on the greater sage-grouse populations and habitat quality. Such measures shall be developed during the Application for Permit to Drill (APD) on-site and environmental review process and will be consistent with the lease rights granted.

1.7 Attachment to Each Lease

Notice to Lessee

Provisions of the Mineral Leasing Act (MLA) of 1920, as amended by the Federal Coal Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a)(2)(A) of the MLA, 30 U.S.C. 201 (a)(2)(A), requires that any entity that holds and has held a federal coal lease for 10 years beginning on or after August 4, 1976, and who is not producing coal in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the MLA. Compliance by coal lessees with Section 2(a)(2)(A) is explained in 43 CFR 3472.

In accordance with the terms of this oil and gas lease, with respect to compliance by the initial lessee with qualifications concerning federal coal lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferor has falsely certified compliance with Section 2(a)(2)(A), or (2) because of a denial or disapproval by a State Office of a pending coal action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A). The assignee, sublessee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of cancellation of this lease due to noncompliance with Section 2(a)(2)(A). Information regarding assignor, sublessor or transferor compliance with Section 2(a)(2)(A) is contained in the lease case file as well as in other BLM records available through the State Office issuing this lease.

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Appendix J

Air Resources Management Plan

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APPENDIX J

AIR RESOURCES MANAGEMENT PLAN

1.0 INTRODUCTION

1.1 Background

1.1.1 Preparation of the Analysis of the Management Situation in 2008 disclosed monitoring data within and adjacent to the Planning Area is limited. Concern arose over the need to establish background concentrations and to have monitoring in place prior to increased development.

1.1.2 The need for establishing background concentrations was not based on concern over existing air quality, but rather to provide adequate monitoring to characterize changes over time. Table J-1 is an overview of the applicable primary WAAQS and NAAQS and baseline representative maximum pollutant concentrations measured in and at sites near the Planning Area. These representative concentrations can be compared with the applicable WAAQS and NAAQS to indicate the status of recent air quality conditions within the Planning Area relative to the standards.

The examination of these data indicates that the current air quality for criteria pollutants in the Planning Area is considered good overall. Based upon measurements taken at the North Absaroka IMPROVE site (Figure J-1) and the Cloud Peak IMPROVE site (Figure J-2), visibility in the Planning Area is considered excellent.

1.1.3 To address the monitoring data limitation at the land use planning level, the BLM and cooperating agencies developed Management Action 1002 to establish a monitoring network to provide additional data for describing background concentrations.

1.1.4 The BLM established a monitoring site approximately 25 miles north of Worland in Big Horn County, known as the Basin site. The purpose of this station is to provide a general indicator of existing air quality and long term trends in air quality but is not intended for NAAQS compliance.

1.1.5 The emissions projected in the emissions calculations in Appendix U of the Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) have potential to negatively impact visibility and air quality in Bridger, Fitzpatrick, North Absaroka, and Washakie Wilderness Areas and Yellowstone National Park depending upon the temporal and spatial distribution of development. This emission inventory was compiled for the Planning Area to determine the relative magnitude of total air pollutant emissions to compare emissions and associated impacts between the alternatives. The estimated levels of emissions for each alternative are summarized in Table J-2. Projected emissions are similar to those of the base year, 2008, as shown in Table J-2 and Table J-3. The emission inventory also revealed that emissions would primarily result from mineral development and production.

Table J-1. Applicable National and State Primary Air Quality Standards for Criteria Pollutants and Baseline Representative Concentrations for the Planning Area

Pollutant	Averaging Time	NAAQS			WAAQS			Representative Concentrations		
		(ppm)	(ppb)	(µg/m ³)	(ppm)	(ppb)	(µg/m ³)	(ppm)	(ppb)	(µg/m ³)
Carbon Monoxide	1 hour ¹	35	35,000	40,000	35	35,000	40,000	1.7	1,730	1,979
	8 hour ¹	9	9,000	10,000	9	9,000	10,000	0.8	814	931
Nitrogen Dioxide	1 hour ²	0.10	100	189	0.10	100	189	0.014	14	26.4
	Annual ³ (Arithmetic Mean)	0.053	53	100	0.053	53	100	0.00168	1.68	2.9
Ozone	8 hour ⁴	0.075	75	147	0.075	75	147	0.062	62	121
PM ₁₀	24 hour ⁵	N/A	N/A	150	N/A	N/A	150	N/A	N/A	78
	Annual ⁶	N/A	N/A	N/A	N/A	N/A	50	N/A	N/A	11
PM _{2.5}	24 hour ⁷	N/A	N/A	35	N/A	N/A	35	N/A	N/A	5.0
	Annual ⁸	N/A	N/A	12	N/A	N/A	15	N/A	N/A	1.8
Sulfur Dioxide ¹⁰	1 hour ⁹	0.075	75	197	0.075	75	197	0.033	33	86

¹Not to be exceeded more than once per year. Data collected at Yellowstone National Park during 2005.

²To attain this standard, the 3-year average of the 98th percentile of 1-hour concentrations at each monitor within an area must not exceed 100 ppb. Thunder Basin data, 2009.

³Thunder Basin annual average for 2009.

⁴To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 75 ppb. Measured fourth highest concentration for 2009 for the Thunder Basin site.

⁵Not to be exceeded more than once per year on average over 3 years. Maximum 24-hour average for 2009 at Cody SLAMS site.

⁶Annual average for 2009 for Cody SLAMS site.

⁷To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor in an area must not exceed 35 µg/m³. Maximum 24-hour average for 2009 for the North Absaroka IMPROVE site.

⁸To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 12.0 µg/m³. Annual average for 2009 for the North Absaroka site.

⁹To attain this standard, the 3-year average of the 98th percentile of 1-hour concentrations at each monitor within an area must not exceed 75 ppb.

¹⁰The SO₂ value is from the Wyoming DEQ Casper monitor, located in Natrona County and is the 3-year average of the 98th percentile of 1-hour concentrations measured for 2011, 2012, and 2013. Although not located in the Bighorn Basin, this is the closest monitor with available recent data.

µg/m³ micrograms per cubic meter

N/A Not Applicable

NAAQS National Ambient Air Quality Standards

PM_{2.5} particulate matter less than 2.5 microns in diameter

PM₁₀ particulate matter less than 10 microns in diameter

ppb parts per billion

ppm parts per million

SLAMS State and Local Air Monitoring Site

WAAQS Wyoming Ambient Air Quality Standards

Figure J-1. Visibility – Standard Visual Range (SVR, miles) for the North Absaroka, Wyoming, IMPROVE Site

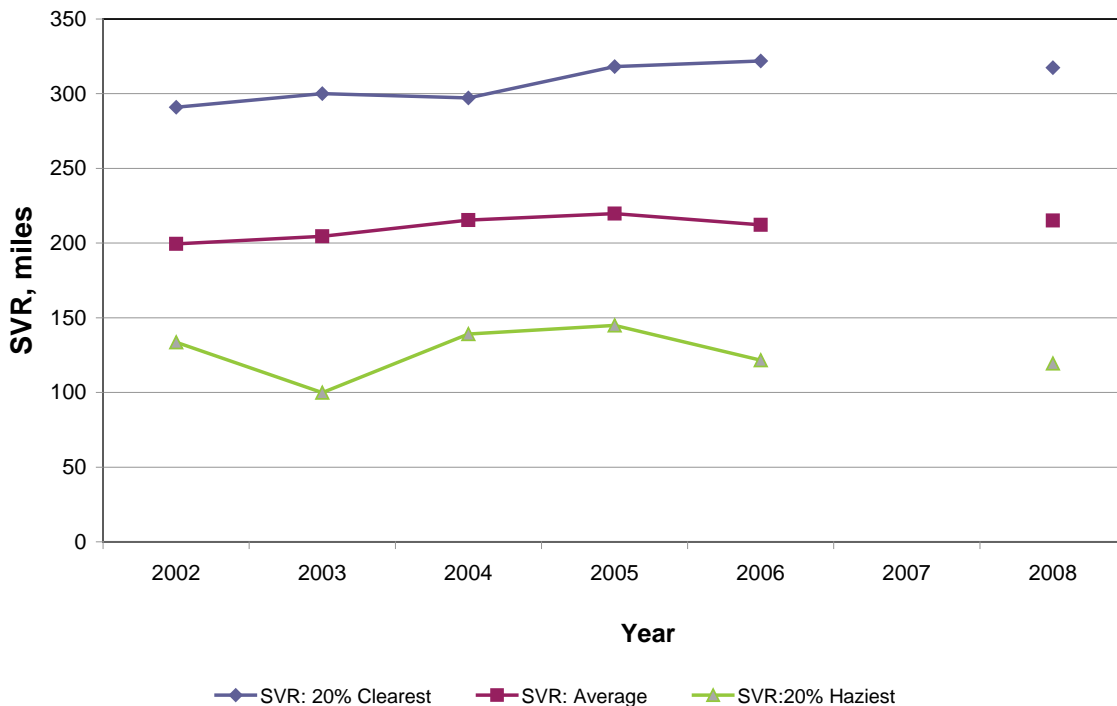


Figure J-2. Visibility – Standard Visual Range (SVR, miles) for the Cloud Peak, Wyoming, IMPROVE Site

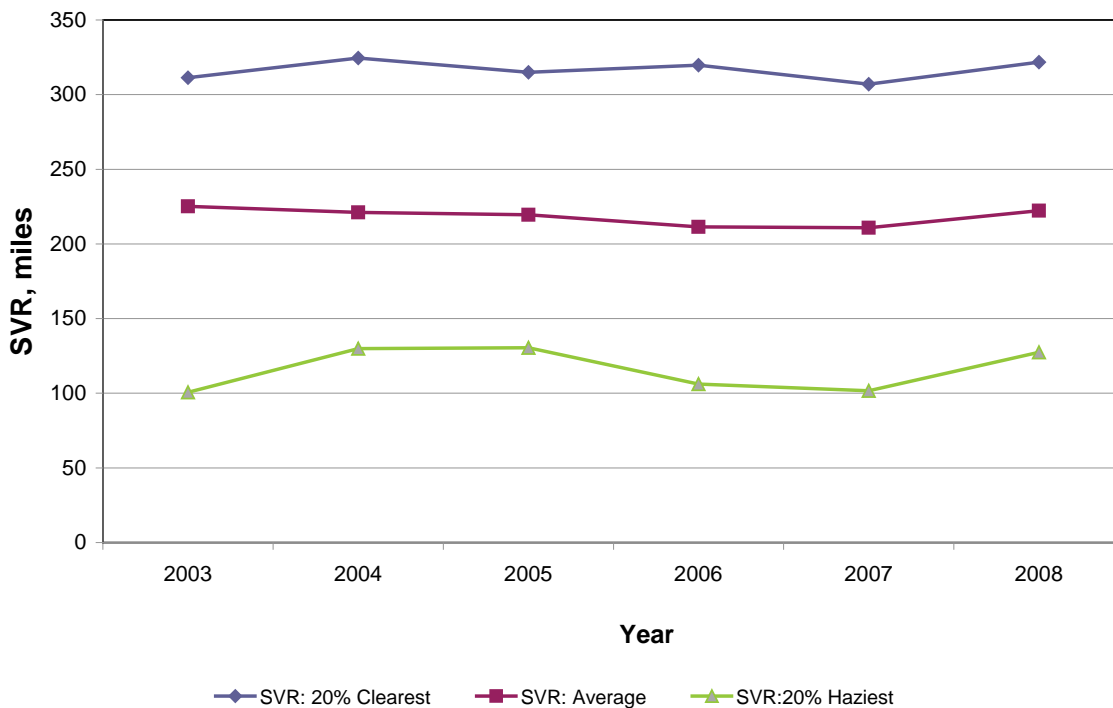


Table J-2. Total Annual Emissions Summary for BLM Activities within the Bighorn Basin Planning Area

Summary Year	Emissions (tons per year)						
	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>NO_x</i>	<i>SO₂</i>	<i>CO</i>	<i>VOC</i>	<i>HAP</i>
Base Year (2008) Total	3,860	673	724	28	4,303	1,837	98
Alternative A							
2018 Total	4,137	707	746	30	4,470	1,683	97
2027 Total	3,995	682	755	30	4,243	1,405	97
Alternative B							
2018 Total	3,716	587	536	19	3,510	1,560	82
2027 Total	3,571	563	543	20	3,303	1,265	80
Alternative C							
2018 Total	4,742	910	831	44	6,293	1,802	110
2027 Total	4,598	886	839	45	6,079	1,536	111
Alternative D Preferred Alternative							
2018 Total	4,056	697	709	29	4,458	1,627	89
2027 Total	3,973	679	744	30	4,234	1,390	95
Alternative E							
2018 Total	3,553	536	558	19	3,429	1,606	89
2027 Total	3,393	511	540	19	3,213	1,260	79
Alternative F							
2018 Total	4,069	700	735	30	4,466	1,677	96
2027 Total	3,909	671	684	29	4,206	1,189	69

BLM Bureau of Land Management
 CO carbon monoxide
 HAP hazardous air pollutant
 NO_x nitrogen oxides

PM_{2.5} particulate matter less than 2.5 microns in diameter
 PM₁₀ particulate matter less than 10 microns in diameter
 SO_x sulfur oxides
 VOC volatile organic compound

Table J-3. Percent Change in Emissions Compared to Base Year 2008

Summary Year	Percent Change in Emissions (tons per year)						
	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>NO_x</i>	<i>SO₂</i>	<i>CO</i>	<i>VOC</i>	<i>HAP</i>
Alternative A							
2018 Total	7%	5%	3%	6%	4%	-8%	7%
Alternative B							
2018 Total	-4%	-13%	-26%	-32%	-18%	-15%	-16%
Alternative C							
2018 Total	23%	35%	15%	58%	46%	-2%	13%
Alternative D (Preferred Alternative)							
2018 Total	5%	4%	-2%	4%	4%	-11%	5%
Alternative E							
2018 Total	-8%	-20%	-23%	-33%	-20%	-13%	-8%
Alternative F							
2018 Total	5%	4%	2%	5%	4%	-9%	-1%

CO	carbon monoxide	PM ₁₀	particulate matter less than 10 microns in diameter
HAP	hazardous air pollutant	SO _x	sulfur oxides
NO _x	nitrogen oxides	VOC	volatile organic compound
PM _{2.5}	particulate matter less than 2.5 microns in diameter		

1.1.6 In June 2011, Memorandum of Understanding among the U.S. Department of Agriculture, U.S. Department of Interior and U.S. Environmental Protection Agency Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process (MOU) was signed. This MOU outlines how to protect air quality and air quality related values, such as visibility and Class I areas, while allowing for oil and gas development on federally managed lands.

1.1.7 The Environmental Protection Agency’s (EPA) comments on the Draft Resource Management Plan (RMP) and Draft Environmental Impact Statement (EIS), included “the EPA believes that the ‘level of concern’ that would warrant modeling under Management Action 1005 (contained in the Draft RMP) has already been reached.” This concern is based on the level of emissions from existing activity disclosed in the Draft EIS and the proximity of proposed leasing areas to five Federal Class I areas, including Bridger, Fitzpatrick, North Absaroka, and Washakie Wilderness Areas and Yellowstone National Park.

Emissions from future activities have potential to negatively impact visibility and air quality in the Class I areas depending upon the temporal and spatial distribution of development.

1.2 Purpose

- 1.2.1 The purpose of this Air Resources Management Plan (ARMP) is to further clarify Physical Resources – Air Quality goals, objectives, and management actions set forth in Table 2-9 of the Final EIS. This ARMP describes air resources management; authorization of activities that have the potential to adversely impact air resources within the Planning Area; acknowledges areas where data is incomplete or difficult to obtain; sets a plan to obtain additional information; and outlines specific informational requirements and mitigation measures that may apply to projects that have the potential to generate air emissions and adversely affect air resources in the Planning Area.
- 1.2.2 This ARMP may be modified as necessary to comply with law, regulation, and policy and to address new information and changing circumstances. Amendment of the RMP is necessary to change the goals, objectives or management actions set forth in Table 2-9 while change to implementation, including this ARMP, may be made without Amending the RMP.

1.3 Characterization of Air Resources in the Environmental Impact Statement

1.3.1 Emissions Inventory for Land Use Planning

- 1.3.1.1 An air emissions inventory was compiled for the Planning Area to determine the relative magnitude of total air pollutant emissions and to compare emissions between alternatives. This emissions inventory is summarized in Appendix U. Emissions were calculated using assumptions about the likelihood of potential future activities occurring under each alternative which are found in Appendix T. As a result, the compiled air emissions inventory represents a comparison of emissions of air pollutants based on best available but speculative information for future development projections.
- 1.3.1.2 The emissions inventory is valuable for contrasting the impact of land use allocations on air resources among alternatives and useful for identifying those activities that are likely to be major contributors of emissions.
- 1.3.1.3 The air emissions inventory supports two major conclusions: 1) there is not a substantial difference in total air emissions among alternatives (Table 4-2), and 2) oil and gas development activities and mining are major contributors to air emissions.

1.3.2 Class I Areas

- 1.3.2.1 Class I areas in or near the Planning Area are Yellowstone National Park, North Absaroka Wilderness Area, Washakie Wilderness Area, Fitzpatrick Wilderness Area, and Bridger Wilderness Area. Visibility estimates for the North Absaroka site (Western boundary of the Planning Area) and the Cloud Peak site (eastern boundary of the planning area) are shown in Figures 3-12 and 3-13 of the Final EIS, respectively. The data from these two monitoring locations indicate excellent visibility.

2.0 AIR RESOURCES MANAGEMENT PLAN

2.1 Resource Inventory and Characterization

2.1.1 A characterization of air quality conditions in Class I areas in the vicinity of the planning area will be conducted to measure progress towards meeting the Air Quality goals and objectives (Table 2-9). BLM will conduct this characterization in partnership with federal and state agencies with responsibility for managing air quality in Class I areas, including DEQ, EPA, Forest Service and NPS, as soon as possible subject to funding and staffing levels.

2.1.1.1 This Class I area characterization will consist of two separate parts. Part I will be compilation of existing air quality data on the Class I area as provided and analyzed by partnering agencies. Part II will consist of a regional modeling analysis to characterize air quality in the Class I areas listed in Section 1.1.5. This modeling would be conducted either 1) as part of a specific development project air impact analysis being conducted by BLM for a NEPA analysis or 2) as part of an interagency regional modeling analysis that includes the Planning Area. With this modeling, the BLM could effectively predict direct Big Horn Basin emissions impacts to nearby Class I areas. Information from other modeling efforts and monitoring data will also be used to inform the Class I characterization. Details of this modeling are presented in Section 2.4 *Modeling*.

2.1.1.2 Until such time as both parts of the Class I characterization are completed Applications for Permit to Drill (APDs), field development proposals, and mining plans of operation, will include an emissions inventory. The emissions inventory will quantify emissions of regulated air pollutants from all sources related to the proposed project, emissions impacting Class I areas, including fugitive emissions and greenhouse gas emissions, estimated for each year for the life of the project. Additional information on permitting and emission inventories is provided in Section 2.2 *Permitting* and Section 2.5 *Mitigation*.

2.1.1.3 Based upon the findings of the Class I characterization, and as provided for by law and consistent with lease rights and obligations, BLM will ensure implementation of reasonable mitigation, control measures and design features through appropriate mechanisms, which may include lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions (see Section 2.2 *Permitting* and 2.5 *Mitigation*)

2.2 Permitting

2.2.1 The BLM has the authority and responsibility under the Federal Land Policy and Management Act to manage public lands in a manner that will protect the quality of air and atmospheric values. Therefore, BLM may manage the pace, place, density, and intensity of leasing and development to meet air quality goals.

2.2.2 The BLM will, prior to authorization, consider the magnitude of potential air emissions from the project or activity, existing air quality conditions, proximity to Class I areas, and issues identified during project scoping to identify pollutants of concern and to determine the appropriate level of air analysis to be conducted for the project.

2.2.3 The BLM will require an emissions inventory, as set forth in the MOU. The MOU states “As early as possible in its planning process, the Lead Agency will identify the reasonably

- foreseeable number of oil or gas wells that can be expressed as a range, expected to be located within the planning area. Existing reasonably foreseeable development scenarios can be used to identify the number of wells.” The BLM may require an emissions inventory for mineral development projects (such as mining operations and individual applications for permit to drill) and may require project specific air quality modeling (see Management Action 1006) depending on project characteristics, proximity to a federally mandated Class I area, sensitive Class II area, or population center, location within a non-attainment or maintenance area, meteorological or geographic conditions, existing air quality conditions, magnitude of existing development in the area, or issues identified during project scoping. The emissions inventory will quantify emissions of regulated air pollutants from all sources related to the proposed project, emissions impacting Class I areas, including fugitive emissions and greenhouse gas emissions, estimated for each year for the life of the project. BLM will use this estimated emissions inventory to identify pollutants of concern and to determine the appropriate level of air analysis to be conducted for the proposed project. This information will inform monitoring (see Section 2.3 *Monitoring*), modeling (see Section 2.4 *Modeling*) and mitigation (see Section 2.5 *Mitigation*).
- 2.2.4 The BLM has the responsibility to implement the decisions of the RMP in a manner that protects air quality. BLM also must recognize valid and existing leasing rights. The BLM can require specific actions and measures necessary to protect air quality in response to adverse impacts at the project permitting stage (Management Action 1003).
- 2.2.4.1 BLM will consider applying mitigation to emissions sources not otherwise regulated by WDEQ for mineral development projects where an air quality impact analysis determines there are or will likely be future impacts above acceptable levels, including impacts to Class I areas. Mitigation may include reduction in the pace or scale of development.
- 2.2.5 Until such time as both phases of the Class I area characterization are completed, the BLM will require the following in addition to those items listed above:
- 2.2.5.1 The proponent of a project will be required to minimize air pollutant emissions by complying with all applicable state and federal regulations (including application of best available control technology) and may be required to apply mitigation such as best management practices, and other control technologies or strategies identified by the BLM or WDEQ in accordance with delegated regulatory authority.
- 2.2.5.2 The proponent of a mineral development project that has the potential to emit any regulated air pollutant will be required to provide a detailed description of operator committed measures to reduce project related air pollutant emissions including greenhouse gases and fugitive dust. Project proponents for oil and gas development projects should refer to Table J-4 as a reference for potential mitigation technologies and strategies. The list is not intended to preclude the use of other effective air pollution control technologies that may be proposed. Details of the mitigation measure would be submitted by the applicant and enforced as a condition of the BLM-issued authorization.

- 2.2.5.3 The BLM may require the proponent of other projects to comply with 2.2.5.1 and 2.2.5.2 depending on project characteristics, proximity to a federally mandated Class I area, sensitive Class II area, or population centers, location within a non-attainment or maintenance area, meteorological or geographic conditions, existing air quality conditions, magnitude of existing development in the area, or issues identified during project scoping.

2.3 Monitoring

- 2.3.1 As part of a comprehensive air management plan for the Planning Area, BLM will work cooperatively with federal and state agencies with responsibility for managing air resources to determine, characterize, and track air resource conditions. (Management Action 1004)
- 2.3.2 The BLM may require project proponents to conduct air monitoring. The requirement for monitoring will be based on the absence of existing monitoring; existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, or population center; location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping. The project proponent will be responsible for siting, installing, operating, and maintaining any required air monitoring.
- 2.3.4 The BLM will support and participate in regional monitoring efforts to meet Management Action 1002 which reads as follows:
- “Define a criteria pollutant and air quality related values monitoring strategy and cooperatively establish a monitoring network by creating a method for siting air quality monitors in order to provide additional data for describing background concentrations.”

2.4 Modeling

- 2.4.1 Air dispersion and photochemical grid models are useful tools for predicting project specific impacts to air quality, predicting the potential effectiveness of control measures and strategies, and for predicting trends in regional concentrations of some air pollutants.
- 2.4.2 BLM may require project proponents to conduct air quality modeling based on the absence of sufficient data to ensure compliance with laws regulations or to determine the effectiveness of mitigation options. The requirement for modeling will follow the MOU and will be based on existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, an area expected to exceed a NAAQS or PSD increment or population center; location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping (Management Action 1006).

- 2.4.3 BLM will support and participate in regional modeling efforts through multi-state and/or multi-agency organizations such as Western Governors’ Association – Western Regional Air Partnership (WRAP), the Federal Leadership Forum (FLF), and WDEQ’s Ozone Technical Forum (OTF). If results from an interagency, regional modeling study are used to evaluate impacts within the Big Horn Basin, BLM will ensure that direct emissions from BLM’s management actions within the region are included in the study. This model would predict direct Big Horn Basin emissions impacts to nearby Class I areas and would satisfy the Air Resources Management Plan Class I Characterization part II as set forth in Section 2.1.1.1, above.

2.5 Mitigation

- 2.5.1 Many of the activities that BLM authorizes, permits, or allows generate air pollutant emissions that have the potential to adversely impact air quality. The primary mechanism to reduce air quality impacts is to reduce emissions (mitigation).
- 2.5.2 BLM will require additional air emission control measures and strategies within its regulatory authority and in consultation with federal and state agencies with responsibility for managing air resources if proposed or committed measures are insufficient to achieve air quality goals (Goal PR: 1 and Goal PR: 2) and objectives (PR:1.1, PR:1.2, PR:2.1, PR2.2) and Management Action 1003.
- 2.5.3 The proponent of a project will be required to minimize air pollutant emissions by complying with all applicable state and federal regulations (including application of best available control technology) and may be required to apply mitigation including but not limited to best management practices, and other control technologies or strategies identified by the BLM or WDEQ in accordance with delegated regulatory authority (Management Action 1003).
- 2.5.4 The proponent of a project will demonstrate regard for air resources and will demonstrate consideration of measures to reduce emissions to achieve Management Action 1003. A project proponent will be required to identify operator-committed measures in its proposal. Example, mitigation strategies for oil and gas development activities are presented in Table J-4.
- 2.5.5 Development and implementation of appropriate protection measures is most effective at the project approval stage, because the proposed action has been defined in terms of temporal and spatial characteristics as well as development processes and procedures. This better defined information allows more precise identification of impacts to air quality which results in more specific impact analysis, and identification of effective mitigation. As part of the project approval process, the BLM will identify project-specific measures in response to identified impacts to air resources.

2.6 Contingency Plans

- 2.6.1 The BLM may require project proponents to submit a contingency plan that provides a strategy for reduction in emissions should observed effects or modeled impacts show state or federal standards or applicable thresholds for air quality related values may be exceeded. Specific operations and pollutants to be addressed in the contingency plan will be determined by BLM on a case-by-case basis taking into account existing air quality and pollutants emitted by the project. This is to ensure conformance with air quality goals and objectives.
- 2.6.2 If observed effects or modeled impacts show state or federal regulatory standards or applicable thresholds for air quality related values may be exceeded, BLM may require mitigation measures to comply with such standards. Mitigation may include management of the pace, place, density and intensity of development or require smaller emission projects to demonstrate compliance with standards or applicable thresholds through quantitative air quality analysis. This is to ensure conformance with the air quality goals and objectives in Table 2-9.

Table J-4. Sample Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Control Strategies for Drilling and Compression			
Directional Drilling.	Reduces construction related emissions (dust and vehicle and construction equipment emissions). Decreases surface disturbance and vegetation impacts (dust and CO ₂ and nitrogen flux). Reduces habitat fragmentation.	Could result in higher air impacts in one area with longer sustained drilling times.	Depends on geological strata.
Improved engine technology (Tier 2 or better) for diesel drill rig engines.	Reduced NO _x , PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.
Selective Catalytic Reduction (SCR) for drill rig engines and/or compressors.	NO _x emissions reduction, potential decreased formation of visibility impairing compounds and ozone. NO _x control efficiency of 95% achieved on drill rig engines. NO _x emission rate of 0.1 g/hp-hr achieved for compressors.	Potential NH ₃ emissions and formation of visibility impairing ammonium sulfate. Regeneration/disposal of catalyst can produce hazardous waste.	Not applicable to 2-stroke engines.

Table J-4. Sample Emission Reduction Strategies for Oil and Gas Development (Continued)

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Non-selective catalytic reduction (NSCR) for drill rig engines and/or compressors.	NO _x emissions reduction, potential decreased formation of visibility impairing compounds, and ozone. NO _x control efficiency of 80-90% achieved for drill rig engines. NO _x emission rate of 0.7 g/hp-hr achieved for compressor engines greater than 100 hp.	Regeneration/disposal of catalysts can produce hazardous waste.	Not applicable to lean burn or 2-stroke engines.
Natural Gas fired drill rig engines.	NO _x emissions reduction, potential decreased formation of visibility impairing compounds, and ozone.		Requires onsite processing of field gas.
Electrification of compressors.	Decreased emissions at the source. Transfers emissions to more efficiently controlled source (EGU).	Displaces emissions to electric generating unit (EGU).	Depends on availability of power and transmission lines.
Improved engine technology (Tier 2 or better) for all mobile and non-road diesel engines.	Reduced NO _x , PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.
Green (a.k.a. closed loop or flareless) completions.	Reduction in VOC and CH ₄ emissions. Reduces or eliminate flaring and venting and associated emissions. Reduces or eliminates open pits and associated evaporative emissions. Increased recovery of gas to pipeline rather than atmosphere.	Temporary increase in truck traffic and associated emissions.	Need adequate pressure and flow. Need onsite infrastructure (tanks/dehydrator). Availability of sales line. Green completion permits required by WY BACT in some areas.
Green workovers	Same as above.	Same as above.	Same as above.
Minimize/eliminate venting and/or use closed loop process where possible during "blow downs".	Same as above.		Best Management Practices required by WY BACT.
Reclaim/remediate existing open pits, no new open pits.	Reduces VOC and GHG emissions. Reduces potential for soil and water contamination. Reduces odors.	May increase truck traffic and associated emissions.	Requires tank and/or pipeline infrastructure.
Electrification of wellhead compression/pumping.	Reduces local emissions of fossil fuel combustion and transfers to more easily controlled source.	Displaces emissions to electric generating unit (EGU).	Depends on availability of power and transmission lines.
Wind (or other renewable) generated power for compressors.	Low or no emissions.	May require construction of infrastructure. Visual impacts. Potential wildlife impacts.	Depends on availability of power and transmission lines.

Table J-4. Sample Emission Reduction Strategies for Oil and Gas Development (Continued)

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Control Strategies Utilizing Centralized Systems			
Centralization (or consolidation) of gas processing facilities (separation, dehydration, sweetening, etc.).	Reduces vehicle miles traveled (truck traffic) and associated emissions. Reduced VOC and GHG emissions from individual dehy/separator units.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Liquids Gathering systems (for condensate and produced water).	Reduces vehicle miles traveled and associated emissions. Reduced VOC and GHG emissions from tanks, truck loading/unloading, and multiple production facilities.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Water and/or fracturing liquids delivery system.	Reduced long term truck traffic and associated emissions.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure. Not feasible for some terrain.
Control Strategies for Tanks, Separators, and Dehydrators			
Eliminate use of open top tanks.	Reduced VOC and GHG emissions.		Required by WY BACT for produced water tanks in some areas.
Capture and control of flashing emissions from all storage tanks and separation vessels with vapor recovery and/or thermal combustion units.	Reduces VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	98% VOC control if ≥ 10 TPY required statewide by WY BACT.
Capture and control of produced water tank emissions.	Reduces VOC and GHG emissions.		98% VOC control and no open top tanks required by WY DEQ in some areas.
Capture and control of dehydration equipment emissions with condensers, vapor recovery, and/or thermal combustion.	Reduces VOC, HAP, and GHG emissions.		Still vent condensers required and 98% VOC control if ≥ 8 TPY required statewide and in CDA by WY BACT. All dehy emissions controlled at 98% in JPAD (no 8 TPY threshold).
Control Strategies for Misc. Fugitive VOC Emissions			
Install and maintain low VOC emitting seals, valves, hatches on production equipment.	Reduces VOC and GHG emissions.		
Initiate an equipment leak detection and repair program (including use of FLIR cameras, grab samples, organic vapor detection devices, visual inspection, etc.).	Reduction in VOC and GHG emissions.		

Table J-4. Sample Emission Reduction Strategies for Oil and Gas Development (Continued)

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Install or convert gas operated pneumatic devices to electric, solar, or instrument (or compressed) air driven devices/controllers.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	
Use "low" or "no bleed" gas operated pneumatic devices/controllers.	Reduces VOC and GHG emissions.		or closed loop required statewide by WY BACT.
Use closed loop system or thermal combustion for gas operated pneumatic pump emissions.	Reduces VOC and GHG emissions.		Required statewide by WY BACT (98% VOC control or closed loop).
Install or convert gas operated pneumatic pumps to electric, solar, or instrument (or compressed) air driven pumps.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	Required statewide by WY BACT if no thermal combustion used.
Install vapor recovery on truck loading/unloading operations at tanks.	Reduces emissions of VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	WY BACT analysis required if VOC ≥ 8 TPY or HAP ≥ 5 TPY.
Control Strategies for Fugitive Dust and Vehicle Emissions			
Unpaved surface treatments including watering, chemical suppressants, and gravel.	20% - 80% control of fugitive dust (particulates) from vehicle traffic.	Potential impacts to water and vegetation from runoff of suppressants.	
Use remote telemetry and automation of wellhead equipment.	Reduces vehicle traffic and associated emissions.		
Speed limit control and enforcement on unpaved roads.	Reduction of fugitive dust emissions.		
Reduce commuter vehicle trips through car pools, commuter vans or buses, innovative work schedules, or work camps.	Reduced combustion emissions, reduced fugitive dust emissions, reduced ozone formation, reduced impacts to visibility.		
Miscellaneous Control Strategies			
Use of ultra-low sulfur diesel in engines, compressors, construction equipment, etc.	Reduces emissions of particulates and sulfates.		Fuel not readily available in some areas.
Reduce unnecessary vehicle idling.	Reduced combustion emissions, reduced ozone formation, reduced impacts to visibility, reduced fuel consumption.		
Reduced pace of (phased) development.	Peak emissions of all pollutants reduced.	Emissions generated at a lower rate but for a longer period. LOP, duration of impacts is longer.	May not be economically viable or feasible if multiple mineral interests.

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix K

Biological Resources

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APPENDIX K

BIOLOGICAL RESOURCES

This appendix contains information on biological resources intended to augment the discussions in Volume 1 of the Bighorn Basin Resource Management Plan (RMP) revision and Environmental Impact Statement (EIS). Included in this appendix is information on Special Status Species (raptor nesting periods [Table K-1]), Wildlife (Wyoming Game and Fish Department [WGFD] Herd Unit maps [Figures K-1 through K-7]), and a species list (Table K-2) showing the scientific names for the species discussed in the document.

1.0 RAPTOR NESTING PERIOD

Many raptors are sensitive to disturbance during the breeding and nesting season. Such disturbance may result in take. The United States Fish and Wildlife Service recommend spatial and seasonal buffer zones to avoid or minimize disturbance and the risk of take. The spatial buffers vary by alternative; however, the seasonal restrictions remain constant among the alternatives, as outlined in the table below. These seasonal restrictions may be modified on a site-specific or project-specific basis based on field observations and local conditions.

Table K-1. Seasonal Restrictions

Common Name	Period of Seasonal Restriction
American Kestrel	April 1 – August 15
Bald Eagle	January 1 – August 15
Boreal Owl	February 1 – July 31
Burrowing Owl	April 1 – September 15
Common Barn Owl	February 1 – September 15
Cooper's Hawk	March 15 – August 31
Eastern Screech-owl	March 1 – August 15
Ferruginous Hawk	March 15 – July 31
Golden Eagle	January 15 – July 31
Great Gray Owl	March 15 – August 31
Great Horned Owl	December 1 – September 30
Long-eared Owl	February 1 – August 15
Merlin	April 1 – August 15
Northern Goshawk	April 1 – August 15
Northern Harrier	April 1 – August 15
Northern Pygmy-Owl	April 1 – August 1
Northern Saw-whet Owl	March 1 – August 31
Osprey	April 1 – August 31
Peregrine Falcon	March 1 – August 15
Prairie Falcon	March 1 – August 15
Red-tailed Hawk	February 1 – August 15
Sharp-shinned Hawk	March 15 – August 31
Short-eared Owl	March 15 – August 1
Swainson's Hawk	April 1 – August 31
Western Screech-owl	March 1 – August 15

2.0 HERD UNITS

Big game species in the Planning Area include pronghorn (antelope), deer (mule deer and white-tailed deer), elk, moose, bighorn sheep, and mountain goat. Boundaries of the herd unit areas are established to encompass all the seasonal ranges and habitats or special life-function areas (e.g., calving and lambing areas) utilized by a more or less discreet population or herd. Because there will always be some interchange of animals between adjacent populations, and portions of populations change important use patterns over time, these boundaries are well defined, but not permanent. They do, however, represent the best available data and identify population units consistent with the most recent biological and climatic conditions. Chapter 3, *Wildlife* provides information about the relative size and amount of BLM-administered lands in Planning Area big game herd units. Figures K-1 through K-7 show the WGFD herd units. Specific information about population trends is available through the WGFD via the agency’s Job Completion Reports.

Figure K-1. Wildlife Herd Units – Antelope

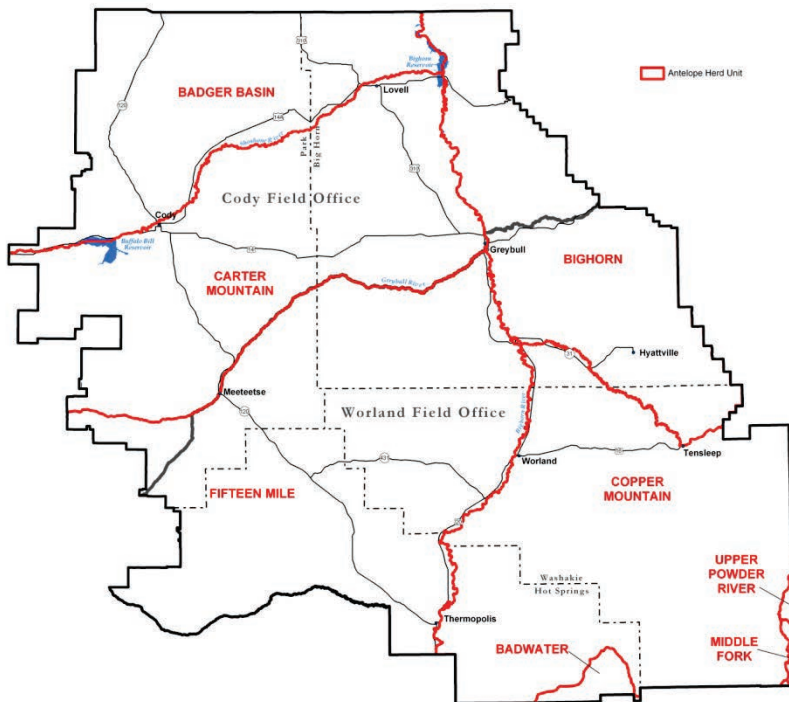


Figure K-2. Wildlife Herd Units – Bighorn Sheep

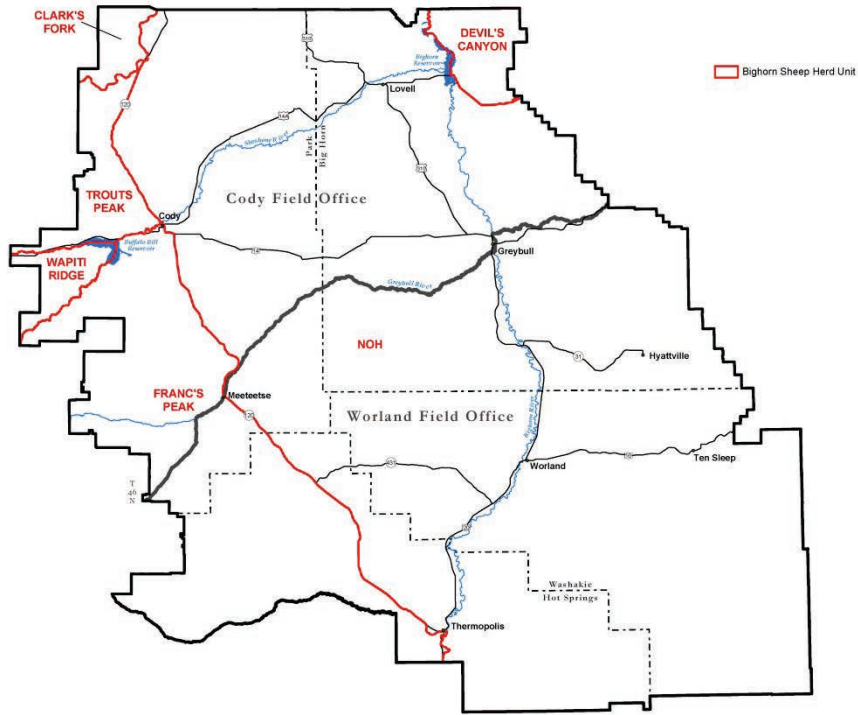


Figure K-3. Wildlife Herd Units – Elk

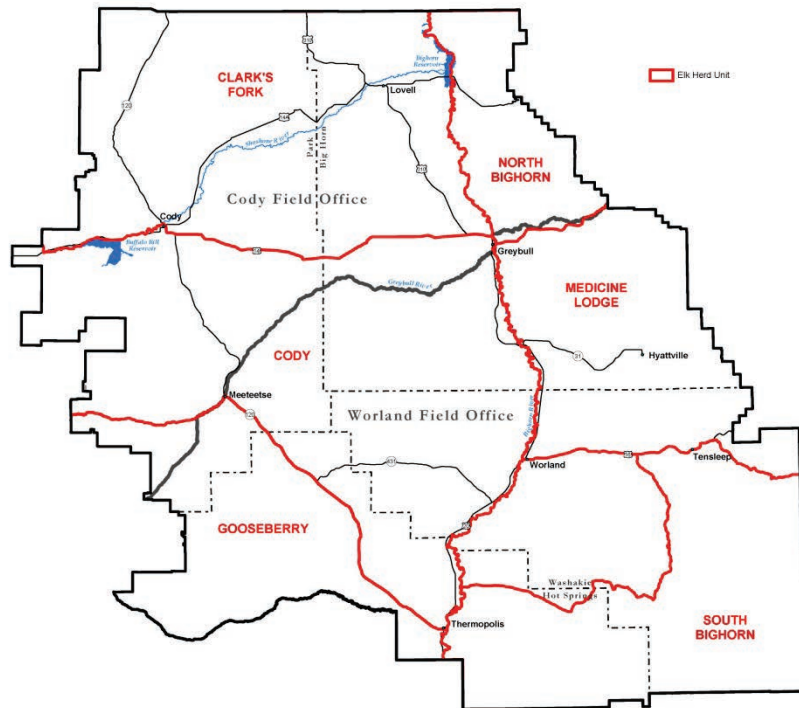


Figure K-4. Wildlife Herd Units – Moose

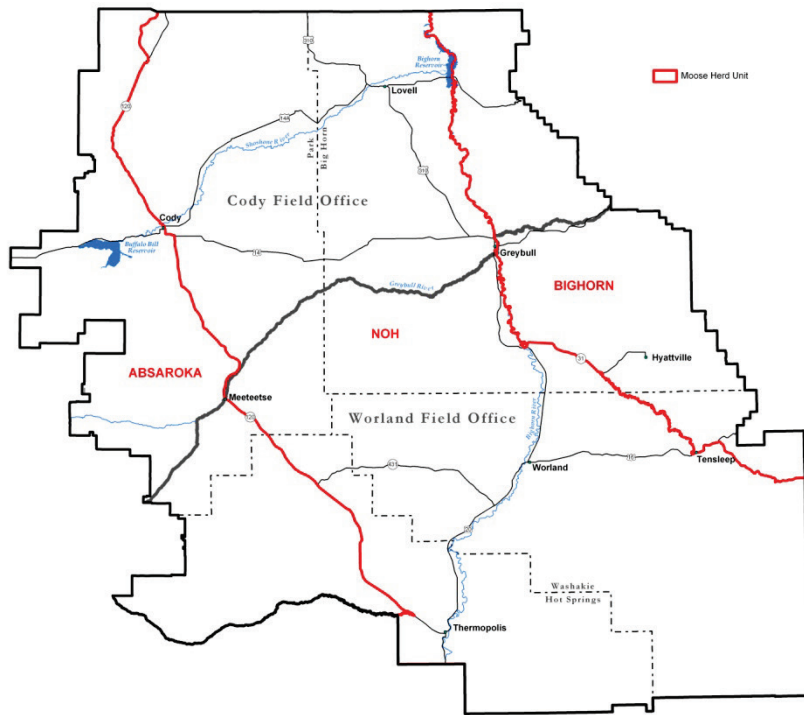


Figure K-5. Wildlife Herd Units – Mountain Goat

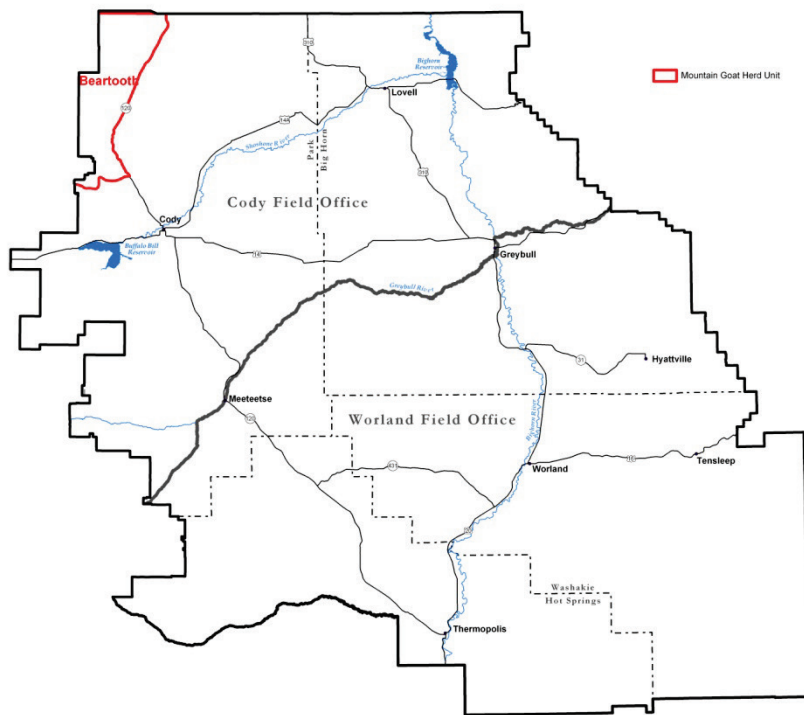


Figure K-6. Wildlife Herd Units – Mule Deer

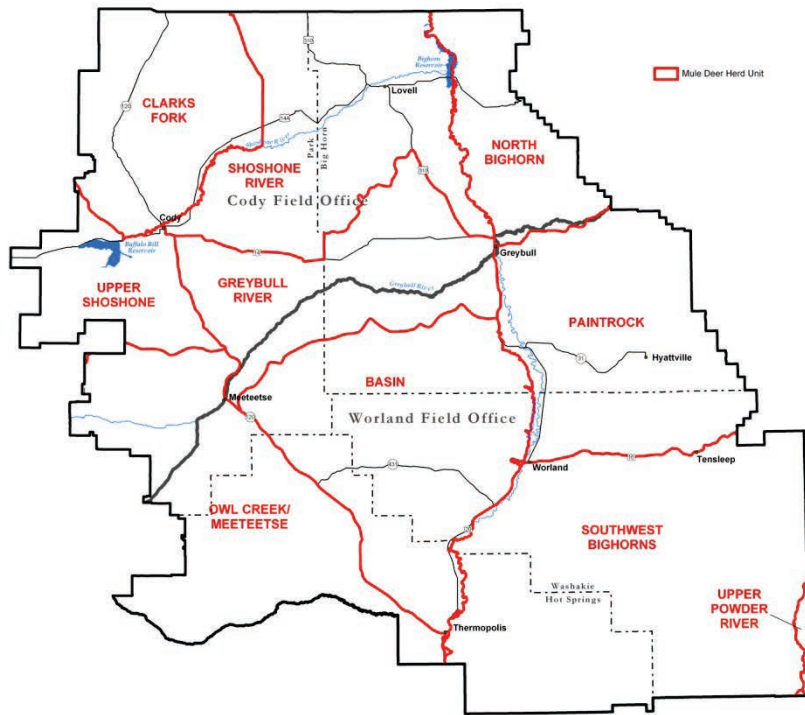
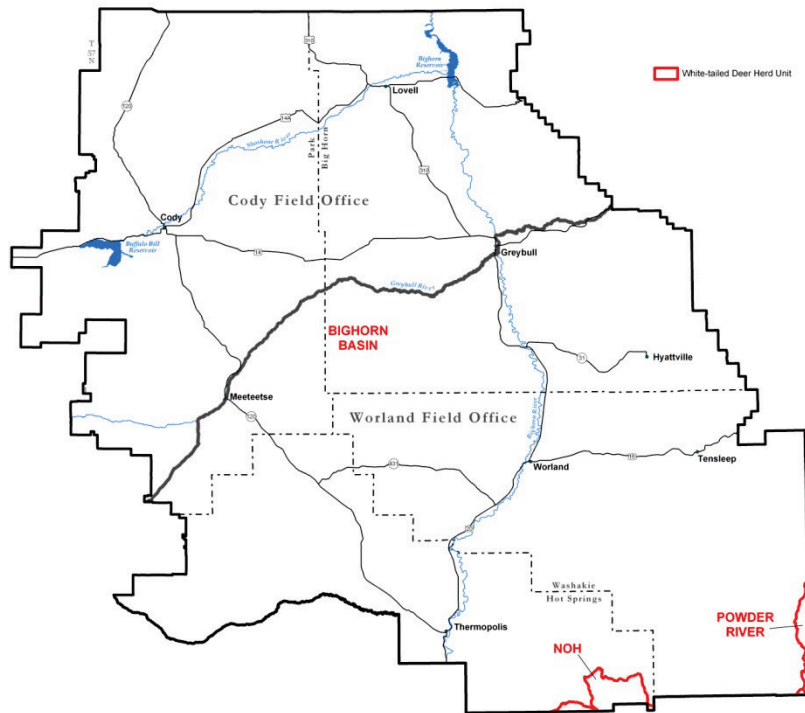


Figure K-7. Wildlife Herd Units – White-tailed Deer



3.0 SPECIES LIST

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement

Common Name	Scientific Name
Plants	
Absaroka beardtongue	<i>Penstemon absarokensis</i>
Absinth wormwood	<i>Artemisia absinthium</i>
Alder	<i>Alnus spp.</i>
Alfalfa	<i>Medicago sativa</i>
Alkali bulrush	<i>Scirpus maritimus</i>
Alkali cordgrass	<i>Spartina gracilis</i>
Alkali grass	<i>Puccinellia spp.</i>
Alkali sacaton	<i>Sporobolus airoides</i>
Alpine poppy	<i>Papaver pygmaeum</i>
Annual yellow sweet clover	<i>Melilotus indicus</i>
Antelope bitterbrush	<i>Purshia tridentata</i>
Aspen	<i>Populus tremuloides</i>
Aster	<i>Aster alpinus</i>
Baltic rush	<i>Juncus balticus</i>
Basin big sagebrush	<i>Artemisia tridentata ssp. tridentata</i>
Basin wildrye	<i>Leymus cinereus</i>
Beardtongue penstemon	<i>Penstemon spp.</i>
Beyrich threeawn	<i>Aristida beyrichiana</i>
Big bluegrass	<i>Poa secunda</i>
Big horn fleabane	<i>Erigeron allocotus</i>
Big sagebrush	<i>Artemisia tridentata</i>
Bigseed dodder	<i>Cuscuta indecora var. neuropetala</i>
Big-tooth maple	<i>Acer grandidentatum</i>
Birch	<i>Betula spp.</i>
Biscuitroot	<i>Lomatium spp.</i>
Bitterbrush	<i>Purshia spp.</i>
Black elderberry	<i>Sambucus nigra</i>
Black greasewood	<i>Sarcobatus vermiculatus</i>
Black henbane	<i>Hyoscyamus niger</i>
Black sagebrush	<i>Artemisia nova</i>
Blowout penstemon	<i>Penstemon haydenii</i>
Blue elderberry	<i>Sambucus nigra ssp. cerulea</i>
Blue grama	<i>Bouteloua gracilis</i>
Blue spruce	<i>Picea pungens</i>
Bluebell	<i>Mertensia spp.</i>
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>
Bottlebrush squirreltail	<i>Elymus elymoides</i>
Box elder	<i>Acer negundo</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Broadleaved twayblade	<i>Listera convallarioides</i>
Buckwheat	<i>Polygonaceae spp.</i>
Buffalo grass	<i>Buchloe dactyloides</i>
Buffalobur	<i>Solanum rostratum</i>
Bulrush	<i>Scirpus spp.</i>
Canada thistle	<i>Cirsium arvense</i>
Cary's beardtongue	<i>Penstemon caryi</i>
Cattail	<i>Typha spp.</i>
Chamisso cottongrass	<i>Eriophorum chamissonis</i>
Cheatgrass	<i>Bromus tectorum</i>
Chokecherry	<i>Prunus virginiana</i>
Cocklebur	<i>Xanthium spp.</i>
Coil beaked lousewort	<i>Pedicularis contorta var. ctenophora</i>
Colombia needlegrass	<i>Achnatherum nelsonii ssp. nelsonii</i>
Columbine	<i>Aquilegia spp.</i>
Common burdock	<i>Arctium minus (Hill) Bernh.</i>
Common crupina	<i>Crupina vulgaris</i>
Common mullein	<i>Verbascum thapsus</i>
Common St. Johnswort	<i>Hypericum perforatum</i>
Common tansy	<i>Tanacetum vulgare</i>
Common threesquare	<i>Schoenoplectus pungens</i>
Composite dropseed	<i>Sporobolus compositus</i>
Corn	<i>Zea mays</i>
Cottonwood	<i>Populus spp.</i>
Curl-leaf mountain mahogany	<i>Cercocarpus ledifolius</i>
Curly dock	<i>Rumex crispus</i>
Currant	<i>Ribes spp.</i>
Cusick's alkali grass	<i>Puccinellia cusickii</i>
Dalmatian toadflax	<i>Linaria genistifolia ssp. dalmatica</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Distaff thistle	<i>Carthamus baeticus</i>
Douglas' knotweed	<i>Polygonum douglasii</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
Dubois milkvetch	<i>Astragalus gilviflorus var. purpureus</i>
Dwarf raspberry	<i>Rubus arcticus ssp. acaulis</i>
Dwarf woolly-heads	<i>Psilocarphus brevissimus</i>
Dyer's woad	<i>Isatis tinctoria</i>
Eastern cottonwood	<i>Populus deltoides</i>
Englemann spruce	<i>Picea engelmannii</i>
English Bluebell	<i>Hyacinthoides spp.</i>
Evert's water parsnip	<i>Cymopterus evertii</i>
False agoseris	<i>Agoseris glauca var. laciniata</i>
Field bindweed	<i>Convolvulus arvensis</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Field pussytoes	<i>Antennaria neglecta</i>
Four-winged saltbush	<i>Atriplex canescens</i>
Fragile rockbrake	<i>Cryptogramma stelleri</i>
Gardner’s saltbush	<i>Atriplex garnderi</i>
Globemallow	<i>Sphaeralcea spp.</i>
Goats rue	<i>Galega officinalis</i>
Gorse	<i>Ulex spp.</i>
Greasewood	<i>Sarcobatus vermiculatus</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Green needlegrass	<i>Nasella viridula</i>
Green spleenwort	<i>Asplenium trichomanes-ramosum</i>
Hairy prince’s-plume	<i>Stanleya tomentosa var. tomentosa</i>
Hairy tranquil goldenweed	<i>Pyrocoma clementis var. villosa</i>
Hairy whitetop	<i>Cardaria pubescens</i>
Halogeton	<i>Halogeton glomeratus</i>
Hapeman’s coolwort	<i>Sullivantia hapemanii var. hapemanii</i>
Hawthorne	<i>Crataegus spp.</i>
Herbaceous seepweed	<i>Suaeda maritima</i>
Hoary cress	<i>Cardaria draba</i>
Houndstongue	<i>Cynoglossum officinale</i>
Hulled rush	<i>Juncus triglumis</i>
Hyattville milkvetch	<i>Astragalus jejunus var. articulatus</i>
Iberian starthistle	<i>Centaurea iberica</i>
Ice grass	<i>Phippsia algida</i>
Idaho fescue	<i>Festuca idahoensis</i>
Indian paintbrush	<i>Castilleja spp.</i>
Indian ricegrass	<i>Achnatherum hynenoides</i>
Inland saltgrass	<i>Distichlis spicata</i>
Italian thistle	<i>Carduus pycnocephalus</i>
Japanese brome	<i>Bromus japonicus</i>
Juniper	<i>Juniperus spp.</i>
Kentucky bluegrass	<i>Poa pratensis</i>
King spike fescue	<i>Leucopoa kingii</i>
Knotweed	<i>Polygonum spp.</i>
Kotzebuei’s grass-of-parnassus	<i>Parnassia kotzebuei</i>
Lance-leaved moonwort	<i>Botrychium lanceolatum var. lanceolatum</i>
Large bur-reed	<i>Sparganium eurycarpum</i>
Large yellow lady-slipper	<i>Cypripedium parviflorum</i>
Large-leaved pondweed	<i>Potamogeton amplifolius</i>
Larkspur	<i>Delphinium spp.</i>
Leafy spurge	<i>Euphorbia esula</i>
Leafy thistle	<i>Cirsium foliosum</i>
Limber pine	<i>Pinus flexilis</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Locoweed	<i>Oxytropis spp.</i>
Lodgepole pine	<i>Pinus contorta</i>
Longleaf arnica	<i>Arnica lonchophylla</i>
Lupine	<i>Lupinus spp.</i>
Meadow parsnip	<i>Thaspium spp.</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Milkvetch	<i>Astragalus spp.</i>
Mingan moonwort	<i>Botrychium minganense</i>
Mistletoe	<i>Arceuthobium spp.</i>
Moschatel	<i>Adoxa moschatellina</i>
Mountain big sagebrush	<i>Artemisia tridentata var. vaseyana</i>
Mountain deathcamus	<i>Zigadenus elegans</i>
Mountain lady-slipper	<i>Cypripedium montanum</i>
Mountain mahogany	<i>Cercocarpus montanus</i>
Musk thistle	<i>Carduus nutans</i>
Mutton bluegrass	<i>Poa fendleriana</i>
Nebraska sedge	<i>Carex nebrascensis</i>
Needle-and-thread	<i>Hesperostipa comata</i>
Nuttall's saltbush	<i>Atriplex nuttallii</i>
Orange hawkweed	<i>Hieracium aurantiacum</i>
Ox-eye daisy	<i>Leucanthemum vulgare or Chrysanthemum leucanthemum</i>
Perennial pepperweed (giant whitetop)	<i>Lepidium latifolium</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Persistent sepal yellowcress	<i>Rorippa calycina</i>
Phlox	<i>Phlox spp.</i>
Plains pricklypear	<i>Opuntia polyacantha</i>
Plains rough fescue	<i>Festuca hallii</i>
Plumeless thistle	<i>Carduus acanthoides</i>
Poison hemlock	<i>Conium maculatum</i>
Ponderosa pine	<i>Pinus ponderosa</i>
Porter's sagebrush	<i>Artemisia porteri</i>
Prairie cordgrass	<i>Spartina Pectinata</i>
Prairie junegrass	<i>Koeleria macrantha</i>
Pricklypear cactus	<i>Opuntia spp.</i>
Puncturevine	<i>Tribulus terrestris</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Purple starthistle	<i>Centaurea calcitrapa</i>
Puzzling moonwort	<i>Botrychium paradoxum</i>
Quackgrass	<i>Elymus repens</i>
Quaking aspen	<i>Populus tremuloides</i>
Rabbitbrush	<i>Chrysothamnus spp.</i>
Ragwort	<i>Packera spp.</i>
Rattlesnake fern	<i>Botrychium virginianum</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Red cottongrass	<i>Eriophorum ressuloum</i>
Redstem storks bill	<i>Erodium cicutarium</i>
Rocky Mountain juniper	<i>Juniperus scopulorum</i>
Rocky Mountain maple	<i>Acer glabrum</i>
Rocky Mountain twinpod	<i>Physaria saximontana var. dentata</i>
Rough cocklebur	<i>Xanthium strumarium</i>
Rubber rabbitbrush	<i>Ericameria nauseosa ssp. nauseosa var. nauseosa</i>
Rush skeletonweed	<i>Chondrilla juncea</i>
Rushes	<i>Juncaceae</i>
Russian knapweed	<i>Acroptilon repens</i>
Russian olive	<i>Elaeagnus angustifolia</i>
Saltbush	<i>Atriplex spp.</i>
Saltcedar	<i>Tamarix spp.</i>
Saltgrass	<i>Distichlis spicata</i>
Sand dropseed	<i>Sporbolus cryptandrus</i>
Sandberg's bluegrass	<i>Poa secunda</i>
Sandwort	<i>Arenaria spp.</i>
Sartwell's sedge	<i>Carex sartwellii var. sartwellii</i>
Scarlet globemallow	<i>Sphaeralcea coccinea</i>
Scotch thistle	<i>Onopordum acanthium</i>
Sea blight	<i>Suaeda maritime</i>
Sedges	<i>Cyperaceae</i>
Serviceberry	<i>Amerlanchier alnifolia</i>
Shadscale	<i>Atriplex confertifolia</i>
Shadscale saltbush	<i>Atriplex confertifolia</i>
Sheathed musineon	<i>Musineon vaginatum</i>
Sheep fescue	<i>Festuca ovina</i>
Shortleaved sedge	<i>Carex misandra</i>
Shoshonea	<i>Shoshonea pulvinata</i>
Showy milkweed	<i>Asclepias speciosa</i>
Shrubby cinquefoil	<i>Dasiphora fruticosa</i>
Silver sagebrush	<i>Artemisia canescens</i>
Single-head pussytoes	<i>Antennaria monocephala</i>
Skeletonleaf bur ragweed	<i>Ambrosia tomentosa</i>
Skunkbush sumac	<i>Rhus trilobata</i>
Slender bulrush	<i>Schoenoplectus heterochaetus</i>
Slim-pod Venus' looking glass	<i>Triodanis leptocarpa</i>
Snowberry	<i>Symphoricarpos spp.</i>
Spikerush	<i>Eleocharis spp.</i>
Spiny hopsage	<i>Grayia spinosa</i>
Spiny phlox	<i>Phlox hoodsii</i>
Spotted knapweed	<i>Centaurea stoebe ssp. micranthos</i>
Subalpine fir	<i>Abies lasiocarpa</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Sugar beet	<i>Beta vulgaris</i>
Sulfur flower buckwheat	<i>Eriogonum umbellatum</i>
Sunbright	<i>Phemeranthus parviflorus</i>
Tall larkspur	<i>Delphinium exaltatum</i>
Tamarisk	<i>Tamarix spp.</i>
Teal lovegrass	<i>Eragrostis hypnoides</i>
Threadleaf sedge	<i>Carex filifolia</i>
Three-flower rush	<i>Juncus triglumis var. triglumis</i>
Threetip sagebrush	<i>Artemisia tripartita</i>
Tyrol knapweed	<i>Centaurea nigrescens</i>
Upward-lobe moonwort	<i>Botrychium ascendens</i>
Utah juniper	<i>Juniperus osteosperma</i>
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>
Verrucosum purslane	<i>Susvium verrucosum</i>
Violet	<i>Viola spp.</i>
Water birch	<i>Betula occidentalis</i>
Watson goosefoot	<i>Chenopodium watsonii</i>
Wax currant	<i>Ribes cereum</i>
Western wheatgrass	<i>Pascopyrum smithii</i>
Wheatgrass	<i>Agropyron spp.</i>
White arctic whitlow-grass	<i>Draba fladnicensis var. pattersonii</i>
Whitebark pine	<i>Pinus albicaulis</i>
Whitetop	<i>Cardaria draba</i>
Wild barley	<i>Hordeum spp.</i>
Wild buckwheat	<i>Eriogonum spp.</i>
Wild licorice	<i>Glycyrrhiaz lepidota</i>
Wild plum	<i>Prunus americana</i>
William's wafer-parsnip	<i>Cymopterus williamsii</i>
Willow	<i>Salix spp.</i>
Winterfat	<i>Krascheninnikovia lanata</i>
Wire grass	<i>Sporobolus junceaus</i>
Wood's rose	<i>Rosa woodsii</i>
Woodland horsetail	<i>Equisetum sylvaticum</i>
Woolly twinpod	<i>Physaria lanata</i>
Wyoming big sagebrush	<i>Artemisia tridentata var. wyomingensis</i>
Yarrow	<i>Achillea millefolium</i>
Yellow rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
Yellow sweet clover	<i>Melilotus officinalis</i>
Yellow toadflax	<i>Linaria vulgaris</i>
Zephyr windflower	<i>Anemone narcissiflora spp. zephyra</i>
Fungi	
Blister rust	<i>Cronartium ribicola</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Fish	
Bear River cutthroat	<i>Oncorhynchus clarki utah</i>
Black bullhead	<i>Ameirus melas</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Brassy minnow	<i>Hybognathus hankinsoni</i>
Brook Stickleback	<i>Culaea inconstans</i>
Brook trout	<i>Salvelinus fontinalis</i>
Brown trout	<i>Salmo trutta</i>
Burbot	<i>Lota lota</i>
Catfish	<i>Ictalurus spp.</i>
Channel catfish	<i>Ictalurus punctatus</i>
Common carp	<i>Cyprinus carpio</i>
Creek cub	<i>Semotilus atromaculatus</i>
Cutthroat trout	<i>Oncorhynchus clarki</i>
Emerald shiner	<i>Notropis atherinoides</i>
Fathead minnow	<i>Pimephales promelas</i>
Flathead chub	<i>Platygobio gracilis</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Grayling	<i>Thymallus thymallus</i>
Green sunfish	<i>Lepomis cyanellus</i>
Lake chub	<i>Couesius plumbeus</i>
Lake trout	<i>Salvelinus namaycush</i>
Largemouth bass	<i>Micropterus salmoides</i>
Longnose dace	<i>Rhinichthys cataractae</i>
Longnose sucker	<i>Catostomus catostomus</i>
Mountain sucker	<i>Catostomus platyrhynchus</i>
Mountain whitefish	<i>Prosopium williamsoni</i>
Pallid Sturgeon	<i>Scaphirhynchus albus</i>
Plains killifish	<i>Fundulus zebrinus</i>
Plains minnow	<i>Hybognathus placitus</i>
Plains topminnow	<i>Fundulus sciadicus</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>
Rainbow-cutthroat hybrid	<i>Salmo gairdneri – Oncorhynchus clarki hybrid</i>
River carpsucker	<i>Carpionodes carpio</i>
Rock Bass	<i>Ambloplites rupestris</i>
Sand shiner	<i>Notropis stramineus</i>
Sauger	<i>Sander canadensis</i>
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Snake River cutthroat	<i>Oncorhynchus clarki spp.</i>
Stonecat	<i>Noturus flavus</i>
Sturgeon chub	<i>Macrhybopsis gelida</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Walleye	<i>Sander vitreus</i>
Western silvery minnow	<i>Hybognathus argyritis</i>
White sucker	<i>Catostomus commersoni</i>
Yellow perch	<i>Perca flavescens</i>
Yellowstone cutthroat trout	<i>Oncorhynchus clarki bouvieri</i>
Wildlife	
Alfalfa weevil	<i>Hypera postica</i> Gyllenhal
American kestrel	<i>Falco sparverius</i>
American marten	<i>Martes americana</i>
Badger	<i>Taxidea taxus</i>
Baird's sparrow	<i>Ammodramus bairdii</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Beaver	<i>Castor canadensis</i>
Beet leafhopper	<i>Circulifer tenellus</i>
Bighorn Mountain pika	<i>Ochotona princeps obscura</i>
Bighorn Mountain snowshoe hare	<i>Lepus americanus seclusus</i>
Bighorn sheep	<i>Ovis canadensis</i>
Black bear	<i>Ursus americanus</i>
Blackbilled cuckoo	<i>Coccyzus erythrophthalmus</i>
Black-footed ferret	<i>Mustela nigripes</i>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>
Blue grouse	<i>Dendragapus obscurus</i>
Blue heron	<i>Ardea herodias</i>
Bobcat	<i>Lynx rufus</i>
Boreal chorus frog	<i>Pseudacris triseriata</i>
Boreal owl	<i>Aegolius funereus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Bull snake	<i>Pituophis catenifer</i>
Burrowing owl	<i>Speotyto cunicularia</i>
Calliope hummingbird	<i>Stellula calliope</i>
Canada lynx	<i>Lynx canadensis</i>
Chukar partridge	<i>Alectoris chukar</i>
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>
Common loon	<i>Gavia immer</i>
Common merganser	<i>Mergus merganser</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Coot	<i>Fulica spp.</i>
Cormorant	<i>Phalacrocorax spp.</i>
Cottontail rabbit	<i>Sylvilagus spp.</i>
Cougar (Mountain lion)	<i>Puma concolor</i>
Coyote	<i>Canis latrans</i>
Crane	<i>Grus spp.</i>
Eastern racer	<i>Coluber constrictor</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Elk	<i>Cervus elaphus</i>
Ferruginous hawk	<i>Buteo regalis</i>
Fisher	<i>Martes pennanti</i>
Fox squirrel	<i>Sciurus niger</i>
Fringed myotis	<i>Myotis thysanodes</i>
Garter snake	<i>Thamnophis sirtalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Gopher	<i>Gopherus spp.</i>
Gopher snake	<i>Pituophis catenifer</i>
Goshawk	<i>Accipiter gentilis</i>
Gray partridge	<i>Perdix perdix</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Gray wolf	<i>Canis lupus</i>
Great Basin spadefoot toad	<i>Spea intermontana</i>
Great gray owl	<i>Strix nebulosa</i>
Great horned owl	<i>Bubo virginianus</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Grizzly bear	<i>Ursus arctos horribilis</i>
Ground squirrel	<i>Spermophilus spp.</i>
Hayden's shrew	<i>Sorex haydeni</i>
Hispid pocket mouse	<i>Chaetodipus hispidus</i>
Hoary bat	<i>Lasiurus cinereus</i>
Horse	<i>Equus caballus</i>
Hungarian partridge	<i>Perdix perdix</i>
Jackrabbit	<i>Lepus spp.</i>
Kestrel	<i>Falco spp.</i>
Leopard frog	<i>Rana pipiens</i>
Loggerheaded shrike	<i>Lanius ludovicianus</i>
Long-billed curlew	<i>Numenius americanus</i>
Long-eared myotis	<i>Myotis evotis</i>
Long-eared owl	<i>Asio otus</i>
Marten	<i>Martes spp.</i>
Merlin	<i>Falco columbarius</i>
Mink	<i>Mustela vison</i>
Moose	<i>Alces alces</i>
Mountain goat	<i>Oreamnos americanus</i>
Mountain plover	<i>Charadrius montanus</i>
Mourning dove	<i>Zenaida macroura</i>
Mule deer	<i>Odocoileus hermionus</i>
Muskrat	<i>Ondata zibethicus</i>
North American wolverine	<i>Gulo gulo luscus</i>
Northern goshawk	<i>Accipiter gentilis</i>
Northern harrier	<i>Circus cyaneus</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Northern leopard frog	<i>Rana pipiens</i>
Osprey	<i>Pandion haliaetus</i>
Partridge	<i>Perdix spp.</i> ; or <i>Bonasa umbellus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Pheasant	<i>Phasianus colchicus</i>
Piping plover	<i>Charadrius melodus</i>
Plains gartersnake	<i>Thamnophis radix</i>
Plains harvest mouse	<i>Reithrodontomys montanus</i>
Plains pocket gopher	<i>Geomys bursarius</i>
Plains rattlesnake	<i>Crotalus viridis</i>
Porcupine	<i>Erethizon dorsatum</i>
Prairie falcon	<i>Falco mexicanus</i>
Prairie rattlesnake	<i>Crotalus viridis</i>
Pronghorn	<i>Antilocapra americana</i>
Pygmy nuthatch	<i>Sitta pygmaea</i>
Pygmy rabbit	<i>Brachylagus idahoensis</i>
Raccoon	<i>Procyon lotor</i>
Rail	family <i>Rallidae</i>
Red fox	<i>Vulpes vulpes</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Ruffed grouse	<i>Bonasa umbellus</i>
Sage sparrow	<i>Amphispiza belli</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Sagebrush lizard	<i>Sceloporus graciosus</i>
Sagebrush vole	<i>Lemmiscus curtatus</i>
Sandhill crane	<i>Grus canadensis</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-eared owl	<i>Asio flammeus</i>
Snipe	<i>Gallinago spp.</i>
Snowshoe hare	<i>Lepus americanus</i>
Spotted bat	<i>Euderma maculatum</i>
Spotted frog	<i>Rana luteiventris</i>
Spotted skunk	<i>Spilogale gracilis</i>
Striped skunk	<i>Mephitis mephitis</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Swift fox	<i>Vulpes velox</i>
Terrestrial gartersnake	<i>Thamnophis elegans</i>
Three-toed woodpecker	<i>Picoides dorsalis</i>
Tiger salamander	<i>Ambystoma tigrinum mavortium</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>

Table K-2. Common and Scientific Names of Plant and Wildlife Species Identified in the Environmental Impact Statement (Continued)

Common Name	Scientific Name
Trumpeter swan	<i>Cygnus buccinator</i>
Turkey	<i>Meleagris gallopavo</i>
Turkey vulture	<i>Cathartes aura</i>
Virginia’s warbler	<i>Vermivora virginiae</i>
Vole	<i>Microtus spp.</i>
Water vole	<i>Arvicola amphibius</i>
Weasel	<i>Mustela spp.</i>
Western burrowing owl	<i>Athene cunicularia hypugea</i>
White-faced ibis	<i>Plegadis chihi</i>
White-tailed deer	<i>Odocoileus virginianus</i>
White-tailed jackrabbit	<i>Lepus townsendii</i>
White-tailed prairie dog	<i>Cynomys leucurus</i>
Wild turkey	<i>Meleagris gallopavo</i>
Williamson’s sapsucker	<i>Sphyrapicus thyroideus</i>
Woodhouse’s toad	<i>Bufo woodhousii</i>
Wyoming ground squirrel	<i>Spermophilus elegans</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yuma myotis	<i>Myotis yumanensis</i>
Invertebrates	
Asian clam	<i>Corbicula fluminea</i>
Bark beetle	<i>Dendroctonus ponderosae</i>
Crayfish	Various
Didymo	<i>Didymosphenia geminata</i>
Grasshopper	Suborder Caelifera; order Orthoptera
Mormon cricket	<i>Anabrus simplex</i>
Mosquito	<i>Anopheles spp.</i>
Mountain pine beetle	<i>Dendroctonus ponderosae</i>
Mussel	Various
New Zealand mud snail	<i>Potamopyrgus antipodarum</i>
Quagga mussel	<i>Dreissena rostriformis bugensis</i>
Zebra mussel	<i>Dreissena polymorpha</i>

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix L

Required Design Features and Best Management Practices

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APPENDIX L

REQUIRED DESIGN FEATURES AND BEST MANAGEMENT PRACTICES

Required Design Features (RDFs) are required for certain activities in greater sage-grouse habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the National Environmental Policy Act (NEPA) analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF is determined to provide equal or better protection for greater sage-grouse or its habitat; or
- A specific RDF will provide no additional protection to greater sage-grouse or its habitat.

Adverse environmental impacts associated with development can be avoided, reduced, or mitigated through the project's design and implementation. In order to provide regulatory certainty that the measures will be incorporated, they must be required of every project. The National Technical Team (NTT) report identified management actions and practices that would reduce adverse impacts to greater sage-grouse if mandated to development throughout Core Area (Priority Habitat Management Areas). Some of these practices are incorporated in Alternative D as being universally appropriate. The ones that could be analyzed on a planning area-wide basis have been made a part of the management actions and in this appendix as RDFs.

Other environmental protection measures could not be analyzed in a resource area-wide Environmental Impact Statement (EIS) because their appropriateness depends upon site-specific issues such as proximity to the boundary of Priority Habitat Management Areas or non-crucial habitat or engineering or physical limitations such as an oil and gas producing zone being too close to the surface to be recoverable through directional drilling. These best management practices (BMPs) are required to be considered in a site-specific project's design to reduce, prevent, or avoid adverse environmental or social impacts. These practices are analyzed to help ensure that development is conducted in an environmentally responsible manner. Some BMPs are as simple as choosing a paint color that helps oil and natural gas equipment blend with the natural surroundings, making development less visible. Other BMPs may reduce the amount of vegetation lost to development, improve the speed of re-growth of desirable vegetation, or may reduce the amount of wildlife disturbance in important habitats. Public land users are encouraged to review these practices, incorporate them where appropriate, or develop better methods for achieving the same goal. However, the Bureau of Land Management (BLM) may also require their incorporation into the design features of the project as a Condition of Approval (COA). A design feature should only be considered as a potential beneficial impact under the NEPA when it is part of a BLM authorization as a COA. If the practice is only voluntary or suggested, the BLM lacks the authority to require its implementation, so the project should be analyzed as if the practice will not

occur. The BLM authorization will make clear whether the BMP is mandatory (attached as a COA) or merely encouraged.

NEPA analysis that concludes that BMPs should not be attached as mandatory COAs needs to clearly explain why with relation to site-specific factors. The purpose of this section is not to select certain practices or designs and require that only those be used. It is not possible to evaluate all the known practices and make determinations as to which are best, particularly without a specific project in a specific location. BMPs should be matched and adapted to meet the site-specific requirements of the management action, project and local environment. No one management practice is best suited to every site or situation, or will remain the most optimal practice over time. BMPs must be adaptive and monitored regularly to evaluate effectiveness. As discussed more fully in the Special Status Species-Wildlife section, protections for the greater sage-grouse are an important focal point in the preparation of the Resource Management Plan (RMP). Accordingly, a special section of BMPs identifies management that should be considered in greater sage-grouse priority habitat. It is expected that these BMPs will change over time as monitoring and further study develop improved greater sage-grouse protections.

1.0 REQUIRED DESIGN FEATURES

The following design approaches are required for all projects unless the proponent establishes that due to site limitations or engineering considerations, the design approaches are infeasible. Economic considerations such as increased costs do not render a design infeasible. The following measures would be applied as RDFs for all solid minerals. They would also apply to locatable minerals subject to valid existing rights and consistent with applicable law.

1.1 Greater Sage-Grouse Protection Required Design Features for All Projects

The following measures, and others as they are identified, will be required for all BLM-authorized development. As appropriate, they may be required as part of the design of the project or as a mandatory COA. The following required design features are found in the Sage-Grouse National Technical Team report (Sage-grouse NTT 2011) titled “A Report on National Greater Sage-Grouse Conservation Measures”.

General

1. Evaluate and take advantage of opportunities to remove or modify existing power lines within priority sage-grouse habitat areas. When possible, require perch deterrents on existing or new overhead facilities. Encourage installation of perch deterrents on existing facilities.
2. Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.
3. Locate man camps outside priority sage-grouse habitats.
4. Work cooperatively with permittees, leasees, and other landowners to develop grazing management strategies that integrate both public and private lands into single management units.

5. Coordinate BMPs and vegetative objectives with the Natural Resources Conservation Service (NRCS) for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit greater sage-grouse, particularly as it applies to the NRCS's National Sage-Grouse Initiative:
(<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmland/initiatives/andcid=steldevb1027671>).
6. When conducting NEPA analysis for water developments or other rangeland improvements address the direct and indirect effects to sage-grouse populations and habitat.
7. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority sage-grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for sage-grouse. If these seedings are part of an Allotment Management Plan/Conservation Plan or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for sage-grouse habitat or as a component of a grazing system during land health assessments. For example, some introduced grass seedings are an integral part of a livestock management plan and reduce grazing pressure in important sagebrush habitats, or serve as a strategic fuels management area.
8. Where the federal government owns the surface, and the mineral estate is in non-federal ownership, apply appropriate BMPs to surface development.

Roads

1. Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
2. Locate roads to avoid important areas and habitats.
3. Coordinate road construction and use among Federal fluid mineral lessees and ROW or Surface Use Agreement (SUA) holders.
4. Construct road crossings of ephemeral, intermittent, and perennial streams to minimize impacts to the riparian habitat, such as by crossing at right angles to ephemeral drainages and stream crossings.
5. Establish slow speed limits on BLM and Forest Service system-administered roads or design roads for slower vehicle speeds to reduce sage-grouse mortality.
6. Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
7. Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions including this document.
8. Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)
9. Apply dust abatement on roads, well pads, and other surface disturbances.
10. Close and rehabilitate duplicate roads by restoring original landform and establishing a desirable plant community.
11. Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

Operations

1. Site and/or minimize linear ROWs or SUAs to reduce disturbance and fragmentation of sagebrush habitats.
2. Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
3. Bury power lines to the extent technically feasible.
4. Collocate powerlines, flowlines, and small pipelines under or immediately adjacent to existing roads/transportation corridors.
5. Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce sage-grouse mortality.
6. Equip tanks and other above ground facilities with structures or devices that discourage nesting and perching of raptors and corvids.
7. Control the spread and effects of invasive non-native plant species, including treating weeds prior to surface disturbance and washing vehicles and equipment at designated wash stations when constructing in areas with weed infestations.
8. Require sage-grouse-safe fences.
9. Clean up refuse.
10. Locate mining camps outside of priority sage-grouse habitats.
11. Fit transmission towers with anti-perch devices.
12. Construct sage-grouse-safe fences around sumps.
13. Cluster disturbances, operations (hydraulic fracture stimulation, liquids gathering, etc.), and facilities.
14. Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells.
15. Place infrastructure in already disturbed locations where the habitat has not been fully restored.
16. Apply a phased development approach with concurrent reclamation.
17. Place liquid gathering facilities outside priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors do not place tanks at well locations within priority habitat areas.
18. Pipelines must be under or immediately adjacent to the road.
19. Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
20. Restrict the construction of tall facilities, distribution powerlines, and fences to the minimum number and amount needed.
21. Design or site permanent structures to minimize impacts to sage-grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of sage-grouse or interference with habitat use.

22. Use only closed-loop systems for drilling operations, with no reserve pits.
23. Consider using oak (or other material) mats for drilling activities where topography permits to reduce vegetation disturbance and for temporary roads between closely-spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

West Nile

1. Restrict impoundment construction to reduce or eliminate threats from West Nile Virus (WNV).
2. Increase the size of freshwater ponds to accommodate a greater volume of water than is discharged. This will result in un-vegetated and muddy shorelines that breeding *Cx. tarsalis* avoid. This modification may reduce *Cx. tarsalis* habitat but could create larval habitat for *Culicoides sonorensis*, a vector of blue tongue disease, and should be used sparingly. Steep shorelines should be used in combination with this technique whenever possible.
3. Build steep shorelines to reduce shallow water (greater than 60 centimeters [cm]) and aquatic vegetation around the perimeter of impoundments. Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito species like *Cx. tarsalis* which prefer newly flooded sites with high primary productivity.
4. Maintain water levels below that of rooted vegetation for a muddy shoreline that is unfavorable habitat for mosquito larvae. Rooted vegetation includes both aquatic and upland vegetative types. Avoid flooding terrestrial vegetation in flat terrain or low lying areas. Aquatic habitats with a vegetated inflow and outflow separated by open water produce 5 to 10 fold fewer *Culex* mosquitoes than completely vegetated wetlands. Wetlands with open water also had significantly fewer stage III and IV instars which may be attributed to increased predator abundances in open water habitats.
5. Construct dams or impoundments that restrict down slope seepage or overflow by digging ponds in flat areas rather than damming natural draws for effluent water storage, or lining constructed ponds in areas where seepage is anticipated.
6. Line channels where discharge water flows into ponds with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water, thus precluding shallow surface inflow and accumulation of sediment that promotes aquatic vegetation.
7. Line the overflow spillway with crushed rock, and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation.
8. Fence pond sites to restrict access by livestock and other wild ungulates that trample and disturb shorelines, enrich sediments with manure and create hoof print pockets of water that are attractive to breeding mosquitoes.
9. Manage artificial water impoundments for the prevention and/or spread of WNV where the virus poses a threat to sage-grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep

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sides to preclude the accumulation of shallow water and vegetation; and (j) restricting access of ponds to livestock and wildlife.

10. Field Offices should consider alternate means to manage produced waters that could present additional vectors for WNV. Such remedies may include re-injection under an approved Underground Injection Control permit, transfer to single/centralized facility, etc.
11. Policy Statement 7 regarding WNV does not apply to naturally occurring waters.
12. Design impoundments for wildlife and/or livestock use to reduce the potential to produce vectors for WNV where the virus may pose a threat to sage-grouse.
13. Manage water impoundments to prevent the spread of WNV where analysis shows the virus poses a threat to sage-grouse and may result in negative impacts to other species of concern.
14. Remove or re-inject produced water to reduce habitat for mosquitoes that vector WNV. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
 - Overbuild size of ponds for muddy and non-vegetated shorelines.
 - Build steep shorelines to decrease vegetation and increase wave actions.
 - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
 - Construct dams or impoundments that restrict down slope seepage or overflow.
 - Line the channel where discharge water flows into the pond with crushed rock.
 - Construct spillway with steep sides and line it with crushed rock.
15. Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
16. Restrict pit and impoundment construction to reduce or eliminate threats from WNV.

Noise

1. Limit noise to less than 10 decibels above ambient measures (20 to 24 decibels) at sunrise at the perimeter of a lek during active lek season.
2. Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
3. Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.
4. Require sage-grouse safe fences.

Reclamation

1. Include objectives for ensuring habitat restoration to meet sage-grouse habitat needs in reclamation practices/sites. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.
2. Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling, and revegetating cut-and-fill slopes.
3. Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

4. Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions. Utilize mulching techniques to expedite reclamation.
5. Use mulching, soil amendments, and/or erosion blankets to expedite reclamation and to protect soils.
6. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.
7. Minimize surface-disturbing or disrupting activities (including operations and maintenance) where needed to reduce the impacts of human activities on important seasonal sage-grouse habitats. Apply these measures during project level planning.
8. When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in priority sage-grouse habitat, address (and apply conservation measures as appropriate) the direct and indirect effects to sage-grouse populations and habitat.
9. During activity level planning, where appropriate, designate routes with current administrative/agency purpose or need to administrative access only.
10. Identify and work with partners to increase native seed availability and work with plant material centers to develop new plant materials, especially the forbs needed to restore sage-grouse habitat.
11. Consider potential changes in climate when proposing seedings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed.
12. Use Ecological Site Descriptions (ESDs) or other protocols could be used (e.g., TEUI or LSI) to identify the understory species and sagebrush subspecies needed to restore desirable habitat conditions.

Vegetation Treatments/Fire and Fuels Management

1. During vegetation management project design, consider the utility of using livestock to strategically reduce fine fuels, and implement grazing management that will accomplish this objective. Consult with ecologists to minimize impacts to native perennial grasses.
2. Provide to personnel planning vegetation treatments information on sage-grouse biology, habitat requirements, and identification of areas utilized locally.
3. Use vegetation treatment prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable plant species and reduce risk of hydrophobicity).
4. Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM/Forest Service and /or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding sage-grouse seasonal habitats and landscape.
5. Ensure that treatments are configured in a manner (e.g., strips) that promotes use by sage-grouse.
6. Where appropriate, incorporate roads and natural fuels breaks into fuels break design.
7. Power-wash all vehicles and equipment involved in vegetation treatment activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

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8. Design vegetation treatments in areas of high wildfire frequency to facilitate firefighter and public safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to sage-grouse habitats.
9. Restore prior perennial grass/shrub plant communities infested with non-native invasive species to a species composition characterized by perennial grasses, forbs, and shrubs as outlined in ESDs.
10. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
11. Reduce the risk of vehicle or human-caused wildfires and the spread of invasive species into sage-grouse habitats could be minimized by planting perennial vegetation (e.g., green-strips) paralleling road ROWs (this BMP could be applied to BLM linear ROW authorizations).
12. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire should wildfire occur near sage-grouse key habitats or important restoration areas (such as where investments in restoration have already been made).
13. Design vegetation treatments in sage-grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant serial stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design.
14. Design post Emergency Stabilization and Rehabilitation (ES&R) and Burned Area Emergency Response management to ensure long term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse and burro, and travel management, etc., to achieve and maintain the desired condition of ES&R and Burned Area Emergency Response projects to benefit sage-grouse. Include sage-grouse habitat parameters as defined by Connelly et al., Hagen et al., or if available, State Sage-Grouse Conservation plans and appropriate local information in habitat restoration objectives. Make maintaining these objectives within priority sage-grouse habitat areas a high restoration priority.
15. Make re-establishment of sagebrush and desirable understory plant cover (relative to ecological site potential) a high priority for restoration efforts. Write specific vegetation objectives to reestablish sage-brush cover and desirable understory cover.
16. Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit sage-grouse habitat.
17. Provide training to fuels treatment personnel on sage-grouse biology, habitat requirements, and identification of areas utilized locally.
18. Use fire prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of hydrophobicity).
19. Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM, Forest Service and/or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding sage-grouse seasonal habitats and landscape.

20. Where appropriate, ensure that treatments are configured in a manner (e.g., strips) that promotes use by sage-grouse.
21. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
22. Power-wash all firefighting vehicles, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATVs) prior to deploying in or near sage-grouse habitat areas to minimize noxious weed spread.
23. Design vegetation treatment in areas of high frequency to facilitate firefighting safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to sage-grouse key habitats and restoration habitats.
24. Give priority for implementing specific sage-grouse habitat restoration projects in areas infested with undesirable annual grasses first to sites which are adjacent to or surrounded by sage-grouse key habitats. Areas infested with undesirable annual grasses are second priority for restoration when the sites not adjacent to key habitat, but within two miles of key habitat. The third priority for areas infested with undesirable annual grasses habitat restoration projects are sites beyond two miles of key habitat. The intent is to focus restoration outward from existing, intact habitat.
25. As funding and logistics permit, restore areas infested with undesirable annual grasses to a species composition characterized by perennial grasses, forbs, and shrubs.
26. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
27. Remove standing and encroaching trees within at least 100 meters of occupied sage-grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as appropriate, and resources permit.
28. Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.
29. Develop state-specific sage-grouse reference information and resource materials containing maps, a list of resource advisors, contact information, local guidance, and other relevant information.
30. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
31. Assign a sage-grouse resource advisor to all extended attack fires in or near priority sage-grouse habitat areas. Prior to the fire season, provide training to sage-grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.
32. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in sage-grouse habitat areas.
33. During periods of multiple fires, ensure line officers are involved in setting priorities.
34. Locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, and heli-bases) in areas where physical disturbance to sage-grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

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35. Minimize unnecessary cross-country vehicle travel during fire operations in sage-grouse habitat.
36. Minimize burnout operations in key sage-grouse habitats by constructing direct firelines whenever safe and practical to do so.
37. Utilize retardant and mechanized equipment to minimize burned acreage during initial attack.
38. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

Fire Operations Best Management Practices for Sage-Grouse Conservation

1. Compile district-level information into state-wide sage-grouse tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each district, which will be aggregated into a state-wide document.
2. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
3. Assign a resource advisor with sage-grouse expertise, or who has access to sage-grouse expertise, to all extended attack fires in or near sage-grouse habitat areas. Prior to the fire season, provide training to sage-grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.
4. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in sage-grouse habitat areas.
5. As appropriate, utilize existing fuel breaks, such as roads or discrete changes in fuel type, as control lines in order to minimize fire spread.
6. During periods of multiple fires, ensure line officers are involved in setting priorities.
7. To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to sage-grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.
8. Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and ATVs prior to deploying in or near sage-grouse habitat areas to minimize noxious weed spread.
9. Minimize unnecessary cross-country vehicle travel during fire operations in sage-grouse habitat.
10. Minimize burnout operations in key sage-grouse habitat areas by constructing direct fireline whenever safe and practical to do so.
11. Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.
12. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.
13. Adequately document fire operation activities in sage-grouse habitat for potential follow-up coordination activities.

Fuels Management Best Management Practices for Sage-Grouse Conservation

1. Where applicable, design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit sage-grouse habitat.
2. Provide training to fuels treatment personnel on sage-grouse biology, habitat requirements, and identification of areas utilized locally.
3. Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).
4. Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with state fish and wildlife agencies, and that treatment acreage is conservative in the context of surrounding sage-grouse seasonal habitats and landscape.
5. Where appropriate, ensure that treatments are configured in a manner that promotes use by sage-grouse.
6. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
7. Power-wash all vehicles and equipment involved in fuels management activities, prior to entering the area, to minimize the introduction of undesirable and/or invasive plant species.
8. Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to sage-grouse habitat. Additionally, develop maps for sage-grouse habitat which spatially display current fuels treatment opportunities for suppression resources.
9. Give priority for implementing specific sage-grouse habitat restoration projects in areas infested with undesirable annual grasses, first to sites which are adjacent to or surrounded by preliminary priority habitat (PPH) or that reestablish continuity between priority habitats. Areas infested with undesirable annual grasses are a second priority for restoration when the sites are not adjacent to PPH, but within two miles of PPH. The third priority for areas infested with undesirable annual grasses habitat restoration projects are sites beyond two miles of PPH. The intent is to focus restoration outward from existing, intact habitat.
10. As funding and logistics permit, restore areas infested with undesirable annual grasses to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.
11. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
12. Remove standing and encroaching trees within at least 100 meters of occupied sage-grouse leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.
13. Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

Oil and Gas Development

1. Require unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to resources, including greater sage-grouse, so long as the unitization plan adequately protects the rights of all parties including the United States, according to the Federal Lease Form, 3100-11, Sections 4 and 6.

2.0 BEST MANAGEMENT PRACTICES

The best management practices (BMPs) shown in this appendix are not intended to encompass all potentially applicable BMPs. Instead, Appendix L was developed to address specific issues brought forward during scoping, alternative development, and comments from the public and cooperating agencies.

2.1 Best Management Practices for Important Cultural Resource and Trail Settings

The BLM should use standard measures to reduce the visual impact of proposed actions within trail settings, where setting is a contributing element of eligibility to the National Register of Historic Places and the setting has integrity. Standard measures should be used as stipulations or conditions of approval attached to authorizations. Standard measures, or BMPs, for reducing the visibility of proposed actions include, but are not limited to:

- Apply a controlled surface use (CSU) stipulation to surface-disturbing activities or surface occupancy.
- Visual Contrast Ratings and, as appropriate, require visual simulations.
- Consolidate project facilities among oil and gas developers; maximize use of existing locations.
- Develop coordinated road and pipeline systems.
- Reduce the amount of surface development by consolidating facilities.
- Use low profile facilities.
- Locate projects to maximize the use of topography and vegetation to screen development.
- Design projects to blend with topographic forms and existing vegetation patterns.
- Use environmental coloration or camouflage techniques to reduce the visual impact of facilities that cannot be completely hidden.
- Use broken linear patterns for road developments to screen roads as much as possible. This can include feathering or blending of the edges of linear rights-of-way to soften the dominant line form.
- For livestock control, use electric fencing with low-visibility fiberglass posts and environmental colors.
- Design linear facilities and seismic lines to run parallel to key observation points rather than perpendicular.
- Position facilities to present less of a visual impact (e.g., a facility with several tanks lined up so that one obscures the visibility of the others).

2.2 Decontamination Procedure for Aquatic Invasive Species

To prevent the spread of aquatic invasive species, the Wyoming Game and Fish Department recommends following the guidelines outlined in the *Aquatic Invasive Species in Wyoming* brochure (link below). Specific BMPs to aquatic invasive species spread prevention include, but are not limited to:

- Decontamination should first occur before arrival at a project site, so aquatic invasive species are not transferred from the last visited area. Decontamination should occur again before leaving a project site, so aquatic invasive species are not transferred to the next site.
 - Decontamination may consist of either:
 1. Drain all water from equipment and compartments, clean equipment of all mud, plants, debris, or animals, and dry equipment for five days in summer (June, July, and August); 18 days in spring (March, April, and May) and fall (September, October, and November); or three days in winter (December, January, and February) when temperatures are at or below freezing,
- or-
2. Use a high pressure (2,500 pounds per square inch [psi]) hot water (140°F) pressure washer to thoroughly wash equipment and flush all compartments that may hold water.

<http://gf.state.wy.us/fish/AIS/index.asp>

2.3 Wyoming Forestry Best Management Practices

The Wyoming Forestry Best Management Practices: Forestry BMPs Water Quality Protection Guidelines (link below) describes BMPs for the management of forest lands. These BMPs are a set of voluntary preferred methods of forestland management designed to protect water quality and forest soils, and are intended for use on non-industrial private, forest industry, state-owned and federal forests.

<http://slf-web.state.wy.us/forestry/bmp2.aspx>

2.4 Reseeding Best Management Practices

The following recommendations may be required depending on the project size and location.

1. Proposed actions where native brush species located on lands proposed to be disturbed are unique and desirable for interim and final reclamation purposes, and the seed supply for these desirable brush species is not commercially available, will be collected from the area and stored using the procedures of the Seeds of Success program. Seedlings or plugs of common dominant species will be propagated, preferably locally, in preparation for use in portions of area to be reclaimed to expedite vegetation recovery.
2. Areas of sustainable plant communities and populations (where they do not conflict with other allowable resource uses) will be identified as sources for native plant material and will be managed under consideration of the need to consistently produce seed stocks of non-commercially available materials for use in reclamation and restoration work (e.g., to support reclamation of abandoned mine lands or well pads or to supplement commercially available seeds in high fire years).

2.5 Engineering Best Management Practices

Road maintenance, construction, and any other related travel and transportation management will be mandated by BLM Manual 9113. BLM Manual 9113 provides for BMPs to be used in evaluating, maintaining, and constructing BLM travel and transportation routes. As stated in Manual 9113, “Bureau roads must be designed to an appropriate standard no higher than necessary to accommodate their intended functions adequately (timber hauling administrative access, public travel); and design, construction, and maintenance activities must be consistent with national policies for safety, aesthetics, protection and preservation of cultural, historic, and scenic values, and accessibility for the physically handicapped. The following is a list of BMPs that are recommended but not binding for road maintenance practices:

1. Design roads to minimize total disturbance, to conform with topography, and to minimize disruption of natural drainage patterns.
2. Base road design criteria and standards on road management objectives such as traffic requirements of the proposed activity and the overall TP, economic analysis, safety requirements, resource objectives, and minimizing damage to the environment.
3. Locate roads on stable terrain such as ridge tops, natural benches, and flatter transitional slopes near ridges, and valley bottoms, and moderate side slopes and away from slumps, slide prone areas, concave slopes, clay beds, and where rock layers dip parallel to the slope. Locate roads on well-drained soil types; avoid wet areas when possible.
4. Construct cut and fill slopes to be approximately 3 horizontal (h):1 vertical (v) or flatter where feasible. Locate roads to minimize heights of cutbanks. Avoid high, steeply sloping cutbanks in highly fractured bedrock.
5. Avoid headwalls, midslope locations on steep, unstable slopes, fragile soils, seeps, old landslides, side slopes in excess of 70 percent, and areas where the geologic bedding planes or weathering surfaces are inclined with the slope. Implement extra mitigation measures when these areas cannot be avoided.
6. Construct roads for surface drainage by using outslopes, crowns, grade changes, drain dips, waterbars and in-sloping to ditches as appropriate.
7. Sloping the road base to the outside edge for surface drainage is normally recommended for local spurs or minor collector roads where low-volume traffic and lower traffic speeds are anticipated. This is also recommended in situations where long intervals between maintenance will occur and where minimum excavation is wanted. Out-sloping is not recommended on steep slopes. Sloping the road base to the inside edge is an acceptable practice on roads with steep side slopes and where the underlying soil formation is very rocky and not subject to appreciable erosion or failure.
8. Crown and ditching is recommended for arterial and collector roads where traffic volume, speed, intensity and user comfort are considerations. Recommended gradients range from 0 to 15 percent where crown and ditching may be applied, as long as adequate drainage away from the road surface and ditch lines is maintained.
9. Minimize excavation, when constructing roads, through the use of balanced earthwork, narrowing road widths, and end hauling where side slopes are between 50 and 70 percent.

10. If possible, construct roads when soils are dry and not frozen. When soils or road surfaces become saturated to a depth of 3 inches, BLM-authorized activities should be limited or ceased unless otherwise approved by the authorized officer.
11. Consider improving inadequately surfaced roads that are to be left open to public traffic during wet weather with gravel or pavement to minimize sediment production and maximize safety.
12. Retain vegetation on cut slopes unless it poses a safety hazard or restricts maintenance activities. Roadside brushing of vegetation should be done in a way that prevents disturbance to root systems and visual intrusions (i.e., avoid using excavators for brushing).
13. Retain adequate vegetation between roads and streams to filter runoff caused by roads.
14. Avoid riparian/wetland areas where feasible; locate in riparian/wetland areas only if the roads do not interfere with the attainment of resource objectives.
15. Minimize the number of unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-through (low water crossings) on stable rock portions of the drainage channel. Harden crossings with the addition of rock and gravel if necessary. Use angular rock if available.
16. Locate roads and limit activities of mechanized equipment within stream channels to minimize their influence on riparian areas. When crossing a stream is necessary, design the approach and crossing perpendicular to the channel, where practicable. Locate the crossing where the channel is well defined, unobstructed, and straight.
17. Avoid placing fill material in floodplain unless the material is large enough to remain in place during flood events.
18. Use drainage dips instead of culverts on level 2 roads where gradients will not present a safety issue. Locate drainage dips in such a way so that water will not accumulate or where outside berms prevent drainage from the roadway. Locate and design drainage dips immediately upgrade of stream crossings and provide buffer areas and catchment basins to prevent sediment from entering the stream.
19. Construct catchment basins, brush windrows, and culverts in a way to minimize sediment transport from road surfaces to stream channels. Install culverts in natural drainage channels in a way to conform with the natural streambed gradients with outlets that discharge onto rocky or hardened protected areas.
20. Design and locate water crossing structures in natural drainage channels to accommodate adequate fish passage, provide for minimum impacts to water quality, and to be capable of handling a 100-year event for runoff and floodwaters.
21. Use culverts that pass, at a minimum, a 25-year storm event or have a minimum diameter of 24 inches for permanent stream crossings and a minimum diameter of 18 inches for road cross drains.
22. Replace undersized culverts and repair or replace damaged culverts and downspouts. Provide energy dissipaters at culvert outlets or drainage dips.
23. Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Culverts should be placed on solid ground to avoid road failures.

24. Proper sized aggregate and riprap should be used during culvert construction. Place riprap at culvert entrance to streamline waterflow and reduce erosion.
25. Establish adapted vegetation on all cuts and fill immediately following road construction and maintenance.
26. Remove berms from the downslope side of roads, consistent with safety considerations.
27. Leave abandoned roads in a condition that provides adequate drainage without further maintenance. Close abandoned roads to traffic. Physically obstruct the road with gates, large berms, trenches, logs, stumps, or rock boulders as necessary to accomplish permanent closure.
28. Abandon and rehabilitate roads that are no longer needed. Leave these roads in a condition that provides adequate drainage. Remove culverts.
29. When plowing snow for winter use of roads, provide breaks in snow berms to allow for road drainage. Avoid plowing snow into streams. Plow snow only on existing roads.
30. Maintenance should be performed to conserve existing surface material, retain the original crowned or out-sloped self-draining cross section, prevent or remove rutting berms (except those designed for slope protection) and other irregularities that retard normal surface runoff. Avoid wasting loose ditch or surface material over the shoulder where it can cause stream sedimentation or weaken slump-prone areas. Avoid undercutting back slopes.
31. Do not disturb the toe of cut slopes while pulling ditches or grading roads. Avoid sidecasting road material into streams.
32. Grade roads only as necessary. Maintain drain dips, waterbars, road crown, in-sloping and out-sloping, as appropriate, during road maintenance.
33. Maintain roads in special areas according to special area guidance. Generally, retain roads within existing disturbed areas and sidecast material away from the special area.
34. When landslides occur, save all soil and material usable for reclamation or stockpile for future reclamation needs. Avoid sidecasting of slide material where it can damage, overload, and saturate embankments, or flow into down-slope drainage courses. Reestablish vegetation as needed in areas where vegetation has been destroyed due to sidecasting.
35. Strip and stockpile topsoil ahead of construction of new roads, if feasible. Reapply soil to cut and fill slopes prior to revegetation.

2.6 Best Management Practices for Livestock Grazing

The purpose of this section is not to attempt to select certain practices and require that only those be used. It is not possible to evaluate all the known practices and make determinations as to which are best. What is best must be determined as a result of a site-specific investigation of the proposed management action. No one management practice is best suited to every site or situation. BMPs must be adaptive and monitored regularly to evaluate effectiveness.

The following sources contain information regarding grazing BMPs. Over time, other sources of information will become available and will be considered in proposed management actions.

The National Range and Pasture Handbook

<http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>

Best Management Practices for Grazing

<http://deq.state.wy.us/wqd/watershed/Downloads/NPS%20Program/92602.pdf>

The following BMPs for livestock grazing management within greater sage-grouse Priority Habitat Management Areas have been identified from Cagney et al. (2010):

Sage-Grouse Habitat Season

- Mating Leaks: Avoid any new sources of disturbance such as range improvements on lek sites.
- Nesting/Early Brood-Rearing: Maintain the Sagebrush/Bunchgrass Plant Community wherever currently present. Manage for high vigor in all plant communities. Avoid repeatedly using cool-season bunchgrasses in the critical growing season and limit utilization to moderate levels to assure that the previous year's standing crop is available for hiding cover.
- Late Brood-Rearing: Avoid repeatedly grazing riparian areas in seasons when temperatures are high.
- Winter: Avoid levels of browsing on sagebrush that would limit sage-grouse access to their food supply and cover. Additionally, avoid heavy use of herbaceous standing crop as this will adversely affect hiding cover the following spring.

Vegetation Community

- Bunchgrass: Consider changes in management that would increase utilization or change the timing of grazing on these sites.
- Sagebrush/Bunchgrass:
 - Retain sufficient residual cover to provide Sage-Grouse hiding cover the following year.
 - Employ planned grazing; periodic small-scale disturbance such as occasional thinning or specialized small ruminant grazing of dense (30+ percent canopy cover) sagebrush will help maintain this desired state.
- Sagebrush/Rhizomatous Grass/Bluegrass:
 - Establish grazing strategies tailored to plant growth requirements of cool-season grasses.
 - Retain sufficient residual cover to provide Sage-Grouse hiding cover the following year.
 - Avoid confining animals on inadequate pasture or supplemental feeding to compensate for a lack of natural forage.
- Sagebrush/Bare Ground: Restrict grazing in conjunction with restoration efforts until the site is ready to sustain grazing.

2.7 Best Management Practices for Visual Resources

The following BMPs would be considered to reduce impacts to all visual resource management classes within the Planning Area:

- Burying of distribution power lines and flow lines in or adjacent to access roads;
- Repeating elements of form, line, color, and texture to blend facilities and access roads with the surrounding landscape;
- Painting all above-ground structures, production equipment, tanks, transformers, and insulators not subject to safety requirements to blend with the natural color of the landscape, using paint that is a non-reflective “standard environmental color” approved by the BLM visual resource management (VRM) specialist:
 - All new equipment brought onto the sites should be painted the same color(s);
 - Semi-gloss paints will stain and fade less than flat paints;
 - Typically, the background is a vegetated background, and seldom a solid background;
 - The selected color should be one or two shades darker than the background; and
 - Consider the predominant season of public use; however, never paint an object to match snow.
- Performing final reclamation recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography;
- Avoiding facility placement on steep slopes, ridge tops, and hilltops;
- Screening facilities from view;
- Following contours of the land to reduce unnecessary disturbance;
- Recontouring and revegetating disturbed areas to blend with the surrounding landscape;
- Reclaiming unnecessary access roads as soon as possible to the original contour;
- Using gravel of a similar color to adjacent dominant soil and vegetation colors for road surfacing;
- Use dust abatement to reduce fugitive dust, as well as minimize the light colors of the routes;
- Avoiding locating pads in areas visible from primary roads;
- Using subsurface or low-profile facilities to prevent protrusion above horizon line when viewed from any primary road;
- Co-locating wells when possible;
- Locating facilities far enough from the cut and fill slopes to facilitate recontouring for interim reclamation;
- Locating wells away from prominent features, such as rock outcrops;
- Completing an annual transportation plan for entire area before beginning construction, and making a layout that will minimize disturbance and visual impact;
- Designing and constructing all new roads to a safe and appropriate standard “no higher than necessary” to accommodate their intended use;
- Locating roads far enough off the back of ridgelines so they aren’t visible from state, county, or BLM roads;
- Using remote monitoring to reduce traffic and road requirements;
- Removing unused equipment, trash, and junk immediately.

2.8 Best Management Practices for Water Resources

BMPs would be appropriate for consideration to mitigate potential water quality impacts when proposed oil and gas activities are within 500 feet of riparian areas and surface waters of the state, Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved by the local governing body, and “High” and “Moderately High” sensitivity aquifers (identified throughout the use of the Wyoming Groundwater Vulnerability Assessment Handbook (as updated over time). BMPs to mitigate impacts to water resources include, but are not limited to, the following:

- Those management approaches for oil and gas activities required by Source Water and Wellhead Protection Plans approved by the local governing body; or
- Use closed loop drilling systems;
- Do not use evaporation ponds in proximity to shallow aquifers;
- Do not use unlined ponds or pits overlying sensitive aquifers;
- Line surface impoundment ponds (evaporation ponds or drilling pits) with synthetic liners and subsequently decommission by removing all contaminants and liner and reclaiming the area;
- Identify water supply wells and implement appropriate protection measures for the affected aquifer(s), as necessary to prevent the introduction of contaminants into the well;
- Require a monitoring plan which includes collection of baseline and periodic water quality data from potentially affected water supply wells, identification of parameters to monitor, reporting results to BLM and well owners, reporting to Wyoming Department of Environmental Quality-Air Quality Division;
- Review the geology of shallow aquifers to determine well construction requirements, which may include cementing to surface and drilling with a fresh water mud system;
- Requirement surface casing and cement to a specific formation or depth to protect aquifers at depth that need protection:
 - Set surface casing below the lowermost underground sources of drinking water and set into a confining (e.g., shale) layer;
 - Set an intermediate string of casing and cement in the event of deep aquifers;
 - Require submittal of a well logging plan and document submittal of plan to ensure proper well construction to protect groundwater. If a lost circulation event occurs during the installation of surface casing, a cement bond log will be required to be run on the surface casing to determine if the cement is adequate and protective.
 - Review the geology of shallow aquifers in proximity to groundwater development activities to determine potential impacts to flow patterns supporting water elements such as fen, wetlands, springs, and seeps, and ponds.

2.9 Best Management Practices for Greater Sage-Grouse Protection

Knowledge of BMPs for greater sage-grouse protections is an evolving field. As research is done on impacts of various kinds of activities, or the absence thereof, on greater sage-grouse, additional protections will be identified. While some of these will be generic enough to be applied planning area-wide, others will require site-specific analysis to determine if they are appropriate for inclusion as a

mandatory COA. This BMP section of this appendix will be supplemented as technology and understanding of greater sage-grouse advance.

3.0 REFERENCES

Cagney, Jim, Bainter, E., B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, J. Williams. 2010. Grazing Influence, Objective Development, and Management in Wyoming's Greater Sage-grouse Habitat. University of Wyoming Cooperative Extension Service. B-1203. 62pp.

Sage-Grouse NTT (National Technical Team). 2011. A Report on National Greater Sage-Grouse Conservation Measures. December.

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix M

Land Disposal and Acquisition

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APPENDIX M

LAND DISPOSAL AND ACQUISITION

1.0 LAND TENURE DESCRIPTIONS

The Bighorn Basin Resource Management Plan (RMP) revision project identifies land retention and disposal as defined in Table M-1 below.

Table M-1. Land Tenure Descriptions

Land Tenure	Description
Retention	Not available for disposal, except by R&PP or only by exchange if land with better resource values could be obtained.
Disposal	Available for disposal. Could include community expansion or to adjust property boundaries or to meet agriculture needs. <i>Example: Sale of land having an existing gas processing plant. A FLPMA sale to a local government or private party. Airport Grant to a local government. Patent of R&PP lease¹. Public lands without resource conflicts within 2 miles of communities.</i>
Other (Disposal for the Westside Irrigation Project)	Pursuant to an act of Congress, convey all right, title, and interest (excluding mineral interest) to the Westside Irrigation District after completion of an environmental analysis under NEPA. Lands within the boundary which are not conveyed under the final decision for this transfer (patent) would be retained in federal ownership and would not be available for other disposal actions. (Public Law 106-485 [November 9, 2000; 114 Stat. 2199])

¹The Planning Area is open to applications for conveyances to qualified applicants under the Recreation and Public Purpose Act or Federal Public Airport Act.

FLPMA Federal Land Policy and Management Act
 NEPA National Environmental Policy Act
 R&PP Recreation and Public Purposes

2.0 LANDS AVAILABLE FOR DISPOSAL

In Table M-2 below, the Bighorn Basin RMP revision project specifically identifies areas available for consideration for disposal by employing the “isolated, difficult or expensive to manage, or needed-for community expansion” disposal criteria in the FLPMA. The areas below were identified during the RMP revision process as complying with FLPMA disposal criteria. Inclusion in this table does not constitute a decision that the land will be disposed. Before taking any disposal action, consideration will be given to each individual tract and will include public involvement. As stated elsewhere in the RMP, the preferred method of disposal or acquisition of lands is through exchanges. Proposals for disposal of lands not identified in this table will be considered if they are consistent with the objectives of the approved RMP and may require a land use plan amendment.

Table M-2. Properties Identified for Disposal in the Planning Area

Field Office	Legal Description and (Acreage)¹
WFO	T. 41N., R. 87W., sec. 1, lot 11 (5.15)
WFO	T. 41N., R. 87W., sec. 7, E2SE (79.64)
WFO	T. 41N., R. 87W., sec. 8, lot 1, S2S2 (172.89)
WFO	T. 41N., R. 87W., sec. 11, lot 5, NENW (64.27)
WFO	T. 41N., R. 87W., sec. 14, lots 5-7, N2SE, NESW (145.19)
WFO	T. 41N., R. 87W., sec. 16, lot 1 (105.28)
WFO	T. 41N., R. 87W., sec. 19, SENE (40.52)
WFO	T. 41N., R. 87W., sec. 20, lot 1, SWNW, N2SW, NWSE (193.59)
WFO	T. 41N., R. 87W., sec. 22, lot 4, SENE (50.00)
WFO	T. 41N., R. 87W., sec. 23, lots 9,10 (70.56)
WFO	T. 41N., R. 88W., sec. 13, NWSE (42.07)
WFO	T. 41N., R. 88W., sec. 15, NENE (39.17)
WFO	T. 41N., R. 88W., sec. 22, lot 5, SESW (58.59)
WFO	T. 41N., R. 88W., sec. 24, W2NE, SENW, N2SW (203.87)
WFO	T. 41N., R. 90W., sec. 2, lot 1, S2NE, NWSE (159.72)
WFO	T. 41N., R. 90W., sec. 13, E2SE (86.41)
WFO	T. 41N., R. 90W., sec. 20, SENE (40.12)
WFO	T. 41N., R. 90W., sec. 21, NWNW (40.18)
WFO	T. 41N., R. 90W., sec. 23, W2SW (82.33)
WFO	T. 41N., R. 90W., sec. 24, N2NE, SENE, SENW, NESW (214.37)
WFO	T. 41N., R. 90W., sec. 26, NENW (40.26)
WFO	T. 41N., R. 90W., sec. 27, NWNE (40.23)
WFO	T. 41N., R. 91W., sec. 9, E2SW, SE (227.20)
WFO	T. 41N., R. 91W., sec. 11, SESW (41.19)
WFO	T. 41N., R. 91W., sec. 17, E2NE, NESE (126.16)
WFO	T. 41N., R. 91W., sec. 18, NESE (42.17)
WFO	T. 41N., R. 91W., sec. 24, SWNW (42.26)
WFO	T. 41N., R. 91W., sec. 29, NESW (40.66)
WFO	T. 41N., R. 91W., sec. 35, SWNW (39.46)
WFO	T. 41N., R. 92W., sec. 9, SWSW (40.32)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 41N., R. 92W., sec. 11, SENW (38.81)
WFO	T. 41N., R. 92W., sec. 15, SESW (38.39)
WFO	T. 41N., R. 92W., sec. 21, SWNE, NWSE (81.19)
WFO	T. 41N., R. 92W., sec. 22, W2NE, E2NW, SW, SESE (247.76)
WFO	T. 41N., R. 92W., sec. 27, NENE, SWNE, S2NW (162.69)
WFO	T. 41N., R. 92W., sec. 28, S2NE, SENW (121.63)
WFO	T. 41N., R. 93W., sec. 3, lots 1,4, SWNW (121.06)
WFO	T. 41N., R. 93W., sec. 4, SENE (39.98)
WFO	T. 41N., R. 93W., sec. 14, W2NW, N2SW (160.51)
WFO	T. 41N., R. 93W., sec. 15, E2NE (80.65)
WFO	T. 41N., R. 93W., sec. 22, S2NW, W2SE, NESW (205.08)
WFO	T. 41N., R. 93W., sec. 23, E2W2 (157.69)
WFO	T. 41N., R. 93W., sec. 34, SESE (38.17)
WFO	T. 41N., R. 93W., sec. 35, S2SW (78.83)
WFO	T. 42N., R. 86W., sec. 20, SWNW (39.29)
WFO	T. 42N., R. 86W., sec. 30, N2NE, W2W2, SENW (269.65)
WFO	T. 42N., R. 86W., sec. 31, N2N2 (155.69)
WFO	T. 42N., R. 86W., sec. 32, S2SW (78.43)
WFO	T. 42N., R. 86W., sec. 22, SESE (39.84)
WFO	T. 42N., R. 86W., sec. 32, W2NW, NWSW (118.79)
WFO	T. 42N., R. 87W., sec. 10, SWNE, W2SE (120.83)
WFO	T. 42N., R. 87W., sec. 15, NWNE (40.27)
WFO	T. 42N., R. 87W., sec. 25, E2SE (84.39)
WFO	T. 42N., R. 87W., sec. 34, NWNE, SWNW, N2S2 (240.69)
WFO	T. 42N., R. 90W., sec. 30, E2NE (80.56)
WFO	T. 42N., R. 91W., sec. 1, NWSE (40.39)
WFO	T. 42N., R. 93W., sec. 15, NWSW (40.07)
WFO	T. 42N., R. 93W., sec. 20, SWSE (40.12)
WFO	T. 42N., R. 93W., sec. 21, NENW (39.98)
WFO	T. 42N., R. 93W., sec. 27, N2SE (79.99)
WFO	T. 42N., R. 93W., sec. 29, SWNE, NESW, NWSE (119.08)
WFO	T. 42N., R. 93W., sec. 28, NE, E2SE (239.12)
WFO	T. 42N., R. 93W., sec. 32, SE (158.22)
WFO	T. 42N., R. 93W., sec. 33, SW, NWSE, S2NW, NWNW (318.48)
WFO	T. 42N., R. 93W., sec. 34, NENW (39.83)
WFO	T. 42N., R. 96W., sec. 1, W2SE, SESE (119.83)
WFO	T. 42N., R. 96W., sec. 11, lot 4, NWNE, S2NE, SE, SESW (362.92)
WFO	T. 42N., R. 96W., sec. 23, lot 1 (43.30)
WFO	T. 43N., R. 86W., sec. 2, lot 4, SW, S2NW (278.99)
WFO	T. 43N., R. 86W., sec. 3, lot 1, SESE (80.58)
WFO	T. 43N., R. 86W., sec. 11, NWNE, NWNW, N2NW, (156.03)
WFO	T. 43N., R. 86W., sec. 12, E2SE (78.20)
WFO	T. 43N., R. 86W., sec. 24, SESE (39.39)

Appendix M – Land Disposal and Acquisition

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 43N., R. 87W., sec. 4, lot 2, SWSE, E2SE (160.29)
WFO	T. 43N., R. 87W., sec. 5, E2SW, W2SE (161.37)
WFO	T. 43N., R. 87W., sec. 7, E2NE (78.86)
WFO	T. 43N., R. 87W., sec. 8, NENW, E2SW (120.60)
WFO	T. 43N., R. 87W., sec. 9, NESE (40.02)
WFO	T. 43N., R. 87W., sec. 17, E2NE, S2SW (161.34)
WFO	T. 43N., R. 87W., sec. 19, NESE (40.20)
WFO	T. 43N., R. 87W., sec. 20, NWNE, E2NW, SWNW, NWSW (201.99)
WFO	T. 43N., R. 87W., sec. 30, E2SE (80.48)
WFO	T. 43N., R. 87W., sec. 31, NENE (39.84)
WFO	T. 43N., R. 90W., sec. 15, E2SE (80.00)
WFO	T. 43N., R. 90W., sec. 26, NW (160.34)
WFO	T. 43N., R. 90W., sec. 30, lots 5,6 (24.02)
WFO	T. 43N., R. 92W., sec. 22, 51D (10.00)
WFO	T. 43N., R. 95W., sec. 26, SWNW (39.58)
WFO	T. 43N., R. 95W., sec. 27, SENE (39.60)
WFO	T. 43N., R. 96W., sec. 26, lot 4, SESW (84.38)
WFO	T. 43N., R. 96W., sec. 35, lots 1-3, NENW (169.43)
WFO	T. 43N., R. 99W., sec. 1, SWNE (40.14)
WFO	T. 43N., R. 99W., sec. 9, S2SW, SWSE (120.04)
WFO	T. 43N., R. 99W., sec. 17, S2SE (79.75)
WFO	T. 43N., R. 99W., sec. 18, SESW (40.60)
WFO	T. 43N., R. 99W., sec. 19, NENW (40.40)
WFO	T. 43N., R. 99W., sec. 20, NENW, N2NE (119.61)
WFO	T. 43N., R. 99W., sec. 21, NWNW (40.05)
WFO	T. 43N., R. 100W., sec. 9, E2NE, SE (239.98)
WFO	T. 43N., R. 100W., sec. 10, W2SW (81.72)
WFO	T. 43N., R. 100W., sec. 11, SWNE (39.92)
WFO	T. 43N., R. 100W., sec. 15, NW, W2NE (237.96)
WFO	T. 43N., R. 100W., sec. 17, N2NE, SENE (119.36)
WFO	T. 43N., R. 100W., sec. 21, S2NW, N2SW, SWNE (202.43)
WFO	T. 43N., R. 100W., sec. 23, SESE (40.54)
WFO	T. 44N., R. 86W., sec. 1, S2SW (79.22)
WFO	T. 44N., R. 86W., sec. 2, SESW, E2SE (117.33)
WFO	T. 44N., R. 86W., sec. 11, N2NE, S2SW, NESE (194.74)
WFO	T. 44N., R. 86W., sec. 12, NW, N2SW, SESW (279.53)
WFO	T. 44N., R. 86W., sec. 14, SWNE, SENW, NWSE, NESW (159.51)
WFO	T. 44N., R. 86W., sec. 15, SESW, W2SE (120.69)
WFO	T. 44N., R. 86W., sec. 22, NENW (40.51)
WFO	T. 44N., R. 86W., sec. 24, E2NE, SENW, SESE (161.89)
WFO	T. 44N., R. 86W., sec. 25, S2SE (82.47)
WFO	T. 44N., R. 86W., sec. 33, SESE (39.65)
WFO	T. 44N., R. 86W., sec. 34, NWSW (40.64)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 44N., R. 86W., sec. 35, E2NE, NESE (122.22)
WFO	T. 44N., R. 87W., sec. 1, lot 3, SENW, SESW (123.63)
WFO	T. 44N., R. 87W., sec. 6, lots 3,4 (73.64)
WFO	T. 44N., R. 87W., sec. 8, SWNW, W2SW, SESW (157.01)
WFO	T. 44N., R. 87W., sec. 17, N2NW (81.06)
WFO	T. 44N., R. 87W., sec. 29, S2NE, SENW, NESW, SE (309.50)
WFO	T. 44N., R. 87W., sec. 32, NE, SENW (191.39)
WFO	T. 44N., R. 87W., sec. 33, S2NW, SENE, W2SE (198.55)
WFO	T. 44N., R. 88W., sec. 1, 38A (39.80)
WFO	T. 44N., R. 94W., sec. 17, W2NW (73.92)
WFO	T. 44N., R. 94W., sec. 18, NENE, S2NE, N2SE, SESE (212.29)
WFO	T. 44N., R. 94W., sec. 19, lots 1,2, SENW (128.03)
WFO	T. 44N., R. 98W., sec. 27, SESE, W2E2, SENW, NESW, NWSW (321.00)
WFO	T. 44N., R. 98W., sec. 22, NESE, S2SE (120.52)
WFO	T. 44N., R. 98W., sec. 26, NESW, S2SW (121.93)
WFO	T. 44N., R. 98W., sec. 34, E2NE, NESE (120.45)
WFO	T. 44N., R. 99W., sec. 22, N2SE (79.40)
WFO	T. 44N., R. 99W., sec. 23, N2SW, NWSE (120.36)
WFO	T. 45N., R. 86W., sec. 1, S2NE, NESE (122.35)
WFO	T. 45N., R. 86W., sec. 4, lot 3, SENW (83.66)
WFO	T. 45N., R. 86W., sec. 31, lots 3,4, E2SW (155.79)
WFO	T. 45N., R. 86W., sec. 32, S2NE (80.54)
WFO	T. 45N., R. 86W., sec. 35, NWNW (38.90)
WFO	T. 45N., R. 97W., sec. 23, S2SE (78.37)
WFO	T. 45N., R. 97W., sec. 28, SENE (39.48)
WFO	T. 45N., R. 97W., sec. 29, SENW, E2SW, SESE (159.23)
WFO	T. 45N., R. 97W., sec. 32, NENW, SWNW (79.97)
WFO	T. 45N., R. 98W., sec. 5, lots 1,2, SWNE (119.07)
WFO	T. 45N., R. 99W., sec. 5, lots 3,4, SWNW (124.14)
WFO	T. 45N., R. 99W., sec. 14, S2NE (78.09)
WFO	T. 45N., R. 100W., sec. 8, SWSW (40.90)
WFO	T. 45N., R. 100W., sec. 9, NESW (39.85)
WFO	T. 45N., R. 100W., sec. 10, SESW (41.01)
WFO	T. 45N., R. 100W., sec. 12, S2NE, NWSE, SW (283.17)
WFO	T. 45N., R. 100W., sec. 13, NWNW, NESE (81.68)
WFO	T. 45N., R. 100W., sec. 14, W2 (321.40)
WFO	T. 45N., R. 100W., sec. 15, N2N2 (160.63)
WFO	T. 45N., R. 100W., sec. 31, SESE (40.12)
WFO	T. 46N., R. 86W., sec. 1, SWNE (39.87)
WFO	T. 46N., R. 86W., sec. 3, lots 5-8* (171.40)
WFO	T. 46N., R. 86W., sec. 4, lots 1,4 (82.62)
WFO	T. 46N., R. 86W., sec. 12, NENW (42.37)
WFO	T. 46N., R. 86W., sec. 13, SWSW (40.94)

Appendix M – Land Disposal and Acquisition

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 46N., R. 86W., sec. 14, SESE (40.72)
WFO	T. 46N., R. 86W., sec. 26, NENE (39.91)
WFO	T. 46N., R. 87W., sec. 1, S2NWNW, SWNW, NESE (102.05)
WFO	T. 46N., R. 87W., sec. 10, N2NE, NENW (120.00)
WFO	T. 46N., R. 87W., sec. 20, NE, N2NW (240.00)
WFO	T. 46N., R. 87W., sec. 21, W2NW, (40.00)
WFO	T. 46N., R. 87W., sec. 25, SESW, SWSE (80.83)
WFO	T. 46N., R. 87W., sec. 29, NESW, NWSE, S2SW (161.20)
WFO	T. 46N., R. 87W., sec. 30, NESW (40.75)
WFO	T. 46N., R. 88W., sec. 2, lots 6-9, SESE (210.79)
WFO	T. 46N., R. 88W., sec. 11, lot 1 (3.73)
WFO	T. 46N., R. 88W., sec. 13, lots 2,3,5,6,7 (103.11)
WFO	T. 46N., R. 88W., sec. 14, lots 1,7,8 (20.29)
WFO	T. 46N., R. 94W., sec. 5, lot 16 (39.71)
WFO	T. 46N., R. 94W., sec. 9, NWSW (40.12)
WFO	T. 46N., R. 98W., sec. 27, S2NW (81.63)
WFO	T. 46N., R. 98W., sec. 32, SWSE (40.65)
WFO	T. 46N., R. 99W., sec. 13, SESE (31.24)
WFO	T. 46N., R. 99W., sec. 22, S2SW (78.44)
WFO	T. 46N., R. 99W., sec. 24, lot 3 (2.50)
WFO	T. 46N., R. 99W., sec. 27, NW, NWSW (199.30)
WFO	T. 46N., R. 99W., sec. 32, NWSE (41.75)
WFO	T. 46N., R. 100W., sec. 3, lots 1-4, SWNW, NWSW (248.09)
WFO	T. 46N., R. 100W., sec. 4, SWNW, SW, NESE (247.34)
WFO	T. 46N., R. 100W., sec. 6, E2SW (81.62)
WFO	T. 46N., R. 100W., sec. 7, lot 2, NENW (80.39)
WFO	T. 46N., R. 100W., sec. 11, NENE, NWSE (82.20)
WFO	T. 46N., R. 100W., sec. 18, SENW, SWNE (81.35)
WFO	T. 46N., R. 100W., sec. 20, NENE (40.69)
WFO	T. 46N., R. 100W., sec. 21, NWNW, SENW (82.25)
WFO	T. 46N., R. 101W., sec. 1, lots 9-11 (50.55)
WFO	T. 46N., R. 101W., sec. 3, lot 11 (20.93)
WFO	T. 46N., R. 101W., sec. 4, lot 9, S2SW (102.36)
WFO	T. 46N., R. 101W., sec. 5, lot 6 (39.36)
WFO	T. 47N., R. 86W., sec. 1, lot 3, SENW, E2SE (160.13)
WFO	T. 47N., R. 86W., sec. 10, NENE (39.84)
WFO	T. 47N., R. 86W., sec. 11, NWNW, SESW, SE (239.64)
WFO	T. 47N., R. 86W., sec. 12, N2NE, SWNE, SW, SESE (319.42)
WFO	T. 47N., R. 86W., sec. 13, lots 1,2, NWNW (124.38)
WFO	T. 47N., R. 86W., sec. 14, NENE (39.86)
WFO	T. 47N., R. 86W., sec. 15, SWSE (40.37)
WFO	T. 47N., R. 86W., sec. 24, SE (159.21)
WFO	T. 47N., R. 86W., sec. 25, E2NE (83.00)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 47N., R. 86W., sec. 25, E2NE, S2NW, W2SW (245.94)
WFO	T. 47N., R. 86W., sec. 34, NENW (40.08)
WFO	T. 47N., R. 88W., sec. 17, Tr. 64 B-D (139.30)
WFO	T. 47N., R. 88W., sec. 21, lots 2,3 (75.37)
WFO	T. 47N., R. 87W., sec. 21, S2SE (77.61)
WFO	T. 47N., R. 87W., sec. 28, SESW (40.68)
WFO	T. 47N., R. 87W., sec. 33, NENW (40.57)
WFO	T. 47N., R. 87W., sec. 34, S2SWNE, S2NW, N2SE (181.57)
WFO	T. 47N., R. 87W., sec. 35, W2SWSW, SESWSW (30.18)
WFO	T. 47N., R. 89W., sec. 3, lots 7,8 (89.42)
WFO	T. 47N., R. 92W., sec. 10, NWSW (40.20)
WFO	T. 47N., R. 92.5W., sec. 13, Tr. 65 B, C (66.15)
WFO	T. 47N., R. 93W., sec. 12, lot 15; Tr. 63 Clot, Dlot; Tr. 65 A (19.27)
WFO	T. 47N., R. 93W., sec. 13, Tr. 63 Clot-Hlot; Tr. 65 D, E; Tr. 65 A, D, E (256.46)
WFO	T. 47N., R. 93W., sec. 23, lots 1-3, S2NE, NWSE (216.75)
WFO	T. 47N., R. 93W., sec. 24, lots 3,4 (59.46)
WFO	T. 47N., R. 93W., sec. 26, lot 1 (27.95)
WFO	T. 47N., R. 100W., sec. 7, lot 4 (41.41)
WFO	T. 47N., R. 100W., sec. 15, S2SW (82.43)
WFO	T. 47N., R. 100W., sec. 17, SWSE (40.64)
WFO	T. 47N., R. 100W., sec. 19, lot 2 (41.29)
WFO	T. 47N., R. 100W., sec. 20, N2NW, SENW, NESW, S2SW, W2E2, (401.68)
WFO	T. 47N., R. 100W., sec. 21, NE, SENW (205.11)
WFO	T. 47N., R. 100W., sec. 22, NW, N2SW (246.40)
WFO	T. 47N., R. 100W., sec. 25, NWNW, NESW (89.04)
WFO	T. 47N., R. 100W., sec. 26, NENW, S2N2, SESE (241.74)
WFO	T. 47N., R. 100W., sec. 27, NENW, S2SW, SESE, (168.84)
WFO	T. 47N., R. 100W., sec. 28, E2SW, W2SE, SESE (207.01)
WFO	T. 47N., R. 100W., sec. 29, NW, NWSW (196.84)
WFO	T. 47N., R. 100W., sec. 30, lots 2-4, SESW (159.19)
WFO	T. 47N., R. 100W., sec. 31, lot 1, NENW, S2NE (160.18)
WFO	T. 47N., R. 100W., sec. 32, E2, E2NW, SWNW, SW (691.55)
WFO	T. 47N., R. 100W., sec. 33, NW, N2NE, SWNE, N2SW (372.84)
WFO	T. 47N., R. 100W., sec. 34, S2S2, N2NW (248.66)
WFO	T. 47N., R. 100W., sec. 35, E2SE, SWSW (124.57)
WFO	T. 47N., R. 101W., sec. 1, lots 3,4 (79.81)
WFO	T. 47N., R. 101W., sec. 2, lot 1 (39.75)
WFO	T. 47N., R. 101W., sec. 11, NENE (40.16)
WFO	T. 47N., R. 101W., sec. 24, S2SW (80.54)
WFO	T. 47N., R. 101W., sec. 25, SWNW, NWSW (78.34)
WFO	T. 47N., R. 101W., sec. 35, SWNE (40.28)
WFO	T. 48N., R. 88W., sec. 29, lot 2 (20.98)
WFO	T. 48N., R. 89W., sec. 18, N2SWNE, NENW, N2SENW (80.00)

Appendix M – Land Disposal and Acquisition

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 48N., R. 89W., sec. 25, N2N2 (76.77)
WFO	T. 48N., R. 89W., sec. 26, N2N2NE (38.37)
WFO	T. 48N., R. 90W., sec. 2, Tr. 91-93 (109.94)
WFO	T. 48N., R. 90W., sec. 3, lots 5-8 (119.69)
WFO	T. 48N., R. 90W., sec. 4, lots 6-8, T49-51; T61-63 (235.24)
WFO	T. 48N., R. 90W., sec. 5, Tr. 51 (33.97)
WFO	T. 48N., R. 90W., sec. 10, lot 1 (25.39)
WFO	T. 48N., R. 90W., sec. 11, lots 1-6; Tr. 103, 104 (225.38)
WFO	T. 48N., R. 90W., sec. 13, lots 3,6 (51.17)
WFO	T. 48N., R. 99W., sec. 3, All (678.78)
WFO	T. 48N., R. 99W., sec. 4, lots 5-8 (62.03)
WFO	T. 48N., R. 99W., sec. 5, lots 5-8 (58.53)
WFO	T. 48N., R. 99W., sec. 6, lots 8-11, SESE (95.89)
WFO	T. 48N., R. 99W., sec. 7, lot 4, SESW, SE (246.73)
WFO	T. 48N., R. 99W., sec. 10, lots 1-3, lot 5, NWNE, N2NW, SWNW, SWSW (310.03)
WFO	T. 48N., R. 99W., sec. 11, lot 2 (35.31)
WFO	T. 48N., R. 99W., sec. 17, N2NE, SENE, NESE (163.55)
WFO	T. 48N., R. 99W., sec. 18, lot 1, NENW (82.97)
WFO	T. 48N., R. 89W., sec. 21, SW1/4SW1/4NW1/4 (10)
WFO	T. 48N., R. 100W., sec. 1, lots 5-8 (72.52)
WFO	T. 48N., R. 100W., sec. 3, lot 1, SENE, S2SE (161.86)
WFO	T. 48N., R. 100W., sec. 10, E2NE, NWNE (125.93)
WFO	T. 48N., R. 100W., sec. 11, NW, N2SW, S2SE, SESW (379.47)
WFO	T. 48N., R. 100W., sec. 12, E2, S2SW (400.00)
WFO	T. 48N., R. 100W., sec. 13, NW, N2NE, NESW (293.44)
WFO	T. 48N., R. 100W., sec. 14, NE (167.56)
WFO	T. 48N., R. 100W., sec. 21, S2NE, NWSE, NESW (164.49)
WFO	T. 48N., R. 100W., sec. 22, NESW (40.75)
WFO	T. 48N., R. 100W., sec. 23, N2NW (82.12)
WFO	T. 48N., R. 101W., sec. 35, E2W2 (163.85)
WFO	T. 49N., R. 90W., sec. 4, lots 9,15 (40.19)
WFO	T. 49N., R. 90W., sec. 8, Tr. 61 B, 61 I (76.18)
WFO	T. 49N., R. 90W., sec. 19, lot 6 (29.50)
WFO	T. 49N., R. 90W., sec. 29, lots 1,2, E2SW, SWNW (185.15)
WFO	T. 49N., R. 90W., sec. 30, lots 5,6 (47.48)
WFO	T. 49N., R. 90W., sec. 32, lots 1,2 (63.83)
WFO	T. 49N., R. 90W., sec. 33, lots 2,4,5 (128.50)
WFO	T. 49N., R. 98W., sec. 19, E2E2, SWSE (199.89)
WFO	T. 49N., R. 98W., sec. 29, NENE, N2NW (120.00)
WFO	T. 49N., R. 98W., sec. 20, SW (160.18)
WFO	T. 49N., R. 98W., sec. 30, N2NE (79.95)
WFO	T. 49N., R. 99W., sec. 19, lot 8 (39.60)
WFO	T. 49N., R. 99W., sec. 30, lots 5,6, E2NW (159.03)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
WFO	T. 49N., R. 100W., sec. 24, S2SE (77.87)
WFO	T. 49N., R. 100W., sec. 25, S2 (314.23)
WFO	T. 49N., R. 100W., sec. 36, lots 1-4 (110.68)
WFO	T. 49N., R. 100W., sec. 35, lots 1,5, NWNE (102.37)
CYFO	T. 49N., R. 100W., sec. 7, lot 4, SESE (78.88)
CYFO	T. 49N., R. 100W., sec. 18, lots 1,2 (77.84)
CYFO	T. 49N., R. 100W., sec. 36, lots 1,2 (54.93)
CYFO	T. 49N., R. 101W., sec. 23, lots 1,2,5, NENW, W2NW (159.58)
CYFO	T. 49N., R. 101W., sec. 34, lot 1 (36.63)
CYFO	T. 49N., R. 101W., sec. 36, lots 1,2 (64.91)
WFO	T. 50N., R. 93W., sec. 9, lot 6 (39.16)
WFO	T. 50N., R. 98W., sec. 7, E2SW, S2SE (160.0)
WFO	T. 50N., R. 99W., sec. 15, lot 31 (9.56)
WFO	T. 51N., R. 89W., sec. 6, E2 (312.03)
WFO	T. 51N., R. 94W., sec. 17, lots 1-6, NESW, SWSW (288.32)
WFO	T. 51N., R. 94W., sec. 18, lots 7,8 (72.17)
WFO	T. 51N., R. 95W., sec. 27, lot 24 (36.51)
WFO	T. 51N., R. 95W., sec. 28, lots 7,12,13,15,20,21,23,27,28, SWNE, NWSE (217.23)
WFO	T. 51N., R. 95W., sec. 29, E2NENE, E2NW, W2NE, S2NWNENE, SWNENE (195.00)
WFO	T. 51N., R. 96W., sec. 21, lot 33,41,42 (38.07)
WFO	T. 51N., R. 97W., sec. 2, lots 42,43 (8.02)
WFO	T. 51N., R. 97W., sec. 3, lots 33-36 (10.03)
WFO	T. 51N., R. 97W., sec. 9, lots 10,13,14,17,18,19,20; Tr. 47 D, E2SE (242.21)
WFO	T. 51N., R. 97W., sec. 10, lot 2, NE, NENW, S2NW, N2SE (356.20)
WFO	T. 51N., R. 97W., sec. 11, S2SW, N2NW (80.00)
WFO	T. 51N., R. 97W., sec. 14, lots 4,5 (72.89)
WFO	T. 52N., R. 88W., sec. 9, SWNW (39.94)
WFO	T. 52N., R. 88W., sec. 29, SESE (40.06)
WFO	T. 52N., R. 88W., sec. 33, NWSW (40.03)
WFO	T. 52N., R. 88W., sec. 32, N2NE, SWNE, N2SE (200.58)
WFO	T. 52N., R. 89W., sec. 30, SW (160.00)
WFO	T. 52N., R. 89W., sec. 31, N2SE (81.28)
WFO	T. 52N., R. 92W., sec. 1, lot 5; Tr. 66 A-D (184.66)
WFO	T. 52N., R. 93W., sec. 1, lot 2 (18.91)
WFO	T. 52N., R. 93W., sec. 31, W2NE, E2NW, NESW, NWSE (224.54)
WFO	T. 53N., R. 91W., sec. 31, SESE (40.00)
WFO	T. 53N., R. 91W., sec. 32, SWSW (40.00)
WFO	T. 53N., R. 91W., sec. 35, E2NE (80.00)
CYFO	T. 47N., R. 101W., sec. 6, lot 5 (37.64)
CYFO	T. 48N., R. 100W., sec. 7, lot 3, NE1/4 SW1/4, NW1/4 SE1/4 (44.42)
CYFO	T. 48N., R. 101W., sec. 3, E1/2 SE1/4
CYFO	T. 48N., R. 101W., sec. 9, N1/2 SW1/4, S1/2 SE1/4
CYFO	T. 48N., R. 101W., sec. 10, NE1/4 NE1/4

Appendix M – Land Disposal and Acquisition

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
CYFO	T. 48N., R. 101W., sec. 11, SW1/4 NE1/4, NW1/4, N1/2 SW1/4, NW1/4 SE1/4
CYFO	T. 48N., R. 101W., sec. 12, N1/2 SE1/4
CYFO	T. 48N., R. 101W., sec. 15, NW1/4
CYFO	T. 49N., R. 101W., sec. 6, lot 9 (14.64)
CYFO	T. 49N., R. 101W., sec. 7, lot 2 (18.83)
CYFO	T. 49N., R. 101W., sec. 8, lot 11 (20.62)
CYFO	T. 49N., R. 101W., sec. 13, lot 3 (24.96)
CYFO	T. 49N., R. 101W., sec. 14, lot 7 (52.09)
CYFO	T. 49N., R. 101W., sec. 18, lot 1 (25.39)
CYFO	T. 49N., R. 102W., sec. 1, lot 5 (42.85)
CYFO	T. 49N., R. 102W., sec. 12, lot 1 (26.12)
CYFO	T. 50N., R. 99W., sec. 2, lots 34 (9.87), 35 (1.55)
CYFO	T. 50N., R. 99W., sec. 10, lot 38 (0.87)
CYFO	T. 50N., R. 99W., sec. 11, lots 35 (4.39), 37 (4.66), 39 (3.61)
CYFO	T. 50N., R. 99W., sec. 15, lots 6 (8.33), 24 (26.18), 25 (8.00)
CYFO	T. 50N., R. 99W., sec. 17, NE1/4 SW1/4
CYFO	T. 50N., R. 99W., Tr. 84 (4.2), formerly part of sec. 11
CYFO	T. 50N., R. 101W., sec. 18, lot 1, NE1/4 NW1/4, SE1/4 SW1/4, SE1/4 (23.66)
CYFO	T. 50N., R. 102W., sec. 7, lot 10 (0.36)
CYFO	T. 50N., R. 102W., sec. 20, NE1/4 SE1/4
CYFO	T. 50N., R. 104W., sec. 5, lots 6 (2.65), 36 (2.50)
CYFO	T. 50N., R. 104W., sec. 6, lots 31 (4.82), 34 (1.82)
CYFO	T. 50N., R. 104W., sec. 7, lots 16 (24.62), 17 (40.00), 20 (34.23), 25 (5.28), 26 (3.27)
CYFO	T. 50N., R. 104W., sec. 8, lot 28 (1.74)
CYFO	T. 50N., R. 104W., sec. 17, lot 7 (2.90)
CYFO	T. 50N., R. 104W., sec. 22, lot 5 (1.55)
CYFO	T. 50N., R. 105W., sec. 1, SW1/4 SE1/4
CYFO	T. 50N., R. 105W., sec. 12, NW1/4 NE1/4
CYFO	T. 51N., R. 97W., sec. 7, lot 42 (18.92)
CYFO	T. 51N., R. 98W., sec. 12, lot 27 (26.27)
CYFO	T. 51N., R. 98W., sec. 20, lot 22 (26.15)
CYFO	T. 51N., R. 98W., sec. 21, SE1/4 NW1/4 SW1/4
CYFO	T. 51N., R. 98W., Tr. 66A, (41.58) formerly in sec. 20
CYFO	T. 51N., R. 98W., Tr. 67, (40.22)
CYFO	T. 51N., R. 98W., Tr. 62l, (40.59) formerly in sec. 12
CYFO	T. 51N., R. 98W., Tr. 91, (40.00) formerly in sec. 14
CYFO	T. 51N., R. 101W., sec. 3, NW1/4 SW1/4
CYFO	T. 51N., R. 101W., sec. 4, lots 1 (45.85), 10 (45.17), 11 (45.19)
CYFO	T. 51N., R. 101W., sec. 9, lot 8 (6.37)
CYFO	T. 51N., R. 101W., sec.11, W1/2 NW1/4 NE1/4 SW1/4, NW1/4 SW1/4 NE1/4 SW1/4, NE1/4 NW1/4 SW1/4, N1/2 SE1/4 NW1/4 SW1/4
CYFO	T. 51N., R. 101W., Tr. 79 (39.98) formerly in sec. 4
CYFO	T. 51N., R. 102W., sec. 23, SW1/4 SE1/4

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
CYFO	T. 51N., R. 102W., sec. 26, W1/2 NE1/4
CYFO	T. 51N., R. 103W., sec. 19, lots 8 (11.29), 10 (5.85)
CYFO	T. 51N., R. 103W., sec. 31, lot 1 (6.48)
CYFO	T. 51N., R. 104W., sec. 24, lot 40 (15.06)
CYFO	T. 51N., R. 104W., sec. 25, lot 23 (1.08)
CYFO	T. 51N., R. 104W., sec. 28, NW1/4 NE1/4, NE1/4 NW1/4
CYFO	T. 51N., R. 104W., sec. 31, lot 30 (4.79)
CYFO	T. 51N., R. 104W., sec. 33, lots 2 (2.09), 12 (0.87), 18 (23.23), 19 (36.84), 23 (2.13), 36 (2.42)
CYFO	T. 51N., R. 104W., sec. 34, lots 2 (0.56), 3 (0.42), 6 (0.01)
CYFO	T. 51N., R. 104W., sec. 35, lots 6 (0.58), 7 (0.62)
CYFO	T. 51N., R. 104W., Tr. 76 (41.83) formerly in sec. 24
CYFO	T. 52N., R. 93W., sec. 7, lots 1 (34.12), 2 (34.21), 4 (26.71), 5 (34.29), 6 (34.38), 7 (25.52), W1/2 E1/2, E1/2 W1/2
CYFO	T. 52N., R. 93W., sec. 17, lots 11 (4.13), 12 (5.06)
CYFO	T. 52N., R. 93W., sec. 18, lots 1 (23.00), 2 (34.45), 3 (34.50), 4 (34.56), 5 (34.61), NW1/4 NE1/4, SE1/4 NE1/4, NE1/4 NW1/4, SW1/4 SE1/4 SW1/4, W1/2 SE1/4 SE1/4
CYFO	T. 52N., R. 93W., sec. 19, lots 1 (26.25), 2 (29.60), 3 (34.60), 4 (34.50), NE1/4 NW1/4
CYFO	T. 52N., R. 94W., sec. 7, lots 49G (40.29), 49H (40.29)
CYFO	T. 52N., R. 94W., sec. 8, 47E (40.95), 47F (40.96)
CYFO	T. 52N., R. 94W., sec. 12, E1/2 E1/2
CYFO	T. 52N., R. 94W., sec. 13, E1/2 E1/2
CYFO	T. 52N., R. 94W., sec. 24, lot 1, NE1/4 NE1/4 (27.33)
CYFO	T. 52N., R. 95W., Tr. 43P (44.62) formerly lot 15
CYFO	T. 52N., R. 96W., sec. 20, lots 1 (0.53), 9 (0.26), 33 (29.23), 34 (10.27)
CYFO	T. 52N., R. 96W., sec. 22, lots 25 (26.88), 5 (0.47)
CYFO	T. 52N., R. 97W., sec. 24, lots 24 (5.11), 25 (37.79), 34 (37.98)
CYFO	T. 52N., R. 97W., sec. 26, lot 34 (36.49)
CYFO	T. 52N., R. 97W., sec. 27, lot 29 (36.97)
CYFO	T. 52N., R. 101W., sec. 1, lot 5 (26.74)
CYFO	T. 52N., R. 101W., sec. 2, lot 5 (21.74)
CYFO	T. 52N., R. 101W., sec. 6, lots 2 (34.90), 3 (40.16), 4 (36.91)
CYFO	T. 52N., R. 101W., sec. 7, lots 2 (34.91), 3 (34.95), W1/2 NE1/4, SE1/4 NE1/4, E1/2 NW1/4, E1/2 SW1/4, SE1/4 SE1/4
CYFO	T. 52N., R. 101W., sec. 8, lot 7, SE1/4 NW1/4 SW1/4, S1/2 SE1/4 NW1/4 SW1/4, SW1/4 SW1/4, S1/2 SE1/4 SW1/4 (20.24)
CYFO	T. 52N., R. 101W., sec.17, lots 1 (53.02), 2 (53.15), 3 (53.29), 4 (32.71), 5 (29.20)
CYFO	T. 52N., R. 101W., sec. 18, E1/2 NE1/4, NE1/4 SE1/4
CYFO	T. 52N., R. 101W., sec. 20, W1/2 W1/2
CYFO	T. 52N., R. 101W., sec. 33, lot 4 (43.66)
CYFO	T. 52N., R. 101W., Tr. 41 S (24.81), 41 T (24.83)
CYFO	T. 52N., R. 102W., sec. 1, S1/2 NE1/4 SE1/4, SE1/4 SE1/4
CYFO	T. 52N., R. 102W., sec. 11, lots 1 (34.45), 2 (34.52), N1/2 NW1/4 SW1/4
CYFO	T. 52N., R. 102W., sec. 12, lot 4, E1/2 NE1/4 (51.36)
CYFO	T. 52N., R. 103W., sec. 5, lots 1 (55.57), 17 (42.86)

Appendix M – Land Disposal and Acquisition

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
CYFO	T. 52N., R. 104W., sec. 16, lots 21 (3.10), 22 (11.63), 27 (14.38)
CYFO	T. 52N., R. 104W., sec. 30, lots 9 (3.59), 14 (3.52), 26 (3.44), 32 (2.34)
CYFO	T. 53N., R. 90W., sec. 17, lot 4 (33.27)
CYFO	T. 53N., R. 90W., sec. 19, lot 2 (38.74)
CYFO	T. 53N., R. 91W., sec. 24, SE1/4 SW1/4
CYFO	T. 53N., R. 91W., sec. 26, NW1/4 NE1/4
CYFO	T. 53N., R. 93W., sec. 19, lots 3 (39.30), 4 (39.34), 7 (39.38), 8 (39.42), SE1/4 NW1/4, E1/2 SW1/4, W1/2 SE1/4, SE1/4 SE1/4
CYFO	T. 53N., R. 93W., sec. 29, W1/2 NW1/4 NW1/4, W1/2 SW1/4 NW1/4, SE1/4 SW1/4 NW1/4, N1/2 SW1/4, N1/2 S1/2 SW1/4
CYFO	T. 53N., R. 93W., sec. 30, all
CYFO	T. 53N., R. 93W., sec. 31, lots 1 (39.65), 2 (39.75), 3 (39.85), 4 (39.95), NE1/4, E1/2 W1/2, N1/2 SE1/4
CYFO	T. 53N., R. 93W., sec. 32, lots 3 (33.88), 4 (33.33), N1/2 NW1/4, N1/2 SE1/4 NW1/4, E1/2 SW1/4 SE1/4 NW1/4, SE1/4 SE1/4 NW1/4
CYFO	T. 53N., R. 94W., sec. 13, S1/2 NE1/4 SW1/4, N1/2 SE1/4 SW1/4, SE1/4 SE1/4 SW1/4, W1/2 SE1/4, SE1/4 SE1/4
CYFO	T. 53N., R. 94W., sec. 24, N1/2 NE1/4, N1/2 SW1/4 NE1/4, SE1/4 SW1/4 NE1/4, SE1/4 NE1/4, N1/2 NE1/4 SE1/4, SE1/4 NE1/4 SE1/4, NE1/4 SE1/4 SE1/4
CYFO	T. 53N., R. 100W., sec. 30, lot 8 (18.92)
CYFO	T. 53N., R. 100W., sec. 31, lots 5 (50.64), 6 (50.65), 7 (50.65), 8 (50.66)
CYFO	T. 53N., R. 100W., Trs. 41 E (40.00), F (40.00), K (40.00), L (40.00), M (15.17), N (15.19)
CYFO	T. 53N., R. 101W., sec. 21, lot 3 (7.05)
CYFO	T. 53N., R. 101W., sec. 25, lots 5 (14.98), 6 (29.33), 7 (21.59), 8 (14.93)
CYFO	T. 53N., R. 101W., sec. 36, lots 1 (18.27), 2 (35.98), 3 (29.34), 4 (18.01), 5 (35.89), 6 (29.34)
CYFO	T. 53N., R. 101W., Tr. 701 (40.53)
CYFO (Minerals only, Cody Industrial Park)	T. 53N., R. 101W., sec. 20, S1/2 SE1/4 SW1/4 SE1/4
CYFO (Minerals only, Cody Industrial Park)	T. 53N., R. 101W., sec. 29, lots 7 (9.91), 9 (38.24), 10 (31.29), 12 (5.78), 13 (8.64), 14 (0.04), 15 (9.73), S1/2 NE1/4 NE1/4 NW1/4, SW1/4 NE1/4 NW1/4, SE1/4 NW1/4 NW1/4, NW1/4 SW1/4 NW1/4
CYFO (Minerals only, Cody Industrial Park)	T. 53N., R. 101W., sec. 30, lots 31 (16.95), 32 (16.30)
CYFO (Minerals only, Cody Industrial Park)	Tr. 101 (13.24)
CYFO	T. 53N., R. 102W., sec. 4, lot 8 (39.56)
CYFO	T. 53N., R. 102W., sec. 5, lots 5 (1.63), 6 (31.43), NE1/4 SE1/4
CYFO	T. 53N., R. 102W., sec. 7, lots 10 (29.40), 11 (37.25), 12 (19.76), SE1/4 SE1/4
CYFO	T. 53N., R. 102W., sec. 8, SW1/4 SW1/4
CYFO	T. 53N., R. 102W., sec. 36, lots 6 (28.24), 9 (6.92), 10 (20.38)
CYFO	T. 53N., R. 103W., sec. 12, lot 10 (9.71)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
CYFO	T. 53N., R. 103W., sec. 33, SE1/4 NW1/4
CYFO	T. 54N., R. 91W., sec. 4, lots 6 (37.10), 7 (40.47)
CYFO	T. 54N., R. 91W., sec. 28, lot 3 (39.62)
CYFO	T. 54N., R. 91W., sec. 29, lot 8 (40.04)
CYFO	T. 54N., R. 91W., sec. 32, lots 6 (38.88), 7 (39.98), 9 (38.76)
CYFO	T. 54N., R. 102W., sec. 32, lots 5 (8.04), 6 (1.15)
CYFO	T. 55N., R. 94W., sec. 22, SW1/4 NE1/4
CYFO	T. 55N., R. 94W., sec. 28, lot 4 (48.40)
CYFO	T. 55N., R. 97W., sec. 2, lots 2 (37.32), 4 (37.41), 6 (35.84), 40B (40.33)
CYFO	T. 55N., R. 97W., sec. 9, lots 1 (46.95), 2 (52.87), 5 (36.10)
CYFO	T. 55N., R. 97W., sec. 10, lots 2 (42.92), 6 (35.90), N1/2 SW1/4
CYFO	T. 55N., R. 100W., sec. 10, lot 4 (1.31), sec. 11, lot 89G, (5.33)
CYFO	T. 55N., R. 103W., sec. 4, lots 9 (19.91), 10 (20.04), 13 (20.16), SW1/4 SW1/4
CYFO	T. 55N., R. 103W., sec. 5, SW1/4 SW1/4
CYFO	T. 55N., R. 103W., sec. 8, SW1/4 NE1/4
CYFO	T. 55N., R. 103W., sec. 9, SE1/4 SE1/4
CYFO	T. 55N., R. 103W., sec. 10, S1/2 S1/2
CYFO	T. 55N., R. 103W., sec. 11, SW1/4 SW1/4
CYFO	T. 55N., R. 103W., sec. 14, SW1/4 NW1/4, NW1/4 SW1/4
CYFO	T. 55N., R. 103W., sec. 15, NW1/4 NE1/4, NW1/4 SE1/4
CYFO	T. 55N., R. 103W., sec. 17, SE1/4 NW1/4
CYFO	T. 56N., R. 95W., sec. 5, lot 1 (25.63)
CYFO	T. 56N., R. 95W., sec. 6, lot 1 (54.04)
CYFO	T. 56N., R. 95W., sec. 17, lot 9 (16.77)
CYFO	T. 56N., R. 95W., sec. 18, lot 7 (11.65)
CYFO	T. 56N., R. 95W., sec. 20, W1/2 NE1/4 NW1/4, NE1/4 NW1/4 NW1/4
CYFO	T. 56N., R. 95W., Tr. 116A (43.14), Tr. 116B (43.27) formerly in sec. 18
CYFO	T. 56N., R. 96W., sec. 2, lots 1 (42.90), 2 (43.18), 3 (40.0), 4 (40.0), 5 (40.0), 6 (40.0), 9 (40.0), 10 (40.0), N1/2 SW1/4
CYFO	T. 56N., R. 96W., sec. 3, lots 10 (8.65), 86A (41.50), 86B (41.47), 86C (41.43), 86G (41.50), 86H (40.00)
CYFO	T. 56N., R. 96W., sec. 30, lots 6 (9.46), 9 (1.39), 10 (2.33)
CYFO	T. 56N., R. 96W., sec. 35, lots 1 (20.89), 2 (47.27), 3 (25.06)
CYFO	T. 56N., R. 97W., sec. 19, lots 2 (37.15), 3 (37.19), SE1/4 NW1/4, NE1/4 SW1/4
CYFO	T. 56N., R. 97W., sec. 20, lot 2, lot 65c (81.89)
CYFO	T. 56N., R. 97W., sec. 21, NW1/4 NE1/4, SE1/4 NE1/4
CYFO	T. 56N., R. 97W., sec. 22, lot 4, NW1/4 SW1/4, W2W2SWNW (45.05)
CYFO	T. 56N., R. 97W., sec. 25, lot 1 (3.00)
CYFO	T. 56N., R. 97W., sec. 27, lot 54E (40.00)
CYFO	T. 56N., R. 99W., sec. 17, lot 6 (25.86)
CYFO	T. 57N., R. 95W., sec. 27, S1/2 SW1/4, W1/2 SW1/4 SE1/4, SE1/4 SW1/4 SE1/4, SW1/4 SE1/4 SE1/4, W1/2 SE1/4 SE1/4 SE1/4
CYFO	T. 57N., R. 95W., sec. 28, E1/2 SE1/4 SE1/4
CYFO	T. 57N., R. 97W., sec. 29, all of block 75 of the Deaver Townsite, lots 1,9,10,11,12,13,14 of block 76 of the Deaver Townsite (61.19)

Table M-2. Properties Identified for Disposal in the Planning Area (Continued)

Field Office	Legal Description and (Acreage) ¹
CYFO	T. 57N., R. 95W., sec. 33, S1/2 NW1/4, N1/2 SW1/4, SW1/4 SW1/4, NW1/4 SE1/4
CYFO	T. 57N., R. 95W., sec. 33, E1/2 E1/2 NE1/4, E1/2 E1/2 NE1/4 SE1/4
CYFO	T. 57N., R. 95W., sec. 34, W1/2 E1/2 NE1/4 NE1/4, W1/2 NE1/4 NE1/4, W1/2 NE1/4, NW1/4
CYFO	T. 57N., R. 96W., sec. 28, N1/2 NW1/4
CYFO	T. 57N., R. 96W., sec. 35, W1/2 SW1/4, SE1/4 SE1/4
CYFO	T. 58N., R. 99W., sec. 29, S1/2 NW1/4, N1/2 SW1/4
CYFO	T. 57N., R. 101W., sec. 10, NE1/4 NE1/4 SW1/4 NE1/4 (2.5)

¹Some legal descriptions encompass more land than is intended for possible disposal, resulting in smaller map polygons than the area listed in the legal description.

Note: The public parcel in T. 55N., R. 98W., sec. 16 and 17 is no longer in federal ownership; it was conveyed by the BLM to the Powell Recreation District in February 2014 while the Proposed RMP and Final EIS was being prepared. As the RMP is finalized, the associated acreages will be updated accordingly.

CYFO Bureau of Land Management Cody Field Office
 E East
 N North
 R Range
 S South
 Sec. Section
 T Township
 Tr. Tract
 W West
 WFO Bureau of Land Management Worland Field Office

3.0 CRITERIA FOR RETENTION, ACQUISITION, OR DISPOSAL

The FLPMA provides for retention of the public lands in federal ownership and management by the BLM for multiple uses. The FLPMA and other federal laws, executive orders, and policies suggest criteria to use when categorizing public lands for retention or disposal, and for identifying acquisition priorities. Disposal by sale, exchange, airport grant, or Recreation and Public Purpose (R&PP) patent remains an option if such an action would serve an important objective and have a public benefit.

Site-specific environmental review and documentation in conformance with NEPA, including completion of categorical exclusions and plan conformance determinations where appropriate, will be accomplished for each proposed land program action. Interdisciplinary impact analysis will be tiered within the framework of this and other applicable environmental documents. Many of the foregoing provisions of this appendix are based upon current policy. Future shifts in policy and national priorities may result in modifications of these provisions and changes in addressing priority lands actions. Land tenure adjustments must serve the public interest.

The following is suggested criteria to consider in land tenure adjustment proposals, but it is not considered all-inclusive. These criteria are meant to guide and streamline consideration of land tenure adjustment proposals.

3.1 Criteria for Retention or Acquisition

Acquisition of lands will be considered, if in compliance with the RMP, to facilitate various resource management objectives and to acquire lands with high resource values including, but not limited to:

- Important, crucial, or critical habitat for fish, wildlife, and plants;
- Riparian areas, wetlands, and designated floodplains;
- Parcels that provide access to larger blocks of public land;
- Lands with special designation or management emphasis;
- Important cultural resources;
- Recreation opportunities and benefits;
- Mineral development potential;
- VRM Class I and Class II areas;
- The preferred method for acquisition will be through exchange;
- Acquisitions, including easements, can be completed through exchange, Land and Water Conservation Funds (LWCF) purchases, or donations; and
- Acquisitions of private lands will be pursued only with willing landowners. The following geographic areas are identified as priority areas for acquisition:
 - Rattlesnake Mountain;
 - Carter Mountain;
 - Cedar Mountain (Cody);
 - Little Mountain;
 - Sheep Mountain (west of Buffalo Bill Reservoir);
 - McCullough Peaks (includes Wild Horse Management area);
 - Clarks Fork River; and
 - Bighorn River.

3.1.1 Criteria for Disposal

Current policy prescribes general priorities for land disposal actions that include:

- BLM and other federal jurisdictional transfers;
- Transfers to state and local agencies (e.g., R&PP patents, airport patents);
- State exchanges;
- Private exchanges;
- Sales;
- Desert land entries;
- Parcels difficult or costly to administer;
- Parcels of special importance to local communities; and
- Parcels more suitable for management by another federal or state agency.

Transfer to other public agencies will also be considered if improved management efficiency would result. Prior to any disposal, a site-specific analysis must determine that the lands considered contain

no significant wildlife, recreation, or other resource values the loss of which could not be mitigated; have no overriding public values; and represent no substantial public investments. Exchange will be the preferred method for disposals.

3.1.1.1 Exchanges

Land exchanges that serve the national interest and are beneficial to BLM programs or that support the programs of other agencies (reference Sections 102, 205, and 206 of FLPMA) will be promoted.

- Transfer of leasable minerals out of federal ownership should be avoided except when non-federal leasable minerals are to be received in return. It is preferable to trade both surface and subsurface (mineral) estates.
- Exchanges should involve lands similar in character and/or value. Lands acquired by the BLM in an exchange will generally be retained under federal ownership or control, unless there is a compelling reason for doing so.
- Exchanges should not be made solely for the purpose of blocking up federal land ownership.

Sales

Public land sale proposals are the result of a BLM initiative or in response to expressed public interest or need. Lands to be considered for disposal, at a minimum, must meet the following criteria as outlined in Section 203 of the FLPMA:

- They are difficult and uneconomical to manage and are not suitable for management by another federal department or agency;
- Disposal would serve important public objectives, including but not limited to, community expansion or economic development, that could not be achieved prudently or feasibly on land other than public lands and that outweigh other public objectives or values; or
- The tract was acquired for a specific purpose, and the tract is no longer required for that purpose or any other federal purpose.

Generally, exchanges are the preferred method of disposal but sales will be used when: it is required by national policy; or it is required to achieve disposal objectives on a timely basis, and where disposal through exchange would cause unacceptable delays, or disposal through exchange is not feasible. The preferred method of selling public land will be by competitive bidding at public auction to qualifying purchasers. However, modified competitive bidding procedures and direct sales may be used in certain situations.

Sales and Exchanges Involving Wetlands

BLM policy is to retain wetlands in federal ownership unless federal, state, public, and private institutions and parties have demonstrated the ability to maintain, restore, and protect wetlands and riparian habitats on a continuous basis (BLM Manual 6740). Sales and exchanges may be authorized when:

- The tract of public wetlands is either so small or remote that it is uneconomical to manage; or
- The tract of public wetlands is not suitable for management by another federal agency.

3.1.2 Recreation and Public Purposes Lease/Patent

The objective of the R&PP Act is to meet the needs of state and local governmental agencies and other qualified organizations for public lands required for recreational and public purposes. Use of the R&PP Act protects public values in the land through its reversionary provisions and helps qualified entities obtain the more liberal pricing authorized under the R&PP Act.

Public lands shall be conveyed or leased only for an established or definitely proposed project for which there is a reasonable timetable of development and satisfactory development and management plans. No more land than is reasonably necessary for the proposed use shall be conveyed.

3.1.3 Airport Grants

Grants of public land for airports and airways are available to public agencies through the Federal Aviation Administration (FAA) under the Airport and Airway Improvement Act (reference 43 Code of Federal Regulations [CFR] §2640). Use of this act protects public values in the land through its reversionary provisions and helps qualified entities obtain land at no cost (except for administrative processing charges) as authorized under this act.

3.1.4 Desert Land Entries

The purpose of the Desert Land Law is to permit the reclamation by irrigation of arid public land through individual effort and private capital (reference 43 Code of Federal Regulations [CFR] §2520).

Lands that will not produce any reasonably remunerative agricultural crop by the usual means or methods of cultivation, without artificial irrigation, may be considered for a desert land entry. The lands must be surveyed, unreserved, unappropriated, non-mineral, non-timber, and incapable of producing an agricultural crop without irrigation. The lands must be suitable for agricultural purposes and more valuable for that purpose than for any other. Tracts need not be contiguous, but shall be sufficiently close to each other to be managed satisfactorily as an economic unit.

The proposed crop may include any agricultural product to which the land under consideration is generally adapted and which would return a fair reward for the expense of producing it.

All Desert Land Entry applications will be coordinated with the Wyoming State Water Engineer and the Natural Resources Conservation Service.

4.0 ACCESS AND EASEMENTS

Access/improved access or easements have been identified in the following areas:

Cody Field Office

- Rattlesnake Mountain
- Hogan/Luce/Bald Ridge area
- Carter Mountain
- Cedar Mountain (Cody)
- Hudson Falls (Shell)
- Little Mountain/Dugans Bench

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- Sheep Mountain (west of Buffalo Bill Reservoir)
- Coon Creek (Byron)
- McCullough Peaks
- Seven Mountain Subdivision (Cooper lane near Cody)
- Dry Bear/Bear Creek (north of Greybull)
- Clarks Fork River
- Heart Mountain
- Sheep Mountain/Bighorn Lake/River access

Worland Field Office

- Shell/Webber Canyon
- Hyattville logging road area
- Tatman/Fenton Pass
- Hamilton Dome
- Upper Owl Creek
- Bighorn River
- Neiber Road (off of South Flat)
- Road 1406 in Sand draw (east of Cedar Mountain WSA)
- South Rim Shell Canyon to South Rim Trapper Canyon (south to Alkali Road)
- Upper White Creek Drainage
- West of Hamilton Dome between Cottonwood and Owl Creek
- South Fork Owl Creek
- Rock Creek
- South Fork North Fork Owl Creek
- Dutch Nick Flats Road (across Dave Slover property, T. 47N., R. 97W. sec. 23)

Access for Recreation:

- Upper Grass Creek Area
- Enos Creek
- Upper Cottonwood Creek
- Upper South Fork of Owl Creeks of the Absaroka Mountain Foothills

Foot/horseback Access:

- Shoshone National Forest

Limited motorized vehicle access on roads in the Red Canyon Creek Area (Thermopolis Community Pit).

Access to public lands on the Bighorn and Greybull Rivers:

- Basin Ridge, Dry Bear Creek, Heron West, Kane East, Kane West, Lovell Draw, Manderson Bridge, Perkins Bottom-East, Rairden Bridge, Red Bluff View, Red Rim Meadows-South, Sheep Mountain West, South Flat Bridge, Stucco South

Access in the **15-Mile Badlands area**. Includes the following – but not limited to:

- Burlington Pass Road, Fenton Pass Road, Badger Gulch Road, 15-Mile Road, Dorsey Creek Road, Murphy Draw Road, Elk Creek Road

Access in the **Trapper Creek RMZ** (includes Shell Canyon to Red Gulch Road, to the Bighorn NF):

- Horse Mountain, Trapper Creek, White Creek

Access into the **Paint Rock RMZ** (Alkali Road, Bighorn NF, Luman Creek Road area to Wyoming Route 31):

- Laddie Creek and Paint Rock Creek

Access to the **Brokenback RMZ** (Luman Creek Area, Bighorn NF, Highway 16, Hyattville-Ten Sleep Road):

- Laddie Creek, Military Creek, Luman Creek, Dorn Draw Road, additional access into North and South Brokenbacks, yearlong public access on North and South Brokenback

South Bighorns RMZ (Rome Hill Road, Hazelton Road, Upper Nowood, South WFO boundary):

- Access into upper Nowood area, Otter Creek, Deep Creek, Little Canyon Creek, Public land tracts along the Nowood River, Cherry Creek Road/Split Rock Road to Hazelton Road, Lysite Mountain, Land parcels within Spring Creek, Spring Creek Road to Rome Hill Road

Access into **Canyon Creek RMZ** (Highway 16 to Rome Hill Road, Smilo Road to BLM Road 1417).

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix N

Wyoming Standards For Healthy Rangelands

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APPENDIX N

WYOMING STANDARDS FOR HEALTHY RANGELANDS

1.0 INTRODUCTION

According to the Department of the Interior's final rule for grazing administration, effective August 21, 1995, the Wyoming Bureau of Land Management (BLM) State Director is responsible for the development of standards for healthy rangelands and guidelines for livestock grazing management on 18 million acres of Wyoming's public rangelands. The development and application of these standards and guidelines are to achieve the four fundamentals of rangeland health outlined in the grazing regulations (43 CFR [Code of Federal Regulations] 4180.1). Those four fundamentals are: (1) watersheds are functioning properly; (2) water, nutrients, and energy are cycling properly; (3) water quality meets State standards; and (4) habitat for special status species is protected.

Standards address the health, productivity, and sustainability of the BLM-administered public rangelands and represent the minimum acceptable conditions for the public rangelands. The standards apply to all resource uses on public lands. Their application will be determined as use-specific guidelines are developed. Standards are synonymous with goals and are observed on a landscape scale. They describe healthy rangelands rather than important rangeland by-products. The achievement of a standard is determined by observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles.

Guidelines provide for, and guide the development and implementation of, reasonable, responsible, and cost-effective management practices at the grazing allotment and watershed level. The guidelines in this document apply specifically to livestock grazing management practices on the BLM-administered public lands. These management practices will either maintain existing desirable conditions or move rangelands toward statewide standards within reasonable timeframes. Appropriate guidelines will ensure that the resultant management practices reflect the potential for the watershed, consider other uses and natural influences, and balance resource goals with social, cultural/historic, and economic opportunities to sustain viable local communities. Guidelines, like standards, apply statewide.

Implementation of the Wyoming standards and guidelines will generally be done in the following manner. Grazing allotments or groups of allotments in a watershed will be reviewed based on the BLM's current allotment categorization and prioritization process. Allotments with existing management plans and high-priority allotments will be reviewed first. Lower priority allotments will be reviewed as time allows or when it becomes necessary for BLM to review the permit/lease for other reasons such as permit/lease transfers, permittee/lessee requests for change in use, etc. The permittees and interested publics will be notified when allotments are scheduled for review and encouraged to participate in the review. The review will first determine if an allotment meets each of the six standards. If it does, no further action will be necessary. If any of the standards aren't being met, then rationale explaining the contributing factors will be prepared. If livestock grazing practices are found to be among the contributing factors, corrective actions consistent with the guidelines will be developed and implemented before the next grazing season in accordance with 43 CFR 4180. If a lack of data prohibits the reviewers from determining if a standard is being met, then a strategy will be developed to acquire the data in a timely manner.

Appendix N – Wyoming Standards for Healthy Rangelands

On a continuing basis, the Standards for Healthy Rangelands will direct on-the-ground management on the public lands. They will serve to focus the development and implementation of activity plans or grazing permits/leases to maintain or achieve healthy rangelands.

Quantifiable resource objectives and specific management practices to maintain or achieve the standards will be developed at the local BLM District and Field Office levels and will consider all reasonable and practical options available to achieve desired results on a watershed or grazing allotment scale. The objectives shall be reflected in site-specific activity/implementation plans and/or in livestock grazing permits/leases for the public lands. These objectives and practices may be developed formally or informally through mechanisms available and suited to local needs (such as Coordinated Resource Management [CRM] efforts).

The development and implementation of standards and guidelines will enable on-the-ground management of the public rangelands to maintain a clear and responsible focus on both the health of the land and its dependent natural and human communities. This development and implementation will ensure that any mechanisms currently being employed or that may be developed in the future will maintain a consistent focus on these essential concerns. This development and implementation will also enable immediate attention to be brought to bear on existing resource concerns.

These standards and guidelines are compatible with BLM's three-tiered land use planning process. The first tier includes the laws, regulations, and policies governing BLM's administration and management of the public lands and their uses. The previously mentioned fundamentals of rangeland health specified in 43 CFR 4180.1, the requirement for BLM to develop these state (or regional) standards and guidelines, and the standards and guidelines themselves, are part of this first tier. Also part of this first tier are the specific requirements of various federal laws and the objectives of 43 CFR 4100.2 that require BLM to consider the social and economic well-being of the local communities in its management process.

These standards and guidelines will provide for statewide consistency and guidance in the preparation, amendment, and maintenance of BLM land use plans, which represent the second tier of the planning process. The BLM land use plans provide general allocation decisions concerning the kinds of resource and land uses that can occur on the BLM-administered public lands, where they can occur, and the types of conditional requirements under which they can occur. In general, the standards will be the basis for development of planning area-specific management objectives concerning rangeland health and productivity, and the guidelines will direct development of livestock grazing management actions to help accomplish those objectives.

The third tier of the BLM planning process, activity or implementation planning, is directed by the applicable land use plan and, therefore, by the standards and guidelines. The standards and guidelines, as BLM statewide policy, will also directly guide development of the site-specific objectives and the methods and practices used to implement the land use plan decisions. Activity or implementation plans contain objectives which describe the site-specific conditions desired. Grazing permits/leases for the public lands contain terms and conditions which describe specific actions required to attain or maintain the desired conditions. Through monitoring and evaluation, the BLM, grazing permittees, and other interested parties determine if progress is being made to achieve activity plan objectives.

Wyoming rangelands support a variety of uses which are of significant economic importance to the State and its communities. These uses include oil and gas production, mining, recreation and tourism, fishing, hunting, wildlife viewing, and livestock grazing. Rangelands also provide amenities which contribute to the quality of life in Wyoming such as open spaces, solitude, and opportunities for personal renewal. Wyoming's rangelands should be managed with consideration of the State's historical, cultural, and social development and in a manner which contributes to a diverse, balanced, competitive, and resilient

economy in order to provide opportunity for economic development. Healthy rangelands can best sustain these uses.

To varying degrees, BLM management of the public lands and resources plays a role in the social and economic well-being of Wyoming communities. The National Environmental Policy Act (part of the above-mentioned first planning tier) and various other laws and regulations mandate the BLM to analyze the socioeconomic impacts of actions occurring on public rangelands. These analyses occur during the environmental analysis process of land use planning (second planning tier), where resource allocations are made, and during the environmental analysis process of activity or implementation planning (third planning tier). In many situations, factors that affect the social and economic well-being of local communities extend far beyond the scope of BLM management or individual public land users' responsibilities. In addition, since standards relate primarily to physical and biological features of the landscape, it is very difficult to provide measurable socioeconomic indicators that relate to the health of rangelands. It is important that standards be realistic and within the control of the land manager and users to achieve.

2.0 STANDARDS FOR HEALTHY PUBLIC RANGELANDS

2.1 Standard #1

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

THIS MEANS THAT:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly varied within Wyoming.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Water infiltration rates
- Soil compaction
- Erosion (rills, gullies, pedestals, capping)
- Soil micro-organisms
- Vegetative cover (gully bottoms and slopes)
- Bare ground and litter

The above indicators are applied as appropriate to the potential of the ecological site.

2.2 Standard #2

Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.

THIS MEANS THAT:

Wyoming has highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Erosion and deposition rate
- Channel morphology and floodplain function
- Channel succession and erosion cycle
- Vegetative cover
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
- Bank stability
- Woody debris and instream cover
- Bare ground and litter

The above indicators are applied as appropriate to the potential of the ecological site.

2.3 Standard #3

Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

THIS MEANS THAT:

In order to maintain desirable conditions and/or recover from disturbance within acceptable timeframes, plant communities must have the components present to support the nutrient cycle and adequate energy flow. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and microorganisms. The amount of nutrients available and the speed with which they cycle among plants, animals, and the soil are fundamental components of rangeland health. The amount, timing, and distribution of energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Vegetative cover
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
- Bare ground and litter
- Erosion (rills, gullies, pedestals, capping)
- Water infiltration rates

The above indicators are applied as appropriate to the potential of the ecological site.

2.4 Standard #4

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

THIS MEANS THAT:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species (State of Wyoming-designated). The intent of this standard is to allow the listed species to recover and be delisted, and to avoid or prevent additional species becoming listed.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Noxious weeds
- Species diversity
- Age class distribution
- All indicators associated with the upland and riparian standards
- Population trends
- Habitat fragmentation

The above indicators are applied as appropriate to the potential of the ecological site.

2.5 Standard #5

Water quality meets State standards.

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming's Water Quality Rules and Regulations*. The latter regulations contain Quality Standards for Wyoming Surface Waters. Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Chemical characteristics (e.g., pH, conductivity, dissolved oxygen)
- Physical characteristics (e.g., sediment, temperature, color)
- Biological characteristics (e.g., macro- and micro-invertebrates, fecal coliform, and plant and animal species)

2.6 Standard #6

Air quality meets State standards.

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming Air Quality Standards and Regulations*.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Particulate matter
- Sulfur dioxide
- Photochemical oxidants (ozone)
- Volatile organic compounds (hydrocarbons)
- Nitrogen oxides
- Carbon monoxide
- Odors
- Visibility

3.0 BLM WYOMING GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

1. Timing, duration, and levels of authorized grazing will ensure that adequate amounts of vegetative ground cover, including standing plant material and litter, remain after authorized use to support infiltration, maintain soil moisture storage, stabilize soils, allow the release of sufficient water to maintain system function, and to maintain subsurface soil conditions that support permeability rates and other processes appropriate to the site.
2. Grazing management practices will restore, maintain, or improve riparian plant communities. Grazing management strategies consider hydrology, physical attributes, and potential for the watershed and the ecological site. Grazing management will maintain adequate residual plant cover to provide for plant recovery, residual forage, sediment capture, energy dissipation, and groundwater recharge.
3. Range improvement practices (instream structures, fences, water troughs, etc.) in and adjacent to riparian areas will ensure that stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform are maintained or enhanced. The development of springs, seeps, or other projects affecting water and associated resources shall be designed to protect the ecological and hydrological functions, wildlife habitat, and significant cultural, historical, and archaeological values associated with the water source. Range improvements will be located away from riparian areas if they conflict with achieving or maintaining riparian function.
4. Grazing practices that consider the biotic communities as more than just a forage base will be designed in order to ensure that the appropriate kinds and amounts of soil organisms, plants, and

animals to support the hydrologic cycle, nutrient cycle, and energy flow are maintained or enhanced.

5. Continuous season-long or other grazing management practices that hinder the completion of plants' life-sustaining reproductive and/or nutrient cycling processes will be modified to ensure adequate periods of rest at the appropriate times. The rest periods will provide for seedling establishment or other necessary processes at levels sufficient to move the ecological site condition toward the resource objective and subsequent achievement of the standard.
6. Grazing management practices and range improvements will adequately protect vegetative cover and physical conditions and maintain, restore, or enhance water quality to meet resource objectives. The effects of new range improvements (water developments, fences, etc.) on the health and function of rangelands will be carefully considered prior to their implementation.
7. Grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of Federal threatened and endangered species or the conservation of federally-listed species of concern and other State-designated special status species. Grazing management practices will maintain existing habitat or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats.
8. Grazing management practices and range improvements will be designed to maintain or promote the physical and biological conditions necessary to sustain native animal populations and plant communities. This will involve emphasizing native plant species in the support of ecological function and incorporating the use of non-native species only in those situations in which native plant species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.
9. Grazing management practices on uplands will maintain desired plant communities or facilitate change toward desired plant communities.

3.1 Definitions

Activity Plans: Allotment Management Plans (AMPs), Habitat Management Plans (HMPs), Watershed Management Plans (WMPs), and other plans developed at the local level to address specific concerns and accomplish specific objectives.

Coordinated Resource Management (CRM): A group of people working together to develop common resource goals and resolve natural resource concerns. CRM is a people process that strives for win-win situations through consensus-based decision making.

Desired Plant Community: A plant community which produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the land use plan/activity plan objectives established for an ecological site(s). The desired plant community must be consistent with the site's capability to produce the desired vegetation through management, land treatment, or a combination of the two.

Ecological Site: An area of land with specific physical characteristics that differs from other areas both in its ability to produce distinctive kinds and amounts of vegetation and in its response to management.

Erosion: (v.) Detachment and movement of soil or rock fragments by water, wind, ice, or gravity. (n.) The land surface worn away by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Grazing Management Practices: Grazing management practices include such things as grazing systems (rest-rotation, deferred rotation, etc.), timing and duration of grazing, herding, salting, etc. They do not include physical range improvements.

Guidelines (For Grazing Management): Guidelines provide for, and guide the development and implementation of, reasonable, responsible, and cost-effective management actions at the allotment and watershed level which move rangelands toward statewide standards or maintain existing desirable conditions. Appropriate guidelines will ensure that the resultant management actions reflect the potential for the watershed, consider other uses and natural influences, and balance resource goals with social, cultural/historic, and economic opportunities to sustain viable local communities. Guidelines, and therefore, the management actions they engender, are based on sound science, past and present management experience, and public input.

Indicator: An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. An indicator can be evaluated at a site- or species-specific level. Monitoring of an indicator must be able to show change within timeframes acceptable to management and be capable of showing how the health of the ecosystem is changing in response to specific management actions. Selection of the appropriate indicators to be observed, measured, or monitored in a particular allotment is a critical aspect of early communication among the interests involved on-the-ground. The most useful indicators are those for which change or trend can be easily quantified and for which agreement as to the significance of the indicator is broad based.

Litter: The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetal material.

Management Actions: Management actions are the specific actions prescribed by the BLM to achieve resource objectives, land use allocations, or other program or multiple use goals. Management actions include both grazing management practices and range improvements.

Objective: An objective is a site-specific statement of a desired rangeland condition. It may contain either or both qualitative elements and quantitative elements. Objectives frequently speak to change. They are the focus of monitoring and evaluation activities at the local level. Monitoring of the indicators would show negative changes or positive changes. Objectives should focus on indicators of greatest interest for the area in question.

Rangeland: Land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs. This includes lands revegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Rangeland Health: The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained.

Riparian: An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not have vegetation dependent on free water in the soil.

Standards: Standards are synonymous with goals and are observed on a landscape scale. Standards apply to rangeland health and not to the important by-products of healthy rangelands. Standards relate to the current capability or realistic potential of a specific site to produce these by-products, not to the

presence or absence of the products themselves. It is the sustainability of the processes, or rangeland health, which produces these by-products.

Terms and Conditions: Terms and conditions are very specific land use requirements that are made a part of the land use authorization in order to assure maintenance or attainment of the standard. Terms and conditions may incorporate or reference the appropriate portions of activity plans (e.g., Allotment Management Plans). In other words, where an activity plan exists that contains objectives focused on meeting the standards; compliance with the plan may be the only term and condition necessary in that allotment.

Upland: Those portions of the landscape which do not receive additional moisture for plant growth from run-off, streamflow, etc. Typically these are hills, ridgetops, valley slopes, and rolling plains.

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix O

Recreation Management

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APPENDIX O

RECREATION MANAGEMENT

1.0 RECREATION MANAGEMENT AREA PRESCRIPTIONS

This appendix displays the details of the management action prescriptions for each of the alternatives (B, C, D, E, and F). Alternative A prescriptions are described in Chapter 2 of the Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS). Recreation management in the Bighorn Basin Planning Area is separated into two types of recreation management units; Special Recreation Management Areas (SRMA), and Extensive Recreation Management Areas (ERMA). These units are delineated and managed accordingly to the desired recreational setting character conditions, activities, experiences, and beneficial outcomes. Data collected to arrive at allocating these areas as separate recreation management areas were from intensive public outreach including formal Bureau of Land Management (BLM) public scoping meetings, on the ground visitor surveys, field monitoring and observations, and work with stakeholders such as tourism entities and industries, Special Recreation Permit (SRP) permittees, and others who rely heavily on BLM-administered public lands.

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness, especially as compared to other areas used for recreation. SRMAs are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics. SRMAs may be divided into recreation management zones (RMZ) to further delineate specific recreation opportunities. Recreation Management is prescribed and implemented at the RMZ level. For example; the Badlands SRMA is further divided into three RMZs; one managed for recreational touring activities and associated experiences and benefits; one managed to enhance back-country types of activities and associated experiences and benefits; and one managed for primitive activities, experiences, and benefits. Not all SRMAs within the Planning Area are divided into RMZs because of the commonality of desired settings, activities, experiences, and beneficial outcomes. Canyon Creek SRMA and Middle Fork of the Powder River SRMA are such examples. Within an SRMA, recreation and visitor services management is recognized as the predominant land use planning focus, where specific recreation opportunities and recreation setting characteristics are managed and protected on a long-term basis.

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or recreation and visitor services program investments. Management objectives under an ERMA are to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMA areas is commensurate with the management of other resources and resource uses. While generally unnecessary, ERMAs may be subdivided into recreation management zones (RMZ) to ensure recreation and visitor services are managed commensurate with the management of other resources and resource uses.

Public lands that are not designated a Recreation Management Area (SRMA or ERMA) are managed to meet basic recreation and visitor services and resource stewardship needs. Recreation is not emphasized, however recreation activities may occur except on those lands closed to public use. The recreation and visitor services are managed to allow recreation uses that are not in conflict with the primary uses of these lands. Management actions and allowable use decisions will still be necessary to address visitor health and safety, use user conflicts, the type(s), activities and locations where special

recreation permits would be issued or not issued, and mitigation of recreation impacts on cultural and natural resources.

Recreational activities are popular within the Planning Area for both residents and non-residents. Popular recreational activities include but are not limited to camping, hunting, fishing, hiking, rock hounding, spelunking, floating and rafting, cross country skiing, wildlife viewing, driving for pleasure, all-terrain vehicle (ATV)/four-wheel drive touring, motocross and endurance sports, mountain biking, target shooting, and sightseeing. A spike in recreational use on BLM-administered public lands is observed during the summer months, and especially during the big game hunting season, which attracts most of the recreational users, not just within the region, but visitors from outside of Wyoming.

Recreational uses inherently contain conflicting uses which compromises health and safety, user conflicts, goal interference, un-realization of desired experiences and beneficial outcomes, and ultimately natural resource damage. Allocating, or dividing the Planning Area into sub-recreational units, based off of desired settings, activities, experiences, and beneficial outcomes will aid in appropriate recreational marketing, niche-matching, diminish user conflicts, and ultimately an appreciation of the recreational resources which fosters resource protection.

Recreation and visitor services scoping meetings were conducted throughout the Planning Area, resulting in a stand-alone Recreation and Travel Management review report. The BLM will use this land use planning process to gather additional data to support managing areas as either an SRMA or an ERMA, and to further identify the desired recreation settings character conditions, activities, experiences, and beneficial outcomes. Recreation management designation or prescriptions may be modified if deemed necessary as a result of public comments.

The *Bighorn Basin Resource Management Plan Revision Project Summary of the Recreation and Travel Management Workshops* reports may be viewed under the Documents Library at:
<http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs.html>.

The following recreational matrix further details the allocation of recreation management based on desired settings, activities, experiences, and beneficial outcomes. Because the criteria currently being used as guidance for allocating recreational management into SRMAs and ERMAs did not exist at the time of the last Land Use Plans, the following recreational matrix does not include recreation sub-units for Alternative A.

However, there are seven areas currently designated as SRMAs within the Planning Area. The Cody Field Office manages the Worland Caves, Historic Trails, and The Rivers SRMAs and part of the Bighorn River and West Slope SRMAs. The Worland Field Office manages the Absaroka Mountain Foothills and Badlands SRMAs and part of the Bighorn River and West Slope SRMAs. The Cody Resource Area Land Use Plan (November, 1990), the Grass Creek Resource Area Land Use Plan (September, 1998), and the Washakie Resource Area Land Use Plan (September, 1988) designated these areas to be managed as SRMAs because of the unique recreational niches, recreational setting characters, opportunities and activities, and popularity.

ALTERNATIVES B AND E

<p>Absaroka Mountain Foothills SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>This SRMA is necessary to accommodate semi-primitive to middle country recreational experiences in a recreational resource rich environment. The Absaroka Mountain Foothills area is a very popular destination for both local residents and out-or-region visitors. The area is abundant in a wide variety of wildlife including grizzly bears, major access into the Shoshone National Forest and the Washakie Wilderness, and dramatic scenery.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Absaroka Mountain Foothills as a destination SRMA for non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that they realize a “moderate” level of the targeted experience and benefit outcomes in these Back Country and Middle Country settings.</p> <p><u>Activities:</u> Wildlife viewing, nature viewing, hiking, hunting.</p> <p><u>Experiences:</u> Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Learning more about things here.</p> <p><u>Benefits:</u> Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Improved mental well-being and physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p> <p><u>Physical</u> <u>Remoteness:</u> Back Country. Implement/maintain road closures to maintain back country settings.</p> <p><u>Naturalness:</u> Back Country. Manage for back country and middle country settings where natural setting</p> <p><u>Social</u> <u>Contacts and Group size:</u> Back Country.</p>

Appendix O – Recreation

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small. May have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Allow for primitive motorized routes and non-motorized trails to exist. Facilities and structures are rare and often accessible via unimproved routes. Horse and hiking trailheads will be constructed at major key access points.

Operational

Mechanized Use:

Middle/Front Country.

Main access roads are crowned and ditched gravel roads accessed by 2-wheel and 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use. Roads within the LU Sheep Company area are closed, but available for public access during hunting season. Trails for non-motorized use will be constructed so as to access public lands.

Management Controls and Visitor Services:

Middle Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails, and seasonal closures within the LU Sheep Company area.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the LU Ranch cooperative agreement.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Develop trailheads for foot and horse travel. Potential locations will include the Blue Creek Trail, and sites along the North and South forks of the Owl Creek and Rock Creek areas. Additional sites may be identified throughout the life of the plan.

Administrative

Visual Resource Management:

Class I within Owl Creek WSA, Class II for the remainder of SRMA.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) limited to designated roads and trails.

Close Owl Creek WSA to motorized and mechanized use.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within Absaroka Mountain Foothills SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO stipulation will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Maintain cooperative agreement with Wyoming State Land Board, Wyoming State Game and Fish, and LU Sheep Company.

Partners:

Surrounding private land owners, Shoshone National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

Pack goats are prohibited.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Tour de Badlands RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is contained within the Badlands SRMA, which is popular for motorized touring to explore the scenic desert basin. Natural recreational resources within the SRMA contain wildlife, open spaces, wild horses, and an erratic landscape which offers outstanding scenic quality.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p><u>Objective Statement:</u> Manage the Tour de Badlands RMZ for motorized recreationists to engage in motorized sightseeing touring, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Middle Country and Front Country settings.</p> <p><u>Activities:</u> Driving for pleasure, hunting, wildlife viewing, nature viewing, sightseeing.</p> <p><u>Experiences:</u> Enjoy having easy access to natural landscapes. Enjoy having access to close-to-home outdoor amenities. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.</p> <p><u>Benefits:</u> Improved mental well-being. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Positive contributions to local-regional economic stability. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p><u>Remoteness:</u> Middle Country/Front Country. On or near 4-wheeled drive and improved roads. Maintain main access roads through the area for 2-wheel and 4-wheel drive access into the Badlands area.</p> <p><u>Naturalness:</u> Middle Country. Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trails and primitive roads within the area.</p>

Facilities and Structures:

Front Country.

Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Front Country.

2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use. On site controls and services present but subtle.

Management Controls and Visitor Services:

Middle Country.

On site controls and services present but subtle. Signs present at key access points. Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, wildlife, and wild horses resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the wild horse program, and surrounding WSAs.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Maintain a strong sign program so as to keep the access routes within the RMZ well marked.

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop one or more scenic interpretive sites and driving loops for motorized and mechanized travel in the Tour de Badlands area within the Badlands SRMA to highlight the area's scenic values. These could involve the Fifteenmile Creek and Dorsey Creek roads and The Murphy Draw Road with overlooks at the Painted Canyon of Elk Creek and at Bobcat Draw.

Identify routes to close and reclaim, construct new routes, and identify routes to remain open.

Develop trailheads for ATV unloading stations.

Interpretive signs at trailheads and parking areas.

Additional sites may be identified throughout the life of the plan.

Signs present at key access points, but limited within the RMZ.

Administrative**Visual Resource Management:**

Class II.

Comprehensive Trails and Travel Management:

Limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Tour de Badlands RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Private landowners, Wyoming Department of Transportation, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, IMBA, community ATV organizations, and other clubs/organizations.

Other Administration:

Limit the use of signing or other administrative controls.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Wild Badlands RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is within the Badlands SRMA. This RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, management to maintain the primitive to semi-primitive setting characteristics, wilderness characteristics, three WSAs, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p>Objective Statement: Manage the Wild Badlands RMZ exclusively for non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country settings.</p> <p>Activities: Hiking, hunting, wildlife viewing, nature viewing, sightseeing.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Enjoy having easy access to natural landscapes.</p> <p>Benefits: Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Closer relationship with the natural world. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p>Physical</p> <p>Remoteness: Back Country. Maintain road closures to maintain back country settings.</p> <p>Naturalness: Back Country. Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Primitive and Back Country. Trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare and</p>

developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:

Back Country.

Manage for a season average of fewer than 6 encounters/day on and off travel routes.

Operational

Mechanized Use:

Primitive.

Non-motorized and non-mechanized (foot and horseback) travel only.

Management Controls and Visitor Services:

Back Country.

On site controls and services present at key access points, but subtle.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, and wilderness.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with WSAs, access points, information regarding the wilderness program, and outdoor ethics messages such as Leave No Trace!

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Identify routes to close and reclaim. Modify identified routes into non-motorized and non-mechanized trails.

Develop primitive trailheads at key access points.

Install kiosks and signs at trailheads and parking areas.

Signs present at key access points, but very limited within the RMZ.

Administrative

Visual Resource Management:

Class I.

Comprehensive Trails and Travel Management:

Closed to motorized and non-mechanized travel.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:

Mineral uses, Oil and Gas and Geothermal leasing, exploration, and development will be guided by the Interim

Management Policy for Lands under Wilderness Review (IMP).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:

Limit the use of signing or other administrative controls.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Tatman Mountain RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is within the Badlands SRMA. Much like the Wild Badlands RMZ, this RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, dominant mountainous environment, and current management to maintain the primitive to semi-primitive setting characteristics, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences. The RMZ is located to the west of Sheep Mountain WSA and provides for exceptional wildlife resource opportunities, access, motorized and primitive forms of touring, and high scenic quality.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p>Objective Statement: Manage the Tatman Mountain RMZ for non-motorized recreationists to engage in muscle-powered activities such as hiking, hunting, mountain biking, and horseback riding so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Back country to Middle country settings.</p> <p>Activities: Hiking, hunting, mountain biking, wildlife viewing, nature viewing, sightseeing.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Enjoy having easy access to natural landscapes.</p> <p>Benefits: Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Closer relationship with the natural world. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Middle Country. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p> <p>Naturalness: Back Country. Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p>

Facilities and Structures:

Back Country.

Trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare and developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:

Back Country.

Manage for a season average of fewer than 6 encounters/day on and off travel routes. In issuing SRPs, allow for a group size less than 5 participants.

Operational

Mechanized Use:

Back/Middle Country.

Middle country for the access routes acting as main portals into the RMZ. Manage for back country settings (non-motorized travel) outside of those corridors.

Management Controls and Visitor Services:

Back/Middle Country.

On site controls and services present at key access points, but subtle.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, wild horses, and wilderness characteristics.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated routes and trails, key access points, private lands, and outdoor ethics messages such as Tread Lightly and Leave No Trace!

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Identify routes to maintain as open to motorized use. Reclaim routes identified as closed. Maintain open routes so as to sustain motorized use. Modify identified closed routes into non-motorized and mechanized trails for muscle-powered recreational activities.

Develop primitive trailheads at key access points.

Install kiosks and signs at trailheads and parking areas.

Signs present at key access points, but very limited within the RMZ.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:

Pursue withdrawal from all forms of appropriation under all laws pertaining to mineral leasing, location, and sale and closed to leasing within the Tatman Mountain RMZ.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:

Limit the use of signing or other administrative controls.

<p>West Slope SRMA – Cody Field Office</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The west slope of the Bighorn mountains attracts visitors from the surrounding communities and from outside the region due to the spectacular scenery, abundant wildlife, and exposed geologic formations. Nearby attractions which also draw visitors to the area include the Bighorn Canyon National Recreation Area, and the Medicine Wheel on the Bighorn National Forest. Also, some visitors traveling to or from Yellowstone National Park spend time in the area. The SRMA includes the Little Mountain, Five Springs, and Brown/Howe Dinosaur Areas of Critical Environmental Concern (ACECs), several creeks found eligible for possible inclusion into the Wild and Scenic River system, and significant cave and karst resources. The Five Springs Falls Campground and the Cottonwood Creek Trailhead are BLM-managed sites within the SRMA. The west slope of the Bighorns provides important wildlife habitat and access into the Bighorn National Forest. These resources provide for excellent semi-primitive non-motorized recreation to motorized (touring) recreation.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hunting, hiking, horseback riding, wildlife viewing, sightseeing, fishing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back, Middle, and Front Country settings.</p> <p>Activities: Hunting, wildlife viewing, hiking, photography, sightseeing, driving for pleasure.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Developing skills and abilities. Enjoy going exploring on my/our own. Enjoying the closeness of family.</p> <p>Benefits: Improved mental well-being and physical fitness and health maintenance. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community’s distinctive recreation/tourism market niche or character. Increased desirability as a place to live or retire.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Middle Country. Maintain Middle Country settings on much of the SRMA where lands are on or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p>

Back Country.

Maintain back country settings where lands are more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight.

Naturalness:

Back Country and Middle Country where natural setting may have subtle to moderately dominant modifications that would be noticed but not draw the attention of the casual observer wandering through the area and primitive motorized routes and non-motorized trails may exist.

Facilities and Structures:

Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

Maintain Middle Country settings where 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use are acceptable.

Management Controls and Visitor Services:

Middle Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, and camp sites.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads, campgrounds, and parking areas.

Do not develop a recreation site at Rainbow Canyon.

Administrative

Visual Resource Management:

Class I within wild segments of several creeks eligible for possible inclusion into the Wild and Scenic River System, Class II

for the remainder of the SRMA.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Prohibit surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>West Slope SRMA – Worland Field Office</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>Paint Rock RMZ</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>This RMZ is contained within the West Slope of the Bighorns SRMA. The Paint Rock RMZ attracts visitors from the surrounding communities to outside the region. The Medicine Lodge State Park attracts many visitors who enjoy exploring the slope of the Bighorns. Such resources include the Medicine Lodge WSA, Paint Rock Canyon, the Hyattville Logging Road, the Red Gulch/Alkali Road Backcountry Byway, prominent wildlife habitat management areas, abundant wildlife and fishing, and access into the Bighorn National Forest. These resources provide for excellent semi-primitive non-motorized recreation to motorized (touring) recreation.</p>
<p>Objective Statement: Manage the Paint Rock RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, wildlife viewing, hunting, fishing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country and Middle Country settings.</p> <p>Activities: Wildlife viewing, fishing, nature viewing, hiking, photography, sightseeing, hunting.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Developing skills and abilities. Enjoy going exploring on my/our own. Enjoying the closeness of family.</p> <p>Benefits: Improved mental well-being and physical fitness and health maintenance. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community’s distinctive recreation/tourism market niche or character. Increased desirability as a place to live or retire.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Middle/Back Country. On land surrounding the Red Gulch/Alkali Road Back Country Byway, Cold Springs Road, and the Black Butte road, maintain middle country settings on or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Maintain back country settings within the WSA.</p> <p>Naturalness: Middle/Back Country. Natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area and primitive motorized routes and non-motorized trails may exist. Maintain primitive</p>

naturalness settings for the WSA where lands are essentially an unmodified natural environment. Evidence of humans is unnoticed by an observer wandering through the area.

Facilities and Structures:

Primitive and Back Country.

Facilities and structures are rare and often accessible via unimproved routes. Maintain primitive settings in the WSA where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Middle/Back Country.

Maintain Middle country settings along the Cold Springs Road, Black Butte Road, and the Red Gulch/Alkali Road Back Country Byway where 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use are acceptable.

Management Controls and Visitor Services:

Middle/Back Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails outside WSA. Within the Medicine Lodge WSA, motorized and mechanized use is prohibited.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Red Gulch/Alkali Road Back Country Byway, Medicine Lodge Wildlife Habitat Area, and the Medicine Lodge WSA.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Develop new and maintain trailheads for foot and horse travel. Potential locations will include the Wapiti Ridge Trail, Lone Tree Trail and trailhead, Black Butte, and along the Red Gulch/Alkali Road Back Country Byway. Additional sites may be identified throughout the life of the plan.

Upgrade access route to the Lone Tree trailhead and upgrade the Lone Tree Trail.

Develop hiking trails in the Wet and Dry Medicine Lodge Canyons.

Maintain the off-highway vehicle (OHV) route between the Medicine Lodge State Park and Cold Springs Road.

Designate motorized touring loops connecting with the Bighorn National Forest, the Trapper Creek RMZ, and the Brokenback/Logging Road RMZ, which may include new construction.

Develop campgrounds if needed.

Administrative

Visual Resource Management:

Class I within the Medicine Lodge WSA, Class II for the remainder of SRMA.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Close Medicine Lodge WSA to motorized and mechanized use.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Paint Rock RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Maintain cooperative agreement with Wyoming State Land Board, and Wyoming State Game and Fish.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

West Slope SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Trapper Creek RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ contains natural recreational resources which support recreational activities including hunting, sightseeing, and fishing. This areas contains the Trapper Creek WSA, two waterway segments identified as eligible and suitable for inclusion into the Wild and Scenic River System, Spanish Point ACEC, significant cave and karst resources, the Red Gulch/Alkali Road Backcountry Byway, the Red Gulch Dinosaur Tracksite and the Red Gulch Dinosaur Tracksite ACEC, and highly rated scenic quality. This area attracts visitors from within and outside the region to enjoy the resources in these semi-primitive setting to a middle country settings.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Trapper Creek RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, hunting, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country, Middle Country, and Front Country settings.
Activities: Hunting, wildlife viewing, nature viewing, hiking, sightseeing, photography.
Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying the closeness of family.
Benefits: Improved mental well-being. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<u>Physical</u> Remoteness: Front/Back Country. On land surrounding the Red Gulch/Alkali Road Back Country Byway, maintain front country settings on or near improved county roads, but at least 0.5 mile from any highway. Maintain back country settings within the Trapper Creek and Alkali

Creek WSAs where lands are more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight.

Naturalness:

Back Country/Primitive.

Manage for a Back Country setting where natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Maintain primitive naturalness settings for the WSAs where lands are essentially an unmodified natural environment. Evidence of humans is unnoticed by an observer wandering through the area.

Facilities and Structures:

Front Country/Primitive.

For lands within the Back Country Byway, maintain the front country settings where primitive and improved routes/trails may exist. Facilities and structures are scattered.

Maintain primitive settings in the WSAs where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.

Social

Contacts and Group Size:

Middle Country/Back Country/Primitive.

For lands along the Byway, maintain middle country settings where usually 7-14 encounters/day off travel routes and campsites, and 15-29 encounters/day on travel routes. Usually group size is small to moderate.

Manage for back country settings for remainder of SRMA not including WSAs. Manage for 3-6 encounters/day off travel routes, and 7-15 encounters/day on travel routes. Usually group size is small.

Manage for primitive settings for WSAs. Usually fewer than 3 encounters/day at campsites and fewer than 6 encounters/day on travel routes. Usually group size is small in relation to surrounding areas.

Operational

Mechanized Use:

Front Country/Primitive.

Maintain front country settings along the Red Gulch/Alkali Road Back Country Byway where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized are appropriate.

Manage for primitive settings for the WSAs where there is no mechanized or motorized travel whatsoever.

Management Controls and Visitor Services:

Middle/Back Country.

Manage for middle country settings where on site controls and services are present but subtle.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails outside WSAs. Within the Trapper and Alkali Creek WSAs, motorized and mechanized use is prohibited.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Red Gulch/Alkali Road Back Country Byway, Trapper Creek and Alkali Creek WSAs, the Madison Recharge zone, and caving ethics.

Maintain the Red Gulch Dinosaur Tracksite.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Develop new and maintain trailheads for foot and horse travel. Potential locations will include the Webber Canyon area, White Creek, and Black Mountain areas. Additional sites may be identified throughout the life of the plan.

Construct trailheads to accommodate mountain bike users.

Construct pull-offs along the Red Gulch/Alkali Road.

Back Country Byway.

Designate motorized touring loops within the Trapper Creek RMZ, as well as connecting with the Paint Rock RMZ, and the Bighorn National Forest, which may include new construction.

Administrative

Visual Resource Management:

Class I within the Trapper Creek and Alkali Creek WSAs, and the White Creek and Trapper Creek WSRs. Class II for the remainder of SRMA.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Close WSAs and Spanish Point Karst ACEC to motorized and mechanized use.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Consider the acquisition of legal and/or physical access for hunting, fishing, and camping.

Consider acquiring areas such as Horse Mountain, Trapper Creek, and White Creek.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Trapper Creek RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –
SRP required.

Agreements:

Maintain cooperative agreements with the Big Horn National Forest.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, IMBA, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>West Slope SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>Brokenback/Logging Road RMZ</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>This area exhibits exceptional scenic quality, wildlife resources, and exposed geologic formations. The Hyattville Logging Road is within this area and is proposed to be a backcountry byway for Alternative B. The Logging Road is a popular access point into the Bighorn Mountains. Two other routes, the North and South Brokenback Roads act as very popular access points into the RMZ, as well as the Bighorn National Forest, especially during the big game hunting seasons. Access into this area is in part due to a coordinated agreement between the Wyoming Game and Fish and surrounding private land holders, as well as a foot/horse trail developed by the BLM so as to access more of this area. This area is a very popular hunting area for both local and visiting hunters.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Brokenback/Logging Road RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, hunting, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country and Middle Country settings.</p> <p><u>Activities:</u> Hunting, hiking, wildlife viewing, nature viewing, driving for pleasure.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoying the closeness of family.</p> <p><u>Benefits:</u> Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Stronger ties with my family and friends. Greater awareness that the Bighorn Basin is special. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Middle Country Settings. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Front Country settings along the Hyattville Logging Road. On or near improved country roads, but at least 0.5 mile from any highway.</p> <p>Naturalness: Back Country Settings. Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Front Country settings for lands along the South and North Brokenback Roads, and along the Hyattville Logging Road. Primitive and improved routes/trails may exist. Facilities and structures are back country settings where they are rare and isolated. Remainder of RMZ is Middle Country. Primitive motorized and non-motorized trails may exist.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country. Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.</p> <p><u>Operational</u></p> <p>Mechanized Use: Middle Country. 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Back Country. On site controls and services present but subtle. Minimum amount necessary to achieve planning objectives. Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<p style="text-align: center;"><u>Information and Education</u></p> <p>Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources. Provide stewardship information to help preserve the special landscape character. Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hyattville/Logging Road Back Country Byway, Carter Access area, and Wyoming Game and Fish Wildlife Habitat Management Areas. Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p style="text-align: center;"><u>Monitoring</u></p> <p>Vehicle counters with routine surveys and observation. Visitor reports of crowding. Informal visitor surveys and formal focus groups as funding allow. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.</p>

Management

Develop facilities to enhance recreation and visitor services for the following areas:

- Trailheads for North and South Brokenback areas, Laddie Creek, and the Hyatteville Logging Road.
- Pull-outs along the Hyatteville Logging Road.
- Improve Salt Lick trail and trailhead.
- Construct additional trailheads and trails.

Designate motorized touring loops within the Brokenback/Logging road RMZ as well as connecting with the Paint Rock RMZ and the Bighorn National Forest, which may include new construction.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Continue to implement current South Broken Back Travel Management Plan.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Consider the acquisition of legal and/or physical access for hunting, fishing, and camping for areas including but not limited to North and South Brokenback roads, Luman Creek Road, Military Creek Road, Dorn Draw Road.

Lengthen public access duration for the North and South Brokenback roads to yearlong access.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Brokenback/Logging Road RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue additional access agreement in the South Brokenback, and North Brokenback areas.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

West Slope SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
South Bighorns RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
The southern Bighorns are popular for visitors to explore, hike, and especially hunt. Outfitters and tour guides enjoy guiding clients here due to the impressive and exceptional scenic qualities, abundant wildlife, and alternative access points onto 33-Mile Road (Hazelton Road) which exhibits exceptional viewing opportunities of the surrounding mountain landscape, the Cloud Peak Wilderness, the Bighorn Basin, and the Powder River Basin to the east; as well as access into the Hole-in-the-Wall region, the Middle Fork of the Powder River, Casper, and the Bighorn National Forest. The South Bighorns contain a rich history including cattle and sheep operations, mining, and infamous outlaws including Billy the Kid. Currently, impressive coordinated travel management efforts between the BLM, Wyoming State Game and Fish, Wyoming State Land Board, and the Orchard Ranch are improving access into the area as well as improving resource management. BLM manages a campground along the Middle Fork of the Powder River which is a destination area for visitors from within and outside the region. The Middle Fork of the Powder River is managed as a blue ribbon trout fishery, as well as identified as eligible and draft suitable for inclusion into the Wild and Scenic River System. The Buffalo Field Office had also identified the Middle Fork of the Powder River within their jurisdiction as eligible for inclusion into the Wild and Scenic River System. The impressive Deep Creek is another waterway segment identified as eligible and draft suitable for inclusion into the Wild and Scenic Rivers System, as well as a sought-after fishery for exceptional fishing and sightseeing opportunities. This area has received significant managerial support from both the Worland and Buffalo Field Offices in improving access into the area to support a variety of recreational activities such as hunting and fishing.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the South Bighorns RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, hunting, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country and Middle Country settings.
Activities: Hunting, fishing, hiking, wildlife viewing, nature viewing, driving for pleasure.
Experiences: Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoying the closeness of family.
Benefits: Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Stronger ties with my family and friends. Greater awareness that the Bighorn Basin is special. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding.

<p>Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Middle Country Settings. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Front Country settings along Rome Hill Road, Dry Farm Road, and Hazelton Road. On or near improved country roads, but at least 0.5 mile from any highway.</p> <p>Naturalness: Back Country Settings. Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area. Middle Country Settings for lands within the Middle Fork of the Powder River Campground. Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trail and primitive roads within the area.</p> <p>Facilities and Structures: Middle Country. Primitive motorized and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes. Manage the Middle Fork of the Powder River Campground as Front Country.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings. Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Rural settings along Upper Nowood Road. People seem to be everywhere, but human contact remains intermittent.</p> <p><u>Operational</u></p> <p>Mechanized Use: Front/Middle Country. Front Country along Cherry Creek Road, Dry Farm Road, Spring Creek Road, Rome Hill Road, and Hazelton Road. 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use. Middle Country for remainder of RMZ. 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Back Country. On site controls and services are present but subtle. Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.</p>

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hazelton Road Back Country Byway, and the Upper Nowood Travel Management Plan.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop facilities necessary to maximize recreational opportunities at the Middle Fork camping area, the Cherry Creek stock driveway crossing of Deep Creek, Otter Creek.

Develop trailheads for Middle Fork Campground, Mahogany Butte, Deep Creek, Upper Nowood areas, and in other areas on a case-by-case basis.

Administrative

Visual Resource Management:

Class II. Class I within the Deep Creek WSR.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Continue to implement current Upper Nowood Travel Management Plan.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Consider the acquisition of legal and/or physical access for hunting, fishing, boating, and camping. Areas to be considered for acquisition include Otter Creek, Deep Creek, Little Canyon Creek, public land tracts along the Nowood River area, Cherry Creek Road to Hazelton Road, Lysite Mountain, land parcels within Spring Creek, and Spring Creek Road to Rome Hill Road.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the South Bighorns RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO stipulation will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of

damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Maintain cooperative agreement with Double-H Ranch, Wyoming State Land Board, and Wyoming Game and Fish.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Orchard Ranch, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>Canyon Creek SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>Canyon Creek area is located within the southern Bighorns just south of Highway 16, which is a very popular highway over the Bighorn Mountains as well as a popular route to Yellowstone National Park. Canyon Creek exhibits exceptionally high scenic qualities from the exposed dolomite and Ten Sleep formation observed through the impressive canyon complemented by the perennial Canyon Creek which supports a blue-ribbon fishery and a healthy riparian zone through the canyon. A subdivision (Canyon Creek Village) is growing south of the area in which residents enjoy exploring, hiking, hunting, and fishing Canyon Creek. Canyon Valley Resort is located within the area which provides recreational opportunities such as guiding services for visitors, big game outfitting, and golfing opportunities. The scenic qualities as well as the wildlife resources establish the foundation for the tourism market in this area. Smilo Road provides access into BLM-administered public lands east of Canyon Creek as well as the Bighorn National Forest.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p> <p>Objective Statement: Manage the Canyon Creek SRMA for non-motorized recreationists to engage in hiking, hunting, fishing, nature viewing, and wildlife viewing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country settings.</p> <p>Activities: Fishing, hunting, hiking, nature viewing, wildlife viewing.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Develop skills and abilities. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying getting some needed physical exercise.</p> <p>Benefits: Improved mental well-being. Improved physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p> <p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p> <p><u>Physical</u> Remoteness: Back Country. More than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Smilo Road, the access route to</p>

the Canyon Creek fishing access parking area, and few other two-tracks are observed along the edges of the area.

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Trails may exist but do not exceed standard to carry expected use. Facilities and structures are rare and isolated.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:

Back Country.

Mountain bikes perhaps other mechanize use but all is non-motorized. Smilo Road will remain open to motorized access into area.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, non-native invasive weed species found within the area, geology, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails, and camp sites.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop looping hiking trails in Canyon Creek, and off of Smilo Road.

Develop trailheads at Canyon Creek and Smilo Road.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Acquire legal and physical access to maximize recreational opportunities.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Canyon Creek SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue a cooperative agreement with the Canyon Creek Estates.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Canyon Creek Estates, Back Country Horsemen, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>Red Canyon Creek SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>Red Canyon Creek is located along the slopes of the Owl Creek Mountains outside the community of Thermopolis. This area exhibits high scenic qualities, wildlife resources, and opportunities for primitive-type recreation. A subdivision is growing on the north side of the area, which the adjacent BLM-administered public lands provides for easy-to-access public lands for the local residents. The community of Thermopolis has been marketing its natural recreational resources (most especially its thermal resources located within the very popular Hot Springs State Park), as well as prioritizing primitive-type recreational opportunities such as hiking, and horseback riding within the State Park.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the Red Canyon Creek SRMA for motorized and non-motorized recreationists to engage in hunting, hiking, wildlife viewing, and nature viewing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Middle Country settings.</p> <p>Activities: Hiking, wildlife viewing, hunting, nature viewing.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Develop skills and abilities. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying getting some needed physical exercise.</p> <p>Benefits: Improved mental well-being. Improved physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Back Country. Most of the SRMA is more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Access routes (two-tracks and improved route) exist along the fringe of the SRMA, as well as within parcels of private lands within the area.</p>

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:

Back Country.

Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use so as to maintain current land uses.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, geology, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails, and camp sites.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop hiking trail to Red Canyon Creek.

Develop trailheads at northern access point.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Red Canyon Creek SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Community of Thermopolis, Hot Springs State Park, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>The Rivers SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The Rivers destination SRMA is made up of BLM-managed public lands on the North and South Forks of the Shoshone River, the main stem of the Shoshone River, and the Clarks Fork of the Yellowstone River. These rivers are very popular for fishing, floating, sightseeing, and hunting and are used by local residents as well as visitors from throughout the nation and from foreign countries. Many visitors traveling to or from Yellowstone National Park spend time in Cody. Several companies offer commercial fishing or floating trips on these rivers. BLM and the Wyoming Game and Fish Department (WGFD) have an agreement which recognizes the high recreational value of various tracts of land along these rivers and provides for cooperative efforts to develop access and manage the sites. Many sites have been developed over the years. Several of the river access sites also serve as trailheads for hiking and horseback access to the Shoshone National Forest. In addition, there are access sites which have been developed by other parties. The North Fork of the Shoshone River and portions of the Shoshone River are considered blue-ribbon trout fisheries.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p> <p><u>Objective Statement:</u></p> <p>Manage The Rivers SRMA for motorized and non-motorized recreation opportunities such as fishing, floating, photography, hunting, hiking, and nature viewing so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, and middle country settings.</p> <p><u>Activities:</u></p> <p>Fishing, floating, sightseeing, hunting, photography, and nature viewing.</p> <p><u>Experiences:</u></p> <p>Enjoy going exploring on my/our own. Enjoy the closeness of family. Experiencing a greater sense of independence. Testing endurance. Enjoy risk taking adventure.</p> <p><u>Benefits:</u></p> <p>Improved mental well-being. Closer relationship with the natural world. Enhanced sense of personal freedom. Improved physical fitness and health maintenance. Improved skills for outdoor enjoyment. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Increased local job opportunities. Increased local tourism revenue. Improved local economic stability.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Rural Country. On or near primary highways, but still within a rural area. Front Country. On or near improved county roads, but at least 0.5 mile from any highway. Middle Country. On or near 4-wheel drive roads, but at least ½ mile from all improved roads, though they may be in sight.</p> <p>Naturalness: Rural, Front, and Middle Country. Natural setting is culturally modified to the point that it is dominant to the sensitive travel route observer in some locations. In other locations, natural setting may have moderately dominant alterations but would not draw the attention of the observers on trails and primitive roads within the area.</p> <p>Facilities and Structures: Rural and Front Country. Primitive and improved routes/trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Front Country setting. Usually up to 29 encounters/day off travel routes and 30 or more encounters/day en-route. Group size varies from small to large. Visitor encounters can be high during peak use periods at the major boat ramps.</p> <p><u>Operational</u></p> <p>Mechanized Use: Front Country. Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Front Country. On site controls and services are present but harmonize with the natural environment. Personnel periodic.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<u>Information and Education</u>
<p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p>Work closely with the gateway communities of Cody, Powell, Thermopolis, Worland, Basin, Lovell, and Greybull, and other partners in the region in marketing and outreach.</p>

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other river segments, institute fee areas, or limit river use.

Management

Continue to provide for experiences and associated facilities with an emphasis on maintaining rural to front country recreation settings.

Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.

In cooperation with WGFD and other partners, provide and maintain visitor facilities, services, signing, and programs.

AdministrativeVisual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails for the North and South Forks of the Shoshone River and the Clarks Fork of the Yellowstone River and is limited to existing roads and trails for the Shoshone River area.

Lands and Realty:

Manage lands within one mile of the Shoshone, Greybull, and Clarks Fork of the Yellowstone Rivers as avoidance areas for construction of above ground power lines. Alternative energy avoidance area for realty actions.

Retain recreational access to the North and South Forks of the Shoshone, the Shoshone, and the Clarks Fork of the Yellowstone Rivers.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply NSO to some lands within the Rivers SRMA (WGFD/BLM access areas on the Clarks Fork of the Yellowstone and the North and South Forks of the Shoshone River).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Communities of Cody, Powell, Lovell, Wyoming Game and Fish, Trout Unlimited, Shoshone Back Country Horsemen, Shoshone National Forest, Park County Recreation Board, and other interested groups.

Other Administration:

On site controls and services are present but harmonize with the natural environment.

<p>McCullough Peaks SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The McCullough Peaks SRMA lies east of Cody and north of U.S. Highway 14/16/20. This scenic, popular area is used by residents of Cody, Powell, Park and Big Horn Counties for uses such as viewing wild horses, sightseeing, hunting, horseback riding, mountain biking, hiking, photography, driving for pleasure (including ATVs and motorcycles), and wildlife viewing. Colorful badlands provide excellent photographic opportunities. Tourists traveling to or from Yellowstone National Park also use the area. Several commercial permittees provide wild horse viewing tours or interpretive tours in the area. The McCullough Peaks WSA lies within the SRMA as does the McCullough Peaks Wild Horse Herd Management Area (HMA).</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p> <p><u>Objective Statement:</u> Manage the McCullough Peaks SRMA for motorized and non-motorized recreation opportunities such as wildlife and wild horse viewing, nature viewing, horseback riding, hunting, and hiking so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, middle and back country settings.</p> <p><u>Activities:</u> Viewing wild horses and wildlife, sightseeing, hunting, mountain biking, hiking, photography, driving for pleasure, horseback riding.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p> <p><u>Benefits:</u> Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Rural, Front, Middle, and Back Country. The eastern and southern boundaries lie along major highways. There are several BLM roads and numerous two-tracks and ATV trails in the SRMA area.</p> <p>Naturalness: Front and Middle Country. Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within the area but not draw the attention of observers on trails and primitive routes. Back Country. Natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Rural and Front Country. Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters. Middle Country. Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings. Usually up to 6 encounters/day off travel routes and up to 15 encounters/day on travel routes. Usually group size is small. Middle Country settings. Usually up to 14 encounters/day off travel routes, and up to 29 encounters/day en route. Usually group size is small. Most of the time, social settings will reflect back country definition.</p> <p><u>Operational</u></p> <p>Mechanized Use: Front and Middle Country. Manage the SRMA for 2-wheel drive and 4-wheel drive vehicles, ATVs, dirt bikes and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Middle Country. On site controls and services are present but subtle. Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<u>Information and Education</u>
<p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, trailheads, trails.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p>

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine road and trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points and to identify such items as travel routes, the WSA boundary, and the herd area boundary.

Interpretive signs at trailheads and parking areas, where appropriate.

Provide opportunities for the public to view wild horses in the McCullough Peaks HMA.

Administrative

Visual Resource Management:

Class I in the McCullough Peaks WSA and Class II elsewhere in the SRMA.

Comprehensive Trails and Travel Management:

Motorized vehicle use is limited to designated roads and trails in the entire SRMA.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

No leasing within the McCullough Peaks WSA and NSO elsewhere in the SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Prohibit organized SRPs using domestic horses in the McCullough Peaks HMA.

Partners:

City of Cody; Park County Recreation Board; private landowners; local mountain biking, hiking, equestrian, and motorized groups, FOAL, Wyoming State Trails Program, and other interested groups.

Basin Gardens SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Basin Gardens Play Area RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This area is located between the Communities of Greybull and Basin, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles. Visitors are from within the communities, as well as from outside the area, particularly Billings, Montana. The area is composed of bentonite and mostly devoid of vegetation. The Basin Gardens area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. The communities from RMP Scoping opportunities had identified this area as highly desired for motorized recreational opportunities.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Basin Gardens Play Area RMZ for motorized recreationists to engage in ATV, motorbike, and other motorized hill climbing activities so that visitors report realizing a “moderate” level of recreation experience and benefit outcomes in these Front Country settings.
Activities: Driving for pleasure, motorcycle hill climbing.
Experiences: Developing skills and abilities. Enjoying risk-taking adventure. Being around people I know and enjoy.
Benefits: Improved physical fitness and health maintenance. Improved outdoor recreation skills. Enhanced sense of personal freedom. More well-rounded childhood development. Heightened sense of satisfaction with our area as a place to live. Increased desirability as a place to live or retire. Improved local economic stability. Increased local tourism revenue. Maintenance of community’s distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
Physical
Remoteness: Front Country. The RMZ is surrounded by county roads, and displays tracks from heavy off-road use.

Naturalness:

Front Country.

The area’s natural setting from the intense off-road use may have modifications which range from being easily noticed to strongly dominant to observers within the area. These alterations would remain unnoticed or visually subordinate from sensitive travel routes (Highway 16, 20) and use areas.

Facilities and Structures:

Front Country.

Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:

Middle Country settings.

Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:

Middle Country.

4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Front Country.

On site controls and services are present but harmonize with the natural environment.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, and user safety.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated routes, trailheads, docking stations, designated areas tailored for different degrees of riding experience (novice areas to experienced areas).

Make information available to the surrounding communities.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop areas for novice riders to highly experienced riders.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Class III.

Comprehensive Trails and Travel Management:

Motorized use open to off-road/cross-country use.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens Play RMZ.

Prohibit mineral material sales and/or free use permits in the Basin Gardens Play Area.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:

No glass containers and pallets (burning, etc.) allowed.

Noise constraints are enforceable via 43 CFR 8343.1.

Basin Gardens SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Basin Gardens RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
The Basin Gardens RMZ area was identified through public scoping as a desirable area to enjoy motorized and non-motorized opportunities on BLM-administered public lands that are located close to the communities. Non-motorized opportunities, most especially mountain biking was identified as a highly popular activity. The area is located outside of Greybull, Wyoming. The hills west of the area are very popular for motorized hill climbing activities, as well as some identified mountain biking activities. Management focus for this RMZ will be for non-motorized recreation that would potentially be displaced by the motorized activities that dominate the adjoining RMZ.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p>Objective Statement: Manage the Basin Gardens RMZ for motorized and non-motorized recreationists to engage in hiking, hunting, nature viewing, and wildlife viewing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these back to middle country settings.</p> <p>Activities: Hiking, hunting, nature viewing, wildlife viewing, mountain biking.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Developing skills and abilities.</p> <p>Benefits: Improved physical fitness and health maintenance. Improved capacity for outdoor physical activity. Greater community involvement in recreation and other land use decisions. Heightened sense of satisfaction with our area as a place to live. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Middle Country. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p> <p>Naturalness: Back Country. Natural settings may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Back Country.</p>

Trails may exist but do not exceed standard to carry expected use. Facilities and structures are rare and isolated.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Back Country.

On site controls and services present but subtle. Minimum amount necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, user safety, and designated travel routes.

Provide stewardship information to help preserve the special landscape character.

Make information available to the surrounding communities.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop mountain biking trailheads and mountain biking routes.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Class III.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated routes and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens RMZ.

Prohibit mineral material sales and/or free use permits in the Basin Gardens RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, IMBA, Backcountry Horsemen, and other interested groups.

<p>Horse Pasture SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The Horse Pasture SRMA is 144 acres of BLM-administered public land nestled along the foothills of Rattlesnake Ridge and surrounded by agriculture uses. This area was once used as an oil and gas staging area, complete with residential buildings. Currently, in coordination with Devon Energy Corporation, the BLM is in the process of reclaiming the area to pre-development landscape. The area is used by the community of Worland for uses such as walking, hunting (bird and big game), and nature viewing.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p>Objective Statement: Manage the Horse Pasture SRMA for non-motorized recreationists to engage in photography, hunting, nature viewing, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these middle country settings.</p> <p>Activities: Hiking, wildlife viewing, nature viewing, photography, hunting (bird and big game), dog interaction (walking, training, hunting, etc.).</p> <p>Experiences: Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p> <p>Benefits: Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Front Country. The south boundary is along an improved road used for agricultural purpose. Some primitive routes exist within the area from past management. Within the SRMA, the desired remoteness setting will be middle country, the edge will, by default, be front country.</p>

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Most of the time, social settings will reflect primitive definition.

Operational

Mechanized Use:

Back Country.

Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use so as to maintain current land uses.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop interpretive/historic nature trail within the Horse Pasture.

Develop trailhead at western edge of SRMA.

Signs present at key access points, but limited within the SRMA, with exception to nature trail.

Interpretive signs at trailhead, and along trail.

Administrative**Visual Resource Management:**

Class II.

Comprehensive Trails and Travel Management:

The area is closed to motorized use.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Horse Pasture SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO stipulation will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Community of Worland, Wyoming State Trails Program, Wyoming Game and Fish, Devon Energy, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>Bighorn River SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The Bighorn River has been a very popular area known for river recreation such as boating/floating, fishing, hunting, and motor boating. The southern river segments (from Wedding of the Waters to Skelton Bridge) are managed as a blue-ribbon fishery with many Wyoming Game and Fish managed put-in and take-outs. The river contains BLM-administered islands, as well as other scattered tracts of land that provide for river access. Recently, the BLM acquired the Eggert tract which has enhanced user access to the river, as well as extended float trips from boaters putting-in upstream of the tract. From Greybull north to Bighorn Lake, there are three public access locations: Railroad, Greybull Bridge, and ML Dike Ramp. The Bighorn River tracts are currently managed under the Bighorn River Habitat Management Plan and Recreation Area Management Plan (2/23/1989). The HMP/RAMP prescribes management for other resources such as wildlife, vegetation, fisheries, and invasive and noxious weed management.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Bighorn River SRMA for river recreation use for visitors to engage in sightseeing, hunting, photography, fishing, and floating so that they report realizing a “moderate” level of recreation experience and benefit outcomes in back to middle country settings.</p> <p><u>Activities:</u> Sightseeing, hunting, photography, fishing, and floating.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Enjoy the closeness of family. Experiencing a greater sense of independence. Testing endurance. Enjoy risk taking adventure.</p> <p><u>Benefits:</u> Improved mental well-being. Closer relationship with the natural world. Enhanced sense of personal freedom. Improved physical fitness and health maintenance. Improved skills for outdoor enjoyment. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Increased local job opportunities. Increased local tourism revenue. Improved local economic stability.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Front Country.</p> <p>The tracts provide for main access points to the Bighorn River, which are on or near improved county roads, but at least 0.5 mile from any highway.</p> <p>Naturalness: Back Country.</p> <p>Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area. Some tracts along the Bighorn River (Durkee Boat Ramp) are Front Country due to adjacent land uses.</p> <p>Facilities and Structures: Front Country.</p> <p>Primitive and improved routes/trails may exist. Facilities and structures are scattered.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings.</p> <p>Most of the Bighorn River Tracts are usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on travel routes. Usually group size is small. Most of the time, social settings will reflect primitive definition.</p> <p>Visitor encounters can be high during peak use periods at the boat ramp. Encounters diminish the further downstream (north).</p> <p><u>Operational</u></p> <p>Mechanized Use: Front Country.</p> <p>Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Back Country.</p> <p>On site controls and services are present but subtle.</p> <p>Personnel periodic. Minimum amount necessary to achieve planning objectives.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<p style="text-align: center;"><u>Information and Education</u></p> <p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p>Work closely with the gateway communities of Thermopolis, Worland, Basin, Lovell, and Greybull, and other partners in the region in marketing and outreach.</p> <p style="text-align: center;"><u>Monitoring</u></p> <p>Vehicle counters with routine surveys and observation.</p> <p>Visitor reports of crowding.</p> <p>Informal visitor surveys and formal focus groups as funding allow.</p>

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other river segments, institute fee areas, or limit river use.

Management

Continue to provide for a day use experience and associated facilities with an emphasis on maintaining a middle country recreation setting.

Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.

Provide and maintain visitor facilities, services, signing, and programs.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy exclusion area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Bighorn River SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

An NSO stipulation will be applied.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Communities of Thermopolis, Worland, Basin, Lovell, and Greybull, Wyoming Game and Fish, National Park Service, Friends of Bighorn Lake, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>Beck Lake Area SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The Beck Lake Area SRMA contains about 6,483 acres of BLM-administered public land south of Beck Lake. The area is used by residents of Cody and Park County for uses such as mountain biking, hiking, hunting, driving for pleasure, and wildlife viewing. The City of Cody is seeking a Recreation and Public Purpose (R&PP) lease for land in the northern portion of the SRMA. That land would complement the recreation facilities the City manages at Beck Lake Park. Management of the R&PP area would be governed by agreement(s) and operating plan(s) associated with its R&PP status.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement:</p> <p>Manage the Beck Lake Area community SRMA for non-motorized recreationists to engage in mountain biking, hiking, photography, wildlife viewing, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these rural and front country settings.</p> <p>Activities:</p> <p>Mountain biking, hiking, wildlife viewing, nature viewing, photography, hunting, dog interaction (walking, training, hunting, etc.).</p> <p>Experiences:</p> <p>Enjoy going exploring on my/our own. Learn. Enjoy the closeness of family. Learning more about things here.</p> <p>Benefits:</p> <p>Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p> <p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness:</p> <p>Rural and Front Country.</p> <p>A major highway lies along the eastern boundary of the SRMA. Numerous primitive and developed roads lie within the area.</p>

Naturalness:

Rural to Front Country.

Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within the area.

Facilities and Structures:

Rural and Front Country.

Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.

Social

Contacts and Group Size:

Middle Country settings.

Usually up to 14 encounters/day off travel routes, and up to 29 encounters/day en route. Usually group size is small.

Operational

Mechanized Use:

Back Country.

Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized.

Management Controls and Visitor Services:

Middle Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with access, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailhead.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

The area is closed to motorized use.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

NSO.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property.

The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

City of Cody, Park County Recreation Board, private landowners, local mountain biking and hiking groups, Wyoming State Trails Program, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

<p>Newton Lake Ridge SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The Newton Lake Ridge SRMA contains about 1,997 acres of BLM-administered public land north of Newton Lakes. The area is used by residents of Cody and Park County for uses such as mountain biking, hiking, hunting, and wildlife viewing.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the Newton Lake Ridge SRMA for non-motorized recreationists to engage in mountain biking, hiking, photography, hunting, wildlife viewing, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, and middle country settings.</p>
<p>Activities: Mountain biking, hiking, wildlife viewing, nature viewing, photography, hunting.</p>
<p>Experiences: Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p>
<p>Benefits: Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p>Physical</p>
<p>Remoteness: Rural, Front, and Middle Country. The northeastern boundary is along a major highway. Several short, primitive routes occur within the SRMA.</p>
<p>Naturalness: Front and Middle Country. Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within</p>

the area but not draw the attention of observers on trails and primitive routes.

Facilities and Structures:

Rural and Front Country.

Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Most of the time, social settings will reflect primitive definition.

Operational

Mechanized Use:

Back Country.

Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized.

Management Controls and Visitor Services:

Middle Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailhead.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

The area is closed to motorized use.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

NSO.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

City of Cody, Park County Recreation Board, private landowners, local mountain biking and hiking groups, Wyoming State Trails Program, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls.

Worland Caves ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

This ERMA is within the entire Bighorn Basin Planning Area and will guide recreation management for the known and for newly discovered cave and karst systems for both the Worland and the Cody Field Offices. A cave is defined as any naturally occurring void, cavity, recess, or system of interconnected passages occurring beneath the surface of the Earth or within a cliff or ledge large enough to permit an individual to enter, whether or not the entrance is naturally formed or man. In the planning area, solution caves are, by far the most common type of cave. They are found in limestone and dolomite strata and are formed by the dissolving of rock along and adjacent to joints (fractures), faults, and bedding planes in the rock. Caves were often used by Native Americans as temporary living quarters, storage areas, shelter, and game traps. Cave resources are fragile due to their association with other resources such as groundwater hydrologic systems and biological communities. They may also be considered non-renewable resources due to paleontological and archaeological deposits, speleothems (formations inside caves), and biological resources.

The known cave and karst resources throughout the planning area are very popular for recreational activities. Spirit Mountain, in the Cody Field Office, is an example of observed high recreation use. Caves provide for very unique opportunities and experiences and nearly every caving experience results in desired beneficial outcomes for the visitor. Managing the cave resources as a separate ERMA will enable to focus more recreation management to be more proactive in adequately managing the cave resources, as well as providing for desired cave and karst activities, experiences, and beneficial outcomes.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:

Guidelines to be considered in addressing resource demands include, but are not limited to: a regulation of surface disturbance in regard to future renewable energy developments, the avoidance of future ROW actions through any cave areas deemed to be significant, attempts to acquire resources through exchange, implementing fire suppression restrictions and geophysical exploration restrictions to comply with OHV restrictions, and management under Visual Resource Management (VRM) Class II, III, and IV guidelines as identified for each cave unit. Cave resources could be monitored for degradation. Managers may evaluate the desirability and practicality of various monitoring strategies including, but are not limited to, photo monitoring, water quality monitoring, and a periodic census of indicator species. Management policies and guidelines should be established for cave resources specific to the planning area identifying how to manage the land around the resources including policies related to travel management, gates or barricades, erosion, appropriate recreation use, and resource protection.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:

Maintain primitive and pristine environment in the cave and karst systems.

Naturalness:

Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Facilities and structures are extremely rare and developed only in occasions where necessary to protect the cave and karst environment.

Social

Contacts and Group Size:

Manage for a season average of fewer than 6 encounters/day on and off travel routes.

Operational

Mechanized Use:

Manage for both non-motorized and motorized travel above ground over cave and karst passages.
 Within cave and karst passages, foot traffic only.

Management Controls and Visitor Services:

On site controls and services present at key access points, but subtle.
 Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during spike caving use, usually during the summer.
 Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, and wilderness.
 Provide stewardship information to help preserve the special landscape character.
 Make available for special outdoor educational programs such as Boy Scouts, CORE, and Take it Outside!

Monitoring

Vehicle counters with surveys and observation.
 Visitor registers and cave register to observe crowding issues.
 Informal visitor surveys and formal focus groups as funding allow.
 If trends show that use is over acceptable limits, additional action may be considered.

Management

Cave and Karst management will be guided from the Worland Caves Management Plan.
 Develop primitive trailheads at key access points.
 Install kiosks and signs at trailheads and parking areas.
 Signs present at key access points, but very limited within the ERMA.

Administrative

Visual Resource Management:

Manage consistent with underlying resource VRM prescriptions.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails in areas over important caves or cave passages.

Lands and Realty:

Manage Lands and Realty actions consistent with underlying management prescriptions.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:

Cave and karst areas are closed to mineral material disposals, withdrawn from locatable entry, and closed to mineral leasing. These same restrictions apply to important caves or cave passages and karst resources as they are identified.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Including, but not limited to: Wyoming State Land Board, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association, NOLS, NSS, and local grotto clubs.

Other Administration:

Limit the use of signing or other administrative controls.

ALTERNATIVE C

<p>Rattlesnake Ridge SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>This area is located approximately 4 miles east of Worland, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles; as well as oil and gas extraction activities, ROW projects including radio signal towers, and grazing. Most of the visitors are from within the Worland area, as well as from other areas outside of the Worland area, most especially from Thermopolis, Wyoming. The area is heavily used by motorized use enthusiasts, and is mostly devoid of vegetation. The Rattlesnake Ridge area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. In addition, the surrounding communities had identified this area as highly desirable for motorized recreational opportunities during the RMP Scoping meetings.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Rattlesnake Ridge SRMA with a community recreation strategy for motorized recreationists to engage in ATV, motorbike, and other motorized hill climbing activities so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these front to rural settings.</p> <p><u>Activities:</u> Driving for pleasure, motorcycle hill climbing.</p> <p><u>Experiences:</u> Developing skills and abilities. Enjoying risk-taking adventure. Being around people I know and enjoy.</p> <p><u>Benefits:</u> Improved physical fitness and health maintenance. Improved outdoor recreation skills. Enhanced sense of personal freedom. More well-rounded childhood development. Heightened sense of satisfaction with our area as a place to live. Increased desirability as a place to live or retire. Improved local economic stability. Increased local tourism revenue. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Rural Country. The RMZ is surrounded by county roads, and displays tracks from heavy off-road use. The area is on or near primary highways, but still within a rural area.</p> <p>Naturalness: Rural Country. The area’s natural setting from the intense off-road use as well as the industrial activities is culturally modified to the point that it is dominant to the sensitive travel route observer, Pedestrians or other slow moving observers are constantly within view of culturally changed landscape.</p> <p>Facilities and Structures: Rural Country. Paved, improved, and/or primitive roads/highways dominate the landscape. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Middle Country settings. Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.</p> <p><u>Operational</u></p> <p>Mechanized Use: Middle Country. 4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Rural Country. On site controls and services are obvious and numerous. Largely harmonize with the man-made environment (dominantly from the oil and gas extraction activities and the ROW projects).</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<p style="text-align: center;"><u>Information and Education</u></p> <p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, and user safety. Provide stewardship information to help preserve the special landscape character. Provide for a map with designated routes, trailheads, docking stations, designated areas tailored for different degrees of riding experience (novice areas to experienced areas). Make information available to the surrounding communities. Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p style="text-align: center;"><u>Monitoring</u></p> <p>Vehicle counters with routine surveys and observation. Visitor reports of crowding. Informal visitor surveys and formal focus groups as funding allow. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.</p>

Management

Develop areas for novice riders to highly experienced riders.
Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.
Signs present at key access points, but limited within the SRMA.
Interpretive signs at trailheads and parking areas.

Administrative**Visual Resource Management:**

Class IV.

Comprehensive Trails and Travel Management:

Motorized use open to off-road/cross-country use.

Lands and Realty:

Open to all ROW (including alternative energy realty actions).
Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Open to oil and gas, to mineral entry and, other mineral leasing subject to standard protection measures.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Worland, Thermopolis, Manderson, Basin, and Greybull; Wyoming State Trails Program, surrounding land users and industry, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:

No glass containers and pallets (burning, etc.) allowed.

Noise constraints are enforceable via 43 CFR 8343.1.

<p>Basin Gardens Play Area ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>This area is located between the Communities of Greybull and Basin, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles. Visitors are from within the communities, as well as from outside the area, particularly Billings, Montana. The area is composed of bentonite and mostly devoid of vegetation. The Basin Gardens area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. The communities from RMP Scoping opportunities had identified this area as highly desired for motorized recreational opportunities.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p>Objective Statement: Manage the Basin Gardens Play Area as a separate ERMA for motorized recreationists to engage in ATV, motorbike, and other motorized hill climbing activities so as to address public health and safety, use and user conflicts, and resource protection in these Front Country settings.</p>
<p>MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS</p>
<p>Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.</p>
<p><u>Physical</u> Remoteness: Front Country. The RMZ is surrounded by county roads, and displays tracks from heavy off-road use. Naturalness: Front Country. The area’s natural setting from the intense off-road use may have modifications which range from being easily noticed to strongly dominant to observers within the area. These alterations would remain unnoticed or visually subordinate from sensitive travel routes (Highway 16, 20) and use areas. Facilities and Structures: Front Country. Primitive and improved routes/trails may exist. Facilities and structures are scattered.</p>
<p><u>Social</u> Contacts and Group Size: Middle Country settings. Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.</p>
<p><u>Operational</u> Mechanized Use: Middle Country. 4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.</p>
<p>Management Controls and Visitor Services: Front Country. On site controls and services are present but harmonize with the natural environment.</p>

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, and user safety.

Provide for a map with designated routes, trailheads, docking stations, designated areas tailored for different degrees of riding experience (novice areas to experienced areas).

Make information available to the surrounding communities.

Make available for special educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other OHV areas/ trails.

Management

Develop areas for novice riders to highly experienced riders.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Signs present at key access points, but limited within the ERMA.

User ethics and informational signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Manage visual resource objectives consistent with adjacent resource program prescriptions. Manage surface-disturbing activities so as to minimize visual contrasts.

Comprehensive Trails and Travel Management:

Motorized use open to off-road/cross-country use.

Lands and Realty:

Open the Basin Gardens Play area to new ROWs.

Minerals:

Pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens Play Area ERMA.

Prohibit mineral material sales and/or free use permits in the Basin Gardens Play Area.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife).

Open the Basin Gardens Play area to oil and gas and other mineral leasing subject to standard protection measures.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:

No glass containers and pallets (burning, etc.) allowed.

Noise constraints are enforceable via 43 CFR 8343.1.

<p>Basin Gardens ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>The Basin Gardens RMZ area was identified through public scoping as a desirable area to enjoy motorized and non-motorized opportunities on BLM-administered public lands that are located close to the communities. Non-motorized opportunities, most especially mountain biking was identified as a highly popular activity. The area is located outside of Greybull, Wyoming. The hills west of the area is very popular for motorized hill climbing activities, as well as some identified mountain biking activities. Management focus for this RMZ will be for non-motorized recreation that would potentially be displaced by the motorized activities that dominate the adjoining RMZ.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p><u>Objective Statement:</u> Manage the Basin Gardens RMZ for motorized and non-motorized recreationists to engage in hiking, hunting, nature viewing, and wildlife viewing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these back to middle country settings.</p>
<p>MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS</p>
<p>Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.</p>
<p><u>Physical</u></p> <p><u>Remoteness:</u> Middle Country. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p> <p><u>Naturalness:</u> Back Country. Natural settings may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p><u>Facilities and Structures:</u> Back Country. Trails may exist but do not exceed standard to carry expected use. Facilities and structures are rare and isolated.</p> <p><u>Social</u></p> <p><u>Contacts and Group Size:</u> Back Country. Usually 3-6 encounters/day off travel routes and 7-15 encounters/day on travel routes. Usually group size is small.</p> <p><u>Operational</u></p> <p><u>Mechanized Use:</u> Middle Country. 4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.</p> <p><u>Management Controls and Visitor Services:</u> Back Country. On site controls and services present but subtle. Minimum amount necessary to achieve planning objectives.</p>

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, and user safety.

Provide stewardship information to help preserve the special landscape character.

Make information available to the surrounding communities.

Make available for special educational programs such as CORE and Take it Outside!

Monitoring

Monitor visitor use, visitor safety, and resource conditions through; BLM staff, volunteers and recreation-tourism partnerships (e.g., towns, outfitters, recreation organizations, etc.).

Vehicle counters with routine surveys, on-site patrols, and observation.

Management

Develop mountain biking trailheads and mountain biking routes.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Signs present at key access points, but limited within the ERMA.

Interpretive signs at trailheads and parking areas.

Administrative

Visual Resource Management:

Manage visual resource objectives consistent with adjacent resource program prescriptions. Manage surface-disturbing activities so as to minimize the degree of visual contrast.

Comprehensive Trails and Travel Management:

Motorized use is limited to existing roads and trails.

Lands and Realty:

Open the Basin Gardens area to new ROWs.

Open the Basin Gardens area to alternative energy realty actions (i.e., wind, solar, etc.).

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens area.

Authorize mineral material sales and/or free use permits in the Basin Gardens area.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife).

Open the Basin Gardens Creek area to oil and gas and other mineral leasing subject to standard protection measures.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, IMBA, Backcountry Horsemen, and other interested groups.

ALTERNATIVES D AND F

<p>Absaroka Mountain Foothills SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>This SRMA is necessary to accommodate back to middle country recreational experiences in a recreational resource rich environment. The Absaroka Mountain Foothills area is a very popular destination for both local residents and out-of-region visitors due to the openness, and naturalness of the area. The area is abundant in a wide variety of wildlife including grizzly bears, major access into the Shoshone National Forest and the Washakie Wilderness, and dramatic scenery.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the Absaroka Mountain Foothills as an undeveloped SRMA for non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that they realize a “moderate” level of the targeted experience and benefit outcomes listed below in these Back Country and Middle Country settings.</p> <p>Activities: Wildlife viewing, nature viewing, hiking, hunting, horseback riding.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Learning more about things here.</p> <p>Benefits: Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Improved mental well-being and physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p> <p><u>Physical</u></p> <p>Remoteness: Back Country. Implement/maintain road closures to maintain back country settings.</p> <p>Naturalness: Back Country. Manage for back country and middle country settings where natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p>

Facilities and Structures:

Back Country.

Allow for primitive motorized routes and non-motorized trails to exist. Facilities and structures are rare and often accessible via unimproved routes. Horse and hiking trailheads will be constructed at major key access points.

Social

Contacts and Group size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Back to Middle Country.

Main access roads are crowned and ditched gravel roads accessed by 2-wheel and 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use. Roads within the LU Sheep Company area are closed, but available for public access during hunting season. Trails for non-motorized use will be constructed so as to access public lands.

Management Controls and Visitor Services:

Middle Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails, and seasonal closures within the LU Sheep Company area.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the LU Ranch cooperative agreement.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

Visitor surveys will be available in register boxes at trailheads.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Develop trailheads for foot and horse travel. Potential locations will include the Blue Creek Trail, and sites along the South fork of the Owl Creek. Additional sites may be identified throughout the life of the plan.

Administrative

Visual Resource Management:

Class II.

Appendix O – Recreation

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Absaroka Mountain Foothills SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

For lands within the Absaroka Front Management Area, oil and gas leasing is subject to those management actions.

Outside of the Absaroka Front Management Area, allow surface-disturbing activities in the Absaroka Mountain Foothills SRMA such as geophysical exploration, salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

A CSU will be stipulated within the SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Maintain cooperative agreement with Wyoming State Land Board, Wyoming State Game and Fish, and LU Sheep Company.

Seek other agreements and partnerships as appropriate.

Partners:

Surrounding private land owners, Shoshone National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Rocky Mountain Elk Foundation, LU Sheep Company, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Pack goats are prohibited.

<p>Absaroka ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>This separate ERMA is necessary to accommodate back to middle country recreational experiences in a recreational resource rich environment. The Absaroka Mountain Foothills area is a very popular destination for both local residents and out-of-region visitors due to the openness, and naturalness of the area. The area is abundant in a wide variety of wildlife including grizzly bears, major access into the Shoshone National Forest and the Washakie Wilderness, and dramatic scenery. However, despite the natural recreational resources, access is very challenging due to the scattered parcels of BLM-administered public land which invites user conflicts.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p>Objective Statement:</p> <p>Manage the Absaroka Foothills as an ERMA for non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing these Back Country and Middle Country settings. Recreation management will focus on addressing resource protection, minimizing use and user conflicts, and public health and safety.</p>
<p>MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS</p>
<p>Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.</p>
<p><u>Physical</u></p> <p>Remoteness: Middle Country. Implement a Travel Management Plan so as to maintain the back to middle country settings. Maintain Back Country settings within the South Owl Creek Canyon.</p> <p>Naturalness: Back Country. Manage for back country settings where natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Middle Country. Allow for primitive motorized routes and non-motorized trails to exist. Facilities and structures are rare and often accessible via unimproved routes. Horse and hiking trailheads will be constructed at major key access points. Maintain primitive setting within the South Owl Creek canyons where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.</p> <p><u>Social</u></p> <p>Contacts and Group size: Back Country. Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.</p> <p><u>Operational</u></p> <p>Mechanized Use: Back to Middle Country. Main access roads are crowned and ditched gravel roads accessed by 2-wheel and 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use. Trails for non-motorized use will be constructed so as to access public lands.</p>

Management Controls and Visitor Services:

Middle Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, easements, trailheads, and surface ownership.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Monitor visitor use, visitor safety, and resource conditions through; BLM staff, volunteers and recreation-tourism partnerships (e.g., towns, outfitters, recreation organizations, etc.).

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the ERMA.

Interpretive signs at trailheads and parking areas.

Develop recreational facilities so as to address resource protection, use and user conflicts, and public health and safety.

Administrative**Visual Resource Management:**

Manage VRM consistent with other resource objectives.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Absaroka ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

For lands within the Absaroka Front Management Area, oil and gas leasing is subject to those management actions.

Outside of the Absaroka Front Management Area, allow surface-disturbing activities in the Absaroka ERMA such as geophysical exploration, salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

A CSU will be stipulated within the ERMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding private land owners, Shoshone National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups and stakeholders.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Pack goats are prohibited.

<p>Bighorn River SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The Bighorn River is a popular area known for river recreation such as boating/floating, fishing, hunting, and motor boating. The river contains scattered tracts of BLM-administered lands that provide for river access. From Greybull north to Bighorn Lake, there are three public access locations: Railroad, Greybull Bridge, and ML Dike Ramp. There may be opportunities in the future to provide additional access. The Bighorn River tracts are currently managed under the Bighorn River Habitat Management Plan and Recreation Area Management Plan (2/23/1989). The HMP/RAMP prescribes management for other resources such as wildlife, vegetation, fisheries, and invasive and noxious weed management.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Bighorn River SRMA for river recreation use for visitors to engage in sightseeing, hunting, photography, fishing, and floating so that they report realizing a “moderate” level of recreation experience and benefit outcomes in back, middle, and front country settings.</p> <p><u>Activities:</u> Sightseeing, hunting, photography, fishing, and floating.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Enjoy the closeness of family. Experiencing a greater sense of independence. Testing endurance. Enjoy risk taking adventure.</p> <p><u>Benefits:</u> Improved mental well-being. Closer relationship with the natural world. Enhanced sense of personal freedom. Improved physical fitness and health maintenance. Improved skills for outdoor enjoyment. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Increased local job opportunities. Increased local tourism revenue. Improved local economic stability.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Front Country. The tracts provide for main access points to the Bighorn River, which are on or near improved county roads, but at least 0.5 mile from any highway.</p> <p>Naturalness: Back Country. Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area. Some tracts along the Bighorn River are Front or Middle Country due to adjacent land uses.</p> <p>Facilities and Structures: Front Country. Primitive and improved routes/trails may exist. Facilities and structures are scattered.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings. Most of the Bighorn River Tracts are usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on travel routes. Usually group size is small. Most of the time, social settings will reflect primitive definition. Visitor encounters can be high during peak use periods at the boat ramps. Encounters diminish the further downstream (north).</p> <p><u>Operational</u></p> <p>Mechanized Use: Front Country. Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Back Country. On site controls and services are present but subtle. Personnel periodic. Minimum amount necessary to achieve planning objectives.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<u>Information and Education</u>
<p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p>Work closely with the gateway communities of Thermopolis, Worland, Basin, Lovell, and Greybull, and other partners in the region in marketing and outreach.</p>
<u>Monitoring</u>
<p>Vehicle counters with routine surveys and observation.</p> <p>Visitor reports of crowding.</p> <p>Informal visitor surveys and formal focus groups as funding allow.</p> <p>If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other</p>

river segments, institute fee areas, or limit river use.

Management

Continue to provide for a day use experience and associated facilities with an emphasis on maintaining a middle country recreation setting.

Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.

Provide and maintain visitor facilities, services, signing, and programs.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Bighorn River SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

An NSO stipulation will be applied to the SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Communities of Thermopolis, Worland, Basin, Lovell, and Greybull, Wyoming Game and Fish, National Park Service, Friends of Bighorn Lake, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Bighorn River ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

The Bighorn River has been a very popular area known for river recreation such as boating/floating, diverse fishery, hunting, and even motor boating. The southern river segments (from Wedding of the Waters to Skelton Bridge) are managed as a blue-ribbon fishery with many Wyoming Game and Fish managed put-in and take-outs. The river contains BLM-administered islands, as well as other scattered tracts of land that provide for river access. Recently, the BLM acquired the Eggert tract which has enhanced user access to the river, as well as extend float trips from boaters putting-in upstream of the tract. The Bighorn River tracts are currently managed under the Bighorn River Habitat Management Plan and Recreation Area Management Plan (2/23/1989). The HMP/RAMP prescribes management from other resources such as wildlife, vegetation, fisheries, and invasive and noxious weed management. Most river access is via the Wyoming Game and Fish access points. Readily accessible BLM-administered public lands are located outside of the “blue-ribbon” section of the Bighorn River, and the tracts are scattered. Primary objectives for these tracts are to enhance wildlife habitat.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:

Manage access to the Bighorn River ERMA for river recreation use for visitors to engage in sightseeing, hunting, photography, fishing, and floating. Manage recreation use for enhanced recreational opportunities, as well as to manage for resource protection, and to minimize use and user conflicts, and public health and safety consistent with the HMP/RAMP.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:

Front Country.

The tracts provide for main access points to the Bighorn River, which are on or near improved county roads, but at least 0.5 mile from any highway.

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area. Some tracts along the Bighorn River (Durkee Boat Ramp) are Front Country due to adjacent land uses.

Facilities and Structures:

Front Country.

Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:

Back Country settings.

Most of the Bighorn River Tracts are usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on travel routes. Usually group size is small. Most of the time, social settings will reflect primitive definition.

Visitor encounters can be high during peak use periods at the boat ramps located in the southern sections of the Bighorn River (Wedding of the Waters to Skelton Bridge). Encounters diminish the further downstream (north).

Operational**Mechanized Use:**

Front Country.

Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Minimum amount necessary to achieve planning objectives.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Work closely with the gateway communities of Thermopolis, Worland, Basin, and Greybull, and other partners in the region in marketing and outreach.

Monitoring

Vehicle counters at access points with routine surveys and observation.

Solicit partnerships and cooperative agreements to: Monitor recreation setting condition through on-site patrols. Informal visitor surveys and formal focus groups as funding allow.

Visitor reports of crowding. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other river segments, institute fee areas, or limit river use.

Management

Continue to provide for a day use experience and associated facilities with an emphasis on maintaining a middle country recreation setting.

Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.

Provide and maintain visitor facilities, services, signing, and programs.

Administrative**Visual Resource Management:**

Manage visual resources consistent with adjacent resource prescriptions.

Comprehensive Trails and Travel Management:

Manage trails and travel management consistent with adjacent resource prescriptions.

Lands and Realty:

Lands within the Bighorn River ERMA are ROW avoidance areas. ROWs are collocated whenever possible.

The Bighorn River ERMA is an alternative energy avoidance area for realty actions (i.e., wind, solar, etc.).

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Bighorn River ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Apply an NSO restriction on lands within the Bighorn River ERMA.

Avoid surface-disturbing activities within the Bighorn River ERMA such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of

recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Communities of Thermopolis, Worland, Basin, and Greybull, Wyoming Game and Fish, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Tour de Badlands RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is contained within the Badlands SRMA, which is popular for motorized touring to explore the scenic desert basin. Natural recreational resources within the SRMA contain wildlife, open spaces, wild horses, and an erratic landscape which offers outstanding scenic quality.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p><u>Objective Statement:</u> Manage the Tour de Badlands RMZ for motorized recreationists to engage in motorized sightseeing touring, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Middle Country and Front Country settings.</p> <p><u>Activities:</u> Driving for pleasure, hunting, wildlife viewing, nature viewing, sightseeing.</p> <p><u>Experiences:</u> Enjoy having easy access to natural landscapes. Enjoy having access to close-to-home outdoor amenities. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.</p> <p><u>Benefits:</u> Improved mental well-being. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Positive contributions to local-regional economic stability. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p><u>Remoteness:</u> Middle/Front Country. On or near 4-wheeled drive and improved roads. Maintain main access roads through the area for 2-wheel and 4-wheel drive access into the Badlands area.</p> <p><u>Naturalness:</u> Middle Country. Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trails and primitive roads within the area.</p>

Facilities and Structures:

Front Country.

Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Front Country.

2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use. On site controls and services present but subtle.

Management Controls and Visitor Services:

Middle Country.

On site controls and services present but subtle. Signs present at key access points. Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, wildlife, and wild horses resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the wild horse program, and surrounding WSAs.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Maintain a strong sign program so as to keep the access routes within the RMZ well marked.

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop one or more scenic interpretive sites and driving loops for motorized and mechanized travel in the Tour de Badlands area within the Badlands SRMA to highlight the area's scenic values. These could involve the Fifteenmile Creek and Dorsey Creek roads and The Murphy Draw Road with overlooks at the Painted Canyon of Elk Creek and at Bobcat Draw.

Identify routes to close and reclaim, construct new routes, and identify routes to remain open.

Develop trailheads for ATV unloading stations.

Interpretive signs at trailheads and parking areas.

Additional sites may be identified throughout the life of the plan.

Signs present at key access points, but limited within the RMZ.

Administrative**Visual Resource Management:**

Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:

Limited to designated roads and trails.

Lands and Realty:

ROW exclusion area.

Alternative energy avoidance area for realty actions.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Tour de Badlands area.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.

Allow surface-disturbing activities in the Tour de Badlands RMZ such as geophysical exploration (except casual use), saleable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Private landowners, Wyoming Department of Transportation, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, IMBA, community ATV organizations, and other clubs/organizations.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Wild Badlands RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is within the Badlands SRMA. This RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, management to maintain the primitive to semi-primitive setting characteristics, wilderness characteristics, three WSAs, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p><u>Objective Statement:</u> Manage the Wild Badlands RMZ exclusively for non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country settings.</p> <p><u>Activities:</u> Hiking, hunting, wildlife viewing, nature viewing, sightseeing.</p> <p><u>Experiences:</u> Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Enjoy having easy access to natural landscapes.</p> <p><u>Benefits:</u> Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Closer relationship with the natural world. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p><u>Remoteness:</u> Back Country. Maintain road closures to maintain back country settings.</p> <p><u>Naturalness:</u> Back Country. Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p><u>Facilities and Structures:</u> Primitive. Trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare and</p>

developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:

Back Country.

Manage for a season average of fewer than 6 encounters/day on and off travel routes.

Operational

Mechanized Use:

Primitive.

Non-motorized and non-mechanized (foot and horseback) travel only.

Management Controls and Visitor Services:

Back Country.

On site controls and services present at key access points, but subtle.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, and wilderness.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with WSAs, access points, information regarding the wilderness program, and outdoor ethics messages such as Leave No Trace!

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with surveys and observation along perimeter of WSAs.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Identify routes to close and reclaim. Modify identified routes into non-motorized and non-mechanized trails.

Develop primitive trailheads at key access points.

Install kiosks and signs at trailheads and parking areas.

Signs present at key access points, but very limited within the RMZ.

Administrative

Visual Resource Management:

Class I.

Comprehensive Trails and Travel Management:

Closed to motorized and non-mechanized travel.

Lands and Realty:

ROW avoidance area.

Alternative energy exclusion area for realty actions.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:

Mineral uses, Oil and Gas and Geothermal leasing, exploration, and development will be guided by the Interim

Management Policy for Lands under Wilderness Review (IMP).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Tatman Mountain RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is within the Badlands SRMA. Much like the Wild Badlands RMZ, this RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, dominant mountainous environment, and current management to maintain the primitive to semi-primitive setting characteristics, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences. The RMZ is located to the west of Sheep Mountain WSA and provides for exceptional wildlife resource opportunities, access, motorized and primitive forms of touring, and high scenic quality.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p>Objective Statement: Manage the Tatman Mountain RMZ for non-motorized recreationists to engage in muscle-powered activities such as hiking, hunting, mountain biking, and horseback riding so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes in these Back country to Middle country settings.</p> <p>Activities: Hiking, hunting, mountain biking, wildlife viewing, nature viewing, sightseeing.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Enjoy having easy access to natural landscapes.</p> <p>Benefits: Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Closer relationship with the natural world. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Middle Country. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p> <p>Naturalness: Back Country. Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p>

Facilities and Structures:

Back Country.

Trails may exist but do not exceed standard to carry expected use.

Facilities and structures are extremely rare and developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:

Back Country.

Manage for a season average of fewer than 6 encounters/day on and off travel routes. In issuing SRPs, allow for a group size less than 5 participants.

Operational

Mechanized Use:

Middle/Back Country.

Middle country for the access routes acting as main portals into the RMZ. Manage for back country settings (non-motorized travel) outside of those corridors.

Management Controls and Visitor Services:

Middle Country.

On site controls and services present at key access points, but subtle.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.

Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, wild horses, and wilderness characteristics.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated routes and trails, key access points, private lands, and outdoor ethics messages such as Tread Lightly and Leave No Trace!

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Identify routes to maintain as open to motorized use. Reclaim routes identified as closed. Maintain open routes so as to sustain motorized use. Modify identified closed routes into non-motorized and mechanized trails for muscle-powered recreational activities.

Develop primitive trailheads at key access points.

Install kiosks and signs at trailheads and parking areas.

Signs present at key access points, but very limited within the RMZ.

Administrative**Visual Resource Management:**

Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Acquire legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Tatman Mountain RMZ.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:

A CSU is stipulated within this zone.

Allow surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

West Slope of the Bighorns SRMA – Worland Field Office

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

Canyons RMZ

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

This RMZ is contained within the West Slope of the Bighorns SRMA. The Canyon RMZ attracts visitors from both the surrounding communities to outside the region. The Medicine Lodge State Park attracts many visitors who enjoy exploring the slope of the Bighorns. Such resources include the Medicine Lodge and Dry Medicine Lodge canyons, Paint Rock Canyon, Trapper Creek and White Creek canyons, Spanish Point ACEC, Red Gulch Dinosaur Tracksite and the Red Gulch Dinosaur Tracksite ACEC, the Hyattville Logging Road, the Red Gulch/Alkali Road Backcountry Byway, prominent wildlife habitat management areas, abundant wildlife and fishing, significant cave and karst resources, highly rated scenic quality and access into the Bighorn National Forest. These resources provide for excellent primitive non-motorized recreation to motorized (touring) recreation.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement:

Manage the Canyons RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, wildlife viewing, hunting, fishing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes listed below in these Back Country and Middle Country settings.

Activities:

Hunting, wildlife viewing, fishing, nature viewing, hiking, photography, sightseeing, spelunking.

Experiences:

Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.

Developing skills and abilities.

Enjoy going exploring on my/our own.

Enjoy having easy access to natural landscapes.

Enjoying the closeness of family.

Benefits:

Improved mental well-being and physical fitness and health maintenance.

Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance.

Increased appreciation of area’s cultural history.

Heightened sense of satisfaction with our area as a place to live.

Greater family bonding.

Positive contributions to local-regional economic stability.

Maintenance of community’s distinctive recreation/tourism market niche or character.

Increased desirability as a place to live or retire.

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS

Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:

Back to Middle Country.

On land surrounding the Red Gulch/Alkali Road Back Country Byway, Cold Springs Road, Hyattville Logging Road, and the Black Butte road, maintain middle country settings on or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Maintain back country settings within the WSAs and canyons.

Naturalness:

Middle/Back Country.

Natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area and primitive motorized routes and non-motorized trails may exist. Maintain primitive naturalness settings for the WSAs and canyons where lands are essentially an unmodified natural environment. Evidence of humans is unnoticed by an observer wandering through the area.

Facilities and Structures:

Primitive/Back Country.

Facilities and structures are rare and often accessible via unimproved routes. Maintain primitive settings in the WSAs where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes for the majority of the zone. Usually group size is small. Areas such as Dry Medicine Lodge Canyon, Cold Springs Road, Hyattville Logging Road, and Paint Rock Canyon is middle country where 7-14 encounters/day off travel routes, and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:

Middle/Back Country.

Maintain Middle country settings along the Cold Springs Road, Black Butte Road, Hyattville Logging Road, and the Red Gulch/Alkali Road Back Country Byway where 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use are acceptable. Maintain Back Country settings within the Spanish Point ACEC where mountain bikes perhaps other mechanized use is allowed, but all travel is non-motorized.

Management Controls and Visitor Services:

Middle/Front Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails outside the Spanish Point ACEC. Motorized use within the ACEC is strictly prohibited.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Red Gulch/Alkali Road Back Country Byway, Medicine Lodge Wildlife Habitat Area; Trapper Creek, Medicine Lodge, and Alkali Creek WSAs,

the Madison Recharge zone, and caving ethics.

Maintain the Red Gulch Dinosaur Tracksite.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols throughout the year.

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailheads and parking areas.

Develop new and maintain trailheads for foot and horse travel. Potential locations will include the Webber Canyon area, White Creek, Black Mountain area, Wapiti Ridge Trail, Lone Tree Trail and trailhead, Black Butte, and along the Red Gulch/Alkali Road Back Country Byway. Additional sites may be identified throughout the life of the plan.

Upgrade access route to the Lone Tree trailhead and upgrade the Lone Tree Trail.

Develop hiking trails in the Wet and Dry Medicine Lodge Canyons.

Construct Trailheads to accommodate mountain bike users.

Construct Pull-offs along the Red Gulch/Alkali Road.

Back Country Byway.

Maintain the OHV route between the Medicine Lodge State Park and Cold Springs Road.

Designate motorized touring loops connecting with the Bighorn National Forest, the Canyons RMZ, and the Brokenback/Logging Road RMZ, which may include new construction.

Develop campgrounds if needed.

Work with local spelunking community and adjacent land management agencies to maintain cave and karst areas.

Administrative

Visual Resource Management:

Class I within the Medicine Lodge, Trapper Creek, and Alkali Creek WSAs. Class II and III for the remainder of RMZ.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails. Off road use within the WSAs is strictly prohibited.

Over-snow travel off of designated routes and ways is strictly prohibited.

All motorized travel is prohibited within the Spanish Point ACEC.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Consider the acquisition of legal and/or physical access for hunting, fishing, and camping. Consider acquiring areas such as Horse Mountain, Trapper Creek, and White Creek.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Canyons RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply CSU restriction for this zone.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Maintain cooperative agreement with Wyoming State Land Board, and Wyoming State Game and Fish.

Seek other agreements and partnerships as appropriate.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Medicine Lodge State Park, IMBA, surrounding private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

West Slope of the Bighorns SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Brokenback/Logging Road RMZ
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This area exhibits exceptional scenic quality, wildlife resources, and exposed geologic formations. The Hyattville Logging Road is within this area and is proposed to be a backcountry byway for Alternative B. The Logging Road is a popular access point into the Bighorn Mountains. Two other routes, the North and South Brokenback Roads act as very popular access points into the RMZ, as well as the Bighorn National Forest, during the big game hunting seasons. Access into this area is in part due to a coordinated agreement between the Wyoming Game and Fish and surrounding private land holders, as well as a foot/horse trail developed by the BLM so as to access more of this area. This area is a very popular hunting area for both local and visiting hunters.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p><u>Objective Statement:</u> Manage the Brokenback/Logging Road RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hiking, hunting, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country and Middle Country settings.</p> <p><u>Activities:</u> Hunting, hiking, wildlife viewing, nature viewing, driving for pleasure.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoying the closeness of family.</p> <p><u>Benefits:</u> Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Stronger ties with my family and friends. Greater awareness that the Bighorn Basin is special. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p><u>Remoteness:</u> Middle Country Settings.</p>

On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.

Front Country settings along the Hyattville Logging Road.

On or near improved country roads, but at least 0.5 mile from any highway.

Naturalness:

Back Country Settings.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Front/Middle Country.

Front Country settings for lands along the South and North Brokenback Roads, and along the Hyattville Logging Road.

Primitive and improved routes/trails may exist. Facilities and structures are back country settings where they are rare and isolated.

Remainder of RMZ is Middle Country.

Primitive motorized and non-motorized trails may exist.

Social

Contacts and Group Size:

Back Country.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Back Country.

On site controls and services present but subtle. Minimum amount necessary to achieve planning objectives.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hyattville/Logging Road Back Country Byway, Carter Access area, and Wyoming Game and Fish Wildlife Habitat Management Areas.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop facilities to enhance recreation and visitor services for the following areas:

- Trailheads for North and South Brokenback areas, Laddie Creek, and the Hyatteville Logging Road.
- Pull-outs along the Hyatteville Logging Road.
- Improve Salt Lick trail and trailhead.
- Construct additional trailheads and trails on a case-by-case basis or as the needs arise.

Designate motorized touring loops within the Brokenback/Logging road RMZ as well as connecting with the Canyons RMZ and the Bighorn National Forest, which may include new construction.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Continue to implement current South Broken Back Travel Management Plan.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Consider the acquisition of legal and/or physical access for hunting, fishing, and camping for areas including but not limited to North and South Brokenback roads, Luman Creek Road, Military Creek Road, Dorn Draw Road.

Lengthen public access duration for the North and South Brokenback roads to yearlong access under terms of the related Travel Management Plan.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Brokenback/Logging Road RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply a CSU for this zone.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue additional access agreement in the South Brokenback, and North Brokenback areas.

Maintain current easement agreement with local land owners in this zone.

Seek other agreements and partnerships as appropriate.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

<p>West Slope SRMA – Cody Field Office</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The west slope of the Bighorn mountains attracts visitors from the surrounding communities and from outside the region due to the spectacular scenery, abundant wildlife, and exposed geologic formations. Nearby attractions which also draw visitors to the area include the Bighorn Canyon National Recreation Area, and the Medicine Wheel on the Bighorn National Forest. Also, some visitors traveling to or from Yellowstone National Park spend time in the area. The SRMA includes the Little Mountain, Five Springs, and Brown/Howe Dinosaur ACECs, several creeks found eligible for possible inclusion into the Wild and Scenic River system, and significant cave and karst resources. The Five Springs Falls Campground and the Cottonwood Creek Trailhead are BLM-managed sites within the SRMA. The west slope of the Bighorns provides important wildlife habitat and access into the Bighorn National Forest. These resources provide for excellent semi-primitive non-motorized recreation to motorized (touring) recreation.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the West Slope of the Bighorns SRMA for motorized and non-motorized recreationists to engage in hunting, hiking, horseback riding, wildlife viewing, sightseeing, fishing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back, Middle, and Front Country settings.</p> <p>Activities: Hunting, wildlife viewing, hiking, photography, sightseeing, driving for pleasure.</p> <p>Experiences: Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Developing skills and abilities. Enjoy going exploring on my/our own. Enjoying the closeness of family.</p> <p>Benefits: Improved mental well-being and physical fitness and health maintenance. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community’s distinctive recreation/tourism market niche or character. Increased desirability as a place to live or retire.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p> <p><u>Physical</u> Remoteness: Middle Country. Maintain Middle Country settings on much of the SRMA where lands are on or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.</p>

Back Country.

Maintain back country settings where lands are more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight.

Naturalness:

Back/Middle Country.

Natural setting may have subtle to moderately dominant modifications that would be noticed but not draw the attention of the casual observer wandering through the area and primitive motorized routes and non-motorized trails may exist.

Facilities and Structures:

Middle Country.

Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:

Back Country.

Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

Maintain Middle Country settings where 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use are acceptable.

Management Controls and Visitor Services:

Middle Country.

Signs present at key access points.

Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.

Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, and camp sites.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present to identify roads and provide directions.

Interpretive signs at trailheads, campgrounds, and parking areas.

Develop a recreation site at Rainbow Canyon.

Additional recreational developments may be done throughout the life of the plan, if warranted.

Administrative

Visual Resource Management:

Class II and III for the SRMA.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

Open to ROWs.

Open to renewable energy development.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, National Park Service, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

<p>South Bighorns ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>The southern Bighorns are popular for visitors to explore, hike, and especially hunt. Outfitters and tour guides enjoy guiding clients here due to the impressive and exceptional scenic qualities, abundant wildlife, and alternative access points onto 33-Mile Road (Hazelton Road) which exhibits exceptional viewing opportunities of the surrounding mountain landscape, the Cloud Peak Wilderness, the Bighorn Basin, and the Powder River Basin to the east; as well as access into the Hole-in-the-Wall region, the Middle Fork of the Powder River, Casper, and the Bighorn National Forest. The South Bighorns contain a rich history including cattle and sheep operations, mining, and infamous outlaws including Billy the Kid. Currently, an impressive coordinated travel management effort improving access into the area as well as improving resource management exists between the BLM, Wyoming State Game and Fish, Wyoming State Land Board, and the Orchard Ranch. A coordinated resource effort once existed between the BLM, Wyoming State Land Board, and the Wyoming Game and Fish Department, which accomplished recreation, wildlife, and weed management goals. The impressive Deep Creek is a waterway segment identified as eligible and draft suitable for inclusion into the Wild and Scenic Rivers System, as well as a sought-after fishery for exceptional fishing and sightseeing opportunities. Due to the amount of and the spatial location of private lands within the Southern Bighorns, the most appropriate recreation management strategy of the area would be under a separate ERMA.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p>Objective Statement:</p> <p>Manage the South Bighorns as an ERMA for motorized and non-motorized recreationists to engage in hiking, wildlife viewing, nature viewing, hunting, fishing, and driving for pleasure in these Back Country and Middle Country settings.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p><u>Physical</u></p> <p>Remoteness: Middle Country Settings. On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Front Country settings along Rome Hill Road, Dry Farm Road, and Hazelton Road. On or near improved country roads, but at least 0.5 mile from any highway.</p> <p>Naturalness: Back Country Settings. Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Middle Country. Primitive motorized and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings. Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Rural settings along Upper Nowood Road where people seem to be everywhere, but human contact remains intermittent.</p>

Operational

Mechanized Use:

Front/Middle Country.

Front Country along Cherry Creek Road, Dry Farm Road, Spring Creek Road, Rome Hill Road, and Hazelton Road.

2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.

Middle Country for remainder of ERMA.

4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Some onsite visitor orientation (kiosk and trail markers) will be developed, which may include interpretive signs at trailheads and parking areas on history, user ethics, wildlife resources, etc.

Provide stewardship information to help preserve the special landscape character. Work with partners to provide additional interpretation of the historic events and buildings, ranches, and other remnants.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hazelton Road Back Country Byway, and the Upper Nowood Travel Management Plan.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys, on-site patrols, and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop facilities necessary to maximize recreational opportunities at areas such as, but not limited to the Cherry Creek stock driveway crossing of Deep Creek, Otter Creek, and Split Rock.

Develop trailheads for Mahogany Butte, Deep Creek, Upper Nowood areas, and in other areas on a case-by-case basis so as to sustain recreational opportunities, as well as to address use and user conflicts, public health and safety, and to address resource protection.

Administrative

Visual Resource Management:

Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Continue to implement Upper Nowood Travel Management Plan.

Lands and Realty:

ROW avoidance area.

Open to alternative energy development. Co-locate renewable energy ROW authorizations whenever possible.

Consider the acquisition of legal and/or physical access for hunting, fishing, boating, and camping. Areas to be considered for acquisition include Otter Creek, Deep Creek, Little Canyon Creek, public land tracts along the Nowood River area, Cherry Creek Road to Hazelton Road, Lysite Mountain, land parcels within Spring Creek, and Spring Creek Road to Rome

Hill Road.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the South Bighorns ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities.

Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue/revitalize cooperative agreement with Double-H Ranch, Wyoming State Land Board, and Wyoming Game and Fish.

Maintain cooperative agreement with Orchard Ranch, Wyoming State Land Board, and Wyoming Game and Fish.

Seek other agreements and partnerships as appropriate.

Partners:

Including, but not limited to the Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Orchard Ranch, Double-H Ranch, Back Country Horsemen, Rocky Mountain Elk Foundation, Ten Sleep, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Middle Fork of the Powder River SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

BLM manages a campground along the Middle Fork of the Powder River which is a destination area for visitors from within and outside the region. The Middle Fork of the Powder River is managed as a blue ribbon trout fishery, as well as identified as eligible and draft suitable for inclusion into the Wild and Scenic River System. The Buffalo Field Office had also identified the Middle Fork of the Powder River within their jurisdiction as eligible for inclusion into the Wild and Scenic River System. This area has received significant managerial support from both the Worland and Buffalo Field Offices in coordination with the Wyoming State Game and Fish in improving access into the area to support a variety of recreational activities, dominantly hunting and fishing.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement:

Manage the Middle Fork of the Powder River as an SRMA with a destination strategy for motorized and non-motorized recreationists to engage in fishing, hunting, hiking, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country and Middle Country settings.

Activities:

Fishing, hunting, hiking, camping, photography, nature viewing, general dispersed recreation, Driving for pleasure, snowmobiling, snowshoeing.

Experiences:

- Enjoy going exploring on my/our own.
- Enjoy having easy access to natural landscapes.
- Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.
- Enjoying the closeness of family.
- Feeling good about solitude, being isolated, and independent.

Benefits:

- Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance.
- Stronger ties with my family and friends.
- Greater awareness that the Bighorn Basin is special.
- Greater spiritual growth.
- Heightened sense of satisfaction with our area as a place to live.
- Lifestyle improvement or maintenance.
- Greater family bonding.
- More well-rounded childhood development.
- Increased desirability as a place to live or retire.

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS

Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:

Middle Country Settings.

On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.

Front Country settings along Hazelton Road and the Middle Fork of the Powder River Campground.

Naturalness:

Back Country Settings.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Middle Country Settings for lands within the Middle Fork of the Powder River Campground.

Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trail and primitive roads within the area.

Facilities and Structures:

Middle Country.

Primitive motorized and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Manage the Middle Fork of the Powder River Campground as Front Country.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Middle country settings along Hazelton Road and Middle Fork of the Powder River Campground. Usually 7-14 encounters/day off travel routes (e.g., staging areas and campgrounds), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:

Front Country along Hazelton Road.

2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.

Middle Country for remainder of SRMA.

4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Some onsite visitor orientation (kiosk and trail markers) will be developed. This may include orientation methods such as interpretive signs at trailheads and Middle Fork of the Powder River Campground on history, user ethics, and fish and wildlife resources.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hazelton Road

Back Country Byway.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys, on-site patrols, and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or other campgrounds, reevaluating fee structure, etc.

Management

Maintain and improve the Middle Fork of the Powder River campground and associated so as to maximize identified beneficial outcomes.

Develop additional trailheads, campgrounds, or other recreational facilities on a case-by-case basis so as to meet identified beneficial outcomes, recreational setting character conditions, and resource maintenance.

Develop trailhead at the Middle Fork Campground, and in other areas on a case-by-case basis.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Consider the acquisition of legal and/or physical access for recreation related opportunities. Areas to be considered for acquisition include public land tracts along the Cherry Creek Road to Hazelton Road, and along Hazelton Road.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Middle Fork Powder River SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Apply a CSU stipulation for the Middle Fork Powder River SRMA.

Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue MOUs with surrounding land owners, Wyoming State Land Board, Wyoming Game and Fish, and the Buffalo and

Appendix O – Recreation

Casper BLM Field Offices.

Seek other agreements and partnerships as appropriate.

Partners:

Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Buffalo and Casper BLM Field Offices, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Canyon Creek SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
Canyon Creek area is located within the southern Bighorns just south of Highway 16, which is a very popular highway over the Bighorn Mountains as well as a popular route to Yellowstone National Park. Canyon Creek exhibits exceptionally high scenic qualities from the exposed dolomite and Ten Sleep formation observed through the impressive canyon complemented by the perennial Canyon Creek which supports a blue-ribbon fishery and a healthy riparian zone through the canyon. A subdivision (Canyon Creek Village) is growing south of the area in which residents enjoy exploring, hiking, hunting, and fishing Canyon Creek. Canyon Valley Resort is located within the area which provides recreational opportunities such as guiding services for visitors, big game outfitting, and golfing opportunities. The scenic qualities as well as the wildlife resources establish the foundation for the tourism market in this area. Smilo Road (BLM Road 1416) provides access into BLM-administered public lands east of Canyon Creek as well as the Bighorn National Forest.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
<p><u>Objective Statement:</u> Manage the Canyon Creek SRMA for non-motorized recreationists to engage in hiking, hunting, fishing, nature viewing, and wildlife viewing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these Back Country settings.</p> <p><u>Activities:</u> Fishing, hunting, hiking, nature viewing, wildlife viewing.</p> <p><u>Experiences:</u> Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Develop skills and abilities. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying getting some needed physical exercise.</p> <p><u>Benefits:</u> Improved mental well-being. Improved physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p><u>Remoteness:</u> Back Country. More than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Smilo Road, the access route to</p>

the Canyon Creek fishing access parking area, and few other two-tracks are observed along the edges of the area.

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Trails may exist but do not exceed standard to carry expected use. Facilities and structures are rare and isolated.

Social

Contacts and Group Size:

Back Country settings.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:

Back Country.

Mountain bikes perhaps other mechanize use but all is non-motorized. Smilo Road will remain open to motorized access into area.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, non-native invasive weed species found within the area, geology, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails, and camp sites.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols.

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.

Develop looping hiking trails in Canyon Creek, and off of Smilo Road.

Develop trailheads at Canyon Creek and Smilo Road.

Some onsite visitor orientation (kiosk and trail markers) will be developed.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Acquire legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Canyon Creek SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply a CSU stipulation.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Agreements:

Pursue a cooperative agreement with the Canyon Creek Estates.

Seek other agreements and partnerships as appropriate.

Partners:

Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Canyon Creek Estates, community of Ten Sleep, Back Country Horsemen, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

<p>Red Canyon Creek ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>Red Canyon Creek is located along the slopes of the Owl Creek Mountains outside the community of Thermopolis. This area exhibits high scenic qualities, wildlife resources, and opportunities for primitive-type recreation. A subdivision is growing on the north side of the area, which the adjacent BLM-administered public lands provides for easy-to-access public lands for the local residents. The community of Thermopolis has been marketing its natural recreational resources (most especially its thermal resources located within the very popular Hot Springs State Park), as well as prioritizing primitive-type recreational opportunities such as hiking, and horseback riding within the State Park. Other uses exist within and around the area such as livestock grazing, and mineral development. Legal public access into the area is questionable, and there are private surface land parcels within the area.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p>Objective Statement:</p> <p>Manage the Red Canyon Creek ERMA to maintain a back country setting, to address public health and safety, use and user conflicts, and resource protection. In addition, recreation management within the ERMA will manage for motorized and non-motorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing.</p>
<p>MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS</p>
<p>Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.</p>
<p><u>Physical</u></p> <p>Remoteness: Back Country. Most of the SRMA is more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Access routes (two-tracks and improved route) exist along the fringe of the SRMA, as well as within parcels of private lands within the area.</p> <p>Naturalness: Back Country. Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Back Country. Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country. Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.</p> <p><u>Operational</u></p> <p>Mechanized Use: Back Country. Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use so as to maintain current land uses.</p>

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop visitor orientation signs at trailheads and parking areas on user ethics, designated motorized routes, trails, non-native invasive weed species found within the area, geology, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and on-site patrols.

Monitor for resource degradation, user conflicts, health and safety, and prescribed settings.

Management

Develop hiking trail to Red Canyon Creek.

Develop trailheads at northern access point.

Signs present at key access points, but limited within the ERMA.

Interpretive signs and visitor orientation materials at trailheads and parking areas.

Engage local community, businesses, and other partners in the development and distribution of a brochure and/or area guide book.

Administrative

Visual Resource Management:

Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:

All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Red Canyon Creek ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

On a case-by-case basis, allow surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Review mineral leases on a case-by-case basis, open Red Canyon Creek area to appropriations under the mining laws, and authorize mineral material sales and/or free use permits; apply mitigation through activity level planning.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Community of Thermopolis, Hot Springs State Park, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

The Rivers SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

The Rivers destination SRMA is made up of BLM-managed public lands on the North and South Forks of the Shoshone River, the main stem of the Shoshone River, and the Clarks Fork of the Yellowstone River. These rivers are very popular for fishing, floating, sightseeing, and hunting and are used by local residents as well as visitors from throughout the nation and from foreign countries. Many visitors traveling to or from Yellowstone National Park spend time in Cody. Several companies offer commercial fishing or floating trips on these rivers. BLM and the WGFD have an agreement which recognizes the high recreational value of various tracts of land along these rivers and provides for cooperative efforts to develop access and manage the sites. Many sites have been developed over the years. Several of the river access sites also serve as trailheads for hiking and horseback access to the Shoshone National Forest. In addition, there are access sites which have been developed by other parties. The North Fork of the Shoshone River and portions of the Shoshone River are considered blue-ribbon trout fisheries.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement:

Manage the Rivers SRMA for motorized and non-motorized recreation opportunities such as fishing, floating, photography, hunting, hiking, and nature viewing so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, and middle country settings.

Activities:

Fishing, floating, sightseeing, hunting, photography, and nature viewing.

Experiences:

- Enjoy going exploring on my/our own.
- Enjoy the closeness of family.
- Experiencing a greater sense of independence.
- Testing endurance.
- Enjoy risk taking adventure.

Benefits:

- Improved mental well-being.
- Closer relationship with the natural world.
- Enhanced sense of personal freedom.
- Improved physical fitness and health maintenance.
- Improved skills for outdoor enjoyment.
- Heightened sense of satisfaction with our area as a place to live.
- Greater community involvement in recreation and other land use decisions.
- Greater family bonding.
- Increased desirability as a place to live or retire.
- Increased local job opportunities.
- Increased local tourism revenue.
- Improved local economic stability.

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Rural Country. On or near primary highways, but still within a rural area. Front Country. On or near improved county roads, but at least 0.5 mile from any highway. Middle Country. On or near 4-wheel drive roads, but at least ½ mile from all improved roads, though they may be in sight.</p> <p>Naturalness: Rural, Front, and Middle Country. Natural setting is culturally modified to the point that it is dominant to the sensitive travel route observer in some locations. In other locations, natural setting may have moderately dominant alterations but would not draw the attention of the observers on trails and primitive roads within the area.</p> <p>Facilities and Structures: Rural and Front Country. Primitive and improved routes/trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Front Country setting. Usually up to 29 encounters/day off travel routes and 30 or more encounters/day en route. Group size varies from small to large. Visitor encounters can be high during peak use periods at the major boat ramps.</p> <p><u>Operational</u></p> <p>Mechanized Use: Front Country. Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Front Country. On site controls and services are present but harmonize with the natural environment. Personnel periodic.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<u>Information and Education</u>
<p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p> <p>Work closely with the gateway communities of Cody, Powell, Thermopolis, Worland, Basin, Lovell, and Greybull, and other partners in the region in marketing and outreach.</p>

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other river segments, institute fee areas, or limit river use.

Management

Continue to provide for experiences and associated facilities with an emphasis on maintaining rural to front country recreation settings.

Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.

In cooperation with WGFD and other partners, provide and maintain visitor facilities, services, signing, and programs.

Administrative

Visual Resource Management:

Class II and Class III.

Comprehensive Trails and Travel Management:

Motorized use is limited to designated roads and trails for the North and South Forks of the Shoshone River and the Clarks Fork of the Yellowstone River and is limited to existing roads and trails for the Shoshone River area.

Lands and Realty:

Manage lands within one mile of the Shoshone and Clarks Fork of the Yellowstone Rivers as avoidance areas for construction of above ground power lines except in designated utility corridors.

Alternative energy avoidance area for realty actions.

Retain recreational access to the North and South Forks of the Shoshone, the Shoshone, and the Clarks Fork of the Yellowstone Rivers plus increase emphasis on float access and facilities where appropriate.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) within campgrounds, trailheads, day use areas, river access sites, and similar recreational sites and trails within The Rivers SRMA.

Apply an NSO restriction on areas within ¼ mile of campgrounds, trailheads, day use areas, river access sites, and similar recreational sites within The Rivers SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Communities of Cody, Powell, Lovell, Wyoming Game and Fish, Trout Unlimited, Shoshone Back Country Horsemen, Shoshone National Forest, Park County Recreation Board, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

On site controls and services are present but harmonize with the natural environment.

<p>McCullough Peaks SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>The McCullough Peaks SRMA lies east of Cody and north of U.S. Highway 14/16/20. This scenic, popular area is used by residents of Cody, Powell, Park and Big Horn Counties for uses such as viewing wild horses, sightseeing, hunting, horseback riding, mountain biking, hiking, photography, driving for pleasure (including ATVs and motorcycles), and wildlife viewing. Colorful badlands provide excellent photographic opportunities. Tourists traveling to or from Yellowstone National Park also use the area. Several commercial permittees provide wild horse viewing tours or interpretive tours in the area. The McCullough Peaks WSA lies within the SRMA as does the McCullough Peaks Wild Horse Herd Management Area (HMA).</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the McCullough Peaks SRMA for motorized and non-motorized recreation opportunities such as wildlife and wild horse viewing, nature viewing, horseback riding, hunting, and hiking so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, middle and back country settings.</p> <p><u>Activities:</u> Viewing wild horses and wildlife, sightseeing, hunting, mountain biking, hiking, photography, driving for pleasure, horseback riding.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p> <p><u>Benefits:</u> Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.
<p><u>Physical</u></p> <p>Remoteness: Rural, Front, Middle, and Back Country. The eastern and southern boundaries lie along major highways. There are several BLM roads and numerous two-tracks and ATV trails in the SRMA area.</p> <p>Naturalness: Front and Middle Country. Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within the area but not draw the attention of observers on trails and primitive routes. Back Country. Natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.</p> <p>Facilities and Structures: Rural and Front Country. Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters. Middle Country. Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.</p> <p><u>Social</u></p> <p>Contacts and Group Size: Back Country settings. Usually up to 6 encounters/day off travel routes and up to 15 encounters/day on travel routes. Usually group size is small. Middle Country settings. Usually up to 14 encounters/day off travel routes, and up to 29 encounters/day en route. Usually group size is small. Most of the time, social settings will reflect back country definition.</p> <p><u>Operational</u></p> <p>Mechanized Use: Front and Middle Country. Manage the SRMA for 2-wheel drive and 4-wheel drive vehicles, ATVs, dirt bikes and non-motorized mechanized use.</p> <p>Management Controls and Visitor Services: Middle Country. On site controls and services are present but subtle. Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.</p>
IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
<u>Information and Education</u>
<p>Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.</p> <p>Provide stewardship information to help preserve the special landscape character.</p> <p>Provide for a map with designated roads, trailheads, trails.</p> <p>Make available for special outdoor educational programs such as CORE and Take it Outside!</p>

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine road and trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points and to identify such items as travel routes, the WSA boundary, and the herd area boundary.

Interpretive signs at trailheads and parking areas, where appropriate.

Provide opportunities for the public to view wild horses in the McCullough Peaks HMA.

Administrative

Visual Resource Management:

Class I in the McCullough Peaks WSA and Class II elsewhere in the SRMA.

Comprehensive Trails and Travel Management:

Motorized vehicle use is limited to designated roads and trails in the entire SRMA.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Closed to surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

No leasing within the McCullough Peaks WSA and NSO elsewhere in the SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Prohibit organized SRPs using domestic horses in the McCullough Peaks HMA.

Partners:

City of Cody; Park County Recreation Board; private landowners; local mountain biking, hiking, equestrian, and motorized groups, FOAL, Wyoming State Trails Program, and other interested groups.

<p>Basin Gardens Play Area SRMA</p>
<p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p>
<p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p>
<p>This area is located between the Communities of Greybull and Basin, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles. Visitors are from within the communities, as well as from outside the area, particularly Billings, Montana. The area is composed of bentonite and mostly devoid of vegetation. The Basin Gardens area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. The communities from RMP Scoping opportunities had identified this area as highly desired for motorized recreational opportunities.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p>
<p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement: Manage the Basin Gardens Play Area SRMA for motorized recreationists to engage in ATV, motorbike, and other motorized hill climbing activities so that visitors report realizing a “moderate” level of recreation experience and benefit outcomes in these Front Country settings.</p> <p>Activities: Driving for pleasure, motorcycle hill climbing.</p> <p>Experiences: Developing skills and abilities. Enjoying risk-taking adventure. Being around people I know and enjoy.</p> <p>Benefits: Improved physical fitness and health maintenance. Improved outdoor recreation skills. Enhanced sense of personal freedom. More well-rounded childhood development. Heightened sense of satisfaction with our area as a place to live. Increased desirability as a place to live or retire. Improved local economic stability. Increased local tourism revenue. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p>
<p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness: Front Country. The RMZ is surrounded by county roads, and displays tracks from heavy off-road use.</p> <p>Naturalness: Front Country.</p>

The area’s natural setting from the intense off-road use may have modifications which range from being easily noticed to strongly dominant to observers within the area. These alterations would remain unnoticed or visually subordinate from sensitive travel routes (Highway 16, 20) and use areas.

Facilities and Structures:

Front Country.

Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:

Middle Country settings.

Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:

Middle Country.

4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Front Country.

On site controls and services are present but harmonize with the natural environment.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Ensure targeted experiences and benefits is included and explained in all visitor information.

Engage local sporting good businesses and other partners in the development and distribution of a brochure and/or area guide book.

Some onsite visitor orientation (kiosk and trail markers) will be developed. Orientation materials will include a map with designated routes/areas, trailheads, docking stations, and designated areas tailored for different degrees of riding experience (novice areas to experienced areas).

Make available for special educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies).

Monitor recreation setting condition through on-site patrols.

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or areas or limiting carrying capacity at trailheads.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.

Develop areas for novice riders to highly experienced riders.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Administrative

Visual Resource Management:

Manage visual resource objectives according to adjacent resource program prescriptions.

Comprehensive Trails and Travel Management:

Motorized use open to off-road/cross-country use.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens Play Area SRMA.

Avoid mineral material disposals in the Basin Gardens Play Area SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply a CSU restriction for the Basin Gardens Play Area SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

No glass containers and pallets (burning, etc.) allowed.

Noise constraints are enforceable via 43 CFR 8343.1.

<p>Rattlesnake Ridge ERMA</p>
<p>ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.</p>
<p>This area is located approximately 4 miles east of Worland, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles; as well as oil and gas extraction activities, ROW projects including radio signal towers, and grazing. Most of the visitors are from within the Worland area, as well as from other areas outside of the Worland area, most especially from Thermopolis, Wyoming. The area is heavily used by motorized use enthusiasts, and is mostly devoid of vegetation. The Rattlesnake Ridge area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. In addition, the surrounding communities had identified this area as highly desirable for motorized recreational opportunities during the RMP Scoping meetings. The other uses within the area expose visitors to potential health risks from elements such as hydrogen sulfide (H₂S), and active oil and gas extraction activities. Conflicts between users have been an issue and interim management between the oil and gas companies and recreationists has been established in this area, but without significant BLM management guidance.</p>
<p>ERMA OBJECTIVE(S) DECISION</p>
<p>ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.</p>
<p>Objective Statement: Manage the Rattlesnake Ridge ERMA for motorized recreationists to safely engage in ATV, motorbike, and other motorized hill climbing activities with a priority in addressing use and user conflicts, public health and safety, resource protection, and to maintain these front country to rural settings.</p>
<p>MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS</p>
<p>Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.</p>
<p><u>Physical</u> Remoteness: Rural Country. The RMZ is surrounded by county roads, and displays tracks from heavy off-road use. The area is on or near primary highways, but still within a rural area. Naturalness: Rural Country. The area’s natural setting from the intense off-road use as well as the industrial activities is culturally modified to the point that it is dominant to the sensitive travel route observer, Pedestrians or other slow moving observers are constantly within view of culturally changed landscape. Facilities and Structures: Rural Country. Paved, improved, and/or primitive roads/highways dominate the landscape. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.</p>
<p><u>Social</u> Contacts and Group Size: Middle Country settings. Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.</p>
<p><u>Operational</u> Mechanized Use: Middle Country.</p>

4-wheel drive vehicles, ATVs, dirt bikes, in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Rural Country.

On site controls and services are obvious and numerous. Largely harmonize with the man-made environment (dominantly from the oil and gas extraction activities and the ROW projects).

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop visitor orientation signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, other important land uses within the area, and user safety.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated routes, trailheads, docking stations, designated areas tailored for different degrees of riding experience (novice areas to experienced areas).

Make available for special educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies).

Monitor recreation setting condition through on-site patrols.

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or areas or limiting carrying capacity at trailheads.

Management

Develop areas for novice riders to highly experienced riders with coordinated effort through other entities such as local OHV groups, and onsite oil and gas companies.

Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Signs present at key access points, but limited within the ERMA.

Visitor orientation materials (kiosks and signs) at trailheads and parking areas.

Administrative

Visual Resource Management:

Manage visual resources according to other adjacent resource program prescriptions.

Comprehensive Trails and Travel Management:

Motorized use limited to existing roads and trails.

Lands and Realty:

Open to all ROW (including alternative energy realty actions).

Pursue legal and physical access to maximize recreational opportunities.

Minerals:

Open to oil and gas, to mineral entry and, other mineral leasing subject to standard protection measures.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities.

(including those related to development of recreation facilities or wildlife)

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Surrounding communities including but not limited to Worland, Thermopolis, Manderson, Basin, and Greybull; Wyoming State Trails Program, surrounding land users and industries, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Glass containers and pallets are prohibited.

<p>Horse Pasture SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The Horse Pasture SRMA is 144 acres of BLM-administered public land nestled along the foothills of Rattlesnake Ridge and surrounded by agriculture uses. This area was once used as an oil and gas staging area, complete with residential buildings. Currently, in coordination with Devon Energy Corporation, the BLM is in the process of reclaiming the area to pre-development landscape. The area is used by the community of Worland for uses such as walking, hunting (bird and big game), and nature viewing.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement:</p> <p>Manage the Horse Pasture SRMA for non-motorized recreationists to engage in photography, hunting, nature viewing, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these back to middle country settings.</p> <p>Activities:</p> <p>Hiking, wildlife viewing, nature viewing, photography, hunting (bird and big game), dog interaction (walking, training, hunting, etc.).</p> <p>Experiences:</p> <p>Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p> <p>Benefits:</p> <p>Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p> <p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness:</p> <p>Front Country.</p> <p>The south boundary is along an improved road used for agricultural purpose. Some primitive routes exist within the area</p>

from past management. Within the SRMA, the desired remoteness setting will be middle country, the edge will, by default, be front country.

Naturalness:

Back Country.

Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:

Back Country.

Primitive motorized routes and non-motorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:

Back Country.

Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Most of the time, social settings will reflect primitive definition.

Operational

Mechanized Use:

Back Country.

Manage the SRMA for mountain bikes perhaps other mechanized use but all is non-motorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to non-motorized mechanized use so as to maintain current land uses.

Management Controls and Visitor Services:

Back Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs and visitor orientation materials at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols.

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.

If need arrives, develop interpretive/historic nature trail within the Horse Pasture.

Develop trailhead at western edge of SRMA. Facilities will include, but not limited to visitor orientation materials, adequate parking, comfort station, and other necessary facilities identified throughout the life of the plan.

Signs present at key access points, but limited within the SRMA, with exception to nature trail.

Interpretive signs at trailhead, and along trail.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized use within the SRMA is limited to designated roads and trails.

Lands and Realty:

ROW avoidance area.

Alternative energy avoidance area for realty actions.

Minerals:

Do not pursue withdraw from appropriation under the mining laws for lands within the Horse Pasture SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Apply a CSU stipulation for the Horse Pasture SRMA.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

Community of Worland, Wyoming State Trails Program, Wyoming Game and Fish, Devon Energy Corporation, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

<p>Beck Lake Area SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The Beck Lake Area SRMA contains about 6,473 acres of BLM-administered public land south of Beck Lake. The area is used by residents of Cody and Park County for uses such as mountain biking, hiking, hunting, driving for pleasure, and wildlife viewing. The City of Cody is seeking an R&PP lease for land in the northern portion of the SRMA. That land would complement the recreation facilities the City manages at Beck Lake Park. Management of the R&PP area would be governed by agreement(s) and operating plan(s) associated with its R&PP status.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p>Objective Statement:</p> <p>Manage the Beck Lake Area community SRMA for non-motorized and motorized recreationists to engage in mountain biking, hiking, photography, wildlife viewing, driving for pleasure, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these rural and front country settings.</p> <p>Activities:</p> <p>Mountain biking, hiking, wildlife viewing, nature viewing, photography, hunting, driving for pleasure, dog interaction (walking, training, hunting, etc.).</p> <p>Experiences:</p> <p>Enjoy going exploring on my/our own. Learn. Enjoy the closeness of family. Learning more about things here.</p> <p>Benefits:</p> <p>Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p> <p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p>Remoteness:</p> <p>Rural and Front Country.</p> <p>A major highway lies along the eastern boundary of the SRMA. Numerous primitive and developed roads lie within the area.</p>

Naturalness:

Rural to Front Country.

Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within the area.

Facilities and Structures:

Rural and Front Country.

Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.

Social

Contacts and Group Size:

Middle Country settings.

Usually up to 14 encounters/day off travel routes, and up to 29 encounters/day en route. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

Manage the SRMA for non-motorized mechanized use as well as 4-wheel drive vehicles, ATVs and dirt bikes.

Management Controls and Visitor Services:

Middle Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated routes, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailhead.

Administrative

Visual Resource Management:

Manage VRM consistent with other resource objectives.

Comprehensive Trails and Travel Management:

Motorized vehicle use is limited to designated roads and trails.

Lands and Realty:

Open to ROWs.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration, salable minerals exploration and development, and construction activities on a case-by-case basis.

Open to oil and gas leasing with a CSU restriction.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property.

The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

City of Cody, Park County Recreation Board, private landowners, local mountain biking and hiking groups, local motorized groups, Wyoming State Trails Program, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

<p>Newton Lake Ridge SRMA</p> <p>SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.</p>
<p>SUPPORTING INFORMATION</p> <p>Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.</p> <p>The Newton Lake Ridge SRMA contains about 1,949 acres of BLM-administered public land north of Newton Lakes. The area is used by residents of Cody and Park County for uses such as mountain biking, hiking, hunting, and wildlife viewing.</p>
<p>SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS</p> <p>SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.</p>
<p><u>Objective Statement:</u> Manage the Newton Lake Ridge SRMA for non-motorized and motorized recreationists to engage in mountain biking, hiking, photography, hunting, wildlife viewing, and sightseeing so that they report realizing a “moderate” level of recreation experience and benefit outcomes in these rural, front, and middle country settings.</p> <p><u>Activities:</u> Mountain biking, hiking, wildlife viewing, nature viewing, photography, hunting.</p> <p><u>Experiences:</u> Enjoy going exploring on my/our own. Learn. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoy the closeness of family. Learning more about things here. Enjoy having easy access to natural landscapes.</p> <p><u>Benefits:</u> Enhanced awareness and understanding of nature. Greater sensitivity to/awareness of outdoor aesthetics, nature’s art and its elegance. Increased appreciation of area’s cultural history. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire. Maintenance of community’s distinctive recreation/tourism market niche or character.</p>
<p>RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS</p> <p>Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.</p>
<p><u>Physical</u></p> <p><u>Remoteness:</u> Rural, Front, and Middle Country. The northeastern boundary is along a major highway. Several short, primitive routes occur within the SRMA.</p> <p><u>Naturalness:</u> Front and Middle Country. Natural setting may have modifications which range from being easily noticed to strongly dominant to observers within</p>

the area but not draw the attention of observers on trails and primitive routes.

Facilities and Structures:

Rural and Front Country.

Primitive and improved motorized routes and non-motorized trails may exist. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.

Social

Contacts and Group Size:

Middle Country settings.

Usually up to 14 encounters/day off travel routes, and up to 29 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:

Middle Country.

Manage the SRMA for 4-wheel drive vehicles, ATVs, and dirt bikes in addition to non-motorized mechanized use.

Management Controls and Visitor Services:

Middle Country.

On site controls and services are present but subtle.

Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, non-native invasive weed species found within the area, history, hunting, and other current resource programs.

Provide stewardship information to help preserve the special landscape character.

Provide for a map with designated roads, trailheads, trails.

Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.

Visitor reports of crowding.

Informal visitor surveys and formal focus groups as funding allow.

If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Work with partners and other interested publics to determine trail maintenance and construction needs, signing needs, and access points.

Work with volunteers to develop and maintain limited facilities, as needed, in the area.

Signs present at key access points, but limited within the SRMA.

Interpretive signs at trailhead.

Administrative

Visual Resource Management:

Class II.

Comprehensive Trails and Travel Management:

Motorized vehicle use is limited to designated roads and trails.

Lands and Realty:

Open to ROWs.

Alternative energy avoidance area for realty actions.

Oil and Gas Leasing and Other Surface-Disturbing Activities:

Allow surface-disturbing activities such as geophysical exploration, salable minerals exploration and development, and construction activities on a case-by-case basis.

Open to oil and gas leasing with a CSU restriction.

Special Recreation Permits:

SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.

Cost recovery procedures for issuing SRPs would be applied where appropriate.

If circumstances warrant, limitations on available SRPs may be developed and implemented.

If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:

1-15 participants –

No SRP required, unless otherwise determined that an SRP will be needed.

16-30 participants –

Letter of Agreement, unless otherwise determined that an SRP will be needed.

Over 30 participants –

SRP required.

Partners:

City of Cody, Park County Recreation Board, private landowners, local mountain biking and hiking groups, Wyoming State Trails Program, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

2.0 RECREATION MANAGEMENT MATRICES

The matrices that follow show recreation management areas across the Planning Area, as well as the management of key types of resource uses (e.g., ROWs and travel management) in these areas. To allow comparability across the alternatives, management is shown for the same areas under each alternative, regardless of whether that area is a distinct recreation management area (i.e., SRMA, RMZ, or separate ERMA) or is only managed as part of a larger ERMA.

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Alternative A Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management			NOTES	
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing		Open
Absaroka Foothills		■	■			72,130	□	See Notes	See Notes			■	■		■	■	■			■			NSO-Portions of the area are NSO. Mineral Withdrawal-Mineral entry requires a Plan of Operations. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Bighorn River	■	■	■			15,256	■	■	□	□		■		□	□	□			□	□			Other Surface-disturbing Activities-closed on a case-by-case basis. ROW-SRMA contains both ROW exclusion and avoidance areas. VRM-Class II, III, IV in BLM Cody Filed Office, Class II and III in BLM Worland Field Office. Travel-Limited to Designated in BLM Cody Field Office, Limited to Designated and Existing in BLM Worland Field Office.
Badlands		■	■			213,981	See Notes		See Notes			■			■	■	■				■		NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Tour De Badlands		■	□				See Notes		See Notes			■	■		■	■	■				■		Type-Within Badlands SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Wild Badlands		■	□															■	■				Management discussed in WSA section. Type-Within Badlands SRMA.
Tatman Mountain		■	□				See Notes		See Notes			■	■		■	■					■		Type-Within Badlands SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
West Slope	■	■	■			375,888	□		□	□	□	■			■	■	■				■		Management discussion for Five Springs Falls ACEC in ACEC section. NSO-Five Springs Falls Campgrounds and known Caves. ROW-Avoidance areas exist along West Slope, remainder is open. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Trapper Creek		■	□				See Notes	See Notes	See Notes		■	■		■	■	■	□				■		Type-Within West Slope of Bighorn Mountains SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis. VRM-Trapper and Alkali Creek WSAs within the Trapper Creek area are managed under Class I objectives.

Alternative A Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management			NOTES	
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing		Open
Paint Rock		■	□				See Notes		See Notes		■	■		■	■	■	□	□	■				Type-Within West Slope of Bighorn Mountains SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis. VRM-Medicine Lodge WSA within the Trapper Creek area are managed under Class I objectives. Travel Management-Spanish Point Karst ACEC within the Paint Rock area is closed to motorized travel.
Brokenback/ Logging Road Area		■	□				See Notes		See Notes		■	■		■	■	■			■				Type-Within the boundaries of the existing West Slope of Bighorn Mountains SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
South Bighorns		■	□				See Notes		See Notes		■	■		■	■	■			■				Type-Within the boundaries of the existing West Slope of Bighorn Mountains SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Canyon Creek		■	□				□		See Notes		■	■		■	■	■			■				Type-Contained within West Slope of Bighorns SRMA. NSO-Apply an NSO and review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Red Canyon Creek		■			□		See Notes		See Notes		■	■				■			■				Type-Within Worland Field Office ERMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
The Rivers Area	■		■			18,247	□		■		■	■			■	■			□	□			NSO-WGFD/BLM access areas on the Clarks Fork of the Yellowstone and the N and S Forks of the Shoshone Rivers. VRM-VRM Class II objectives (North and South Forks of the Shoshone, and the Clarks Fork of the Yellowstone Rivers) and managed for VRM Class III objectives (Shoshone River). Travel-Limited to Designated (North and South Forks of the Shoshone and the Clarks Fork of the Yellowstone River), Limited to Existing (Shoshone River area).
Historic Trails	■		■			12,065																	Management discussed in Cultural Resources and NHTs.
Worland Caves	■		■			No defined acres																	Management discussed in Cave and Karst Resources.

Alternative A Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
McCullough Peaks	■				□			See Notes			■	■		■	■	■	□		□	□		<p>Type-Within Cody Field Office ERMA.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p> <p>Travel-Limited to Designated in a portion and Limited to Existing in the remainder.</p> <p>Note-Refer to the Wilderness Study Areas section of Table 2-9 for management of the McCullough Peaks WSA.</p> <p>VRM-McCullough Peaks WSA within the McCullough Peaks area is managed under Class I objectives.</p>	
Basin Garden		■			□																	Type-Within Worland Field Office ERMA.	
Basin Gardens Play Area		■			□		See Notes	See Notes		■	■			■	■					■		<p>Type-Within Worland Field Office ERMA.</p> <p>NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p>	
Basin Gardens		■			□		See Notes	See Notes		■	■			■	■					■		<p>Type-Within Worland Field Office ERMA.</p> <p>NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p>	
Horse Pasture		■			□		See Notes	See Notes			■	■			■					■		<p>Type-Within Worland Field Office ERMA.</p> <p>NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p>	
Rattlesnake Ridge		■																		■		Note -Rattlesnake Ridge area is managed consistent with management of other resource programs.	
Beck Lake	■				□			See Notes			■	■			■					■		<p>Type-Within Cody Field Office ERMA.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p>	
Newton Lake Ridge	■				□			□			■	■			■				□	□		<p>Type-Within Cody Field Office ERMA.</p> <p>Travel-Limited to Existing in portions, Limited to Designated in remainder.</p> <p>Other Surface-disturbing Activities-Allow on a case-by-case basis.</p>	

Alternative A Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	

¹Cody Field Office

²Worland Field Office

³Geophysical, Salables

⁴Under existing management, areas not managed as Special Recreation Management Areas in the BLM Cody Field Office are managed as part of the Cody Extensive Recreation Management Area; in the BLM Worland Field Office, these areas are managed as part of the Worland Extensive Recreation Management Area.

- ACEC Area of Critical Environmental Concern
- C Bureau of Land Management Cody Field Office
- CSU Controlled surface use
- ERMA Extensive Recreation Management Area
- NHT National Historic Trail
- NSO No surface occupancy
- R&PP Recreation and Public Purposes
- RMZ Recreation Management Zone
- ROW Rights-of-Way
- SRMA Special Recreation Management Area
- VRM Visual Resource Management
- W Bureau of Land Management Worland Field Office
- WSA Wilderness Study Area

Alternatives B and E Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
Absaroka Foothills		■	■			72,130	■	■	■		■					■			■				ROW-Avoidance/mitigation area except to provide access to private property or demonstrated need; evaluate existing ROWs on a case-by-case-basis at renewal.
Bighorn River	■	■	■			15,113	■	■	■	■			■			■			■				
Badlands		■	■			220,687																	
Tour De Badlands		■		■		122,616	■	■	■		■					■			■				
Wild Badlands		■		■		51,158											■	■					Management discussed in WSA section.
Tatman Mountain		■		■		46,912	■	■	■		■					■			■				
West Slope	■	■	■			406,309	□	■	■	■		■				■			■				Management of Five Springs Falls ACEC discussed in ACEC section. NSO-for portions of the West Slope SRMA.
Trapper Creek		■		■		83,806	■	■	■		■					■	□		■				VRM-Trapper and Alkali Creek WSAs within the Trapper Creek area are managed under Class I objectives.
Paint Rock		■		■		45,017	■	■	■		■					■	□	□	■				VRM-Medicine Lodge WSA within the Trapper Creek area are managed under Class I objectives. Travel Management-Spanish Point Karst ACEC within the Paint Rock area is closed to motorized travel.
Brokenback/ Logging Road Area		■		■		63,725	■	■	■		■		■			■			■				
South Bighorns		■		■		83,991	■	■	■		■					■			■				
Canyon Creek		■	■			3,677	■	■	■		■					■			■				
Red Canyon Creek		■	■			8,435	■	■	■		■					■			■				
The Rivers Area	■		■			18,247	□		■		■					■			□	□			NSO-WGFD/BLM access areas on the Clarks Fork of the Yellowstone and the N and S Forks of the Shoshone Rivers. Travel-Limited to Designated (North and South Forks of the Shoshone and the Clarks Fork of the Yellowstone River), Limited to Existing (Shoshone River area).
Historic Trails	■																						Management discussed under Cultural Resources and NHTs.
Worland Caves	■				■	No defined acres																	Management discussed under Cave and Karst Resources.
McCullough Peaks	■		■			160,838	■	■	■		■					■	□		■				Note-Refer to the Wilderness Study Areas section of Table 2-9 for management of the McCullough Peaks WSA. VRM-McCullough Peaks WSA within the McCullough Peaks SRMA is managed under Class I objectives.

Alternatives B and E Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
Basin Garden		■	■			19,771																	
<i>Basin Gardens Play Area</i>		■		■		1,821	■	■	■		■				■							■	
<i>Basin Gardens</i>		■		■		17,949	■	■	■		■				■				■				
Horse Pasture		■	■			144	■	■	■	■		■				■		■					
Rattlesnake Ridge		■																		■			Note -Rattlesnake Ridge area is managed consistent with other resource programs.
Beck Lake	■		■			6,483	■	■	■		■					■		■					
Newton Lake Ridge	■		■			1,997	■	■	■		■					■		■					

¹Cody Field Office

²Worland Field Office

³Geophysical, Salables

- ACEC Area of Critical Environmental Concern
- C Bureau of Land Management Cody Field Office
- CSU Controlled surface use
- ERMA Extensive Recreation Management Area
- NHT National Historic Trail
- NSO No surface occupancy
- R&PP Recreation and Public Purposes
- RMZ Recreation Management Zone
- ROW Rights-of-Way
- SRMA Special Recreation Management Area
- VRM Visual Resource Management
- W Bureau of Land Management Worland Field Office
- WSA Wilderness Study Area

Alternative C Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management			NOTES	
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing		Open
Absaroka Foothills		■									■	■		■	■	■				■			
Bighorn River	■	■									■	■		□	□	□				■			VRM-Class II-IV in BLM Cody Field Office; Class II, III in BLM Worland Field Office.
Badlands		■																					
Tour De Badlands		■									■	■		■	■	■				■			
Wild Badlands		■															■		□				Management discussed in WSA section.
Tatman Mountain		■									■	■		■	■					■			
West Slope	■	■									■	■		■	■	■				■			
Trapper Creek		■									■	■		■	■	■	□		■				VRM-Trapper and Alkali Creek WSAs within the Trapper Creek area are managed under Class I objectives.
Paint Rock		■									■	■		■	■	■	□	□		■			VRM-Medicine Lodge WSA within the Trapper Creek area are managed under Class I objectives. Travel Management-Spanish Point Karst ACEC within the Paint Rock area is closed to motorized travel.
Brokenback/ Logging Road Area		■									■	■		■	■	■				■			
South Bighorns		■									■	■		■	■	■				■			
Canyon Creek		■									■	■		■	■	■				■			
Red Canyon Creek		■									■	■		■						■			
The Rivers Area	■										■	■			□	□				■			VRM-Managed for VRM Class II (North and South Forks of the Shoshone, and the Clarks Fork of the Yellowstone Rivers) and Class III (Shoshone River) objectives.
Historic Trails	■																						Management discussed in Cultural Resources and NHT.
Worland Caves	■																						Management discussed in Cave and Karst.
McCullough Peaks	■										■	■		■	■	■	□			■			Note-Refer to the Wilderness Study Areas section of Table 2-9 for management of the McCullough Peaks WSA. VRM-McCullough Peaks WSA within the McCullough Peaks area is managed under Class I objectives.
Basin Garden		■																					
Basin Gardens Play Area		■			■	4,421					■	■		■	■								

Alternative C Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management			NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	
Basin Gardens		■			■	15,349					■	■		■	■					■		
Horse Pasture		■									■	■			■					■		
Rattlesnake Ridge		■	■			7,996															■	Note-Rattlesnake Ridge area is managed consistent with other resource programs.
Beck Lake	■										■	■			■					■		Mineral Withdrawal-Only acreage under consideration for a withdrawal under R&PP lease.
Newton Lake Ridge	■										■	■			■					■		

¹Cody Field Office

²Worland Field Office

³Geophysical, Salables

- ACEC Area of Critical Environmental Concern
- C Bureau of Land Management Cody Field Office
- CSU Controlled surface use
- ERMA Extensive Recreation Management Area
- NHT National Historic Trail
- NSO No surface occupancy
- R&PP Recreation and Public Purposes
- RMZ Recreation Management Zone
- ROW Rights-of-Way
- SRMA Special Recreation Management Area
- VRM Visual Resource Management
- W Bureau of Land Management Worland Field Office
- WSA Wilderness Study Area

Alternatives D and F Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
Absaroka Foothills		■	■			42,615	■	See Notes	See Notes		■					■			■			Mineral Withdrawal-Mineral entry requires a Plan of Operations. Other Surface-disturbing Activities-Allow on a case-by-case basis outside of the Absaroka Front Management Area.	
Absaroka (ERMA)		■			■	28,998	■	See Notes	See Notes		■								■			Mineral Withdrawal-Mineral entry requires a Plan of Operations. Other Surface-disturbing Activities-Allow on case-by-case basis outside of the Absaroka Front Management Area.	
Bighorn River	■		■			2,496	□		See Notes		■					■			■			Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on a site-specific analysis.	
Bighorn River (ERMA)		■			■	1,522	□		See Notes		■											Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on a site-specific analysis.	
Badlands		■	■			211,561	See Notes		See Notes					■	■	■				■		NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.	
Tour De Badlands		■		□		111,051	See Notes		See Notes		■								■			Type-Within the Badlands SRMA. NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.	
Wild Badlands		■		□		51,155												■	■			Management discussed in WSA section. Type-Within the Badlands SRMA.	
Tatman Mountain		■		□		49,354	■		See Notes		■								■			Type-Within the Badlands SRMA. Other Surface-disturbing Activities-Allow on a case-by-case basis.	
West Slope	■		■			320,704			See Notes	□	□	■			■	■			■			Other Surface-disturbing Activities-Allow in the West Slope SRMA. ROW-Avoidance/mitigation area on portions, remainder is open.	
Trapper Creek		■		□			■		See Notes		■	■				■	■	□	■			Type-Within the Canyons RMZ in the West Slope of Bighorn Mountains SRMA. Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on site-specific analysis. VRM-Trapper and Alkali Creek WSAs within the Trapper Creek RMZ area are managed under Class I objectives.	
Paint Rock		■		□			■		See Notes		■	■			■	□	□	■				Type-Within the Canyons RMZ in the West Slope of Bighorn Mountains SRMA. Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on site-specific analysis. VRM-Medicine Lodge WSA within Paint Rock RMZ area is managed under Class I objectives. Travel Management-Spanish Point Karst ACEC within the Paint Rock RMZ area is closed to motorized travel.	

Alternatives D and F Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
Brokenback/ Logging Road Area		■		□		49,325	■		See Notes		■		■			■			■				<p>Type-Within the boundaries of the existing West Slope of Bighorn Mountains SRMA.</p> <p>Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on site-specific analysis.</p>
South Bighorns		■	□		□	69,325	See Notes		See Notes		■			■	■				■				<p>Type-A portion is within the Middle Fork of the Powder River SRMA and a portion is within the Southern Bighorns ERMA.</p> <p>NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.</p> <p>Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on a site-specific analysis in the Middle Fork of the Powder River SRMA. Allow in the Southern Bighorns ERMA.</p>
Middle Fork of the Powder River		■	■			14,644	■		See Notes		■		■						■				<p>Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on site-specific analysis.</p>
Canyon Creek		■	■			3,675	■		See Notes		■		■			■			■				<p>Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on site-specific analysis.</p>
Red Canyon Creek		■			■	8,435	See Notes				■		■						■				<p>NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.</p>
The Rivers Area	■		■			6,047	□		See Notes		■		■		■	■			□	□			<p>NSO-Apply NSO restriction within ¼ mile of campgrounds, trailheads, day use areas, river access sites and similar recreation sites.</p> <p>Other surface-disturbing Activities-Allow surface-disturbing activities if the effects can be avoided or mitigated based on a site-specific analysis.</p> <p>Travel-Limited to Designated (N and S Forks of the Shoshone and the Clarks Fork of the Yellowstone River), Limited to Existing (Shoshone River area).</p>
Historic Trails	■																						<p>Management discussed under Cultural Resources and NHTs.</p>
Worland Caves	■																						<p>Management discussed in Cave and Karst Resources.</p>
McCullough Peaks	■		■			160,838	□				■		■		■	□			□	□			<p>Travel-Limited to Designated in a portion and Limited to Existing in the remainder.</p> <p>Note-Refer to the Wilderness Study Areas section of Table 2-9 for management of the McCullough Peaks WSA.</p> <p>NSO-Apply a NSO restriction on 41,653 acres within the McCullough Peaks SRMA.</p> <p>VRM-McCullough Peaks WSA within SRMA is managed under Class I objectives.</p>
Basin Garden		■																					
Basin Gardens Play Area		■	■			4,421	■		See Notes		■		■									■	<p>Other Surface-disturbing Activities-Allow if the effects can be avoided or mitigated based on a site specific analysis.</p>

Alternatives D and F Recreation Management Area Matrix

■ = Management Proposed for these Alternatives □ = Management Proposed for these Alternatives; see Notes for exception(s)

AREA	Field Office		Type			Acres	Minerals and Surface-disturbing Activity Restrictions			ROW			Renewable Energy		VRM				Travel Management				NOTES
	C ¹	W ²	SRMA	RMZ	ERMA		NSO/CSU for Oil and Gas Leasing	Locatable Mineral Withdrawal	Closed to Other Surface-disturbing Activities ³	Exclusion	Avoidance/Mitigation	Open	Open/Avoidance	Closed	Class IV	Class III	Class II	Class I	Closed	Limited to Designated	Limited to Existing	Open	
Basin Gardens		■			□		See Notes		See Notes		■		■								■		NSO-Review mineral leases on a case-by-case basis and apply mitigation through activity level planning. Other Surface-disturbing Activities-Allow on a case-by-case basis.
Horse Pasture		■	■			144	■		See Notes		■		■							■			Other Surface-disturbing Activities-Authorize mineral material disposals if the effects can be avoided or mitigated on a site-specific basis.
Rattlesnake Ridge		■			■	7,982															■		Note-Rattlesnake Ridge area is managed consistent with other resource programs.
Beck Lake	■		■			6,473	■		See Notes			■	■							■			Other Surface-disturbing Activities-Allow on a case-by-case basis.
Newton Lake Ridge	■		■			1,949	■					■	■			■				■			Other surface-disturbing Activities-Allow on a case-by-case basis.

¹Cody Field Office

²Worland Field Office

³Geophysical, Salables

- ACEC Area of Critical Environmental Concern
- C Bureau of Land Management Cody Field Office
- CSU Controlled surface use
- ERMA Extensive Recreation Management Area
- NHT National Historic Trail
- NSO No surface occupancy
- R&PP Recreation and Public Purposes
- RMZ Recreation Management Zone
- ROW Rights-of-Way
- SRMA Special Recreation Management Area
- VRM Visual Resource Management
- W Bureau of Land Management Worland Field Office
- WSA Wilderness Study Area

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix P

Livestock Grazing

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APPENDIX P

LIVESTOCK GRAZING ALLOTMENTS

This appendix consists of three tables that provide detailed information on grazing allotments in the Planning Area. Table P-1 summarizes basic characteristics of each grazing allotment, including current size, management, and use. Table P-2 summarizes the results of the most recent assessment of the *Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management* for each grazing allotment. Table P-3 lists grazing allotments that are wholly or partially within Greater Sage-Grouse Priority Habitat Management Areas, and identifies the current management category for each. Grazing allotments in Table P-3 may be subject to additional restrictions under one or more of the alternatives, as described in Chapter 2, *Detailed Analysis of Alternatives*.

Table P-1. Current Livestock Grazing Allotment Information

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00001	Manderson Group	I	9,039	Non-growing Season Use	1	779	Cattle
00002	Weber Lower	I	32,156	Spring/Fall Deferment	6	2,762	Cattle
00003	Cold Springs	I	4,510	Rest Rotation		696	Cattle/Horses
00004	Gapen Hyatt	I	10,032	Non-growing Season Use and Restricted Growing Season Use	1	751	Cattle
00005	Southside Group	I	29,412	Rest Rotation	1	3,151	Cattle/Horses
00006	Sand Creek Group	I	7,874	Restricted Growing Season Use	1	713	Cattle
00007	Worland Cattle Group	I	13,241		1	1,110	Cattle
00008	Castle Gardens	M	17,887	Deferred Rotation	3	3,495	Cattle
00009	Kimball	I	6,909	Non-growing Season	1	811	Cattle/Sheep
00010	Gordon	M	3,209	Rest Rotation	1	863	Cattle
00011	Joe Henry	I	7,000		1	1,301	Cattle/Sheep
00012	Big Trails Group	M	24,356	Rest Rotation	3	5,309	Cattle
00014	Mileski Badlands	I	8,988		1	825	Cattle
00015	Lower Nowater	I	5,620	Deferred Rotation	1	577	Cattle
00016	Badlands	I	8,332		1	659	Sheep
00017	Billy Creek	M	240		1	80	Sheep
00018	Upper Nowater	I	5,650	Deferred Rotation	1	577	Cattle
00019	Double H	I	5,133	Deferred Rotation	4	1,071	Cattle/Horses
00021	Little Cottonwood	I	2,560	Spring Use in Non-consecutive Years	1	283	Cattle
00022	South Brokenback	I	599		1	48	Cattle

Appendix P – Livestock Grazing

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00023	Leikham	I	1,760	Spring Use in Non-consecutive Years Only	1	175	Cattle
00024	Beckley	I	2,130		1	485	Cattle/Sheep
00025	Nowood Individual	I	800	Non-growing Season Use	1	71	Cattle
00026	Cottonwood Draw	I	1,575		1	139	Cattle
00028	Upper Nowood	C	60		1	15	Cattle
00029	West Lost Creek	M	80		1	20	Cattle
00030	Big Cottonwood	I	5,055	Non-growing Season Use	1	366	Cattle
00031	Brokenback	I	10,669	Deferred Rotation	1	1,468	Cattle/Horses
00032	Hidden Dome	I	8,565	Deferred Rotation	2	718	Cattle
00033	Alkali	I	3,008	Deferred Rotation	2	264	Cattle/Horses
00034	Rattlesnake Ridge	I	11,885		1	1,243	Sheep
00035	Buffalo Canyon	I	3,463		2	719	Cattle
00036	Manderson	C	8,805	Non-growing Season Use	1	814	Cattle/Sheep
00037	North Butte	I	1,850	Deferred	1	139	Cattle
00039	Warner Draw	C	800		1	58	Cattle
00041	Fatty Allen	I	1,380		1	166	Cattle
00042	East Fork	I	8,888		1	900	Cattle
00043	North Tensleep	M	1,101		2	100	Cattle/Horses
00044	South Tensleep	M	400		2	49	Cattle/Horses
00045	South Pasture	I	280		1	67	Cattle
00046	Sand Springs	I	1,240		1	160	Cattle
00047	Hyattville Individual	I	2,400	Deferred	1	210	Cattle
00048	Neiber	I	17,055	Non-growing Season Use with Restricted Growing Season Use	1	1,860	Cattle
00049	Murphy Dome	I	2,540		1	423	Cattle
00050	Mud Creek	I	1,130		1	170	Cattle
00051	Farley	I	400		1	80	Cattle
00052	Prevo Individual	C	250	Non-growing Season Use	1	25	Sheep
00053	Ranch	C	280	Deferred	1	46	Cattle
00054	North Paintrock	I	920	Non-growing Season Use	1	101	Cattle
00055	Lost Pasture	C	100	Non-growing Season Use	1	25	Cattle
00056	Scott Mountain	I	560		1	177	Cattle/Sheep
00057	Blue Ridge	I	2,133		1	143	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00058	Mathews Ridge	I	1,398	Pasture 1 – Rest Rotation Pasture 2 – Summer/Fall Rotation	2	546	Cattle
00059	North House	C	360	Non-growing Season Use	1	26	Horses
00060	Mesa	M	80		1	22	Cattle
00061	Ainsworth Individual	M	44	Deferred	1	10	Cattle
00062	Ainsworth	I	900		1	130	Cattle/Horses
00063	Railroad Swamp	M	100	Unassigned	1	11	Cattle
00064	Spanish Point	I	707	Spring/Fall Deferment	1	185	Cattle
00065	Sheep Springs	I	1,186	Spring/Fall Deferment	1	501	Cattle/Horses/Sheep
00066	Meyers Spring	I	1,542	Spring/Fall Deferment	1	416	Sheep
00067	Deeter	M	380		1	119	Cattle/Sheep
00068	Box Elder	I	1,000		1	423	Cattle
00069	Mahogany Butte	I	2,330		1	433	Cattle/Sheep
00070	S V	I	2,930		1	330	Cattle
00071	Chalk Butte	M	3,165		1	644	Cattle
00072	Helms	M	220		1	45	Cattle/Sheep
00073	Lower Sand Creek	I	11,884	Growing Season Deferment	1	1,462	Cattle
00074	Antelope Draw	I	15,786		3	1,776	Cattle/Sheep
00075	Battle Creek	M	283		1	109	Cattle
00076	Lower Walker	I	6,007		1	555	Cattle
00077	Middle Walker	I	2,618	Deferred	1	310	Cattle
00078	Upper Walker	I	1,300		1	173	Cattle
00079	Pack Saddle Creek	I	1,520	Non-growing Season Use	1	244	Cattle
00080	North Murphy Dome	I	6,385	AMP	1	888	Cattle
00081	Lower Arnold	I	1,600	Deferred Rotation	1	258	Cattle
00082	Upper Arnold	I	1,852	Deferred Rotation	1	213	Cattle
00083	K I S	I	1,991	AMP	1	449	Cattle
00084	Trapper Creek	I	1,227		1	153	Cattle
00085	Tower	C	50		1	2	Cattle
00086	Daugherty Dewitt	M	740	Deferred Rotation	2	148	Cattle
00087	Mountain Individual	M	170		1	34	Cattle
00088	Patras	I	843		1	332	Cattle
00089	Big Bend	I	8,847		1	1,429	Cattle
00090	Split Rock - V's	I	2,680	AMP	1	811	Cattle/Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
00091	Sand Creek	I	25,993	North Pasture – Non-growing Season Use Middle and South Pastures-Deferred Rotation	1	2,183	Cattle
00092	Paintrock Canyon	M	7,947	AMP	1	1,260	Cattle
00093	Long Point	I	646	Deferred Rotation	1	103	Cattle
00094	Red Hills	M	8,321	AMP	1	691	Cattle
00095	Forks	M	4,158	AMP	1	1,004	Cattle
00097	Deadline Draw	M	3,130	Non-growing Season Use	1	611	Cattle
00099	Schoolhouse Gulch	I	3,107	Non-growing Season Use with Restricted Growing Season Use	2	170	Cattle/Sheep
00100	Sand Creek Individual	I	1,865	Non-growing Season Use	1	159	Cattle
00101	Ranch Individual	M	840		1	153	Cattle
00102	Mountain Lost Creek	M	120		1	43	Cattle
00103	Little Lost Creek	M	121		1	12	Cattle
00104	Cottonwood	I	3,008		1	243	Sheep
00105	Nowater	I	7,958	Restricted Growing Season Use	1	732	Sheep
00106	Bald Ridge	M	317		1	51	Cattle
00107	Honey Combs	I	28,975		1	2,320	Cattle
00108	Dixon Canyon	I	740	Deferred Rotation	1	60	Cattle
00109	Coyote Springs	C	420	Deferred	1	75	Cattle
00110	Bud Kimball	I	7,275	Deferred	1	900	Cattle
00111	Otter Creek	I	600		1	134	Cattle
00112	Faure Nowater	I	3,542		1	471	Cattle/Sheep
00113	North Nowood	I	1,000	Non-growing Season Use	1	155	Cattle
00114	South Nowood	I	2,574	Non-growing Season Use	1	257	Cattle
00116	Brush Cabin	M	240		1	44	Cattle
00117	Pierson Mountain	M	40		1	5	Cattle
00118	Scorpion	I	14,182		1	1,497	Cattle
00119	Bluebank	M	7,600		1	1,267	Cattle
00120	Buffalo Creek	I	7,026		1	1,349	Cattle/Horses
00122	Harvard Individual	M	320	Deferred	1	37	Cattle/Sheep
00123	Buffalo Sand Point	I	29,046	Deferred Rotation	5	6,972	Cattle/Horses
00124	West Side Summer	I	2,945	Deferred Rotation	23	710	Cattle/Horses
00125	East Side Summer	I	1,880	Deferred Rotation	7	460	Cattle
00127	Otter Creek Pastures	I	2,820		3	575	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00129	Mazet	M	80		1	26	Cattle
00130	Lower V's	I	1,950		1	429	Cattle/Sheep
00131	High Camp	I	900		1	216	Cattle
00132	Big Cottonwood Creek	I	13,634	Deferred Rotation	5	1,270	Cattle/Sheep
00133	Potter Butte	I	4,480		1	678	Cattle
00134	Bonanza	C	1,550	Non-growing Season Use	1	141	Cattle
00135	Axtell Ditch Creek	M	320	Deferred	1	58	Cattle
00136	Black Hills	C	520		1	32	Cattle
00137	Paintrock South	I	800		1	57	Cattle/Horses
00138	Hurtig	I	1,720	Rest Rotation	1	258	Cattle
00141	Greet Individual	M	240	Deferred	1	52	Cattle
00142	Rannells	M	1,752	Rest Rotation	4	700	Cattle
00143	Medicine Lodge	I	9,332		1	1	Cattle
00144	Lower Nowood	C	11,700	Spring/Fall Deferment	1	984	Cattle/Sheep
00145	Cedar Ridge	M	9,811	Spring/Fall Deferment	1	1,321	Cattle/Horses/Sheep
00146	East Allotment	I	610		1	130	Cattle
00147	West Allotment	I	3,042	Deferred Rotation	2	515	Cattle
00148	Renner Individual	I	11,782	Rest Rotation	8	383	Cattle
00149	Lost Creek	M	33		1	10	Cattle
00150	Juniper Hills	M	630		1	56	Cattle/Horses
00151	Homestead	C	400		1	20	Cattle
00153	Denver Jake Draw	C	10,856		1	1,358	Cattle/Sheep
00155	Mary's Creek	I	975		1	58	Cattle
00156	Rome Hill	I	5,300	Deferred	1	558	Cattle
00157	South Butte	M	2,180		3	502	Cattle
00158	Seaman	I	6,680	AMP	4	1,922	Cattle
00159	Tie Down	C	2,791	Non-growing Season Use	1	93	Cattle
00160	Spring Creek Common	I	1,557		1	152	Cattle/Sheep
00161	North Blue Ridge	C	2,703	Non-growing Season Use	1	211	Cattle
00162	Slick Water	I	12,368	Rest Rotation	3	1,388	Cattle
00163	Demer Nowater	I	7,000	Rest Rotation	2	234	Cattle
00164	Cottonwood-North Butte	I	10,299	Non-growing Season Use	1	350	Cattle
00166	Jacobs Creek	I	745		1	51	Cattle
00167	Switchback	I	1,405		1	146	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
00168	Lower Spring Creek	I	1,240		1	73	Cattle
00169	Bader Gulch	M	200		1	20	Sheep
00170	Oilfield	C	6,233	Spring/Fall/Rest 3-year Rotation	1	763	Cattle
00171	East Nowood	C	1,560	Non-growing Season Use	1	179	Cattle
00172	West Nowood	I	785	Non-growing Season Use	1	39	Cattle
00173	Tensleep	I	1,945	Spring/Fall/Rest 3-year Rotation	1	275	Cattle
00174	Lower Brokenback	I	1,062	Spring/Fall/Rest 3-year Rotation	1	107	Cattle
00175	Upper Brokenback	I	4,771	Spring/Fall/Rest 3-year Rotation	1	486	Cattle
00177	Red Springs Rock Butte	I	850	Spring/Fall/Rest 3-year Rotation	1	166	Cattle
00178	Dry Tensleep	I	1,196	Deferred Rotation	1	326	Cattle
00179	Tharp Individual	C	145	Non-growing Season Use	2	10	Cattle
00181	Torchlight	C	19,337	Non-growing Season Use	1	1,571	Sheep
00182	Buttes	I	2,800		3	700	Cattle/Sheep
00183	Onion Gulch	I	920		1	164	Cattle/Sheep
00184	Upper Sand Creek	C	5819	Non-growing Season Use	1	783	Cattle
00185	Healy	C	15,572		1	1,435	Cattle
00186	Rim	I	2,640	Non-growing Season Use	1	278	Sheep
00188	Small Pasture	I	767		1	114	Cattle/Horses
00189	Jolly Pasture	I	884		1	210	Cattle/Horses
00190	Turner Pasture	I	440	Deferred	1	67	Cattle
00191	Lower Black Mountain Draw	I	2,442	Deferred	1	407	Cattle
00192	Upper Black Mountain Draw	I	402	Deferred	1	80	Cattle
00193	Little Mud Creek	I	310	AMP	1	33	Cattle
00194	Upper Black Mountain	I	621		1	136	Cattle
00195	Lower Black Mountain	I	360		1	72	Cattle
00196	Lake Creek	I	360	Deferred Rotation	1	58	Cattle
00197	Duncan	M	415	Non-growing Season Use	1	37	Cattle
00199	Big Cedar	I	1,955		1	498	Cattle/Horses
00200	South Individual	M	1,470		1	161	Cattle/Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00201	East Basin Draw	C	160	Non-growing Season Use	1	15	Cattle
00202	Airport	I	7,412	Spring/Fall Deferment	1	641	Cattle
00203	Tobes Pastures	I	1,020	Non-growing Season Use	1	231	Cattle
00204	North Of Ditch	I	720		1	30	Cattle
00205	West Black Mountain	I	885	Deferred	1	141	Cattle
00206	Bear Creek Common	I	1,503		1	263	Cattle
00210	Willow Creek	I	4,096		1	931	Cattle
00211	Wyman Draw	I	217	Growing Season Use Every Third Year	1	18	Cattle
00212	Signal Butte	I	111	Non-growing Season Use	1	12	Horses
00213	East Hyattville	C	80		1	12	Horses
00214	South Bank	C	20		1	5	Cattle
00215	Deeded	M	2,334	AMP	1	408	Cattle
00216	Mud Gulch	M	1,870	Non-growing Season Use	1	192	Cattle/Sheep
00217	East Alkali	I	4,192	Spring/Fall Deferment	1	314	Cattle/Horses/Sheep
00218	West Alkali	I	12,696	Spring/Fall Deferment	1	814	Sheep
00219	Robson Mountain	M	240		1	50	Cattle
00220	East Flats	C	3,924		1	255	Cattle/Sheep
00221	Parker	I	1,846	Non-growing Season Use	1	126	Cattle
00222	Anthony Timber	I	870	Deferred Rotation	1	109	Cattle
00223	Wood's Split Rock	M	300		1	64	Cattle
00294	O'Brien Camp	C	363		1	105	Cattle
00501	Blue Springs	I	12,979		1	2,789	Cattle/Horses
00502	South Lucerne Group	M	5,077	Deferred Rotation	3	494	Cattle/Horses/Sheep
00504	Hamilton Dome	I	11,125		1	799	Cattle/Horses
00506	Common Harvey	I	965	Non-growing Season Use	1	98	Cattle
00507	South Gooseberry Group	I	58,468		1	4,526	Cattle/Sheep
00508	North Gooseberry	I	113,805	Restricted Growing Season Use	1	8,519	Cattle/Sheep
00509	New Burlington Group	I	94,834	Rest Rotation	4	6,207	Cattle/Sheep
00510	Fernandez Blu-Jay	I	8,900	Dormant Season Use or Rest Rotation (Spring/Fall/Rest)	3	710	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00511	East Tanner	M	252	Non-growing Season Use	1	33	Cattle
00512	Coulter Group	I	11,516		1	666	Cattle/Horses
00513	Dockery Hammond	C	741	Post Seed-Ripe Use	1	80	Cattle
00515	Upper Gooseberry	M	3,301		6	864	Cattle
00516	Blue Creek	I	1,888	Deferred Rotation	4	84	Cattle
00517	Cedar Mountain	C	8,320		1	690	Cattle
00518	Home Place	M	1,250	Deferred	1	175	Cattle
00519	Middle Creek	I	545	AMP	1	126	Cattle
00520	Red Creek	C	124	AMP	1	21	Cattle
00521	Lower Cottonwood	I	6,566	Deferred Rotation	1	411	Cattle
00522	Grass Creek	I	8,994	Deferred Rotation	1	949	Cattle
00523	Highway Junction	I	5,590	Non-growing Season Use	1	663	Cattle
00524	Cottonwood Creek	I	1,202	Deferred Rotation	3	233	Cattle/Horses
00525	Rock Creek	I	4,311		1	<u>2</u>	
00526	Rimrock Basin	I	3,331	Rest Rotation	1	665	Cattle
00527	Blackstone	C	797	Rest Rotation	1	171	Cattle
00528	Six Mile	I	1,766	Non-growing Season Use	1	134	Sheep
00529	Prospect Common	I	7,832	Restricted Growing Season Use	1	1,207	Cattle
00530	Grass Creek Basin	C	1,819	Restricted Growing Season Use	1	300	Cattle/Horses
00531	Spring Gulch	I	1,982	Restricted Growing Season Use	1	295	Cattle
00532	Whisky Gulch	I	356	Deferred Growing Season Use	1	79	Cattle/Horses
00533	Home Ranch	I	938		1	132	Cattle/Horses
00534	East Cottonwood	C	3,413		1	<u>1</u>	
00535	West Cottonwood	C	7,113		3	<u>1</u>	
00536	Heifer	M	882		1	225	Cattle
00537	Padlock	I	2,257		1	510	Cattle
00538	East Waugh Dome	C	2,600	Non-growing Season Use	1	208	Cattle
00539	Buchanan Basin	I	339		1	125	Cattle
00540	Bridges	C	757	Deferred Rotation	1	190	Cattle
00541	Three Peaks	I	985	Deferred Rotation	1	60	Cattle
00543	Cannady Individual	I	928		1	58	Cattle
00544	Maller Individual	I	188	Rest Rotation (Spring/Fall/Rest)	1	13	Cattle
00545	Grass Point	I	4,138	Deferred Rotation	1	547	Cattle/Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00546	Highway	I	1,149	Deferred	1	107	Cattle
00547	Red Farm	M	1,317	Non-growing Season Use	1	172	Cattle
00548	D & LM Individual	I	1,903	Non-growing Season Use	1	151	Sheep
00549	Greybull Bend	C	380	Non-growing Season Use	1	37	Cattle
00551	Coulee-Mill Iron	M	2,461		1	<u>2</u>	
00552	Milk Creek	M	382		1	108	Cattle
00553	Richmond	I	3,934		1	599	Cattle/Horses
00554	Waugh Dome	C	2,255	Non-growing Season Use	1	138	Cattle
00556	21 Creek	I	1,808	Deferred Rotation Spring/Summer/Fall	1	322	Cattle
00557	Ramul Individual	M	135	Deferred Rotation	1	18	Cattle
00558	Buck Creek	I	488		1	95	Cattle
00559	East Five Mile	C	1,888	Non-growing Season Use	1	400	Cattle
00560	Sfnf	I	1,086		1	82	Cattle
00561	Freudenthal Individual	C	1,935		1	268	Cattle
00562	Gardner Badlands	I	11,641		1	1,934	Cattle
00563	Winter Camp	I	2,310		1	490	Cattle
00564	Little Buffalo Basin	M	2,277	AMP	1	562	Cattle
00565	Red Hole	I	2,106		1	307	Cattle
00566	Meeteetse Draw	I	2,026	Deferred	1	218	Cattle
00567	Lucerne	C	2,460	Deferred	1	188	Cattle/Horses
00568	Basin	I	8,527		2	<u>2</u>	
00569	Curtis	M	3,388		2	<u>2</u>	
00570	Red Springs Draw	I	6,431	AMP	2	900	Cattle
00571	Zimmerman Buttes	I	4,059	AMP	1	503	Cattle
00572	Eagle Draw	M	1,882	AMP	2	440	Cattle
00573	Wagonhound Bench	I	3,478		1	<u>2</u>	
00574	Coal Draw	M	6,551		1	<u>2</u>	
00575	Slab Creek	I	1,016		1	<u>2</u>	
00577	South Basin	I	42,331	Non-growing Season Use/Restricted Growing Season Use	1	3,123	Sheep
00578	North Basin Group	I	5,392		1	350	Cattle/Sheep
00579	Hillberry Rim	I	9,187	Deferred Rotation	3	1,452	Cattle/Sheep
00580	Coal Mine	I	469		1	97	Cattle
00581	Cherry Creek	I	670		2	164	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00582	Mill Iron-East	M	404		1	2	
00583	Mud Creek Pasture	C	182		1	21	Cattle
00584	Jones Flat	M	121		1	0 ²	
00585	North Hart	I	561		1	0 ²	
00586	South Hart	C	85		1	0 ²	
00587	Typer Pasture	C	254		1	0 ²	
00588	Sandstone	C	536		1	2	
00589	Kirby Creek	I	10,032		2	1,044	Cattle/Horses/ Sheep
00590	Little Sand Draw	I	7,372	Non-growing Season Use	1	304	Cattle
00591	Zimmerman Springs	I	4,779	Non-growing Season Use	1	476	Sheep
00592	Wild Horse Butte	I	1,325		1	443	Cattle/Sheep
00593	Hamilton Rim	M	570		1	59	Horses
00594	Buffalo Basin	M	1,369	Deferred Rotation	1	389	Cattle
00595	Iron Creek	M	1,312	Deferred Rotation	1	410	Cattle
00596	Wagonhound	I	8,198		6	2	
00598	Powder River	I	3,374		1	921	Cattle/Sheep
00599	Gooseberry	M	3,108		1	555	Cattle
00600	Wall Rock	M	1,084		1	533	Cattle
00601	Mormon Creek	M	307		1	107	Cattle
00602	Rock Springs Draw	I	5,191		1	869	Cattle/Horses
00603	Pistol Draw	C	2,280	Non-growing Season Use	1	431	Cattle
00604	Lu	I	101,548	Deferred Rotation	35	16,031	Cattle/Horses/ Sheep
00607	Lake	I	3,621	Restricted Growing Season Use	1	734	Cattle
00608	Vass	I	693	Non-growing Season Use	1	100	Cattle
00609	Owl Creek	I	1,867	Cattle Grazing 1 Out of 3 Years	1	144	Cattle/Horses
00610	South Owl Creek	I	888	Growing Season Use 1 out of 3 Years	1	82	Cattle
00611	Neves Individual	I	67		1	7	Cattle
00612	South Tatman	I	2,241	Non-growing Season Use	1	176	Sheep
00613	Putney Flat	M	817	Deferred Rotation	2	180	Cattle
00614	Rattlesnake	I	789	Deferred Rotation	4	139	Cattle
00615	Lime Ridge	I	959	AMP	1	230	Cattle
00616	Home	M	3,851	Deferred Rotation	1	378	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00617	Gloyd Individual	M	119	Non-growing Season Use	1	10	Cattle
00618	North Blackstone	C	699	Non-growing Season Use	1	118	Horses
00620	Prospect	I	4,956	Deferred Rotation Spring/Summer/Fall	4	1,205	Cattle/Horses
00621	North Grass Creek	I	2,348	Restricted Growing Season Use	1	293	Cattle
00622	South Highway	I	8,977	Deferred Rotation	2	758	Cattle
00623	North Highway	C	6,655	Deferred Rotation	1	449	Cattle
00624	Black Willow Draw	I	3,500		3	596	Cattle
00625	Freeman Draw	C	1,100		1	134	Cattle
00626	Timber Creek	I	8,098	Rest Rotation	4	327	Cattle
00627	Rooster Creek	I	3,017	Deferred Rotation	4	640	Cattle/Horses
00628	Hole In The Ground	I	2,058	Rest Rotation (Spring/Rest)	1	252	Cattle
00629	Rankine	C	158	Deferred Rotation (Spring/Fall/Fall)	1	17	Cattle
00631	Ditch Creek	I	2,120		1	385	Cattle
00632	Dick Creek	M	182	Total Deferment	1	25	Cattle
00633	Upper Pastures	I	4,463	AMP	7	1,057	Cattle
00634	Lower Pastures	I	9,998	AMP	4	980	Cattle/Horses
00635	Plummer	I	1,320		1	268	Cattle
00636	Haynes	C	455		1	131	Cattle
00637	Adam Weiss Peak	I	3,681	AMP/Deferred Rotation	1	625	Cattle
00638	King Dome	M	4,741	Non-growing Season Use	1	519	Cattle
00639	Tatman Mt Common	I	29,104	Restricted Growing Season Use	1	2,423	Cattle
00641	Swing Individual	C	472	Deferred	1	35	Cattle
00642	Bear Trap	C	400		1	58	Cattle/Sheep
00643	Buchanan	M	3,358	Non-growing Season Use	1	545	Cattle
00644	Tanner	M	4,266	Non-growing Season Use	1	567	Cattle
00645	South Coal Draw	M	4,738	Non-growing Season Use	1	545	Cattle
00646	Back Of Rim	M	5,223	Non-growing Season Use	2	635	Cattle
00647	Steer	M	2,089	Non-growing Season Use	1	340	Cattle
00648	Shumway Individual	I	357		2	50	Cattle
00649	Maret	M	480		1	100	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00650	South Gebo Common	M	1,857	Non-growing Season Use	1	181	Cattle
00651	West Five Mile	M	39,870	Non-growing Season Use	1	1,000	Cattle
00652	Badger Gulch	I	18,864		1	2,136	Sheep
00653	Red Lane	C	636	Non-growing Season Use	1	63	Cattle
00654	Ayers Individual	I	609	Restricted Growing Season Use	1	125	Cattle
00655	Copper Mountain	I	560	Deferred Rotation	1	121	Cattle
00656	Sand Draw	I	5,953	Rest Rotation	1	839	Cattle
00657	West Lucerne	M	969	Non-growing Season Use	1	90	Cattle
00658	Red Springs	M	1,697	Deferred Rotation	1	385	Cattle
00659	Black Willow	M	1,902	Deferred Rotation	1	444	Cattle
00660	West	C	720	Non-growing Season Use	1	106	Cattle
00661	Three Peaks Anchor	I	6,714		1	<u>2</u>	
00662	Enright	I	9,608	Non-growing Season Use	1	1,423	Cattle
00663	Cow Pasture	C	1,949		1	164	Cattle
00664	Alamo Creek	I	328		1	25	Cattle
00665	Nelson	M	14,266	Non-growing Season Use	1	861	Cattle
00666	Reclamation	I	6,722	Rest Rotation (Spring/Fall/Rest)	1	292	Cattle
00667	Turk	C	300		1	36	Cattle
00668	Dorsey Creek	C	10,076		1	505	Sheep
00669	Allen Basin	I	12,900	Non-growing Season Use	1	835	Sheep
00670	Upper 15 Mile	C	441		1	201	Cattle
00671	Ten Mile	I	24,199	Non-growing Season Use/Restricted Growing Season Use	1	1,651	Sheep
00672	Mountain	I	1,002	AMP	1	187	Cattle
00673	Mountain West	C	179		1	26	Cattle
00674	North Tatman	C	9,463	Non-growing Season Use	1	752	Cattle
00675	Cheever Flat	C	160		1	7	Cattle
00676	Pitchfork	I	12,733	Non-growing Season Use	1	1,187	Sheep
00678	South Grass Creek	I	9,068	AMP	6	1,489	Cattle/Horses
00679	North Rim	M	921	AMP	1	111	Cattle/Horses
00680	Lake Creek Pasture	C	758		1	<u>2</u>	

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
00681	Spring Creek	I	1,611		1	2	
00682	Hunt Oil 15 Mile	I	16,692		1	1,420	Sheep
00683	South Sleeper	I	4,666		1	1,225	Cattle/Sheep
00685	Bramah	I	1,220	Non-growing Season Use	1	175	Cattle
00686	Middle Fork Powder River	C	99		1	13	Cattle
00720	Putney Place	C	454		1	109	Horses
00721	Urwin Homestead	C	167		1	25	Horses
00722	Wales Homestead	C	108		1	24	Horses
01001	Table Mountain	C	20,195	Rest Rotation (Spring/Fall/Rest)	1	730	Cattle/Sheep
01002	Whistle Creek	I	33,707	Rest Rotation (Spring/Fall/Rest)	1	1,165	Cattle
01003	Stateline	M	40,899	Deferred Rotation (Spring-Summer/Summer-Fall)	3	1,642	Cattle
01004	Airport	C	995	Deferred Rotation (Spring/Fall/Fall)	1	45	Cattle
01005	Gravel Crossing	M	8,472	Rest Rotation (Spring/Rest)	2	455	Cattle
01006	Sand Draw	I	55,401	Deferred Rotation (Spring/Summer/Fall)	1	2,301	Sheep
01007	Coon Creek	M	681	Total Deferment	8	68	Cattle
01008	Gyp Creek	M	11,628	Rest Rotation (Spring/Rest)	1	384	Cattle
01010	Mexican Hills	C	2,665	Deferred Rotation (Spring/Fall)	1	16	Cattle
01011	Petroglyph	C	2,661	Rest Rotation (Spring/Rest)	1	140	Cattle
01012	West River	M	20,929	Deferred Rotation (Spring/Summer/Fall)	1	648	Sheep
01013	Bear Creek	I	19,463	Rest Rotation (Spring/Fall/Rest)	3	1,388	Cattle
01014	Sheep Mountain	I	13,662	Rest Rotation (Spring/Fall/Rest)	1	350	Cattle
01015	Lower Bear Creek	I	11,309	Rest Rotation (Spring/Fall/Rest)	1	600	Cattle
01017	Beaver Creek	M	1,742	Rest Rotation (Spring/Fall/Rest)	1	107	Cattle
01018	Individual	I	6,767	Rest Rotation	3	330	Cattle/Sheep
01019	North Beaver Creek	C	336	Rest Rotation (Fall/Rest)	1	18	Cattle/Horses/Sheep
01020	Mckinnie Reservoir	C	1,696	Total Deferment	1	110	Sheep

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
01023	Crystal Creek	I	12,857	Rest Rotation (Spring/Fall/Rest)	2	300	Cattle
01024	Many Springs	M	1,327	Deferred Rotation (Spring/Fall)	1	67	Cattle
01025	Mills	I	3,941	Deferred Rotation (Spring/Fall)	1	173	Cattle
01026	Burnham	M	1,817	Rest Rotation (Spring/Fall/Rest)	2	190	Cattle
01027	Moss Ranch	I	14,628	Rest Rotation (Spring/Fall/Rest)	6	1,467	Cattle/Horses
01028	Little Mountain	I	19,926	Deferred Rotation (Spring/Fall)	4	575	Cattle
01029	Moncur Springs	C	2,562	Deferred Rotation (Spring/Fall)	1	129	Cattle
01031	Himes Group	I	18,989	Rest Rotation (Spring/Fall/Rest)	2	507	Cattle
01032	Lovell Group 1	C	10,436	Rest Rotation (Spring/Fall/Rest)	2	235	Cattle
01033	One Forty	M	1,882	Deferred Rotation (Spring/Fall)	1	145	Cattle
01034	Willow Creek	M	2,170	None	1	193	Cattle
01035	North Shoshone	M	3,487	Rest Rotation (Spring/Fall/Rest)	1	139	Cattle
01036	North Shoshone	I	14,827	Deferred Rotation (Spring/Fall)	1	365	Cattle
01037	Himes/Spence	M	24,940	Deferred Rotation (Spring/Fall)	1	1,303	Cattle
01038	Firing Range	M	5,616	Deferred Rotation (Spring/Fall)	2	308	Cattle
01039	Foster Gulch	I	32,935	Deferred Rotation (Spring/Fall/Fall)	1	1,504	Cattle
01040	Race Track	I	532	Deferred Rotation (Spring/Fall/Fall)	1	20	Cattle
01043	Sand Hills	I	15,084	Deferred Rotation (Spring-Summer/ Summer-Fall) except Mantua Draw Rest Rotation (Spring/Fall/Rest)	3	363	Cattle
01046	Bench Canal	M	644	Rest Rotation (Spring/Fall/Rest)	1	47	Cattle
01047	County Line	M	885	Deferred Rotation (Spring/Summer/ Fall)	1	52	Cattle/Horses
01048	Dry Creek	M	721	Deferred Rotation (Spring-Summer/ Summer-Fall)	1	64	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
01049	Individual	I	1,140	Rest Rotation (Spring/Rest)	2	101	Cattle
01050	Lovell Group 5	C	2,544	Rest Rotation (Spring/Fall)	1	78	Cattle
01051	Greybull Group	M	11,381	Rest Rotation (Early Spring/Fall/Rest)	1	467	Cattle/Sheep
01052	South Lovell Group	M	4,802	Total Deferment	2	154	Cattle
01053	Little Sheep Mountain	I	8,918	Deferred Rotation (Spring/Fall/Fall)	1	742	Cattle
01054	Sand Hills	M	6,592	Season Long	1	575	Cattle
01055	Sidon Canal	M	1,043	Annual April/Fall	1	46	Cattle
01056	Kane	M	8,502	Rest Rotation (Spring/Rest)	1	176	Cattle
01057	Polecat Frannie	C	1,603	Season Long	1	155	Cattle/Horses
01058	Black Draw	C	610	Rest Rotation (Spring/Summer/Rest)	1	37	Cattle
01059	Thumper	I	4,407	Deferred Rotation (Spring/Summer/Fall)	1	2,775	Sheep
01060	East/West	I	49,092	Rest Rotation (Spring/Fall/Rest)	3	3,438	Cattle
01061	Individual	C	4,951	Rest Rotation (Spring/Summer/Rest)	2	200	Cattle
01062	Dry Creek	M	4,224	Deferred Rotation (Spring/Summer/Fall)	1	286	Sheep
01064	Peaks	I	14,914	Rest Rotation (Spring/Fall/Rest)	3	657	Cattle
01065	YU Bench	C	146	Deferred Rotation (Spring/Summer/Fall)	1	18	Cattle/Horses
01066	Corbett Dam	M	3,789	Rest Rotation (Spring/Rest)	2	300	Cattle
01067	Fernandez	M	2,306	Deferred Rotation or Rest Rotation (Spring/Summer/Fall or Spring/Summer Rest)	2	331	Cattle
01069	Peaks	I	11,021	Deferred Rotation (Spring/Summer/Fall/Winter)	3	1,519	Cattle
01070	Big Trap	I	8,052	Rest Rotation (Winter/Rest)	1	639	Cattle
01071	Polecat Bench	I	14,266	Total Deferment	2	1,797	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
01072	Sorensen	M	413	Rest Rotation (Spring/Summer-Fall/Rest)	2	112	Cattle/Sheep
01073	Sage Creek	I	12,238	Rest Rotation (Spring/Summer/Fall/Rest)	3	1,465	Cattle
01074	Keystone	C	230	Deferred Rotation (Spring/Summer/Fall/Winter)	3	27	Cattle
01075	Clarksfork	I	11,347	Rest Rotation (Spring/Rest)	6	1,089	Cattle
01076	Clark	C	1,792	Deferred Rotation (Spring/Summer-Fall/Winter)	2	288	Cattle
01078	Kane Stock Rest	M	901	Livestock Trailing	1	30	Trailing
01079	River	C	97	Total Deferment	1	15	Cattle
01080	Chapman Bench	I	6,434	Rest Rotation (Spring/Rest)	2	380	Cattle
01081	Big Horn River Wildlife Tracts	C	744	Wildlife	22	17	Wildlife
01082	Bennett Creek	M	389	Total Deferment	1	33	Cattle
01083	Yellowtail Wildlife Tracts	I	134	Wildlife	3		Wildlife
01085	Individual	C	21	None	1	10	Cattle/Horses
01086	Schlaf Common	M	3,278	Rest Rotation (Spring/Fall/Rest)	2	239	Cattle
01087	Badlands	I	20,385	Rest Rotation (Spring/Rest)	2	1,144	Cattle
01088	Heifer	I	7,888	Rest Rotation (Winter/Rest)	1	511	Cattle
01089	Natural Trap	I	16,370	Rest Rotation (3 Treatment)	3	1,217	Cattle
01090	Low Miller	C	3,484	Deferred Rotation (Spring/Fall)	2	150	Cattle
01091	Shoshone River Wildlife Tracts	I	423	Wildlife	20	0	Wildlife
01146	Lewis	C	37	Total Deferment	1	4	Cattle
01501	Cedar Creek	I	1,919	Rest Rotation (Spring/Fall/Rest)	1	200	Cattle
01502	East Jack Creek	I	440		1	47	Cattle
01503	Long Point Pasture	I	860		1	137	Cattle
01504	Wild Horse Flats	C	8,200		1	509	Sheep
01505	Clay Pits	I	4,413	Rest Rotation (Early Spring/Fall/Rest)	1	65	Cattle/Sheep
01506	Beaver Creek	I	362	Rest Rotation (Spring/Fall/Rest)	1	4	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
01507	Bush Butte	I	3,710		1	275	Cattle
01508	Chimney Rock	M	656		1	32	Horses
01509	Red Canyon	I	6,440	Rest Rotation (Spring/Spring/Rest)	3	192	Cattle
01510	Fox Mountain	I	9,946		1	582	Cattle/Sheep
01511	Lake Ridge	I	546		1	157	Cattle/Horses
01513	Black Mountain	I	5,393		1	295	Cattle
01514	White Creek	I	163		1	72	Cattle
01515	Dump Rivers Edge	C	4,470	Rest Rotation (Spring/Fall/Rest)	1	78	Cattle/Sheep
01516	Sunlight	I	4,529	Rest Rotation (Early Spring/Spring/Rest)	2	325	Cattle
01517	South Individual	C	233	Deferred Rotation (Spring/Fall)	1	14	Cattle
01519	South Shell	I	3,760	AMP/Deferred Rotation	1	289	Cattle
01520	Poverty Acres	C	1,740	Fall/Winter Use	1	54	Cattle
01521	Horse Mountain	M	595		1	21	Horses
01522	West Of Ranch	I	1,187	Rest Rotation (Early Spring/Spring/Rest)	1	92	Cattle
01523	Golf Course	C	480		1	20	Horses
01524	South Alkali	C	200		1	22	Horses
01525	Potato	I	27,940		2	2,544	Cattle
01526	Sabin	I	1,023	Non-growing Season Use	1	187	Cattle
01528	Cottonwood Creek Wildlife Tract	M	86	Spring/Fall Deferment	1	0	Wildlife
01529	West Beaver Creek	I	806	Rest Rotation (Spring/Fall/Rest)	1	21	Cattle
01532	Lost	I	5,353	Rest Rotation (Early Spring/Spring/Rest)	1	106	Cattle/Sheep
01533	Crandall	M	592	Rest Rotation (Early Spring/Spring/Rest)	1	12	Cattle/Sheep
01534	One-Twenty-One	I	5,243	Rest Rotation (Early Spring/Spring/Rest)	2	189	Cattle
01535	South Shell Group	I	11,862	AMP/Non-growing Season Use	2	1,160	Cattle/Horses
01536	Upper White Creek	I	5,496	AMP w/USFS Deferred Rotation	1	634	Cattle
01537	Potato Ridge	C	8,600		1	357	Sheep
01538	North Shell Group	C	17,890	Rest Rotation (Early Spring/Spring/Rest)	3	1,029	Cattle
01539	Lower White Creek	M	890		1	77	Cattle
01540	Paton/One-Eighth Acre	C	0	Relinquished	1		None

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
01541	Red	I	716	Rest Rotation (Spring/Fall/Rest)	1	64	Cattle/Horses
02001	Willow Springs	M	375	Deferred Rotation	1	94	Cattle
02003	Rose Mountain	M	80		1	20	Cattle
02005	Tallon V	I	1,240	Deferred	1	260	Cattle
02007	Otter Creek Mountain	I	1,730		1	329	Cattle
02008	Box Canyon	I	280		1	72	Cattle
02010	Dry Farm	M	496	Deferred	2	124	Cattle
02012	Natrona	M	4,028	Deferred Rotation	1	841	Cattle
02013	Harriet	M	800		1	163	Cattle/Sheep
02014	Cherry Creek Hill	M	159		1	26	Cattle
02015	Beaton Place	I	160		1	44	Cattle/Sheep
02016	S.F. Little Canyon Creek	M	240		1	60	Sheep
02017	Hall Butte	M	240		1	24	Cattle
02018	Warm Springs	I	1,387		2	215	Cattle
02019	Hazen Draw	I	400		1	80	Cattle
02020	Tanner-Mountain	I	600	AMP	2	154	Cattle
02342	Otter Creek Vee Rd	C	80		1	20	Cattle
02501	Arapahoe Ranch	C	465	Non-growing Season Use	1	161	Cattle
02502	Armstrong	C	372	None	1	42	Cattle
02503	Grider Basin	I	2,144		1	385	Cattle
02504	Carter Mountain	I	7,540	Rest Rotation (Summer/Rest)	1	200	Cattle
02505	Lower Red Canyon	I	2,261	AMP	2	450	Cattle
02506	Dye	I	2,758	Spring/Fall Deferment	2	460	Cattle
02507	Bridger Creek	I	1,680		1	244	Cattle
02509	Peak	I	3,742		2	716	Cattle
02510	Gould Individual	I	2,310	AMP	1	367	Cattle
02511	Gould North Individual	M	93	Non-growing Season Use	1	139	Cattle
02512	Billys Flats	M	80		1	31	Cattle
02514	V-H Draw	I	3,227		7	503	Cattle
02515	East Fork Jones Creek	M	240	AMP	1	48	Cattle
02516	Wood's Basin	I	400		1	67	Cattle
02519	Newell Springs	M	1,186	Total Deferment (River excluded)	2	156	Cattle
02522	Kruger Sec 15	M	80		1	16	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
02523	Kukla Sec. 15 (C)	C	1,191	Non-growing Season Use	1	144	Cattle
02524	Jack Creek	M	400	Deferred	1	40	Cattle/Horses
02525	Jones Creek Mountain	I	440		1	75	Cattle
02528	Cedar Mountain	C	1,098	Unassigned	1	24	Wildlife
02529	Jones Creek	I	320		1	51	Cattle
02530	Neilson	I	520		1	95	Cattle
02531	Jenks Creek	I	40		1	8	Cattle
02532	Pitchfork	M	5,929	Total Deferment	2	1,245	Cattle
02533	Sliver	I	566		1	43	Cattle
02534	Renner Section 15	I	183	Total Deferment	1	37	Cattle
02535	Meeteetse Rim	M	910	Deferred Rotation (Spring/Summer/Fall/Winter); None	3	160	Cattle
02536	Blue Hill	I	2,227		2	404	Cattle/Horses
02538	Jones Creek Basin	I	2,342	Deferred Rotation	1	710	Cattle
02539	Red Canyon	I	6,480		10	795	Cattle
02541	M.F. Warm Springs	I	400		1	58	Horses
02542	Stump	I	437		1	96	Cattle/Horses
02543	Swallow	I	698		1	156	Cattle
02544	Tonopah Ridge	M	3,261	Deferred Rotation (Spring-Winter/Winter)	2	399	Cattle
02545	91 Ranch	M	9,419	Rest Rotation (Spring/Rest)	6	1,632	Cattle
02546	Major Basin	I	4,324	Spring/Fall Deferment	1	876	Cattle
02547	V Pasture	I	2,304		1	396	Cattle/Horses
02549	Hawks Butte	I	720	Deferred	1	95	Cattle
02550	Melton Mountain	I	680		1	104	Cattle
02551	Cottonwood Creek	M	2,363	Deferred Rotation (Spring/Fall)	2	413	Cattle
02552	Twin Buttes	I	2,516	Deferred Rotation	1	454	Cattle
02553	Winniger	M	332	None	10	54	Cattle/Horses
02554	Reed Creek	I	2,000		1	349	Cattle
02555	Lawler Sec 15	C	1,194		1	115	Cattle
02559	Slope Pasture	I	2,220	AMP	1	563	Cattle
02560	Lysite Creek	I	160		1	32	Cattle
02561	Meeteetse Creek	M	506	Rest Rotation (Early Spring/Spring/Summer/Fall)	1	62	Cattle/Horses
02562	Meeteetse-East	M	984		1	131	Cattle/Sheep

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
02563	Larsen Sec 15	M	515		1	78	Cattle
02564	Homestead/Avent	M	6,630	Rest Rotation (Winter/Rest)	2	702	Cattle
02565	Little Canyon Creek #2	C	680		1	160	Cattle/Horses/Sheep
02566	Little Canyon Creek Med	C	40		1	11	Cattle/Sheep
02567	Sullivan Creek Valley	C	700		1	165	Cattle/Sheep
02806	South Y U Bench	I	1,972	Rest Rotation (Spring/Summer/Rest)	1	200	Cattle
03001	Bennett Creek	M	3,038	Rest Rotation (Spring/Rest); Total Deferment	3	235	Cattle
03002	Stonewall Creek	M	41	None	1	8	Cattle/Horses/Bison
03003	Lower Slope	M	3,345	Rest Rotation (Spring/Fall/Rest)	2	322	Cattle
03004	Stonebridge	I	4,517	Rest Rotation (Spring/Fall/Rest)	6	350	Cattle/Horses
03005	Natural Corral	C	189	Rest Rotation (Summer/Fall/Rest)	1	39	Cattle
03006	Coal Creek	M	1,730	None	1	185	Cattle
03007	Bennett Creek	M	4,264	Total Deferment and Rest Rotation (Spring/Rest)	3	216	Cattle/Horses
03008	Sage Creek Addition	I	132	Rest Rotation (Spring/Summer/Fall/Rest)	1	18	Cattle
03009	Keystone	M	389	Deferred Rotation (Spring/Summer/Fall/Winter)	1	32	Cattle
03010	Osborne	M	928	Rest Rotation (Spring/Summer/Fall/Rest)	1	94	Cattle
03011	Heart Mountain North	M	4,393	Deferred Rotation (Spring/Summer/Fall) and Rest Rotation (Spring/Fall/Rest)	5	429	Cattle/Horses
03012	Question Creek	I	1,090	None	1	115	Cattle
03013	Billy Goat	C	76	Trailing use only Goat Pasture. None on river pasture.	1	20	Horses
03014	Buchanan	C	267	Deferred Rotation (Early Spring/Spring/Fall)	2	14	Cattle/Horses
03015	Dunn Creek	C	24	Total Deferment	2	3	Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
03017	Eagle Valley	C	41	None	1	4	Cattle/Horses
03018	Rock Creek	C	68	Deferred Rotation (Spring-Fall/Fall)	1	5	Cattle
03019	Te Ranch	C	180	Deferred Rotation (Spring-Fall/Fall)	1	21	Cattle
03020	Post Creek	C	449	Total Deferment	1	33	Horses
03021	Spirit Basin	C	514	Relinquished	1	30	None
03022	Fernandez	M	1,004	Deferred Rotation (Spring/Summer/Fall) and Rest Rotation (Spring/Summer/Rest)	1	202	Cattle
03023	Diamond Creek	M	474	Rest Rotation (Spring/Summer/Rest)	2	42	Cattle/Horses
03024	Four Bear	C	570	Rest Rotation (1 year in 4 use)	1	12	Cattle/Horses
03025	Jim Creek	C	1,058	Rest Rotation (1 year in 4 use)	3	81	Cattle/Horses
03026	Hill	C	350	None	1	31	Cattle
03027	Bunn	C	876	Rest Rotation (Spring/Summer/Fall/Rest)	1	120	Cattle
03029	Oregon Basin	I	9,654	Deferred Rotation (Spring-Fall/Spring-Fall/Summer-Fall)	3	2,489	Cattle
03030	Diamond Basin	C	638	Rest Rotation (Spring/Summer/Rest)	2	70	Cattle
03031	Meeteetse Creek	C	24	None	1	3	Sheep/Cattle/Horses
03032	River Pasture	C	274	Rest Rotation (Spring/Fall/Rest)	1	12	Cattle
03033	Hogg	C	1,132	None	2	80	Cattle
03034	Spring Creek	C	362	None	1	46	Cattle
03035	Eagle Pass	I	25,616	Deferred Rotation (Spring/Summer/Fall/Winter)	3	2,018	Cattle
03036	Lakeshore	C	1,233	Deferred Rotation (Spring/Summer-Fall or Summer-Fall)	2	32	Horses
03037	River	C	40	None	1	4	Cattle/Horses
03038	New Highway	M	202	Rest Rotation	1	35	Cattle
03039	Palette	C	1,876	None	2	344	Cattle
03040	Lakeview	M	177	Rest Rotation (Spring/Summer/Rest)	1	21	Cattle/Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
03041	Twin Creek	C	187	None	1	13	Horses
03042	Mccarty	C	77	None	1	10	Cattle
03043	Diamond Bar Ranch	M	747	Deferred Rotation (Spring-Fall/Fall)		188	Cattle
03044	Sheep Mountain	M	1,374	Rest Rotation (Spring/Rest)	2	150	Cattle
03045	Greenwald	C	473	Deferred Rotation (Spring/Summer/Fall)	1	38	Cattle
03046	Wall Creek	C	193	Deferred Rotation (Spring/Fall)	1	17	Cattle
03047	Timber Creek	I	1,340	Rest Rotation (Spring/Fall/Rest)	1	72	Cattle
03048	Hoodoo Base	M	3,186	None		313	Cattle
03049	Haffey Place	C	432	Deferred Rotation (Spring/Fall)	1	70	Cattle
03050	Bull Creek	C	75	None; Non-use	3	14	Cattle
03051	Cottonwood Creek	M	1,269	Deferred Rotation (Spring and Summer/Fall/Fall)	2	150	Cattle
03052	Lake	M	8,460	Rest Rotation (Winter/Rest)	2	866	Cattle
03053	Trail Creek	I	5,836	None	14	807	Cattle
03054	Dorrance	C	297	Deferred Rotation (Spring/Summer/Fall)	3	20	Cattle/Horses
03055	Red Pole	M	1,326	Total Deferment	3	44	Horses
03056	Upton	C	96	Wildlife	1	8	Wildlife
03057	Ishawooa	M	14	Total Deferment	1	2	Horses
03058	Rand Creek	M	120	Rest Rotation (Spring/Summer/Rest)	2	12	Horses
03059	Indian Pass	I	2,494	Deferred Rotation (Spring/Summer/Fall)	2	206	Cattle
03060	Hidden Valley	M	1,667	Total Deferment	2	150	Horses
03061	Little Dry Creek	M	7,195	Rest Rotation (Spring/Summer/Fall/Rest)	8	870	Cattle
03062	Upper Sage Creek	C	430	None	1	20	Cattle
03063	El	M	81	Total Deferment	1	5	Horses
03064	Lower Sage Creek	M	3,786	Annual Fall-May	2	365	Cattle
03065	Trailing Pasture	I	127	Trailing	1	13	Cattle
03066	Little Rock Creek	M	619	Early Spring and Fall	1	33	Buffalo/ Horses

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
03067	Red Point	I	14,016	Deferred Rotation (Spring/Summer/Fall)	3	1,026	Cattle
03068	Oregon Coulee	I	4,423	Deferred Rotation (Summer/Fall)	1	851	Cattle
03069	Lower Yu Bench	I	4,385	Rest Rotation (Spring/Summer/Rest)	1	396	Cattle
03071	Wiley Rim	M	1,235	Deferred Rotation (Winter/Spring)	2	117	Horses
03072	Red Creek	M	277	Rest Rotation (Spring/Summer-Fall/Rest)	1	20	Horses
03073	Rimrock	M	2,960	Rest Rotation (Winter/Winter/Rest)	3	482	Horses
03074	Alexander	M	378	Rest Rotation (Spring/Summer-Fall/Rest)	1	63	Horses
03075	Hardpan Creek	M	242	Total Deferment	1	30	Horses
03076	LI Bar	M	1,028	None	1	68	Cattle
03077	Southfork Wildlife	C	121	Wildlife	3	7	Wildlife
03078	Lake Creek	I	412	Total Deferment	1	40	Cattle
03079	Red Cabin	M	5,680	Deferred Rotation (Spring/Summer/Fall/Winter)	2	864	Cattle
03080	Sunshine Reservoir	C	104	None	1	9	Cattle/Horses
03082	Castle Rock	M	650	Rest Rotation (Spring/Summer/Fall/Rest)	1	33	Horses
03083	Clarksfork Canyon	I	479	Rest Rotation (Spring/Fall/Rest)	3	40	Cattle/Horses
03084	Big Dipper	M	1,668	Deferred Rotation (Spring/Fall)	2	109	Cattle
03085	Sulphur Creek	C	55	Annual Spring	1	8	Horses
03086	Chapman Bench	I	16,098	Rest Rotation (Spring/Rest)	2	1,493	Cattle
03087	State	M	4,009	Rest Rotation (Spring/Summer/Fall/Rest)	2	201	Cattle
03088	Reclamation 15	I	2,670	Deferred Rotation (Spring/Fall/Fall)	1	275	Cattle
03089	Newmeyer Creek	M	1,247	Rest Rotation (Fall/Rest)	3	74	Cattle/Horses
03090	Yu Bench East	I	8,412	Deferred Rotation (Spring/Fall)	3	1,112	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs)¹	Type of Livestock
03091	Yu Bench West	I	10,911	Deferred Rotation (Spring/Summer/Fall/Winter)	3	885	Cattle
03092	Peterson	M	278	Rest Rotation (Spring/Summer/Fall/Rest)	1	26	Cattle
03093	Mountain Slope	M	1,653	Deferred Rotation (Spring/Fall)	1	215	Cattle
03094	Dry Creek	M	2,166	Rest Rotation (Spring/Fall/Rest)	1	300	Cattle
03096	Meeteetse Rim	M	1,299	None	1	223	Cattle/Horses
03097	Isolated 40	M	40	None	1	3	Cattle/Horses
03098	Rawhide Pasture	C	1,299	Livestock Trailing	1	63	Trailing
03099	Heart Mountain South	C	4,954	Rest Rotation (Spring/Summer/Fall/Rest)	4	628	Cattle
03100	Big Bend	C	752	Deferred Rotation (Early Spring/Winter)	7	130	Horses
03101	Devils Tooth	M	212	Rest Rotation (Spring/Summer/Rest)	1	4	Cattle
03102	Bench	I	9,375	Deferred Rotation (Spring/Summer/Fall)	3	1,182	Cattle/Horses
03103	Simpson	M	8,635	Rest Rotation	33	1,172	Cattle
03104	Lone Tree	I	1,654	Deferred Rotation (Spring/Summer/Fall)	2	120	Cattle/Horses
03105	Pasture Number 4	C	19	Deferred Rotation (Summer/Fall)	1	2	Buffalo/Cattle
03106	Trout Creek	M	2,423	None	2	134	Horses
03107	Turnell	M	167	None	1	11	Cattle
03108	Rattlesnake Creek	M	2,816	Rest Rotation (Spring/Fall/Rest)	9	209	Cattle/Horses
03109	Southfork	C	23	Total Deferment	1	1	Horses
03110	Boundary Well	M	1,552	Total Deferment	1	197	Horses
03111	Canyon Pasture	M	3,133	Rest Rotation (Spring/Rest); Total Deferment	2	223	Cattle/Horses
03112	Stone Barn 15	I	8,449	Deferred Rotation (Spring/Summer/Fall/Winter)	2	1,254	Cattle
03113	Oilwell	M	8,330	Rest Rotation (Winter/Rest)	2	843	Cattle
03114	Horse Center	M	5,474	Deferred Rotation (Spring/Summer/Fall)	2	572	Cattle

Table P-1. Current Livestock Grazing Allotment Information (Continued)

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Type Management	Number of Pastures	Active Use (AUMs) ¹	Type of Livestock
03115	Norquist	M	248	Deferred Rotation (Spring/Summer/Fall)	1	31	Cattle
03116	Heart Mountain South	M	4,978	Deferred Rotation (Spring and Summer/Winter/Winter)	6	695	Cattle
03117	Holding Pasture	C	158	Total Deferment	1	20	Cattle
03118	Rattlesnake Mountain	M	7,941	Deferred Rotation	1	850	Cattle
03119	Rush Creek	M	1,841	None	2	214	Cattle
03120	Bennett Butte	C	15	None	1	2	Cattle
03121	Close Pasture	C	1,589	Rest Rotation (Spring/Summer/Fall/Rest)	1	185	Cattle
04110	Crooked Creek 1	C	720	Wildlife	1	32	Wildlife
04134	Crooked Creek 2	C	320	Wildlife	1	7	Wildlife
14243	Dry Creek Wildlife Tracts	I	241	Wildlife	1	16	Wildlife

¹For the purposes of this table, active use is expressed in AUMs.

²No AUMs are currently assigned for this grazing allotment/permit/lease.

Note: Data in table derived from Bureau of Land Management Cody and Worland Field Offices internal databases accessed from 2010 to 2013.

AMP Allotment Management Plan
 AUM Animal Unit Month
 C Custodial
 I Improve
 M Maintain
 USFS U.S. Forest Service

Table P-2. Standards and Guidelines Summary of Grazing Allotments

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Adam Weiss Peak	00637	2012		Y	N/A	Y	Y	U	Y
Alamo Creek	00664	1999		Y	N/A	Y	Y	U	Y
Alexander	03074	2000	Y	Y	Y	Y	Y	U	Y
Alkali	00033	1999	Y	Y	Y	N	Y	U	Y
Allen Basin	00669	2002		Y	N/A	Y	Y	U	Y
Antelope Draw	00074	1998		Y	N/A	Y	Y	U	Y
Anthony Timber	00222	1999		Y	Y	Y	Y	U	Y
Badger Gulch	00652	2002		Y	N/A	Y	Y	U	Y
Badlands	01087	2006	U	Y	N	N	Y	U	Y
Basin	00568	1999		Y	Y	Y	Y	U	Y
Beckley	00024	2011		Y	N/A	Y	Y	U	U
Bear Creek	01013	1999	Y	Y	Y	Y	Y	U	Y
Bench	03102	2002	U	N	N	N	Y	U	Y
Bench Canal	01046	2012	U	Y	Y	Y	Y	U	Y
Bennett Creek	03007	1999	U	N	Y	N	Y	U	Y
Bennet Creek	01082	2012	U	N	N	N	N	U	Y
Bennet Creek	03001	2012	U	N	N	N	N	U	Y
Big Bend	03100	2008	U	N	N	N	N	U	Y
Big Cottonwood Creek	00132	1999	U	Y	N/A	N	Y	U	Y
Big Dipper	03084	2013	Y	Y	N	Y	Y	U	Y
Big Trails Group	00012	1998	U	Y	Y	Y	Y	N	Y
Big Trap	01070	2001	Y	N	N	N	Y	U	Y
Billy Goat	03013	2011	U	N	N	Y	Y	U	Y
Black Mountain	01513	1999		Y	Y	Y	Y	U	Y
Black Willow	00659	1999	U	Y	N/A	Y	Y	U	Y
Black Willow Draw	00624	2009		Y	N/A	Y	Y	U	Y
Blue Creek	00516	2009	U	Y	Y	Y	Y	U	U
Blue Hill	02536	2009		Y	N/A	Y	Y	U	Y
Blue Springs	00501	2009		Y	Y	Y	Y	U	Y
Boundary Well	01068	2006	U	N	Y	N	Y	U	Y
Boundary Well	03110	2006	U	N	Y	N	Y	U	Y
Box Canyon	02008	2009		Y	Y	Y	Y	U	U
Box Elder	00068	2001		Y	Y	Y	Y	U	Y
Bramah	00685	1999		Y	Y	Y	Y	U	Y
Bridger Creek	02507	1999		Y	Y	Y	Y	U	Y
Bridges	00540	2009		Y	Y	Y	Y	U	U
Buchanan	03014	2000	Y	N	Y	N	Y	U	Y
Buchanan Basin	00539	1999	Y	N	N	N	Y	U	Y
Buck Creek	00558	1999		Y	Y	Y	Y	U	Y
Bunn	03027	1999	U	Y	Y	N	Y	U	Y
Burnham	01026	2001	Y	Y	N	Y	Y	U	Y
Buttes	00182	2000	U	Y	U	Y	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Canyon Pasture	03111	1999	U	Y	N	N	Y	U	Y
Carter Mountain	02504	2012	U	Y	N	Y	Y	U	Y
Cedar Creek	01501	1998	Y	Y	Y	Y	Y	Y	Y
Cedar Ridge	00145	2010		Y	N/A	Y	Y	U	U
Chapman Bench	01080	2002	Y	N	N	N	Y	U	Y
Chapman Bench	03086	2002	Y	N	N	N	Y	U	Y
Clarksfork	01075	1999	U	Y	Y	N	Y	U	Y
Clarksfork Canyon	03083	2008	U	N	Y	N	N	U	Y
Close Pasture	03121	1999	U	Y	Y	N	Y	U	Y
Coal Creek	03006	2001	Y	Y	Y	Y	Y	U	Y
Corbett Dam	01066	1999	U	N	N	Y	N	U	Y
Cottonwood Creek	02551	2001	U	Y	N	Y	Y	U	Y
Cottonwood Creek	03051	2001	U	N	Y	N	N	U	Y
Cottonwood Creek	00524	2010		Y	N	Y	Y	U	Y
Cottonwood Draw	00026	2001		Y	Y	Y	Y	U	Y
Coulee-Mill Iron	00551	1999	U	Y	N/A	N	N	U	Y
County Line	01047	2000	Y	N	Y	N	Y	U	Y
Crystal Creek	01023	2003	Y	N	N	N	N	U	Y
Curtis	00569	1999		Y	Y	Y	Y	U	Y
Deadline Draw	00097	1998		Y	N/A	Y	Y	U	Y
Denver Jake	00153	2010		Y	Y	Y	Y	U	U
Demer Nowater	00163	2011	Y	N	N/A	N	Y	U	U
Devils Tooth	03101	1999	Y	Y	Y	Y	Y	U	Y
Ditch Creek	00631	2009		Y	Y	Y	Y	U	Y
Dockery Hammond	00513	2002		Y	N/A	Y	Y	U	Y
Dorrance	03054	2004	Y	Y	Y	Y	Y	U	Y
Double H	00019	2001		Y	Y	Y	Y	U	Y
Dry Creek	01048	2002	U	N	Y	N	N	U	Y
Dry Creek	01062	1998	U	Y	N	N	Y	U	Y
Dye	02506	2001		Y	N/A	Y	Y	U	Y
Eagle Pass	03035	2004	U	N	N	N	N	U	Y
East Alkali	00217	1999		Y	Y	Y	Y	U	Y
East Allotment	00146	2009		Y	Y	Y	Y	U	U
East Jack Creek	01502	1999		Y	Y	Y	Y	U	Y
Farley	00051	1999		Y	Y	Y	Y	U	Y
Faure Nowater	00112	1999	U	Y	Y	N	Y	U	Y
Fernandez	01067	2006	U	Y	N	Y	Y	U	Y
Fernandez	03022	2006	U	Y	N	Y	Y	U	Y
Fernandez Blu-Jay	00510	1999	U	N	N/A	N	Y	U	Y
Firing Range	01038	2000	U	N	Y	N	N	U	Y
Foster Gulch	01039	2003	Y	N	Y	N	N	U	Y
Fox Mountain	01510	1999		Y	Y	Y	Y	U	Y
Freeman Draw	00625	2010		Y	N/A	Y	Y	U	U
Gould Individual	02510	1998		Y	Y	Y	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Gould North Individual	02511	1998		Y	N/A	Y	Y	U	Y
Grass Creek	00522	2001	U	Y	Y	N	Y	U	Y
Grass Creek Basin	00530	2000		Y	N/A	Y	Y	U	Y
Grass Point	00545	2010		Y	Y	Y	Y	Y	U
Gravel Crossing	01005	2011	U	N	N	N	N	U	Y
Greybull Group	01051	2010	Y	Y	N	Y	Y	U	Y
Gyp Creek	01008	2009	U	Y	N	N	N	U	Y
Haffey Place	03049	2000	Y	N	Y	N	Y	U	Y
Hall Butte	02017	2000	Y	Y	N	Y	Y	U	Y
Hamilton Dome	00504	1999		Y	Y	Y	Y	U	Y
Healy	00185	2000		Y	N/A	Y	Y	U	Y
Heart Mountain South	03116	2001	U	N	N	N	N	U	Y
Heifer	01088	2004	U	N	N	N	N	U	Y
Hidden Dome	00032	1999	U	Y	Y	N	Y	U	Y
Hidden Valley	03060	2008	U	Y	N	Y	Y	U	Y
High Camp	00131	2000		Y	N/A	Y	Y	U	Y
Hillberry Rim	00579	2010		Y	Y	Y	Y	U	U
Himes/Spence	01037	2001	U	N	Y	N	N	U	Y
Himes Group	01031	2009	U	N	N	N	N	U	Y
Holding Pasture	03117	2001	Y	Y	Y	Y	Y	U	Y
Hole In The Ground	00628	1999	Y	Y	Y	Y	Y	U	Y
Home	00616	1998		Y	N/A	Y	Y	U	Y
Homestead/Avent	02564	2000	Y	Y	N	N	N	U	Y
Horse Center	03114	2000	Y	Y	Y	Y	N	U	Y
Horse Mountain	01521	2001		Y	N/A	Y	Y	U	Y
Hunt Oil 15 Mile	00682	2002		Y	N/A	Y	Y	U	Y
Indian Pass	03059	2006	U	Y	N	Y	Y	U	Y
Individual	01018	1998	Y	Y	Y	Y	Y	U	Y
Individual	01049	2012	Y	Y	Y	Y	Y	U	Y
Individual	01061	2000	U	N	N	N	Y	U	Y
Joe Henry	00011	2011		Y	N/A	Y	Y	U	U
Jolly Pasture	00189	2011	Y	Y	N	Y	Y	U	U
Jones Creek Basin	02538	2001		Y	Y	Y	Y	U	Y
Jones Creek Mountain	02525	2001		Y	N/A	Y	Y	U	Y
K I S	00083	1998		Y	Y	Y	Y	U	Y
Keystone	01074	2000	U	N	N	N	Y	U	Y
Keystone	03009	2000	U	N	Y	Y	Y	U	Y
Kimball	00009	2011	U	Y	Y	Y	Y	U	U
Kirby Creek	00589	2011		Y	N	Y	Y	N	U
Lake	03052	2000	Y	Y	Y	Y	Y	U	Y
Lake	00607	1999		Y	Y	Y	Y	U	Y
Lake Creek	03078	1999	Y	Y	Y	Y	Y	U	Y
Lake Ridge	01511	2010		Y	Y	Y	Y	U	U
Lakeshore	03036	2010	U	N	N	Y	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Lime Ridge	00615	1998		Y	Y	Y	Y	U	U
Little Buffalo Basin	00564	1998		Y	N/A	Y	Y	U	Y
Little Dry Creek	03061	2000	Y	Y	Y	Y	N	U	Y
Little Mountain	01028	2000	U	N	N	N	N	U	Y
Little Rock Creek	03066	2000	Y	N	Y	Y	Y	U	Y
Little Sand Draw	00590	2001	U	Y	Y	N	Y	U	Y
Little Sheep Mountain	01053	2007	U	N	N	N	N	U	Y
Lone Tree	03104	2001	Y	N	Y	N	Y	U	Y
Long Point Pasture	01503	2000		Y	Y	Y	Y	U	Y
Lost Creek	00149	2001	U	Y	N/A	Y	Y	U	Y
Lovell Group 1	01032	2003	U	N	N	N	Y	U	Y
Low Miller	01090	2000	U	Y	N	N	Y	U	Y
Lower Arnold	00081	1998	U	Y	Y	Y	N	U	Y
Lower Bear Creek	01015	1999	N	N	N	N	Y	U	Y
Lower Brokenback	00174	2011		N	N/A	Y	Y	U	U
Lower Cottonwood	00521	2001	U	Y	Y	N	Y	U	Y
Lower Nowood	00144	2010		Y	N/A	Y	Y	U	U
Lower Nowater	00015	2000		Y	N/A	Y	Y	U	Y
Lower Red Canyon	02505	2001		Y	Y	Y	Y	U	Y
Lower Sage Creek	03064	2004	U	Y	N	Y	Y	U	Y
Lower Sand Creek	00073	1998		Y	N/A	Y	Y	U	Y
Lower Slope	03003	1998	U	N	N	N	Y	U	Y
Lower V's	00130	1999	U	Y	N/A	N	Y	U	Y
Lower Yu Bench	03069	1999	U	N	Y	N	Y	U	Y
LU	00604	1998	Y	N	Y	N	Y	U	Y
M.F. Warm Springs	02541	2009		Y	N/A	Y	Y	U	Y
Mahogany Butte	00069	1998		Y	Y	Y	Y	Y	Y
Major Basin	02546	2011		Y	Y	Y	Y	U	U
Maller Individual	00544	2001	U	N	Y	N	Y	U	Y
Manderson	00036	1999	U	Y	N/A	Y	Y	U	Y
Many Springs	01024	2000	U	N	N	N	N	U	Y
Maret	00649	2001		Y	N/A	Y	Y	U	Y
Meeteetse Rim	02535	2001	U	Y	N	Y	Y	U	Y
Meeteetse Creek	02561	2000	Y	Y	Y	Y	N	U	Y
Melton Mountain	02550	2001		Y	N/A	Y	Y	U	Y
Mexican Hills	01010	2000	U	Y	N	N	Y	U	Y
Meyers Spring	00066	1999		Y	Y	Y	Y	U	Y
Middle Creek	00519	2000	U	Y	Y	Y	Y	U	Y
Milk Creek	00552	1999		Y	Y	Y	Y	U	Y
Mill Iron-East	00582	1999	U	Y	N/A	N	N	U	Y
Mills	01025	2000	U	N	N	N	N	U	Y
Moncur Springs	01029	2000	U	N	N	N	N	U	Y
Moss Ranch	01027	2002	Y	Y	Y	Y	Y	U	Y
Mountain	00672	2000	U	Y	Y	Y	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Mountain Slope	03093	1998	U	N	N	N	Y	U	Y
Mud Creek	00050	1999		Y	Y	Y	Y	U	Y
Mud Creek Pasture	00583	2001		Y	N/A	Y	Y	U	Y
Mud Gulch	00216	1999		Y	N/A	Y	Y	U	Y
Murphy Dome	00049	1999		Y	N/A	Y	Y	U	Y
Natural Trap	01089	2001	Y	Y	N	Y	Y	U	Y
Neiber	00048	2000		Y	N/A	Y	Y	U	Y
New Highway	03038	1998	Y	Y	Y	Y	Y	U	Y
Newmeyer Creek	03089	2013	U	N	N	N	N	U	Y
Norquist	03115	2000	Y	Y	Y	Y	N	U	Y
North Beaver Creek	01019	1998	Y	Y	Y	Y	Y	U	Y
North Grass Creek	00621	1999		Y	N/A	Y	Y	U	Y
North Hart	00585	1999		Y	N/A	Y	Y	U	Y
North Highway	00623	1998		Y	N/A	Y	Y	U	Y
North Murphy Dome	00080	1998		Y	Y	Y	Y	U	Y
North Shoshone	01035	2003	Y	N	N	N	N	U	Y
North Shoshone	01036	2010	Y	N	N	N	N	N	Y
Nowood Individual	00025	2001		Y	N/A	Y	Y	U	Y
O'Brien Camp	00294	2010	Y	Y	N	Y	Y	U	U
Oil Field	00170	2009		Y	N	Y	Y	U	U
Oilwell	03113	2000	Y	N	Y	N	N	U	Y
One Forty	01033	2000	U	N	N	N	N	U	Y
One-Twenty-One	01534	2000	Y	Y	Y	Y	Y	U	Y
Onion Gulch	00183	2000		Y	Y	Y	Y	U	Y
Osborne	03010	1999	Y	Y	Y	Y	Y	U	Y
Otter Creek Pastures	00127	1999	U	Y	N	N	Y	U	Y
Owl Creek	00609	1999	U	Y	U	U	Y	U	Y
Parker	00221	2010	Y	Y	N/A	Y	Y	U	U
Pasture Number 4	03105	1999	U	N	Y	N	Y	U	Y
Patras	00088	1999		Y	Y	Y	Y	U	Y
Peak	02509	2009		Y	Y	Y	Y	U	Y
Peaks	01064	1999	U	N	N	N	Y	U	Y
Peaks	01069	2003	Y	Y	N	Y	Y	U	Y
Peterson	03092	2004	Y	Y	Y	Y	Y	U	Y
Pistol Draw	00603	2001		Y	N/A	Y	Y	U	Y
Pitchfork	00676	2002		Y	N/A	Y	Y	U	Y
Polecat Bench	01071	2005	Y	N	N	N	Y	U	Y
Potato	01525	1999		Y	Y	Y	Y	U	Y
Potato Ridge	01537	1999		Y	N/A	Y	Y	U	Y
Potter Butte	00133	1999		Y	N/A	N	Y	U	Y
Prospect Common	00529	1998		Y	Y	Y	Y	U	Y
Putney Flat	00613	2000		Y	Y	Y	Y	U	Y
Putney Place	00720	1999		Y	N/A	Y	Y	U	Y
Race Track	01040	2003	Y	N	Y	N	N	U	U

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Ramul Individual	00557	1999		Y	N/A	Y	Y	U	Y
Rattlesnake	00614	1998		Y	Y	Y	Y	U	Y
Rattlesnake Creek	03108	2004	Y	Y	Y	Y	Y	U	Y
Rattlesnake Mountain	03118	2001	U	N	N	N	Y	U	Y
Reclamation	00666	2001	U	N	N	N	Y	U	Y
Reclamation 15	03088	2001	U	N	N	N	Y	U	Y
Red	01541	2002	U	N	Y	N	Y	U	Y
Red Cabin	03079	2005	U	Y	N	Y	Y	U	Y
Red Canyon	01509	1999	Y	Y	Y	Y	Y	U	Y
Red Creek	00520	2000		Y	Y	Y	Y	Y	Y
Red Creek	03072	2000	U	N	Y	N	Y	U	Y
Red Farm	00547	2000		Y	N/A	Y	Y	U	Y
Red Hole	00565	2009		Y	N/A	Y	Y	U	Y
Red Lane	00653	2002		Y	N/A	Y	Y	U	Y
Red Point	03067	1998	U	Y	Y	N	Y	U	Y
Red Pole	03055	1999	U	Y	N	Y	N	U	Y
Red Springs	00658	2009		Y	Y	Y	Y	U	Y
Red Springs Draw	00570	2010		Y	N	Y	Y	N	U
Red Springs/Rock Butte	00177	2011		Y	Y	Y	Y	U	U
Reed Creek	02554	2009		Y	N/A	Y	Y	U	Y
Renner Section 15	02534	2013	U	Y	N	Y	Y	U	Y
Richmond	00553	1999		Y	Y	Y	Y	U	Y
Rim	00186	2011	U	Y	Y	Y	Y	U	U
Rimrock	03073	2010	U	N	N	Y	Y	U	Y
River	01079	2001	U	Y	N	N	N	U	Y
Rivers Rest	03070	1999	Y	Y	Y	Y	Y	U	Y
Robson Mountain	00219	2001		Y	N/A	Y	Y	U	Y
Rock Springs Draw	00602	2009		Y	N/A	Y	Y	U	Y
Rooster Creek	00627	1999	Y	N	N	N	Y	U	Y
Rose Mountain	02003	1998		Y	N/A	Y	Y	U	Y
S V	00070	1998		Y	Y	Y	Y	Y	Y
Sage Creek	01073	2005	Y	Y	Y	Y	Y	U	Y
Sage Creek Addition	03008	2005	Y	Y	Y	Y	Y	U	Y
Sand Draw	01006	1998	U	Y	N	N	Y	U	Y
Sand Draw	00656	2000	U	Y	N/A	N	Y	U	Y
Sand Hills	01043	1998	U	N	Y	N	N	U	Y
Sand Hills	01054	2009	U	N	N	N	N	U	Y
Schoolhouse Gulch	00099	2001	Y	N	N/A	N	N	U	Y
Scorpion	00118	1999	U	Y	Y	N	Y	U	Y
Sheep Mountain	01014	1999	U	N	N	N	Y	U	Y
Sheep Mountain	03044	1998	U	N	N	N	Y	U	Y
Sheep Springs	00065	1999		Y	Y	Y	Y	U	Y
Sidon Canal	01055	2009	U	N	N	N	N	U	Y
Slab Creek	00575	1999	U	Y	N	N	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Slick Water	00162	1999	U	Y	N/A	N	Y	U	Y
Small Pasture	00188	2011	Y	Y	N/A	Y	Y	U	U
Snyder	00640	2013		N ⁴	N/A	N ⁴	N ⁴	Y	U
Sorensen	01072	2007	U	N	N	Y	N	U	Y
Sorensen	03081	2007	U	N	N	Y	N	U	Y
South Butte	00157	1999		Y	N/A	Y	Y	U	Y
South Gooseberry	00507	2010		Y	N	Y	Y	Y	U
South Highway	00622	1998	U	Y	N/A	Y	Y	U	Y
South Individual	00200	2001		Y	N/A	Y	Y	U	Y
South Lovell Group	01052	2000	U	N	Y	N	Y	U	Y
South Shell	01519	2000		Y	Y	Y	Y	U	Y
South Sleeper	00683	2011		Y	Y	Y	Y	U	U
South Tatman	00612	1999		Y	N/A	Y	Y	U	Y
South Y U Bench	02806	1999	Y	Y	Y	Y	Y	U	Y
Spanish Point	00064	1999		Y	Y	Y	Y	U	Y
Spring Gulch	00531	2012		Y	Y	Y	Y	U	U
State	03087	1999	U	Y	Y	N	Y	U	Y
Stone Barn 15	03112	2003	Y	N	N	N	Y	U	Y
Stonebridge	03004	2008	U	Y	N	Y	Y	U	Y
Stump	02542	2009	U	Y	N/A	Y	Y	U	Y
Sunlight	01516	2000	Y	N	Y	N	Y	U	Y
Swallow	02543	2012		Y	N/A	Y	Y	U	U
Tatman Mt Common	00639	2013		N ⁴	N/A	N ⁴	N ⁴	U	U
Ten Mile	00671	1998		Y	Y	Y	Y	U	U
Ten Sleep	00173	2010		Y	N/A	Y	Y	U	U
Tharp Individual	00179	2000	Y	N	Y	N	N	U	Y
Thumper	01059	1998	U	Y	N	N	Y	U	Y
Timber Creek	03047	1999	U	N	N	N	Y	Y	Y
Timber Creek	00626	1999	Y	N	N	N	Y	U	Y
Tobes Pasture	00203	1998		Y	Y	Y	Y	U	Y
Tonopah Ridge	02544	2006	U	N	N	N	N	U	Y
Torchlight	00181	2000		Y	Y	Y	Y	U	Y
Tower	00085	2001		Y	N/A	Y	Y	U	Y
Trail Creek	03053	2001	U	N	N	N	Y	U	Y
Trailing Pasture	03065	2013	U	N	N	N	N	U	Y
Turner Pasture	00190	1998	Y	Y	Y	N	N	U	Y
Twin Buttes	02552	2001		Y	Y	Y	Y	U	Y
Upper Arnold	00082	1998		Y	N/A	Y	Y	U	Y
Upper Brokenback	00175	2010		Y	Y	Y	Y	U	U
Upper Gooseberry	00515	1999	U	Y	U	Y	Y	U	Y
Upper Nowater	00018	2000		Y	N/A	Y	Y	U	Y
Upper Sand Creek	00184	2000		Y	N/A	Y	Y	U	Y
Upper White Creek	01536	2000		Y	Y	Y	Y	U	Y
Upton	03056	2005	U	N	N	Y	Y	U	Y

Table P-2. Standards and Guidelines Summary of Grazing Allotments (Continued)

Allotment Name	Allotment Number	Year Completed	Progress ¹	Standard ^{2,3}					
				#1	#2	#3	#4	#5	#6
Urwin Homestead	00721	1999		Y	N/A	Y	Y	U	Y
V Pasture	02547	2008		Y	N/A	Y	Y	U	Y
Vass	00608	1999		Y	Y	Y	Y	U	Y
Wagonhound Bench	00573	1999		Y	Y	Y	Y	U	Y
Wales Homestead	00722	1999		Y	N/A	Y	Y	U	Y
Waugh Dome	00554	1999		Y	Y	Y	Y	U	Y
West	00660	2009		Y	N/A	Y	Y	U	Y
West Alkali	00218	1999		Y	N/A	Y	Y	U	Y
West Allotment	00147	2010		Y	N/A	Y	Y	U	U
West Black Mountain	00205	2000		Y	N/A	Y	N	N/A	Y
West Of Ranch	01522	2000	Y	Y	Y	Y	Y	U	Y
West River	01012	1998	U	Y	N	N	Y	U	Y
Wild Horse Butte	00592	2011	U	Y	N	Y	Y	U	U
Willow Creek	01034	2003	Y	Y	Y	Y	Y	U	Y
Willow Creek	00210	1999	U	Y	U	U	Y	U	Y
Willow Springs	02001	2001		Y	N/A	Y	Y	U	Y
Winter Camp	00563	2009		Y	Y	Y	Y	U	Y
Worland Cattle Group	00007	1999		Y	Y	Y	Y	U	Y
Yu Bench	01065	2002	U	N	N	N	Y	U	Y
Yu Bench West	03091	1999	Y	Y	Y	Y	Y	U	Y
Zimmerman Buttes	00571	2009		Y	N/A	N ⁴	Y	U	U
Zimmerman Springs	00591	2012		Y	Y	N ⁴	Y	U	U

¹Codes in Progress and Standard columns are as follows: Y = Yes, meets standard, N = No, does not meet standard, U = Unknown.

²Codes in Progress and Standard columns are as follows: Y = Yes, meets standard, N = No, does not meet standard, U = Unknown.

³Standards 5 and 6 are dependent upon determinations made by the Wyoming Department of Environmental Quality (DEQ). Standard 5 is Unknown if allotment specific data is not available. Wyoming DEQ is researching whether any “impaired” waters have data showing impairment on BLM lands.

⁴Some acres within the allotment met standards, while others did not.

Note: Data in table derived from Bureau of Land Management Cody and Worland Field Offices internal databases accessed from 2010 to 2013.

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas

Allotment Number	Allotment Name	Management Category
01513	BLACK MOUNTAIN	I
01510	FOX MOUNTAIN	I
01535	SOUTH SHELL GROUP	I
01507	BUSH BUTTE	I
01525	POTATO	I
01519	SOUTH SHELL	I
00065	SHEEP SPRINGS	M
01526	SABIN	I
00189	JOLLY PASTURE	I
00002	WEBER LOWER	I
00143	MEDICINE LODGE	I
00674	NORTH TATMAN	C
00066	MEYERS SPRING	I
00188	SMALL PASTURE	I
00639	TATMAN MT COMMON	I
00094	RED HILLS	I
00218	WEST ALKALI	I
00217	EAST ALKALI	I
00640	SNYDER	I
00003	COLD SPRINGS	I
00095	FORKS	I
02527	UNALLOTTED	<u>1</u>
00221	PARKER	I
00092	PAINTROCK CANYON	I
00669	ALLEN BASIN	I
00527	BLACKSTONE	C
00618	NORTH BLACKSTONE	C
00059	NORTH HOUSE	C
00652	BADGER GULCH	I
00136	BLACK HILLS	C
00005	SOUTHSIDE GROUP	I
00213	EAST HYATTVILLE	C
00047	HYATTVILLE INDIVIDUAL	I
00004	GAPEN HYATT	I
00526	RIMROCK BASIN	I
00004	GAPEN HYATT	I
00200	SOUTH INDIVIDUAL	<u>1</u>
00148	RENNER INDIVIDUAL	I
02562	MEETEETSE-EAST	M
00682	HUNT OIL 15 MILE	I
00676	PITCHFORK	I

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00025	NOWOOD INDIVIDUAL	I
00663	COW PASTURE	C
02701	STATE	<u>1</u>
00508	NO. GOOSEBERRY	I
00670	UPPER 15 MILE	C
00662	ENRIGHT	I
00604	LU	I
00579	HILLBERRY RIM	I
00031	BROKENBACK	I
00171	EAST NOWOOD	C
00623	NORTH HIGHWAY	C
00579	HILLBERRY RIM	I
00545	GRASS POINT	I
00021	LITTLE COTTONWOOD	I
00132	BIG COTTONWOOD CREEK	I
SDW	W-T STOCK DRIVE	<u>1</u>
00008	CASTLE GARDENS	I
00523	HIGHWAY JUNCTION	I
00009	KIMBALL	I
00215	DEEDED	I
00164	COTTONWOOD-N.BUTTE	I
00507	SO. GOOSEBERRY GROUP	I
00185	HEALY	C
00616	HOME	M
00622	SOUTH HIGHWAY	I
00007	WORLAND CATTLE GROUP	I
00107	HONEY COMBS	I
00168	LOWER SPRING CREEK	I
00122	HARVARD INDIVIDUAL	M
00153	DENVER JAKE DRAW	C
00042	EAST FORK	I
00110	BUD KIMBALL	I
00160	SPRING CREEK COMMON	I
00637	ADAM WEISS PEAK	I
00522	GRASS CREEK	I
00037	NORTH BUTTE	I
00580	COAL MINE	I
00678	SOUTH GRASS CREEK	I
00109	COYOTE SPRINGS	C
00048	NEIBER	I
02003	ROSE MOUNTAIN	M
00216	MUD GULCH	M
00129	MAZET	M

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00127	OTTER CREEK PASTURES	I
00028	UPPER NOWOOD	C
00074	ANTELOPE DRAW	I
00531	SPRING GULCH	I
00163	DEMER NOWATER	I
00145	CEDAR RIDGE	M
00521	LOWER COTTONWOOD	I
00159	TIE DOWN	C
00011	JOE HENRY	I
00133	POTTER BUTTE	I
02008	BOX CANYON	I
00024	BECKLEY	I
00127	OTTER CREEK PASTURES	I
00535	WEST COTTONWOOD	C
00111	OTTER CREEK	I
00529	PROSPECT COMMON	I
00620	PROSPECT	I
00665	NELSON	M
00130	LOWER V'S	I
00014	MILESKI BADLANDS	I
00112	FAURE NOWATER	I
00019	DOUBLE H	I
02007	OTTER CREEK MOUNTAIN	I
00105	NOWATER	I
00633	UPPER PASTURES	I
00041	FATTY ALLEN	I
00590	LITTLE SAND DRAW	I
00060	MESA	M
00641	SWING INDIVIDUAL	C
00199	BIG CEDAR	I
00573	WAGONHOUND BENCH	I
00010	GORDON	M
00015	LOWER NOWATER	I
00120	BUFFALO CREEK	I
00061	AINSWORTH INDIVIDUAL	M
00603	PISTOL DRAW	C
00012	BIG TRAILS GROUP	I
00721	URWIN HOMESTEAD	C
00062	AINSWORTH	I
00141	GREET INDIVIDUAL	M
00076	LOWER WALKER	I
00557	RAMUL INDIVIDUAL	M
00722	WALES HOMESTEAD	C

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00018	UPPER NOWATER	I
00634	LOWER PASTURES	I
00504	HAMILTON DOME	I
00596	WAGONHOUND	I
00656	SAND DRAW	I
00591	ZIMMERMAN SPRINGS	I
UNALL	UNALLOTTED (2009)	<u>1</u>
00636	HAYNES	C
00157	SOUTH BUTTE	M
00193	LITTLE MUD CREEK	I
00571	ZIMMERMAN BUTTES	I
00119	BLUEBANK	M
00680	LAKE CREEK PASTURE	C
00553	RICHMOND	I
00524	COTTONWOOD CREEK	I
00556	21 CREEK	I
00080	NORTH MURPHY DOME	I
00097	DEADLINE DRAW	M
00558	BUCK CREEK	I
00118	SCORPION	I
00098	SLOPE	<u>1</u>
00089	BIG BEND	I
00607	LAKE	I
00562	GARDNER BADLANDS	I
00720	PUTNEY PLACE	C
00661	THREE PEAKS ANCHOR	I
00685	BRAMAH	I
00589	KIRBY CREEK	I
00570	RED SPRINGS DRAW	I
00681	SPRING CREEK	I
00501	BLUE SPRINGS	I
00537	PADLOCK	I
00123	BUFFALO SAND POINT	I
00593	HAMILTON RIM	M
00071	CHALK BUTTE	M
00613	PUTNEY FLAT	M
00077	MIDDLE WALKER	I
00551	COULEE-MILL IRON	M
00582	MILL IRON-EAST	M
00147	WEST ALLOTMENT	I
00146	EAST ALLOTMENT	I
00540	BRIDGES	C
00191	LOWER BLACK MOUNTAIN DRAW	I

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00608	VASS	C
00585	NORTH HART	I
00654	AYERS INDIVIDUAL	I
00614	RATTLESNAKE	I
00533	HOME RANCH	I
00210	WILLOW CREEK	I
00569	CURTIS	I
00205	WEST BLACK MOUNTAIN	I
00049	MURPHY DOME	I
00568	BASIN	I
00158	SEAMAN	I
00661	THREE PEAKS ANCHOR	I
00078	UPPER WALKER	I
00569	CURTIS	I
00587	TYPHER PASTURE	C
00081	LOWER ARNOLD	I
00192	UPPER BLACK MOUNTAIN DRAW	I
00035	BUFFALO CANYON	I
00586	SOUTH HART	C
00182	BUTTES	I
00070	S V	I
00610	SOUTH OWL CREEK	I
00563	WINTER CAMP	I
00051	FARLEY	I
00583	MUD CREEK PASTURE	C
00082	UPPER ARNOLD	I
02547	V PASTURE	I
00067	DEETER	M
00572	EAGLE DRAW	M
02539	RED CANYON	I
00592	WILD HORSE BUTTE	I
00050	MUD CREEK	I
00069	MAHOGANY BUTTE	I
02546	MAJOR BASIN	I
00124	WEST SIDE SUMMER	I
00195	LOWER BLACK MOUNTAIN	I
02543	SWALLOW	I
00572	EAGLE DRAW	M
00088	PATRAS	I
00083	K I S	I
02512	BILLYS FLATS	M
02514	V-H DRAW	I
02509	PEAK	I

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00648	SHUMWAY INDIVIDUAL	I
02506	DYE	I
02536	BLUE HILL	I
02549	HAWKS BUTTE	I
02542	STUMP	I
02507	BRIDGER CREEK	I
02505	LOWER RED CANYON	I
02559	SLOPE PASTURE	I
00206	BEAR CREEK COMMON	I
00223	WOOD'S SPLIT ROCK	I
00087	MOUNTAIN INDIVIDUAL	M
02020	TANNER-MOUNTAIN	I
02560	LYSITE CREEK	I
02531	JENKS CREEK	I
00655	COPPER MOUNTAIN	I
02503	GRIDER BASIN	I
00125	EAST SIDE SUMMER	I
00086	DAUGHERTY DEWITT	M
02554	REED CREEK	I
00053	RANCH	C
02017	HALL BUTTE	M
02012	NATRONA	M
02559	SLOPE PASTURE	I
00090	SPLIT ROCK - V'S	I
00204	NORTH OF DITCH	I
01517	SOUTH INDIVIDUAL (WRA)	C
02534	RENNER SECTION 15	I
03038	NEW HIGHWAY	M
03011	HEART MOUNTAIN NORTH	M
03026	HILL	C
03086	CHAPMAN BENCH 3086	I
00629	RANKINE	I
02535	MEETEETSE RIM 2535	M
01013	BEAR CREEK	I
01010	MEXICAN HILLS	C
01023	CRYSTAL CREEK	I
03084	BIG DIPPER	M
01026	BURNHAM	M
01089	NATURAL TRAP	I
03006	COAL CREEK	M
03049	HAFFEY PLACE	C
01080	CHAPMAN BENCH 1080	I
01076	CLARK	C

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
01085	INDIVIDUAL 1085	C
03094	DRY CREEK 3094	M
02561	MEETEETSE CREEK 2561	M
03079	RED CABIN	M
01027	MOSS RANCH	I
01072	SORENSEN	M
03008	SAGE CREEK ADDITION	I
03074	ALEZANDER	M
03010	OSBORN	M
03063	EL	M
03065	TRAILING PASTURE	I
03061	LITTLE DRY CREEK	M
01068	BOUNDARY WELL 1068	M
03110	BOUNDARY WELL 3110	M
01087	BADLANDS	I
01528	COTTONWOOD CREEK WILDLIFE EXCLOSURE	M
01067	FERNANDEZ	M
03022	FERNANDEZ 15	M
01028	LITTLE MOUNTAIN	I
02523	KUKLA SECTION 15	_ ¹
01048	DRY CREEK 1048	M
03092	PETERSON	M
01047	COUNTY LINE	M
01084	THREE M	C
01522	WEST OF RANCH	I
01019	NORTH BEAVER	C
01018	INDIVIDUAL 1018	I
01017	BEAVER CREEK 1017	M
03062	UPPER SAGE PASTURE	C
01501	CEDAR CREEK	I
01509	RED CANYON	I
01016	HOME PLACE	C
01075	CLARKSFORK	I
03114	HORSE CENTER	M
03051	COTTONWOOD CREEK	M
03053	TRAIL CREEK	I
01005	GRAVEL CROSSING	M
03012	QUESTION CREEK	I
03117	HOLDING PASTURE	C
03116	HEART MOUNTAIN SOUTH 3116	M
03103	SIMPSON	M
03099	HEART MOUNTAIN SOUTH 3099	C
03071	WILEY RIM	M

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
03119	RUSH CREEK	M
02553	WINNIGER	M
03031	MEETEETSE CREEK 3031	C
02545	91 RANCH	M
03091	YU BENCH - WEST	I
02806	SOUTH Y U BENCH	I
03104	LONE TREE	I
01046	BENCH CANAL	M
01086	SCHLAF/COMMON	M
03068	OREGON COULEE	I
02551	COTTONWOOD	M
01516	SUNLIGHT	I
03048	HOODOO BASE	M
00628	HOLE IN THE GROUND	I
03100	BIG BEND	C
01534	ONE TWENTY ONE	I
03064	LOWER SAGE CREEK	M
02564	HOMESTEAD/AVENT	M
03029	OREGON BASIN	I
01074	KEYSTONE 1074	C
03069	LOWER YU BENCH	I
03035	EAGLE PASS	I
01065	YU BENCH	C
03009	KEYSTONE 3009	M
03090	YU BENCH – EAST	I
03102	BENCH	I
03052	LAKE	M
03113	OILWELL	M
03073	RIMROCK	M
01073	SAGE CREEK GROUP	I
01002	WHISTLE CREEK	I
01069	PEAKS 1069	I
03112	STONE BARN 15	I
03088	RECLAMATION 15	I
03067	RED POINT	I
00666	RECLAMATION	I
01060	EAST/WEST	I
01057	POLECAT-FRANNIE	C
01003	STATELINE	M
01061	INDIVIDUAL 1061	C
01071	POLECAT BENCH	I
03089	NEWMAYER CREEK	M

Table P-3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas (Continued)

Allotment Number	Allotment Name	Management Category
00683	SOUTH SLEEPER	— ¹
00510	FERNANDEZ BLU-JAY	— ¹

¹Information not available for allotment.

Note: The determination of retirement of grazing privileges of allotments or portions of allotments in greater sage-grouse Priority Habitat Management Areas would be made upon site specific National Environmental Policy Act analysis.

C Custodial
I Improve
M Maintain

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix Q

Economic Impact Analysis Methodology

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APPENDIX Q

ECONOMIC IMPACT ANALYSIS METHODOLOGY

1.0 INTRODUCTION

This appendix describes the methods and data that underlie the economic impact modeling analysis. Input-output models such as the Impact Analysis for Planning (IMPLAN) model, an economic impact analysis model, provide a quantitative representation of the production relationships between individual economic sectors. Thus, the economic modeling analysis uses information about physical production quantities and the prices and costs for goods and services. The inputs required to run the IMPLAN model are described in the following narrative and tables. The resulting estimates from the IMPLAN model, by alternative, can be found in the *Economic Conditions* section in Chapter 4. The first section of this appendix describes general aspects of the IMPLAN model and how it was used to estimate economic impacts. The remaining sections provide additional detailed data used in the analysis for oil and gas, livestock grazing, and recreation.

2.0 THE IMPLAN MODEL

IMPLAN is a regional economic model that provides a mathematical accounting of the flow of money, goods, and services through a region's economy. The model provides estimates of how a specific economic activity translates into jobs and income for the region. It includes the ripple effect (also called the "multiplier effect") of changes in economic sectors that may not be directly impacted by management actions, but are linked to industries that are directly impacted. In IMPLAN, these ripple effects are termed indirect impacts (for changes in industries that sell inputs to the industries that are directly impacted) and induced impacts (for changes in household spending as household income increases or decreases due to the changes in production).

This analysis used IMPLAN 2007; prior to running the model, cost and price data were converted to a consistent dollar year (2011) using regional and sector-specific adjustment factors from the IMPLAN model. The values in this appendix are expressed in year 2011 dollars so that the earnings and employment estimates can be easily compared to the latest (i.e., 2011) earnings and employment data available from the Bureau of Economic Analysis.

The IMPLAN model has 440 economic sectors, of which 188 are represented in the four Planning Area counties. This analysis involved direct changes in economic activity for 33 IMPLAN economic sectors, as well as changes in all other related sectors due to the ripple effect. The IMPLAN production coefficients were modified to reflect the interaction of producing sectors in the Planning Area. As a result, the calibrated model does a better job of generating multipliers and the subsequent impacts that reflect the interaction between and among the sectors in the Planning Area compared to a model using unadjusted national coefficients. For instance, worker productivity in oil and gas production is higher in Wyoming than the national average. Key variables used in the IMPLAN model were filled in using data specific to Wyoming, including employment estimates, labor earnings, and total industry output.

3.0 OIL AND GAS

The economic impacts analysis for oil and gas reflects drilling, completion, and production activities. The number of wells drilled and completed is based on the updated Reasonable Foreseeable Development (RFD) scenario (BLM 2009a; BLM 2014a) and the constraints applied under each alternative. Total well numbers for each alternative are presented in Table Q-1. Table Q-2 presents the projected quantity of oil and gas produced on federal surface, and Table Q-3 presents the projected quantity of oil and gas produced from federal, state, and private (fee) surface.

Table Q-1. Oil and Gas Well Numbers

Item	Conventional Infill	Exploratory Deep	Coalbed Natural Gas	Total
Federal Surface				
Alternative A – Wells Drilled	989	112	83	1,184
Alternative A – Wells Completed	854	32	75	961
Alternative B – Wells Drilled	396	45	16	457
Alternative B – Wells Completed	344	13	15	372
Alternative C – Wells Drilled	1,082	123	99	1,304
Alternative C – Wells Completed	934	36	90	1,060
Alternative D – Wells Drilled	954	108	79	1,141
Alternative D – Wells Completed	824	31	71	926
Alternative E – Wells Drilled	396	44	14	454
Alternative E – Wells Completed	344	13	13	370
Alternative F – Wells Drilled	955	107	79	1,141
Alternative F – Wells Completed	825	31	72	928
Federal, State, and Fee Surface				
Alternative A – Wells Drilled	1,407	160	128	1,695
Alternative A – Wells Completed	1,210	46	115	1,371
Alternative B – Wells Drilled	814	93	61	968
Alternative B – Wells Completed	700	27	55	782
Alternative C – Wells Drilled	1,500	171	144	1,815
Alternative C – Wells Completed	1,290	50	130	1,470
Alternative D – Wells Drilled	1,372	156	124	1,652
Alternative D – Wells Completed	1,180	45	111	1,336
Alternative E – Wells Drilled	814	92	59	965
Alternative E – Wells Completed	700	27	53	780
Alternative F – Wells Drilled	1,373	155	124	1,652
Alternative F – Wells Completed	1,181	45	112	1,338

Sources: BLM 2009a; BLM 2009b; BLM 2013; BLM 2014a

Table Q-2. Projected Oil and Gas Production (Federal Surface)

Year	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E		Alternative F	
	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)
2009	12.1	7.3	4.9	2.9	13.3	8.0	11.7	7.0	4.8	2.9	11.7	7.0
2010	11.8	6.9	4.7	2.8	12.9	7.6	11.4	6.7	4.7	2.8	11.4	6.7
2011	11.4	6.6	4.6	2.6	12.5	7.2	11.0	6.3	4.6	2.6	11.0	6.3
2012	11.1	6.2	4.4	2.5	12.2	6.8	10.7	6.0	4.4	2.5	10.7	6.0
2013	10.8	5.9	4.3	2.4	11.8	6.5	10.4	5.7	4.3	2.4	10.4	5.7
2014	10.5	5.6	4.2	2.3	11.5	6.2	10.1	5.4	4.2	2.2	10.1	5.4
2015	10.2	5.3	4.1	2.1	11.1	5.8	9.8	5.2	4.1	2.1	9.8	5.2
2016	9.9	5.1	4.0	2.0	10.8	5.6	9.5	4.9	3.9	2.0	9.5	4.9
2017	9.6	4.8	3.8	1.9	10.5	5.3	9.3	4.7	3.8	1.9	9.3	4.7
2018	9.3	4.6	3.7	1.8	10.2	5.0	9.0	4.4	3.7	1.8	9.0	4.4
2019	9.1	4.4	3.6	1.7	9.9	4.8	8.7	4.2	3.6	1.7	8.7	4.2
2020	8.8	4.1	3.5	1.7	9.6	4.5	8.5	4.0	3.5	1.7	8.5	4.0
2021	8.5	3.9	3.4	1.6	9.3	4.3	8.2	3.8	3.4	1.6	8.2	3.8
2022	8.3	3.7	3.3	1.5	9.1	4.1	8.0	3.6	3.3	1.5	8.0	3.6
2023	8.1	3.5	3.2	1.4	8.8	3.9	7.8	3.4	3.2	1.4	7.8	3.4
2024	7.8	3.4	3.1	1.3	8.6	3.7	7.5	3.2	3.1	1.3	7.5	3.2
2025	7.6	3.2	3.0	1.3	8.3	3.5	7.3	3.1	3.0	1.3	7.3	3.1
2026	7.4	3.0	3.0	1.2	8.1	3.3	7.1	2.9	2.9	1.2	7.1	2.9
2027	7.2	2.9	2.9	1.2	7.8	3.2	6.9	2.8	2.9	1.2	6.9	2.8
2028	7.0	2.7	2.8	1.1	7.6	3.0	6.7	2.6	2.8	1.1	6.7	2.6

Sources: BLM 2009a; BLM 2009b; BLM 2013; BLM 2014a

BCF billion cubic feet
MMBO million barrels of oil

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Table Q-3. Projected Oil and Gas Production (Federal, State, and Fee Surface)

Year	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E		Alternative F	
	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)	Gas (BCF)	Oil (MMBO)
2009	17.3	10.4	10.0	6.0	18.4	11.1	16.8	10.1	10.0	6.0	16.8	10.1
2010	16.8	9.9	9.7	5.7	17.9	10.5	16.3	9.6	9.7	5.7	16.3	9.6
2011	16.3	9.4	9.4	5.4	17.4	10.0	15.9	9.1	9.4	5.4	15.9	9.1
2012	15.8	8.9	9.2	5.1	16.9	9.5	15.4	8.7	9.1	5.1	15.4	8.7
2013	15.4	8.4	8.9	4.9	16.4	9.0	15.0	8.2	8.9	4.9	15.0	8.2
2014	14.9	8.0	8.6	4.6	15.9	8.5	14.5	7.8	8.6	4.6	14.5	7.8
2015	14.5	7.6	8.4	4.4	15.4	8.1	14.1	7.4	8.4	4.4	14.1	7.4
2016	14.1	7.2	8.1	4.2	15.0	7.7	13.7	7.1	8.1	4.2	13.7	7.0
2017	13.7	6.9	7.9	4.0	14.6	7.3	13.3	6.7	7.9	4.0	13.3	6.7
2018	13.3	6.5	7.7	3.8	14.1	7.0	12.9	6.4	7.7	3.8	12.9	6.4
2019	12.9	6.2	7.5	3.6	13.7	6.6	12.6	6.0	7.5	3.6	12.6	6.0
2020	12.5	5.9	7.2	3.4	13.3	6.3	12.2	5.7	7.2	3.4	12.2	5.7
2021	12.2	5.6	7.0	3.2	13.0	6.0	11.9	5.4	7.0	3.2	11.9	5.4
2022	11.8	5.3	6.8	3.1	12.6	5.7	11.5	5.2	6.8	3.1	11.5	5.2
2023	11.5	5.0	6.6	2.9	12.2	5.4	11.2	4.9	6.6	2.9	11.2	4.9
2024	11.1	4.8	6.4	2.8	11.9	5.1	10.9	4.7	6.4	2.8	10.9	4.7
2025	10.8	4.5	6.3	2.6	11.5	4.8	10.5	4.4	6.3	2.6	10.5	4.4
2026	10.5	4.3	6.1	2.5	11.2	4.6	10.2	4.2	6.1	2.5	10.2	4.2
2027	10.2	4.1	5.9	2.4	10.9	4.4	9.9	4.0	5.9	2.4	9.9	4.0
2028	9.9	3.9	5.7	2.3	10.6	4.2	9.7	3.8	5.7	2.3	9.7	3.8

Sources: BLM 2009a; BLM 2009b; BLM 2013; BLM 2014a

BCF billion cubic feet
MMBO million barrels of oil

The costs of drilling and completing wells and producing oil and gas, also are relevant for the economic impact analysis. Table Q-4 provides a summary of the costs of drilling, completion, and production for each well type (conventional infill, exploratory deep, and coalbed natural gas [CBNG]) used for the economic analysis.

Table Q-4. Assumptions for Analysis of Economic Impacts for Oil and Gas Well Drilling and Completion According to Well Type

Assumption	Well Type		
	Conventional Infill	Exploratory Deep	Coalbed Natural Gas
Drilling Impacts			
Drilling Cost (\$/well)	\$960,017	\$9,372,267	\$48,641
Local Drilling Costs ¹	85%	58%	83%
Local Direct Impact (\$/well)	\$812,044	\$5,476,054	\$40,594
Local Total Impact (\$/well) ²	\$1,079,243	\$6,991,360	\$53,927
Multiplier (total impact/direct impact)	1.33	1.28	1.33
Completion Impacts			
Completion Cost (\$/well)	\$1,376,005	\$4,338,189	\$51,323
Local Completion Costs ¹	55%	37%	55%
Local Direct Impact (\$/well)	\$762,734	\$1,614,992	\$28,449
Local Total Impact (\$/well) ²	\$1,011,420	\$2,054,612	\$39,957
Multiplier (total impact/direct impact)	1.33	1.27	1.40

Source: BLM 2009b; adjusted to year 2011 dollars using chain-type price indices from IMPLAN (Taylor 2010) and the Consumer Price Index (BLS 2014). Data are based on Authorizations For Expenditure provided by exploration and development companies, and include the assumption that approximately 40 percent of infill and deep wells will be directional or horizontal and the remainder will be vertical.

¹The local cost shares were based on the percent of total drilling or completion costs that would be spent on goods and services purchased from the local economy.

²Total impacts estimated using Impact Analysis for Planning (IMPLAN) include direct, indirect, and induced impacts.

% percent
\$ U.S. dollars

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Table Q-5 provides the assumptions used to determine the economic impact associated with the production of oil and gas. For the analysis, the Bureau of Land Management (BLM) estimated a production cost (for gas) of \$1.55 per thousand cubic feet (mcf), based on data from the Energy Information Administration (Taylor 2010) and updated to year 2011 dollars using the Consumer Price Index (BLS 2014).

Table Q-5. Assumptions for Analysis of Economic Impacts on Output for Oil and Gas Production

Economic Impact	Oil Production (per million barrels)	Gas Production (per billion cubic feet)
Direct Economic Impact ¹	\$84,006,000 ²	\$4,345,000 ³
Indirect Economic Impact ⁴	\$4,833,957	\$250,024
Induced Economic Impact ⁵	\$2,166,767	\$112,071
Total Economic Impact	\$91,006,724	\$4,707,095
Multiplier (total impact/direct impact)	1.08	1.08

Note: All dollar values are in year 2011 dollars.

¹Direct economic impact is the market value of output.

²Based on an oil price of \$84.006 per barrel, which is the forecast price for oil from 2015-2018 projected by the Wyoming Consensus Revenue Estimating Group (CREG 2013), adjusted from \$87.00 (in 2013 dollars) to 2011 dollars.

³Based on a gas price of \$4.345 per thousand cubic feet; this is the price forecast for gas from 2016 (\$4.50 per mcf) projected by the Wyoming Consensus Revenue Estimating Group (CREG 2013), adjusted from 2013 to 2011 dollars. The 2016 forecast price was used because it is representative of the forecast range (\$3.85-\$4.95 per mcf) over 2014-2018.

⁴Indirect impacts from Impact Analysis for Planning (IMPLAN) reflect increased demand in sectors that directly or indirectly provide supplies to the oil and gas industry.

⁵Induced impacts from IMPLAN reflect increased demand in the consumer and government sectors.

The forecasted number of wells and production used for estimating employment impacts is the same as for estimating impacts on labor earnings and output. Table Q-6 shows the direct and total employment impacts attributable to drilling and completion.

Table Q-6. Assumptions for Employment Impact Analysis for Oil and Gas Well Drilling and Completion According to Well Type

Employment Impact	Well Type		
	Conventional Infill	Exploratory Deep	Coalbed Natural Gas
Drilling Impacts			
Direct Employment (jobs/well)	3.4	20.7	0.2
Total Employment Impact (jobs/well)	5.8	34.5	0.3
Multiplier (Total Impact/Direct Impact)	1.69	1.67	1.70
Average Earnings per Job (2011 dollars)	\$64,779	\$63,453	\$54,795
Completion Impacts			
Direct Employment (jobs/well)	4.1	7.1	0.2
Total Employment Impact (jobs/well)	6.5	11.2	0.3
Multiplier (Total Impact/Direct Impact)	1.59	1.58	1.58
Average Earnings per Job (2011 dollars)	\$59,699	\$60,374	\$58,360

Note: Direct and total employment impact and average earnings per job are calculated using Impact Analysis for Planning (IMPLAN).

Table Q-7 shows the direct and total employment impacts associated with production.

Table Q-7. Assumptions for Employment Impact Analysis for Oil and Gas Production

Employment Impact (annual number of jobs)	Oil Production (per million barrels)	Gas Production (per billion cubic feet)
Direct Employment	26.9	1.7
Indirect Employment	30.6	1.9
Induced Employment	18.7	1.2
Total Employment	76.2	4.8
Multiplier (Total Impact/Direct Impact)	2.83	2.83
Average Earnings per Job (2011 dollars)	\$60,779	\$74,439

Note: Direct, indirect, and induced employment impact and average earnings per job are calculated using Impact Analysis for Planning (IMPLAN).

The analysis of potential changes in tax revenues is based on tax rates of 12.5 percent of taxable value for federal mineral royalties, 6 percent of taxable value for state severance taxes (Wyoming Department of Revenue 2001), and 6.8 percent of taxable value for local ad valorem production taxes (based on average tax rates for the counties of Big Horn [7.2%], Hot Springs [6.3%], Park [7.0%], and Washakie [6.9%]) (Wyoming Department of Revenue 2014). Taxable value refers to value of sales minus allowable deductions, including certain costs of production and transportation. For purposes of estimating tax revenues, taxable value was estimated based on the average taxable value per unit sold from the counties in the Planning Area for production year 2010 using data from the Wyoming Department of Revenue (Wyoming Department of Revenue 2011). Taxable value was estimated as \$63.01 per barrel for oil, and \$3.40 per mcf for natural gas (2011 dollars).

4.0 LIVESTOCK GRAZING

Economic impacts due to changes in livestock grazing are a function of the amount of forage available and the economic value of the forage. For livestock grazing, long-term surface-disturbing actions from actions listed in Appendix T may affect available animal unit months (AUMs). BLM actions to withdraw certain lands for livestock grazing would also reduce the available forage on federal lands. In addition, land disposal actions may have economic impacts; however, those impacts were not analyzed quantitatively because it is difficult to predict the net change in AUMs. Subsequent landowners may continue to graze the land, leaving overall livestock production and output in the region unaffected.

The economic analysis of livestock grazing impacts is based on a long-term average (from 1988 to 2012) of authorized use as a proportion of active use. Based on data from the BLM's Rangeland Administration System (RAS), authorized use ranged from 43 percent to 79 percent of active use between 1988 and 2012, with an average value of 64 percent (BLM 2010a; BLM 2014b). Whereas permitted AUMs include active and suspended non-use AUMs, active use AUMs exclude suspended non-use AUMs. Authorized use represents AUMs billed for and paid for each year for a permit/lease. These AUMs are not the same as actual use AUMs (and may or may not be reasonably close to actual use AUMs), but are closer to what takes place on the ground each year, or the "actual use", than the active use AUMs. Authorized use information is obtained from the RAS, while actual use represents the AUMs physically used on the ground. Actual use may be less than or equal to authorized use, but authorized use provides an upper bound for actual use. The BLM adjusts authorized use on an annual basis to account for the forage value

Appendix Q – Economic Impact Analysis Methodology

of the land in a given year, based on climatic conditions (e.g., drought), as well as taking into account the needs of the land and the ranch operators.

Whereas reductions in land available for livestock grazing (via long-term surface disturbance or grazing withdrawal) are based on active use AUMs, financial conditions on a given ranch operation are determined by actual use (i.e., the actual forage value of the land that is used for livestock) and authorized use (e.g., bank loans that are based on the available forage value of federal leases held by the ranch operator). Thus, authorized use is a more appropriate baseline than active use from which to measure reductions in available AUMs due to surface disturbance or restriction on grazing land. If reductions were measured from a baseline of active use, with no adjustment for actual use, economic impacts would be overstated (BLM 2010a).

Based on the historical analysis from 1988 to 2012 noted above, the economic analysis of livestock grazing impacts uses a baseline of 195,369 AUMs, which represents 64 percent of the active use of 305,264 AUMs. Reductions in AUMs due to long-term surface disturbance and grazing restrictions are also adjusted for the ratio of authorized to active use.

Table Q-8 provides a summary of initial AUMs and total AUMs lost by 2027 due to surface-disturbing activities. Based on current allocations of AUMs to cattle and sheep, 85 percent of the AUM reduction is allocated to cattle and the remainder is allocated to sheep, for the purpose of estimating changes in output and employment. (There are also some AUMs allocated to horse and buffalo grazing, but these comprise one percent and less than one percent, respectively.) Surface disturbance acres were converted to AUMs using a conversion factor of 10.5 acres per AUM (BLM 2009c).

Table Q-8. Estimated Animal Unit Month Losses

Item	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Active Use AUMs						
Initial AUMs (active use)	305,264	305,264	305,264	305,264	305,264	305,264
AUMs lost from surface-disturbing activities (total, long-term disturbance)	1,490	1,037	3,951	1,743	1,029	1,682
AUMs closed to grazing by BLM management actions	169	162,572	169	169	162,572	169
Total AUMs lost from surface-disturbing activities and withdrawn	1,659	163,609	4,120	1,912	163,601	1,851
AUMs lost from surface-disturbing activities and withdrawn (estimated annual)	83	8,180	206	96	8,180	93
Net AUMs in 2027 (active use)	303,605	141,655	301,144	303,352	141,663	303,413

Table Q-8. Estimated Animal Unit Month Losses (Continued)

Item	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
AUMs Authorized (64 percent of active use AUMs)						
Initial AUMs (authorized)	195,369	195,369	195,369	195,369	195,369	195,369
AUMs lost from surface-disturbing activities (total, long-term disturbance)	954	664	2,529	1,116	659	1,076
AUMs closed to grazing by BLM management actions	108	104,046	108	108	104,046	108
Total AUMs lost from surface-disturbing activities and withdrawn	1,062	104,710	2,637	1,224	104,705	1,185
AUMs lost from surface-disturbing activities and withdrawn (estimated annual)	53	5,235	132	61	5,235	59
Net AUMs in 2027 (authorized)	194,307	90,659	192,732	194,145	90,664	194,184

Sources: BLM 2009c; BLM 2014b

AUM Animal Unit Month
BLM Bureau of Land Management

Due to price fluctuations, average per-AUM values for cattle and sheep are based on a ten-year average value of production estimates from the Wyoming Agricultural Statistics Service, adjusted to year 2011 dollars (Taylor 2009; Taylor 2010; BLS 2014). The value for cattle is \$48.38 per AUM and the value for sheep is \$46.84 per AUM (in 2011 dollars). Including indirect and induced impacts, the value of one AUM for cattle is \$99.95 and for sheep \$109.67 (in 2011 dollars). Table Q-9 shows the economic impact assumptions for cattle and sheep. The direct economic impact is the estimated change in livestock output per AUM; IMPLAN generates the indirect and induced impacts.

Table Q-9. Assumptions for Analysis of Impacts on Output for Livestock Grazing

Economic Impact	Cattle	Sheep
Direct Economic Impact (\$/AUM)	\$48.38	\$46.84
Indirect Economic Impact (\$/AUM) ¹	\$39.55	\$47.06
Induced Economic Impact (\$/AUM) ²	\$12.02	\$15.78
Total Economic Impact (\$/AUM)	\$99.95	\$109.67
Multiplier (Total Impact/Direct Impact)	2.07	2.34

Note: All dollar values are in year 2011 dollars.

Note: Detail may not add to total due to rounding.

¹Indirect impacts reflect increased demand in sectors that directly or indirectly provide supplies to the livestock industry.

²Induced impacts reflect increased demand in the consumer and government sectors.

AUM Animal Unit Month

Table Q-10 provides a summary of the employment impacts assumed according to unit changes in livestock AUMs.

Table Q-10. Assumptions for Analysis of Employment Impacts for Livestock Grazing

Employment Impact	Cattle	Sheep
Direct Employment (Jobs/1,000 AUMs)	0.466	0.980
Indirect Employment (Jobs/1,000 AUMs)	0.233	0.542
Induced Employment (Jobs/1,000 AUMs)	0.121	0.165
Total Employment (Jobs/1,000 AUMs)	0.820	1.687
Multiplier (Total Impact/Direct Impact)	1.76	1.72
Average Earnings per Job (year 2011 dollars)	\$36,126	\$19,940

Note: Direct, indirect, and induced employment impacts and average earnings per job are calculated using Impact Analysis for Planning (IMPLAN).

AUM Animal Unit Month

5.0 RECREATION

The analysis of economic impacts considers only recreation expenditures of nonresidents of the Planning Area. This is based on the assumption that expenditures of residents would occur in the region regardless of the BLM’s actions that impact recreational opportunities; however, changes in nonresident recreation patterns would alter the amount of money entering the local region.

Economic impacts from recreation are a function of recreation visitor days (RVDs) and expenditures per day. Future RVDs were estimated based on current RVDs, recent growth rates, and projected trends. Estimates of future RVDs were based on the professional judgment of BLM staff, as well as a United States Forest Service (USFS) study that provides forecasts of recreation activity for the Rocky Mountain region (Bowker et al. 1999) and contacts with neighboring BLM field offices. Table Q-11 provides a summary of estimated annual growth rates, and Figure Q-1 provides a graphical view.

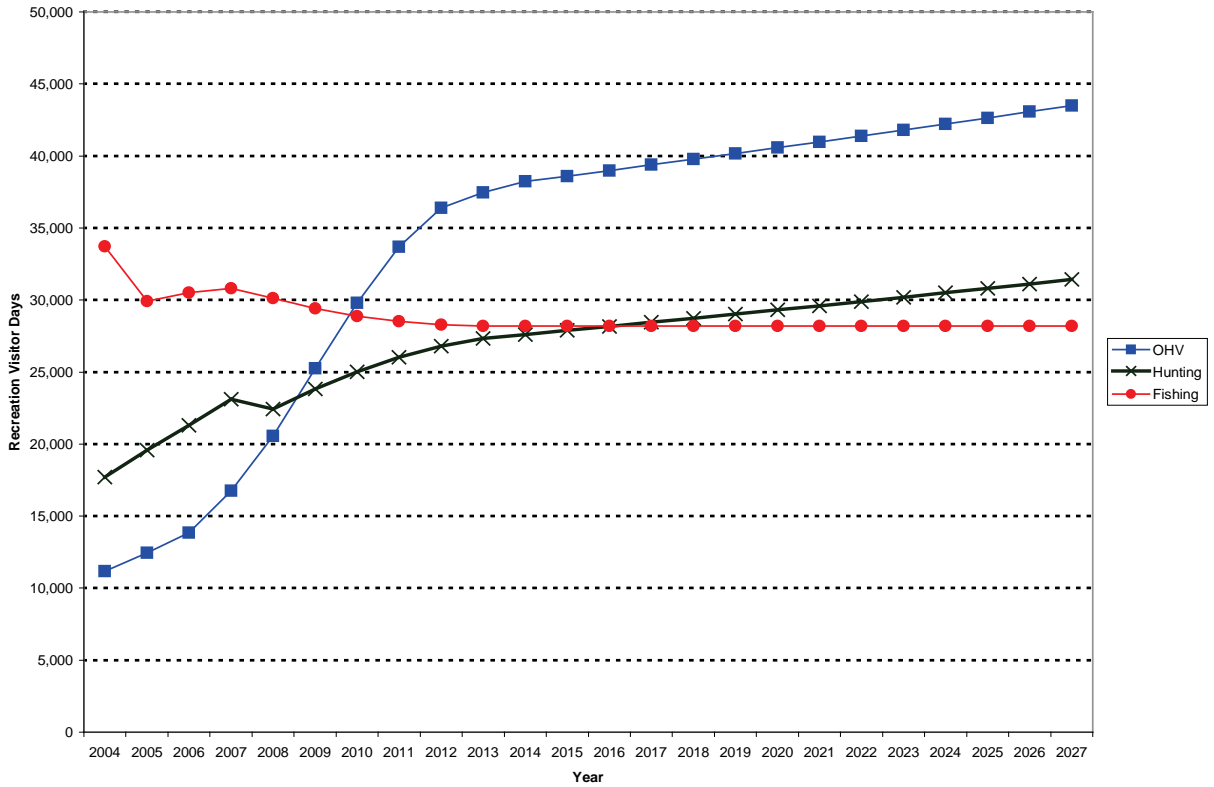
Table Q-11. Estimated Growth Rates for Nonresident Recreation Visitor Days

Year	OHV		Hunting		Fishing	
	<i>RVDs this year</i>	<i>Growth over previous year</i>	<i>RVDs this year</i>	<i>Growth over previous year</i>	<i>RVDs this year</i>	<i>Growth over previous year</i>
2004	11,177	-	17,707	-	33,725	-
2005	12,440	11.3%	19,579	10.57%	29,904	-11.33%
2006	13,846	11.3%	21,288	8.73%	30,523	2.07%
2007	16,753	21.0%	23,119	8.60%	30,822	0.98%
2008	20,573	22.8%	22,432	-2.97%	30,113	-2.30%
2009	25,264	22.8%	23,830	6.23%	29,420	-2.30%
2010	29,811	18.0%	25,021	5.0%	28,891	-1.8%
2011	33,687	13.0%	26,022	4.0%	28,515	-1.3%
2012	36,381	8.0%	26,802	3.0%	28,287	-0.8%
2013	37,473	3.0%	27,339	2.0%	28,202	-0.3%
2014	38,222	2.0%	27,612	1.0%	28,202	0.0%
2015	38,605	1.0%	27,888	1.0%	28,202	0.0%
2016	38,991	1.0%	28,167	1.0%	28,202	0.0%
2017	39,381	1.0%	28,449	1.0%	28,202	0.0%
2018	39,774	1.0%	28,733	1.0%	28,202	0.0%
2019	40,172	1.0%	29,020	1.0%	28,202	0.0%
2020	40,574	1.0%	29,311	1.0%	28,202	0.0%
2021	40,980	1.0%	29,604	1.0%	28,202	0.0%
2022	41,389	1.0%	29,900	1.0%	28,202	0.0%
2023	41,803	1.0%	30,199	1.0%	28,202	0.0%
2024	42,221	1.0%	30,501	1.0%	28,202	0.0%
2025	42,643	1.0%	30,806	1.0%	28,202	0.0%
2026	43,070	1.0%	31,114	1.0%	28,202	0.0%
2027	43,501	1.0%	31,425	1.0%	28,202	0.0%

Source: BLM 2009d. Data from 2009 through 2027 are projections.

OHV Off-highway vehicle
RVD Recreation visitor day

Figure Q-1. Recent Trends and Projected Future Change: Nonresident Recreation Visitor Days



Source: BLM 2009d

OHV Off-highway Vehicle

The estimates for average expenditure per visitor day, in year 2011 dollars, are \$92.55 for fishing (Wyoming Game and Fish Department [WGFD] 2008; USFWS 2008); \$140.73 for hunting (Responsive Management 2004); and \$56.33 for off-highway vehicle (OHV) use (Foulke et al. 2006). Table Q-12 shows the direct, indirect, and induced output per RVD for each recreation activity, in year 2011 dollars.

Table Q-12. Assumptions for Analysis of Impacts on Output for Recreation Activities

Economic Impact	OHV (per RVD)	Hunting (per RVD)	Fishing (per RVD)
Direct Economic Impact ¹	\$56.33	\$140.73	\$92.55
Indirect Economic Impact ²	\$8.30	\$38.27	\$12.28
Induced Economic Impact ³	\$5.94	\$22.85	\$10.74
Total Economic Impact	\$70.57	\$201.85	\$115.57
Multiplier (total impact/direct impact)	1.25	1.43	1.25

Note: Detail may not add to total due to rounding.

¹Direct economic impact is the average expenditure per visitor day.

²Indirect impacts from Impact Analysis for Planning (IMPLAN) reflect increased demand in sectors that directly or indirectly provide support for the recreation industry.

³Induced impacts from IMPLAN reflect increased demand in the consumer and government sectors.

OHV Off-highway vehicle
RVD Recreation visitor day

Table Q-13 provides a summary of employment impacts assumed according to unit changes in RVDs.

Table Q-13. Assumptions for Employment Impact Analysis for Recreation Activities

Employment Impact (annual number of jobs)	OHV (per 1,000 RVDs)	Hunting (per 1,000 RVDs)	Fishing (per 1,000 RVDs)
Direct Employment	0.69	2.45	1.24
Indirect Employment	0.07	0.33	0.10
Induced Employment	0.06	0.23	0.11
Total Employment	0.83	3.01	1.46
Multiplier (Total Impact/Direct Impact)	1.20	1.23	1.17
Average Earnings per Job (2011 dollars)	\$18,640	\$19,741	\$19,253

Note: Direct, indirect, and induced employment impact and average earnings per job are calculated using Impact Analysis for Planning (IMPLAN).

Note: Detail may not add to total due to rounding.

OHV Off-highway vehicle
RVD Recreation visitor day

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix R

Comprehensive Travel and Transportation Management

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APPENDIX R

COMPREHENSIVE TRAVEL AND TRANSPORTATION MANAGEMENT

1.0 QUESTIONS AND ANSWERS

1. *What are some of the basic premises of Comprehensive Travel and Transportation Management?*

Public access shall be provided to public lands, but managed to protect the public resources as well. This appendix focuses on motorized travel. Routes that are open to motorized vehicle use are also open to non-motorized travel and, in general, cross-country travel using non-motorized modes. Pedestrian, equestrian, and mountain bike riding, or other non-motorized travel modes are generally not constrained, except that any proposal for construction of new trails would be subject to public review under the National Environmental Policy Act (NEPA). Emergency response (including firefighting), permitted use of motorized vehicles, and certain Bureau of Land Management (BLM) administrative uses are exceptions to specific Travel Management Plans (TMPs).

2. *How will travel management designations be implemented?*

Many Comprehensive Travel and Transportation Management (CTTM) decisions in this Resource Management Plan (RMP) revision remain unchanged. Several defined areas, specified in Chapter 2, will continue management under existing TMPs. Examples of existing TMP decisions include 1) defined areas under seasonal closures and 2) Wilderness Study Areas (WSAs) either closed to motorized vehicle use, or restricted to the routes identified during the WSA inventory process. Additionally, in many existing TMPs, routes have been designated as open or closed to motorized vehicle use and, in some cases, have been obliterated and reclaimed.

Areas not under these defined TMP decisions will be divided into additional geographic TMP areas. Each area will have its own plan with its own decisions describing routes open or closed to motorized vehicle use. Cooperating agencies, affected private landowners, and the general public will be involved in each travel planning effort prior to TMP decisions.

In depth travel management policy is found in [BLM Manual 1626 – Travel and Transportation](#), available online at:

http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.38105.File.dat/1626.pdf

3. *How will the public know if an area is open or closed? How will the BLM ensure the public is notified?*

TMPs will include a public process to ensure involvement in route inventory efforts and discussion of goals and objectives of each TMP (public access, resource protection, private land considerations, etc.); these efforts will be announced in local newspapers and the Wyoming BLM website (www.blm.gov/wy/st/en.html). Following route management decisions for each TMP, maps will be available on the website or at the Cody and Worland Field Offices. In addition, newly affected areas will be signed at entry points, or portals, and information will be provided for distribution at community

venues (e.g., cooperating local stores serving remote areas). Public information and education of the public will precede enforcement. For example, as an area is undergoing TMP development, notices to the community using the area will be posted onsite to announce planning schedules and opportunities for involvement. Once decisions are made, onsite posting of decisions and maps will occur prior to enforcement actions.

4. What will be the schedule for TMP implementation?

Existing TMPs are expected to continue, unless a need for change is identified and assessed using a public process.

New CTTM guidance and policy now requires the BLM to designate all roads, primitive routes, and trails as either open or closed. The BLM will implement TMPs in areas high in priority to address resource concerns which can be found in Maps 69-74. The management designation of “existing” is an interim designation until a TMP designates the route as open for motorized use, or closed to motorized use. Limiting use to “designated” is an indication of high TMP priority. TMP efforts will be scheduled based on priorities established during RMP implementation planning (Appendix D). Priorities for implementation will be informed by cooperating agencies, affected private landowners and the general public, as well as by the level of resource management concerns identified by the BLM. It is expected that the identified future TMPs for areas Limited to Designated roads and trails will take at least five years to properly plan and implement, if each plan takes one year to complete, and if each Field Office initiates one new TMP each year.

The BLM will go through an inventory process to verify the existence of routes that are documented to exist at the date of the RMP Record of Decision (ROD). These inventory processes will also undergo public review to assure a complete understanding of motorized vehicle use in these TMPs. The BLM will conduct a route-by-route analysis using the minimization (designation) criteria (43 CFR 8342.1) to designate or close individual routes in the TMP.

Some areas may be closed immediately with the RMP. Depending on the selected RMP in the ROD, this implementation decision may close certain WSAs, Areas of Critical Environmental Concern (ACECs), or other areas completely to motorized vehicles.

Some areas will continue as Open Areas or become Open Areas depending on the selected RMP in the Record of Decision; and dependent upon completion of each Open Area TMP including required implementation procedures. Management of Open Areas is important for public safety and TMPs specific to each Open Area will be prioritized for completion in the RMP Implementation Planning process. Partners are particularly sought for Open Area TMP efforts.

5. What will the local TMP implementation process look like?

Public Involvement Details

The annual RMP Implementation Plans for each of the field offices will determine the initiation of planning efforts for any specific TMP. The schedule for the TMP will be announced in local newspapers and on the Wyoming BLM website (www.blm.gov/wy/st/en.html), and cooperating agencies and affected private landowners will be notified.

Minimum expected public involvement opportunities for each new TMP will include: posting notices of scoping and planning schedules (onsite, website, and newspaper); providing at least one public meeting during the scoping period; providing for public information and participation in the route inventory

review process, which will take place over at least one entire field season (spring, summer and fall); providing for at least one public meeting following completion of the NEPA document; and, prior to decision making, providing public notice of TMP decisions on the Wyoming BLM website, local newspapers, and onsite.

Revision of existing TMPs will involve the original stakeholders and will also include opportunities for public involvement, including NEPA review, but may not be as extensive as those provided for new TMPs as stated above, depending on the issues to be resolved with the TMP revision. (For example, an entire new route inventory would not be expected.)

Route Inventory Details

Approximately 80 percent to 90 percent of the travel network is expected to be already captured on the BLM's inventoried route network, and the BLM is acquiring additional route inventory information on an ongoing basis. This current inventory is available for review at BLM field offices. When the BLM conducts an inventory review for a new TMP, the public, cooperating agencies, and other stakeholders will be invited to review the known route inventory and to provide specific information on inventoried routes (maps will be provided) or additional routes yet to be inventoried. (The public is invited to provide global positioning system [GPS] data or other information to document other known routes.) During the route inventory review, the BLM will:

- Review and verify information provided by the public, cooperating agencies, and affected landowners.
- Continue to collect additional route data using aerial photos and verify data collected from aerial photos using GPS.
- Assess and define route condition (route by route analysis) and assign interim route category and expected maintenance level.
- Produce new maps.

Decision Criteria

Route designations provide for public access, protection of resources, public safety, and the minimization of user conflicts in accordance with the following criteria per 43 CFR 8342.1:

- Provide adequate public access using a variety of travel modes and appropriate routes.
- Minimize detriment to soil, watershed, vegetation, air, and other resources.
- Preserve wilderness characteristics for WSAs and areas defined specifically for such management in the RMP ROD.
- Minimize harassment of wildlife and disruption of wildlife habitats, giving priority to the protection of endangered or threatened species and their habitats.
- Minimize conflicts between motorized vehicle use and other recreational uses and ensure compatibility of uses with existing conditions in populated areas, taking into account noise and other effects.

6. How will permitted or authorized users be affected by the TMP?

Generally, permit holders will not be impacted by the TMP as permits may allow for use of areas or routes otherwise closed to public motorized travel. Exploration for locatable minerals may be impacted in areas closed to motorized use, where a plan of operations is required (43 Code of Federal Regulations [CFR] § 3809.11(5)).

7. How may permit holders provide information about necessary routes and uses?

Following requests by permit holders, specific permits may authorize motorized travel on routes or in areas not available to the general public (grazing use authorizations, seismic survey permits, approved rights-of-way (ROW), Applications for Permit to Drill or Sundry Notices, timber sale permits, fuel wood permits, etc.) All affected permit holders and users of public lands are encouraged to participate in the travel and transportation inventory efforts to assure full understanding of motorized vehicle use designations in any TMP.

8. Can permit holders restrict public or administrative access?

No, permit holders may not obstruct public use on any route of travel that is open to the general public without authorization by a BLM authorized officer. The BLM requires administrative access across private property and permitted allotments to manage and protect public lands (43 CFR 4130.3-2(h)).

9. When is motorized travel allowed off TMP routes?

Necessary tasks that support commercial or industrial uses of public lands are allowed by permit in the following cases:

- Maintenance of fences and range improvements, salt placement for livestock consumption, and tending to sick cattle.
- Surveying or staking work associated with filing a Notice of Intent (NOI) to conduct geophysical exploration activities, field reconnaissance, and survey work in advance of a ROW action such as a pipeline.
- Mineral activities defined as casual use (except in Closed areas).
- Other permits or authorizations which expressly allow for motorized vehicle travel off TMP routes.

Recreational or general public activities may be allowed off TMP routes (i.e., off-road or cross-country) for specific purposes, which are defined as those activities which generally require the use of a motorized vehicle, and that do not create resource damage. Examples of necessary tasks allowing off-route motorized (OHV) and mechanized (mountain bike) travel in the Bighorn Basin RMP include:

- Parking alongside a route to remove the vehicle from the traffic lane—depending on the RMP ROD, travel may be allowed up to 30 feet from the route edge in areas Limited to Designated roads and trails, and not allowed in Closed areas or in any WSAs.
- Travel for big game carcass retrieval—depending on the RMP ROD travel is allowed up to 300 feet from the route edge only in areas Limited to Designated routes, and not allowed in Closed areas or in any WSAs.
- Travel for dispersed campsite access—depending on the RMP ROD travel is allowed up to 300 feet from the route edge only in areas Limited to Designated roads and trails, and not allowed in Closed areas or in any WSAs.

Any motorized travel outside of these parameters or that causes resource damage is a violation of the RMP decisions and is subject to enforcement action including citation and fine.

10. How will BLM administrative actions be affected by the TMPs? In what cases may the BLM travel off road?

BLM administrative functions may require motorized travel off TMP routes for a variety of administrative purposes where a motor vehicle is required to accomplish the mission, some of which are listed below:

- wild horse management
- fish and wildlife monitoring
- noxious weed control
- fence repair
- restoration and enhancement
- fire suppression and fuels management
- law enforcement activities

The BLM may sign certain routes for administrative use only. As appropriate and necessary, the BLM may reclaim administrative routes and preclude further (non-emergency) use.

11. How will private landowners be affected by TMPs?

ROWs for access will not be affected by the TMPs although certain routes may be closed to public access and use. All affected ROW holders and private landowners are encouraged to participate in the route inventory efforts to assure full understanding of motorized uses in any TMP to minimize user conflicts.

12. If needed, how will local TMPs be changed?

Revision of existing TMPs will involve the original stakeholders and will also include opportunities for public involvement, including NEPA review, but may not be as extensive as those provided for new TMPs as stated above, depending on the issues to be resolved with the TMP revision. (For example, an entire new route inventory would not be expected.)

Issues requiring TMP revisions may include:

- cooperative travel management opportunities with landowners or other agencies
- construction of new access routes associated with permitted activities
- resource monitoring requiring opening or closing routes
- BLM-administered land tenure adjustments
- protecting public health and safety
- preventing unacceptable resource damage
- new issues that may require a change in the TMP
- re-designating routes as open if the cultural, biological, or physical resource has successfully recovered to where the OHV designation can be less restrictive and public demand for additional routes can be demonstrated

13. Does BLM always need to use an entire TMP to address routes?

No, the BLM may close specific roads to protect health and safety and prevent resource damage, or engage in temporary route closures consistent with IM 2010-028. As per 43 CFR 8341.2 (a), if the authorized officer determines that off-road vehicles are causing or will cause considerable adverse effects upon resources or other authorized uses, the BLM shall immediately close areas affected to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. Compliance with NEPA in the context of temporary closures may include:

- Categorical Exclusions
- Environmental Assessments
- Environmental Impact Statements
- A Determination of NEPA Adequacy (can be used to document that the contemplated action has been adequately covered in an existing NEPA document)

14. What if the BLM needs to change travel designations?

There are three OHV use designations in a TMP: Open, Closed, and Limited. Changing designations requires an RMP amendment. Under past guidance, existing roads and trails was a travel management designation under the limited category. New CTTM policy/guidance now defines existing as an interim management designation until a TMP designates it as open or closed for motorized travel. An RMP amendment is not required to designate routes (i.e., perform TMP) within areas identified in the RMP as managed on an interim basis as existing roads and trails.

15. Why would the BLM change travel designations?

- a new regulation or policy
- use trends, such as OHV recreational activities, requiring a responsive CTTM action to maintain desired settings, experiences, and beneficial outcomes (refer to Recreation Appendix O)
- to maintain desired physical, biological, or heritage resources

16. How will the BLM notify the public of revised travel designations?

- BLM website and local newspapers, at a minimum
- NEPA document scoping and comment periods will be announced

17. How will the BLM manage routes under a specific TMP?

Management of specific routes will be defined in each TMP. Routes may: remain open and receive a specific level of maintenance; be repaired or upgraded; be seasonally closed; be closed to motorized travel; be obliterated and reclaimed; be reconstructed or re-routed; or made available for ROW or landowner access or for administrative use only. New routes may be constructed. Signage will be defined in each TMP.

In specific TMPs, or in Recreation Area Management Plans, trails may be constructed for specific uses (e.g., hiking, mountain biking, and/or equestrian use).

18. How will the BLM close and reclaim additional roads and construct replacement roads?

Once a road inventory is complete, the BLM may close or construct roads through a TMP. Criteria for closing a road include (refer to 43 CFR 8342.1-Minimization Criteria):

- adverse impacts or threats to landowners or stakeholders
- threats to public safety
- adverse impacts to resources, including soil, water, or wildlife
- desired level of access
- redundant (parallel) routes

Criteria for constructing a road include:

- new authorized uses of public lands
- changes to land tenure
- resource protection
- rerouting a road for safety or resource protection
- approval through authorization, such as ROWs

19. Under what criteria would the BLM acquire access across private or state lands?

The BLM may acquire easements across non-federal lands as needed to meet resource objectives. Exclusive easements, which include public access, may be acquired under the following circumstances:

- Access to public lands is desirable.
- Substantial investment is planned on acquired property.
- Existing cooperative road agreements lack adequate rights for other parties.
- Where applicable in the case of the logging road permits issued or assigned after May 4, 1956, the BLM may obtain perpetual easements under the terms of 43 CFR 2812.6-2(a)(II) for construction of roads with appropriated funds.
- Access restriction and exclusion.

Non-exclusive easements generally provide adequate administrative access for BLM management activities. They usually do not provide access for the general public.

20. Under what criteria will the BLM maintain roads? What are the maintenance levels?

Criteria to maintain routes will be site specific and dependent upon route-by-route analysis, the areas' resource objectives, use, and resource concerns. Primitive routes within WSAs are not maintained other than by the passage of vehicles, with certain exceptions. Exceptions are limited to the minimum mechanical maintenance necessary to provide access (1) as follows:

- For emergencies such as suppression activities associated with wildfire or search and rescue;
- To grandfathered grazing uses and facilities as defined by the Interim Management Plan (IMP) for Lands under Wilderness Review, and under specific authorizations;
- To sites where reclamation or stabilization is needed to protect or improve the lands' wilderness values; and
- to private inholdings.

Appendix R – Comprehensive Travel and Transportation Management

In these exceptions, maintenance will occur using the “minimum tool concept” described in BLM Manual 6330, Management of Wilderness Study Areas. NEPA analysis is required to analyze maintenance alternatives except in the case of emergencies.

There are five maintenance levels assigned to a travel route ranging from low maintenance priority to high priority.

Level 1: Maintenance is limited to protecting adjacent land and resource values, which means that Level 1 roads are not maintained for motorized traffic. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system. Where appropriate, drainage and runoff patterns will be maintained to protect adjacent land. Closure and traffic restrictive devices will be maintained.

Level 2: Typically known as a ‘two-track road’, these routes are passable by high clearance vehicles and maintained dependent on funding levels. Seasonal closures or other restrictions may be imposed. When possible, drainage structures are inspected and maintained within a 3-year period. Grading as necessary to correct drainage problems. Slides may be left in place if they do not obstruct drainage.

Level 3: Natural or aggregate surface with a defined cross section, drainage structures such as rolling dips, culverts or ditches, and may normally be negotiated by passenger cars driven cautiously. User comfort and convenience are not a priority. When possible, drainage structures are inspected and maintained annually. Grading provides reasonable riding comfort at prudent speeds. Brushing to improve sight distance. Slides obstructing drainage receive high priority. Other slides are removed on a scheduled basis.

Level 4: Single or double lane with aggregate surface. Access for passenger cars driven at prudent speeds. When possible, roadway is maintained annually. Major repairs as needed.

Level 5: Highest traffic volume of the transportation system. Single or double lane with aggregate surface. Access for passenger cars traveling at prudent speeds. When possible, roads are maintained annually with preventive maintenance program. Level 5 roads are repaired as needed.

21. Under what criteria will maintenance levels change?

The BLM may adjust maintenance levels based upon use, available funding, and as needs arrive. Maintenance levels may be adjusted during a TMP if it is decided that a particular route would be more appropriately assigned a different maintenance level.

22. What are the Best Management Practices BLM intends to use?

Appendix L lists route management best management practices, and these are included in the Engineering Best Management Practices discussion.

23. What is the BLM’s monitoring plan for the TMP?

On a priority basis BLM will monitor motorized vehicle use for:

- user pioneered roads or trails
- impacts on wildlife
- impacts on other recreation or resource uses

- user conflicts and complaints
- resource damage
- private land conflicts
- trends in violations and incidents

Monitoring methods include traffic counters, intercept surveys, aerial flights, remote sensing observation techniques, investigation of complaints from the public, and field observations.

24. How will the BLM assure that the TMPs are being implemented correctly?

The BLM seeks to inform the public of travel management planning, to educate public land users about TMP and route decisions, and use the lowest level of enforcement to achieve desired outcomes. Enforcement may include citations and fines if motorized use occurs outside of the specific constraints of TMPs or off-road in areas that are defined in the RMP as Closed or Limited. Regulations and maps/brochures will be made available at multiple locations, including the BLM website, BLM offices, local venues and onsite, as appropriate. Informative materials include:

OHV Signs

Standardized signs (i.e., type of substrate, layout, and design) will identify OHV designations in the field; however, the level of signing will be defined in specific TMPs. OHV signage includes:

- **Portal signs:** Portal signs provide travel designations for an area, such as, “Motorized vehicle use on public land in this area is limited to designated roads and trails.” Portal signs will be posted accordingly:
 - For areas Limited to Designated roads and trails, portal signs will provide additional information. For example: “Motorized vehicle use on public land in this area is limited to roads and trails identified with a white arrow.”
 - For areas managed as Open, portal signs will specify the boundaries, user ethics, and public safety messages.
 - For areas managed as Closed to motorized use, signs that state the reason for the closure will be posted.
- **Route signs:** All designated routes (routes that are open to motorized vehicle travel) will be identified with signs, including an open symbol, such as a white arrow. White arrows should be placed at entrances and intersections of all designated roads. All individual closed routes would not typically have signs.

Maps and Brochures

Maps and brochures can provide detailed information to the public about OHV designations. They are an excellent source of land ownership status and travel information. While maps and brochures cannot be the only source of information, they are an excellent aid.

Brochures can portray OHV designations for specific areas. They are easy to produce, inexpensive, and can be updated quickly and made available in printed or online versions. Brochures can assist enforcement activities to monitor and enforce designated roads and trails.

Education

The Tread Lightly and Operation Respect programs will be included in OHV implementation planning. The BLM will initiate programs in the Planning Area for the public that emphasize responsible motorized

vehicle use and respect for the land, resources, and private property rights. Tread Lightly! Inc. is a source of excellent educational materials that promote responsible OHV use.

The Wyoming BLM has used the Operation Respect program for over 20 years. This program is a public outreach initiative that promotes respect for both public and private land, provides information on access to public lands, encourages users to obtain permission from private landowners, and specifies where to get information. Additional programs such as the BLM's Environmental Education Program, the Game and Fish Department's Hunter Stewardship Program, the Hunter Safety Education Program, and the Annual Hunting and Fishing Heritage Exposition, will be utilized when possible for the BLM's OHV program public outreach. Outfitters and guides associations can also assist the BLM with educating the public about OHV ethics. These and other avenues that promote responsible OHV use should be strengthened.

The BLM will incorporate information about regulations, penalties, consequences for irresponsible behavior, and potential impacts to resources from inappropriate use into the outreach program. Methods of public outreach include information postings on the BLM's website, brochures, fact sheets, news releases, and radio talk shows.

Enforcement

All federal and state motor vehicle laws are subject to enforcement. Publication of TMP decisions in the *Federal Register* or made available through any completed NEPA process is sufficient for legal enforcement. Enforcement may include citations and fines if motorized use occurs outside of the specific constraints of TMPs, or off route in areas that are defined in the RMP as Closed or Limited. There are narrow exceptions for necessary tasks (see above). The BLM may enter into cooperative law enforcement agreements with state and local agencies such as the Wyoming Game and Fish Department or county law enforcement agencies.

25. How will the BLM address sage-grouse habitat management in TMPs?

Route by route analysis (referred also as minimization or designation criteria as stated in 43 CFR 8342.1) in sage-grouse Priority Habitat Management Areas will recognize sage-grouse habitat as a predominant management objective, as well as the priority resource to manage for. The route by route analysis will determine future travel management plans within sage-grouse Priority Habitat Management Areas, which would be designed to minimize impacts to sage-grouse habitat.

Travel management planning will include:

- Evaluate the need for closures of routes not desired for public purposes, including seasonal closures, and designate routes with current administrative/agency purpose or need to administrative access only;
- Routes designated as closed will be restored when necessary using appropriate seed mixtures for sage-grouse ecological conditions;
- Limit route construction to realignments of existing designated routes if that realignment has a minimal impact on sage-grouse habitat, eliminates the need to construct a new road, or is necessary for motorist safety;
- Use existing roads, or realignments as described above to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then new road construction would be designed to mitigate impacts to sage-grouse habitat consistent with the National Greater Sage-Grouse Conservation Measures/Planning Strategy (IM 2012-044);

- Upgrading of routes that would change route category (road, primitive road, or trail) or capacity would be allowed if it would have minimal impact on sage-grouse habitat, if it is necessary for motorist safety, or eliminates the need to construct a new road;
- For new road proposals, consider an alternative that would locate new primary and secondary roads greater than 1.9 mi from the perimeter of occupied sage-grouse leks inside priority habitat areas. Additionally, for new proposals, consider and evaluate an alternative that would locate new tertiary roads greater than 0.6 mile from the perimeter of occupied leks; and
- Construct new roads to a minimum design standard needed for proposed activity.

Travel management will also evaluate the need for closures, including seasonal closures.

26. How will BLM consider cultural resources under TMPs?

BLM will comply with the requirements of Section 106 of the NHPA when designating OHV areas and a travel management network as part of future TMPs. Specific projects undertaken to improve, or rehabilitate, routes or areas are also undertakings subject to Section 106 of the NHPA. Compliance with Section 106 would be in accordance with the Wyoming State Protocol agreement between BLM and the Wyoming SHPO and BLM guidance relating to cultural resource considerations for OHV designations and travel management (BLM IM 2012-067 (Feb. 15, 2012)). BLM would consider as part of this process existing cultural resource information and potential impacts to historic properties. BLM would identify the geographic area or areas within which the character or use of any historic properties may be directly or indirectly affected by the designations, i.e., the Area of Potential Effect (APE). APEs should include areas that might suffer indirect effects from OHV use, such as access routes leading to at-risk sites vulnerable to vandalism and looting (e.g., historic or prehistoric structures, rock shelters, or rock art) or increased erosion to sites.

BLM also may close routes or roads or OHV designations to protect cultural resources. Evaluation of routes or areas to be designated as closed to protect cultural resources may be based on existing inventory information and may be implemented through appropriate level of National Environmental Policy Act analysis, including issuance of a temporary closure. There may be cases where continued use of an OHV management area or route prior to designation may not be authorized before Class III inventory and Section 106 compliance is completed.

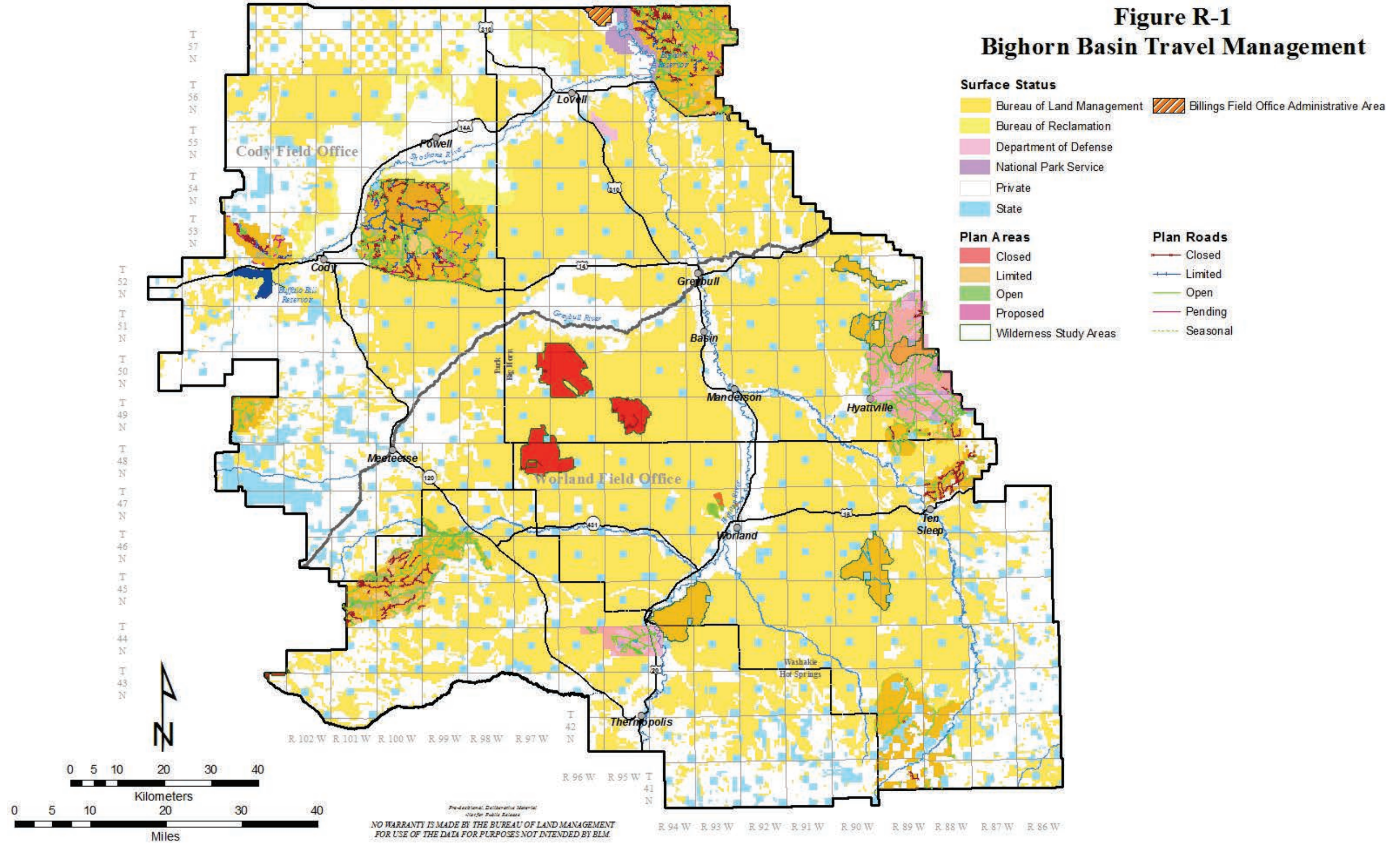
Cultural resources inventory requirements, priorities, and strategies will vary depending on the quality of existing information, the extent of potential change to the location by OHV use, the expected density and nature of historic properties (see BLM Manual 8110), and the potential direct, indirect, and cumulative effects of proposed designations. Where there is a reasonable expectation that a proposed designation will shift, concentrate, or expand travel into areas where historic properties are likely to be adversely affected, a Class II or Class III inventory focused on areas where adverse effects are likely to occur is recommended prior to designation.

2.0 KNOWN ROAD AND TRAIL NETWORK

The Figure R-1 displays the travel management designations for the known road and trail network in the Planning Area. The known road and trail network in the Planning Area can be obtained from the local BLM office or downloaded from <http://www.blm.gov/wy/st/en.html>. Any future decisions to limit travel to designated roads would be based on updated, site specific inventories that would include public participation.

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Figure R-1. Travel Management for the Known Road and Trail Network Bighorn Basin Planning Area



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3.0 TRAVEL MANAGEMENT MATRIX

The matrix that follows shows travel management designations in specific locations across the Planning Area by alternative. These locations have been grouped by type (e.g., ACECs or recreation management areas).

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Table R-1. Travel Management Matrix

AREA	Field Office		ALTERNATIVE A						ALTERNATIVES B AND E						ALTERNATIVE C						ALTERNATIVES D AND F						
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure	
Areas of Critical Environmental Concern (ACECs)																											
Carter Mountain	•		■ (Seasonal closure November 15 – June 15)		■			■ (Seasonal closure November 15 – June 15)		■				■					■		■ (Seasonal closure November 15 – June 15)		■				
Little Mountain	•		■ (Seasonal closure December 1 – April 30)		■			■ (Seasonal closure December 1 – April 30)		■				■ (Seasonal closure December 1 – April 30)					■		■ (Seasonal closure December 1 – April 30)		■				
Clarks Fork Basin/Polecat Bench	•					■				■				■						■					■		
McCullough Peaks	•				■					■				■						■			■				
Foster Gulch	•					■				■				■						■					■		
Brown/Howe	•				■					■				■		■				■					■		
Rainbow Canyon	•					■				■				■						■					■		
Five Springs Falls	•				■					■				■						■					■		
Clarks Fork Canyon	•					■		■ (Closed on part)		■				■						■					■		
Rattlesnake Mountain	•				■			■ (Closed on part)		■				■						■					■		
Sheep Mountain	•					■				■				■						■					■		
Big Cedar Ridge		•		■						■				■						■			■				
Red Gulch Dinosaur Tracksite		•			■					■				■						■					■		
Sheep Mountain Anticline	•				■					■				■						■					■		
Spanish Point Karst Area		•	■					■						■						■					■		
Upper Owl Creek		•			■					■				■						■					■		
Chapman Bench	•					■				■				■						■					■		
Paleocene, Eocene Thermal Maximum (PETM)	•					■							■							■					■		
National Historic Trails and Other Historic Trails																											
Nez Perce National Historic Trail	•					■				■ (Within 5 miles of NHT) (7191)						■ (Within ¼ mile of NHT)				■ (Within 5 miles of NHT)					■		
Other Historic Trails	•	•				■				■ (Within 5 miles of NHT) (7195)						■ (Within ¼ mile of NHT)									■		

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A					ALTERNATIVES B AND E					ALTERNATIVE C					ALTERNATIVES D AND F									
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure	
Recreation Management Areas (SRMAs, ERMAs)																											
Absaroka Foothills		•			■					■						■							■				
Bighorn River	•	•		■ (Portions in WFO)	■ (CYFO and portions in WFO)					■						■							■				
Badlands			■	■				■		■									■		■		■				
<i>Tour De Badlands</i>		•		■						■													■				
<i>Wild Badlands</i>		•	■					■									■				■						
<i>Tatman Mountain</i>		•		■						■							■						■				
West Slope of Bighorn Mountains	•		■ (Seasonal closure December 1 – April 30)		■			■ (Seasonal closure December 1 – April 30)		■				■ (Seasonal closure December 1 – April 30)	■	■					■ (Seasonal closure December 1 – April 30)		■				
<i>Trapper Creek</i>		•	■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■			■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■				■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)					■		■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■				
<i>Paint Rock</i>		•	■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■ (Continue to Implement Travel Management Plans in the Paint Rock area)			■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■				■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)	■ (Maintain implemented Travel Management Plans)						■ (Seasonal closure December 1 – June 30 within Medicine Lodge HMA) (Closed within Spanish Point Karst ACEC)		■				
<i>Brokenback/ Logging Road Area</i>		•			■ (Implement Travel Management Plans)					■					■ (Maintain implemented Travel Management Plans)							■					
<i>South Bighorns</i>		•			■ (Implement Travel Management Plans)					■					■ (Maintain implemented Travel Management Plans)							■					
Canyon Creek		•			■					■					■							■					
Red Canyon Creek		•			■					■					■							■					

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A					ALTERNATIVES B AND E					ALTERNATIVE C					ALTERNATIVES D AND F									
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure	
The Rivers Area	•			■ (For the Shoshone River area)	■ (For the N and S Forks of the Shoshone and the Clarks Fork of the Yellowstone River)				■ (For the Shoshone River area)	■ (For the N and S Forks of the Shoshone and the Clarks Fork of the Yellowstone River)					■								■ (For the N and S Forks of the Shoshone and the Clarks Fork of the Yellowstone River)				
Historic Trails	•	•								■ (Within 5 miles of Trail)						■ (Within ¼ mile of Trail)										■	
Worland Caves	•		■					■								■					■						
McCullough Peaks	•			■	■					■					■							■	■				
Basin Gardens		•		■						■	■				■			■				■		■			
Basin Gardens Play Area		•		■							■							■						■			
Basin Gardens		•		■						■					■							■					
Horse Pasture		•		■				■							■								■				
Rattlesnake Ridge		•		■					■									■				■					
Beck Lake	•			■				■							■								■				
Newton Lake Ridge	•			■ (In portions)	■ (In the remainder)			■							■								■				
Wilderness Study Areas (WSAs)																											
Alkali Creek	•				■			■						■			■						■				
Bobcat Draw Badlands	•		■ (Implement Travel Management Plans)					■						■			■				■						
Cedar Mountain	•			■				■						■			■						■				
Honeycombs	•			■				■						■			■						■				
McCullough Peaks		•			■ (Implement Travel Management Plans)			■						■			■						■ (Implement Travel Management Plans)				
Medicine Lodge	•		■ (Closed within Spanish Point ACEC)		■			■ (Closed within Spanish Point ACEC)						■		■ (Closed within Spanish Point ACEC)		■				■ (Closed within Spanish Point ACEC)	■				
Owl Creek	•		■ (Implement Travel Management Plans)					■						■			■					■					
Red Butte	•		■ (Implement Travel Management Plans)					■						■			■					■					

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A					ALTERNATIVES B AND E					ALTERNATIVE C					ALTERNATIVES D AND F										
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure		
Sheep Mountain	•		■ (Implement Travel Management Plans)					■						■							■							
Trapper Creek	•		■ (Closed within Spanish Point ACEC)		■			■ (Closed within Spanish Point ACEC)						■ (Closed within Spanish Point ACEC)							■ (Closed within Spanish Point ACEC)		■					
Lands with Wilderness Characteristics																												
All Lands with Wilderness Characteristics	•	•					■			■			■						■			■ (Alternative F)				■		
Wild and Scenic Rivers (WSRs)																												
Clarks Fork Yellowstone River	•				■			■					■	■							■							
Cottonwood Creek	•		■					■					■							■							■	
Cow Creek	•				■			■					■							■							■	
Deep Creek		•	■					■					■							■							■	
Deer Creek	•				■			■					■							■							■	
Dry Medicine Lodge Creek		•		■				■					■	■ (Closed [portions within Spanish Point Karst] ACEC; and seasonal closure dates December 1 – June 30 within Medicine Lodge HMA)		■ (portions within the WSA)				■	■ (Closed [portions within Spanish Point Karst]; and seasonal closure dates December 1 – June 30 within Medicine Lodge HMA)		■ (portions within the WSA)			■		
Medicine Lodge Creek		•	■					■					■							■							■	
Oasis Spring Creek	•				■			■					■			■				■			■				■	
Paint Rock Creek Unit		•		■	■			■					■		■					■			■				■	
Porcupine Creek	•				■			■					■			■				■			■				■	
Powder River (Middle Fork)		•		■	■					■			■			■				■			■				■	
Trapper Creek		•	■					■					■	■ (Closed [portions within Spanish Point Karst] ACEC)		■				■	■ (Closed [portions within Spanish Point Karst] ACEC)		■			■		
Trout Creek	•				■			■					■			■				■			■				■	
White Creek		•	■					■					■							■			■				■	

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A					ALTERNATIVES B AND E					ALTERNATIVE C					ALTERNATIVES D AND F									
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure	
Motorized Use Areas																											
Worland Off Highway Vehicle Area		•				■					■							■						■			
Bentonite Hills area						■							■					■						■			
Lovell Lakes “Motocross” area						■							■					■						■			
Hill climbing areas near Cowley				■		■		■					■					■							■		
Diamond Basin area near Cody	•			■		■		■					■					■					■		■		
Red Lakes area near Cody	•					■			■				■					■							■		
Areas near Powell and Greybull								■					■					■							■		
Area near Park County Landfill								■					■					■	■						■		
Other Areas with Identified Travel Management Designations																											
Visual Resources	•	•			■ (VRM Class I and II Areas)			■ (VRM Class I Areas)		■ (VRM Class II Areas)									■						■ (Not limited by VRM Class)		
Essential or Recovery Habitat for threatened or endangered species	•	•			■					■								■						■			
Threatened and endangered species habitat	•	•	■					■											■						■		
Areas with fragile soils	•	•			■							■							■						■		
Areas containing significant cultural and paleontological resources	•	•			■					■								■						■			
Areas over important caves or cave passages	•	•			■					■								■						■			
Red Canyon Creek area south of Thermopolis		•			■					■					■									■			
Lands along the Bighorn Slope, Bridger, Owl Creek, and Absaroka Foothills		•			■					■					■	■								■			
Gebo/Crosby area		•		■						■					■										■		
Cottonwood Creek Trail	•		■					■						■										■			
Five Springs Road	•		■					■						■										■			
Pete’s Canyon Trail	•		■					■						■										■			
Gooseberry Trail		•	■					■						■										■			

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A						ALTERNATIVES B AND E						ALTERNATIVE C						ALTERNATIVES D AND F						
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure	
Canyon Creek Access Trail		•	■					■						■							■						
Salt Lick Trail		•	■					■						■							■						
Paint Rock Trail		•	■					■						■							■						
Lone Tree Trail		•	■					■						■							■						
Duck Swamp Environmental Educational Area		•	■					■						■							■						
Badlands Interpretive Trail		•	■					■						■							■						
Worland Shooting R&PP area		•	■					■						■							■						
The Lovell Shooting Range	•		■					■						■							■						
Cody Archery Range	•		■					■						■							■						
Areas with Travel Designations and Seasonal Travel Management Restrictions																											
Absaroka Front Management Area							■	■ (Partially closed)		■						■											
Carter Mountain	•		■ (Seasonal Closure November 15 – June 15)		■			■ (Seasonal Closure November 15 – June 15)		■				■ (Seasonal Closure November 15 – June 15)		■					■ (Seasonal Closure November 15 – June 15)		■				
Medicine Lodge Wildlife Habitat Management Area		•	■ (Seasonal Closure December 1 – June 30)		■			■ (Seasonal Closure December 1 – June 30)		■				■ (Seasonal Closure December 1 – June 30)		■					■ (Seasonal Closure December 1 – June 30)		■				
Upper Renner Wildlife Habitat Management Area		•	■ (Seasonal Closure December 1 – May 31)		■			■ (Seasonal Closure December 1 – May 31)		■				■ (Seasonal Closure December 1 – May 31)		■					■ (Seasonal Closure December 1 – May 31)		■				
Little Mountain Travel Management Plan area		•	■ (Seasonal Closure December 1 – April 30)		■			■ (Seasonal Closure December 1 – April 30)		■				■ (Seasonal Closure December 1 – April 30)		■					■ (Seasonal Closure December 1 – April 30)		■				
Bald Ridge area		•	■ (Season Closure January 1 – April 30)		■			■ (Season Closure January 1 – April 30)		■				■ (Season Closure January 1 – April 30)		■					■ (Season Closure January 1 – April 30)		■				
Twin Creek Trail		•	■ (Seasonal Closure January 1 – April 30)		■			■ (Seasonal Closure January 1 – April 30)		■				■ (Seasonal Closure January 1 – April 30)		■					■ (Seasonal Closure January 1 – April 30)		■				
Crucial big game winter range	•	•					■	■ (Seasonal Closure November 15 – April 30)		■				■						■ (On a case-by-case basis)	■ (Allow temporary closures)		■				

Table R-1. Travel Management Matrix (Continued)

AREA	Field Office		ALTERNATIVE A					ALTERNATIVES B AND E					ALTERNATIVE C					ALTERNATIVES D AND F								
	C ¹	W ²	Closed	Interim Existing ³	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁶ Closure	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow ⁵ Closure ⁷	Closed	Limited to Existing	Limited to Designated	Open	No Separate Designation ⁴	Over-Snow Closure
Sage-Grouse Priority Habitat Management Areas	•	•					■	■ (Seasonal Closure February 1 – June 30)		■				■ (In Sage-grouse Winter Concentration Areas)					■						■	
Lynx Analysis Units	•	•						■						■						■						■

¹Cody Field Office
²Worland Field Office
³Areas limited to existing roads and trails on an interim basis until completion of travel management planning.
⁴Areas with no separate travel management designation are areas with no specific travel management designation under the alternative. Travel Management in these areas is managed consistent with other resource objectives. If no other travel management applies, motorized vehicle use is limited to existing roads and trails.
⁵Areas open to over-snow vehicle travel under alternatives A and C are considered on a case-by-case basis.
⁶Areas open to over-snow vehicle travel under Alternative B must have a minimum average of 12 inches of snow or be recognized as a groomed motorized trail. If these conditions do not exist then the over-land travel decisions regulate travel in the area.
⁷Areas closed to over-snow vehicle travel under Alternative C are considered on a case-by-case basis.

ACEC Area of Critical Environmental Concern S South
 ERMA Extensive Recreation Management Area SRMA Special Recreation Management Area
 N North VRM Visual Resource Management
 NHT National Historic Trail WSA Wilderness Study Area
 R&PP Recreation and Public Purpose WSR Wild and Scenic River

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix S

Lands with Wilderness Characteristics

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APPENDIX S

LANDS WITH WILDERNESS CHARACTERISTICS

When evaluating lands with wilderness characteristics, the Bureau of Land Management (BLM) utilizes BLM Manual 6310 - Conducting Wilderness Characteristics Inventory of BLM Lands and BLM Manual 6320 - Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process. The BLM is also currently referencing Instruction Memorandum (IM) No. 2013-106, Additional Guidance Regarding Public and Cooperating Agency Involvement in and Access to Wilderness Characteristics Inventory Information and the Land Use Planning Process. The BLM Cody and Worland Field Offices updated the Lands with Wilderness Characteristics Inventory in 2011 to respond to additional information. The current forms for evaluating Lands with Wilderness Characteristics are provided on the following pages.

Based on identified resource conflicts and the need to prioritize other resource uses, *the BLM has not proposed to manage inventoried lands with wilderness characteristics specifically for naturalness, outstanding opportunities for solitude, and primitive and unconfined recreation under the Proposed Resource Management Plan (RMP)*. The rationale for these proposals by inventoried unit is available in Table S-1.

1.0 EVALUATION OF CURRENT CONDITIONS

- 1) Document and review any existing BLM wilderness characteristics inventory findings on file regarding the presence or absence of individual wilderness characteristics, using Form 1, below.
- 2) Consider relevant information regarding current conditions available in the office. Identify and describe any changes to the existing inventory information. Use interdisciplinary team knowledge, aerial photographs, field observations, maps, etc., and document the findings on Form 2, below. Document current conditions regarding wilderness characteristics, as opposed to potential future conditions.
- 3) Conduct field reviews as necessary to verify information and to ascertain current conditions. Reach conclusions on current conditions including boundaries, size of areas and presence or absence of wilderness characteristics. Fully explain the basis for each conclusion on Form 2, including any critical differences between BLM and citizen information.
- 4) Document the findings regarding current conditions for each inventoried area. Describe how the present conditions are similar to, or have changed from, the conditions documented in the original wilderness characteristics inventory. Document the findings on Form 2 for each inventory area. Cite to or attach data considered, including photographs, maps, GIS layers, field trip notes, project files, etc.

2.0 FORM 1

DOCUMENTATION OF BLM WILDERNESS CHARACTERISTICS INVENTORY FINDINGS FROM PREVIOUS INVENTORY ON RECORD

1. Is there existing BLM wilderness characteristics inventory information on all or part of this area?

No _____ (Go to Form 2) **Yes** _____ (If yes, and if more than one area is within the area, list the unique identifiers for those areas.):

a) Inventory Source: _____

b) Inventory Area Unique Identifier(s): _____

c) Map Name(s)/Number(s): _____

d) BLM District(s)/Field Office(s): _____

2. BLM Inventory Findings on Record:

Existing inventory information regarding wilderness characteristics (if more than one BLM inventory area is associated with the area, list each area and answer each question individually for each inventory area):

a) Inventory Source: _____

Area Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No

3.0 FORM 2

CURRENT CONDITIONS: PRESENCE OR ABSENCE OF WILDERNESS CHARACTERISTICS

Area Unique Identifier _____ Acreage _____
(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).

In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check “Yes” and describe the exception in the space provided below),

Yes _____ No _____

Note: If “No” is checked the area does not have wilderness characteristics; check “N/A” for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc.):

(2) Does the area appear to be natural?

Yes _____ No _____ N/A _____

Note: If “No” is checked the area does not have wilderness characteristics; check “N/A” for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities):

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?

Yes _____ No _____ N/A _____

Description (describe the area’s outstanding opportunities for solitude):

Appendix S – Lands with Wilderness Characteristics

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

Yes _____ No _____ N/A _____

Note: If “No” is checked for both 3 and 4 the area does not have wilderness characteristics; check “N/A” for question 5.

Description (describe the area’s outstanding opportunities for primitive and unconfined recreation):

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?

Yes _____ No _____ N/A _____

Description:

SUMMARY OF ANALYSIS*

Area Unique Identifier: _____

Summary

Results of analysis:

(Note: Explain the inventory findings for the entirety of the inventory unit. When wilderness characteristics have been identified in an area that is smaller than the size of the total inventory unit, explain why certain portions of the inventory unit are not included within the lands with wilderness characteristics (e.g., the inventory found that certain parts lacked naturalness).

1. Does the area meet any of the size requirements? ___ Yes ___ No

2. Does the area appear to be natural? ___ Yes ___ No ___ N/A

3. Does the area offer outstanding opportunities for solitude or a primitive and unconfined type of recreation? ___ Yes ___ No ___ N/A

4. Does the area have supplemental values? ___ Yes ___ No ___ N/A

Check one:

The area, or a portion of the area, has wilderness characteristics and is identified as lands with wilderness characteristics.

The area does not have wilderness characteristics.

Prepared by (team members):

(Name, Title, Date)

Reviewed by (District or Field Manager):

Name: _____ **Title:** _____

Date: _____

**This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.*

4.0 ROUTE ANALYSIS¹

(Factors to consider when determining whether a route is a road² for wilderness characteristics inventory purposes.)

Wilderness Characteristics Inventory Area Unique Identifier: _____

Route or Route Segment³ Name and/or Identifier: _____

(Include Transportation Plan Identifier, if known, and include route number supplied by citizen information, when available.)

I. LOCATION

Refer to attached map _____ and BLM corporate data (GIS). List photo point references (where applicable) or reference attached photo log.

Describe: _____

II. ROUTE CONTEXT

A. Current Purpose⁴ (if any) of Route: (Examples: Rangeland/Livestock Improvements [stock tank, developed spring, reservoir, fence, corral], Inholdings [ranch, farmhouse], Mine Site, Concentrated Use Site [camp site], Recreation, Utilities [transmission line, telephone, pipeline], Administrative [project maintenance, communication site, vegetation treatment]).

¹ This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.

² Road: An access route which has been improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

- a. Improved and maintained – Actions taken physically by people to keep the road open to vehicle traffic. “Improved” does not necessarily mean formal construction. “Maintained” does not necessarily mean annual maintenance.
- b. Mechanical means – Use of hand or power machinery or tools.
- c. Relatively regular and continuous use – Vehicular use that has occurred and will continue to occur on a relatively regular basis. Examples are: access roads for equipment to maintain a stock water tank or other established water sources, access roads to maintained recreation sites or facilities, or access roads to mining claims.

³ If a portion of a route is found to meet the wilderness inventory road criteria (see Part III) and the remainder does not meet these criteria (e.g., a cherrystem road with a primitive route continuing beyond a certain point), identify each segment and explain the rationale for the separate findings under pertinent criteria.

⁴ The purpose of a route is not a deciding factor in determining whether a route is a road for wilderness characteristics inventory purposes. The purpose of a route does provide context for factors on which such a determination may be based, particularly the question of whether maintenance of the route ensures relatively regular and continuous use. The purpose also helps to determine whether maintenance that may so far have been unnecessary to ensure such use would be approved by BLM when the need arises.

Describe: _____

B. Right-of-Way (ROW):

1. Is there a ROW associated with this route?

Yes ___ No ___ Unknown ___

2. If yes, what is the stated purpose of the ROW? _____

3. Is the ROW still being used for this purpose?

Yes ___ No ___ Unknown or N/A ___

Explain: _____

III. WILDERNESS INVENTORY ROAD CRITERIA

A. Evidence of construction or improvement using mechanical means:

Yes ___ (if either A.1 or A.2 is checked "yes" below) No ___ (if both A.1 and A.2 are checked "no" below)

1. Construction: (Is there evidence that the route or route segment was originally constructed using mechanical means?)

Yes ___ No ___

Examples: Paved ___ Bladed ___ Graveled ___ Roadside Berms ___ Cut/Fill ___ Other ___

Describe: _____

2. Improvements: (Is there evidence of improvements using mechanical means to facilitate access?)

Yes ___ No ___ If "yes": by Hand Tools ___ by Machine ___

Examples: Culverts ___ Hardened Stream Crossings ___ Bridges ___ Drainage ___ Barriers ___ Other ___

Describe: _____

Appendix S – Lands with Wilderness Characteristics

B. Maintenance: (Is there evidence of maintenance that would ensure relatively regular and continuous use?):

Yes ___ (if either B.1 or B.2 is checked “yes” below) No ___ (if both B.1 and B.2 are checked “no” below)

1. Is there Evidence or Documentation of Maintenance using hand tools or machinery?

Yes ___ No ___ If “yes”: by Hand Tools ___ by Machine ___

Explain: _____

2. If the route or route segment is in good⁵ condition, but there is no evidence of maintenance, would mechanical maintenance with hand tools or machines be approved by BLM to meet the purpose(s) of the route in the event this route became impassable?

Yes ___ No ___

Explain: _____

C. Relatively regular and continuous use: (Does the route or route segment ensure relatively regular and continuous use?)

Yes ___ No ___

Describe evidence (e.g., direct, vehicles or vehicle tracks observed, or indirect, evidence of use associated with purpose of the route such as maintenance of facility that route accesses) and other rationale for whether use has occurred and will continue to occur on a relatively regular basis (i.e., regular and continuous use relative to the purpose(s) of the route).⁶

⁵ Good condition would be a condition that ensures regular and continuous use relative to the purposes of the route. Consider whether the route can be clearly followed in the field over its entire course and whether all or any portion of the route contains any impediments to travel.

⁶ Include estimate of travel rates for the stated purposes, e.g., trips/day or week or month or season or year or even multiple years in some facility maintenance cases.

IV. CONCLUSION

Does the route or route segment⁷ meet the definition of a wilderness inventory road (i.e., are items III.A and III.B and III.C all checked yes)?

Yes ____ = Wilderness Inventory Road

No ____ = Not a road for wilderness inventory purposes

Explanation⁸: _____

Evaluator(s): _____ Date: _____

⁷ If part of the route meets the wilderness inventory road definition and the remainder does not, describe the segment meeting the definition and any remaining portion not meeting the definition and why.

⁸ Describe and explain rationale for any discrepancies with citizen proposals.

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit

Unit Containing Wilderness Characteristics	Rationale
Worland Field Office	
008 DH	Do not manage for wilderness characteristics in this area due to the current land uses present in the area. Active sand and gravel pit north of area, which may be predicted to head south into the area. There currently are mining claims present, and the potential for future coal bed methane extraction exists in the area.
0016 DH	Do not manage for wilderness characteristics in this area due to the current land uses present in the area. Bentonite potential exists surrounding and within proximity to the area. In addition, approximately 50% of the area is leased for oil and gas.
0048 PR	There is a development potential for Coal Bed Methane; The area is 20% leased, 77% coal. Oil and gas leases are very important for sustaining historic and current land uses, as well as the potential for future CBNG development. The current land uses will conflict with managing for wilderness characteristics.
1536 PR	Do not manage for wilderness characteristics within the area due to potential commercial timber; cultural and wildlife management will indirectly benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.
Owl Creek Subunit 5 (formerly 661 TS)	<p>Presence of Gypsum, uranium and timber in the area. 97% of the area is unavailable to oil and gas leasing. Potential for gypsum and uranium to be mined is low due to terrain and access to the area.</p> <p>The area does contain high quality timber but is not accessible or feasible to logging. However, there is no history of commercial timber in the area because of the access and the difficult terrain would require a cable yarding system. The timber is of high quality but it is not economically available unless the timber market substantially increases. Logging in this area is not foreseeable.</p> <p>However, because the area is 97% unavailable to leasing, is managed under the Owl Creek ACEC, within the Absaroka Front Management Area, has low development potential, and from public comments, the area will not be managed specifically for wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics. Current and proposed management prescriptions from other resources management prescriptions will benefit wilderness characteristics.</p>
Owl Creek Subunits 1-4 (Formerly Owl Creek CP)	<p>41 % of the area has been identified as Commercial Forest Land, and 31% contains Uranium. Low potential for timber development because of the difficult access in the area as well as the terrain. It is estimated that only 50% of the timber in the area would be accessible because of the terrain. Cost of timber, access, and difficulty of using logging equipment in the area limits the potential of commercial timber. Uranium is a locatable mineral, not leasable. Potential for mining in the area is low due to the terrain and access.</p> <p>Because the area is 97% unavailable to leasing, is managed under the Owl Creek ACEC, within the Absaroka Front Management Area, has low development potential, and from public comments, the area will not be managed specifically for wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics. Current and proposed management prescriptions from other resources management prescriptions will benefit wilderness characteristics.</p>

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
1535 PR	<p>It is recommended not to manage for wilderness characteristics within the area. 16% of the area contains Gypsum, as well as 0.6% sand and gravel, 1.2 % limestone. Potential gypsum claims exist because Gypsum (and sand and gravel) are limited but are available.</p> <p>However, the area is identified as big game and sage grouse habitat. Oil and gas restraints encompass the entire area with TLS and CSU stipulations to address wildlife resources. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.</p>
568 TS	<p>7% of the area has been identified as Commercial Forest Land, 46% contains Limestone, and 8% Phosphate. The area has terrain which limits the development potential. Timber and limestone development are low and not foreseeable for the area.</p> <p>The only stand of Ponderosa Pine in the Grass Creek Resources Area (T. Stephens), Owl Creek ACEC, Absaroka Front Management Area (Draft EIS), 81% unavailable to leasing, .02% NSO, 14% CSU.</p> <p>Because of the very low potential for development, the area is managed as the Owl Creek ACEC, and 81% is unavailable. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics. Current and proposed management prescriptions from other resources management prescriptions will benefit wilderness characteristics.</p>
069 JW	<p>33% of the area contains Gypsum, and 2% Uranium, 4% Limestone. A gravel pit is located approx. 1 mile to the northwest.</p> <p>The terrain of the area makes the development unlikely. There are many places located in the area that have a much better potential for mineral development.</p> <p>96% of the area is under a CSU. CSU and TLS stipulations cover the entire area, which will adequately and indirectly maintain wilderness characteristics. Specific management for wilderness characteristics are not necessary.</p>
130 JW	<p>No extractive resources identified as available, the terrain will make any resource difficult to access. CSU (50%) and TLS stipulations cover the entire area, which will adequately and indirectly maintain wilderness characteristics. Specific management for wilderness characteristics are not necessary.</p>
Medicine Lodge CP Subunit A and B (Formerly Medicine Lodge North CP)	<p>Some potential exists for commercial timber, but remains low due to the ACEC and the emphasis on maintaining wildlife habitat. The difficult terrain and the Spanish Point Karst ACEC limit the availability of the resources.</p> <p>Most of the area overlaps with the Spanish Point Karst ACEC. In addition, groundwater recharge withdrawal, seasonal closure for wildlife, and archaeological resources requires management prescriptions which benefits wilderness characteristics. Due to existing ACEC management prescriptions, and overlapping TLS wildlife stipulations and CSU stipulations to maintain recreational resources, management to sustain or enhance wilderness characteristics within the area is not necessary. Wilderness characteristics will be adequately managed for within the area. In addition, upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.</p>

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
Paintrock CP	Paint Rock area is listed on the National Register of Historic Places. The area is one of the few areas that exposes the Hyattville member of Ten Sleep Sandstone making the area geologically unique. Overlapping CSU (to address recreational, cultural, and hydrological resources) and TLS stipulations (wildlife resources) cover the entire area, which will adequately and indirectly maintain wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics. Specific management for wilderness characteristics are not necessary.
Sheep Mountain CP	The area is adjacent to Sheep Mountain WSA. The northern portion of the area is within the 15-Mile MLP, and TLS stipulations to address wildlife resources underlay the area. These management prescriptions will benefit and aid in sustaining wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, some of the area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
669 AK	Upon development of the preferred alternative for the Bighorn Basin RMP revision, nearly the entire area is within the 15-Mile MLP, which stipulations are present to protect and manage for recreational resources, specific CSU stipulations to address recreation management, as well as overlapping TLS stipulations to address wildlife resources. These management prescriptions will benefit wilderness characteristics.
639 AK	Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics. In addition, CSU stipulations specific for recreation management, as well as overlapping TLS stipulations to address wildlife resources will further benefit wilderness characteristics. These management prescriptions will indirectly benefit wilderness characteristics.
31 PR	100% of the area is within a CSU. Because of the high potential for commercial harvest of timber, it is recommended not to manage for wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.
508 AK	69.11% leased for oil and gas; 12% of area contains sand and gravel, and active leases existing in the area. It is recommended to not manage for wilderness characteristics because of the existing leases for oil and gas. Upon development of the preferred alternative for the Bighorn Basin RMP revision, nearly the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
508 Tristate Gooseberry N Platte	45.89% of the area is leased for oil and gas, and the potential for mineral development exists judging by the amount of leases in the area. Recommended that managing the area for wilderness characteristics will conflict with current land uses. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
509 AK Dorsey Ck	The area has a high potential of oil and gas development (81% of area is under a lease) Recommended that managing the area for wilderness characteristics will conflict with current land uses. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
516 DH	69% of the area has been identified as Commercial Forest Land, 74% contains uranium; potential for timber harvest is high; the potential for uranium development is low. It is recommended not to manage to sustain the wilderness characteristics in the area due to the commercial harvest of timber. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics.
577 AK	92.68% of the area is currently under a lease for oil and gas; with the high potential for oil and gas extraction. It is recommended not to manage to sustain the wilderness characteristics in the area due to the active leases and high potential for extraction.
622 AK	Potential for oil and gas extraction is present (41.84% under a lease for oil and gas), as well as coal resources in the area. It is recommended not to manage to sustain the wilderness characteristics in the area due to the active leases and high potential for extraction, and the presence of other resources.
651 AK	There is the high potential for oil and gas extraction (61.63% leased for oil and gas), which managing the area to sustain wilderness characteristics would conflict with current land uses. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
665 CW	The development potential exists in the area (12.4% leased for oil and gas). There are existing stipulations (6 % NSO, 50% CSU) which aids wilderness characteristics, but, it is recommended that managing for wilderness characteristics in the area will conflict with current land uses, and conflict with the potential of future mineral extraction.
668 AK	Do not manage for wilderness characteristics in the area because the majority of area (98%) is under lease. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the majority of the area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
676 AK, PR	The area currently has stipulations which will assist in managing for wilderness characteristics (9% NSO, 40% CSU). It is recommended not to manage for wilderness characteristics due to the potential for oil and gas extraction (32% of the area is leased). Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
Alkali Creek NW CP	The area is 100% CSU, high potential for archaeological resources, which specific resource management will benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.
Bobcat Draw South II CP	Do Not manage the area for wilderness characteristics as it conflicts with oil and gas lease and potential for oil shale development. In addition, 66% of the area is within a CSU stipulation, which will benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the majority area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
Bobcat Draw West CP	It is not recommended to manage for wilderness characteristics in the area due to the current land uses (72% leased for oil and gas). Some characteristics will benefit from CSU stipulations within the area. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
Honeycombs 164 CP	99% of the area is identified as containing Coal, with very low potential for development; the area is could have potential for exploration of coal bed methane. It is not recommended to manage for wilderness characteristics within the areas due to the potential for resource development.
Honeycombs NW 107 CP	70% of the area is identified as containing Coal, very low potential for development; the area could have potential for exploration of coal bed methane. It is not recommended to manage for wilderness characteristics within the areas due to the potential for resource development.
Honeycombs S CP	98% of the area is identified as containing Coal, which the potential to extract coal bed methane exists, as well as the oil and gas leases within the area. It is not recommended to manage for wilderness characteristics within the areas due to the potential for resource development.
Red Butte North CP	Do not manage for wilderness characteristics in the area because the majority of area (83%) is under lease. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the majority of the area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
Bobcat Draw South CP	It is not recommended to manage for wilderness characteristics due to the potential for oil shale development, and existing oil and gas leases. 90% of the area is under CSU stipulations to manage for paleontological and archaeological resources, which will benefit wilderness characteristics.
652 Upper, Lower AK	It is not recommended to manage for wilderness characteristics due to existing oil and gas leases. In addition, 53% of the area is under CSU stipulations, as well as other resources (wild horse HMA, sensitive watershed, paleo resources) which those resources management prescriptions will benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
626 AK	The land status within the area will conflict with effective management prescriptions to maintain wilderness characteristics. NSO and CSU stipulations (14% and 33% respectively) within the area will benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the majority of the area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
509 AK	Do not manage for wilderness characteristics due to the sand and gravel pits and the conflicts with land status within the area. In addition, Wild Horse management prescriptions may indirectly benefit some of the wilderness characteristics within the area (i.e., management actions that will maintain or enhance conformance with the Wyoming Standards for Healthy Rangelands, and not actively promoting the 15-Mile HMA and maintaining remote natural characteristics). Upon development of the preferred alternative for the Bighorn Basin RMP revision, the majority of the area will be within the 15-Mile Master Leasing Plan, which provides for stipulations that will sustain soil and visual resources which will directly benefit wilderness characteristics.
005 PR	The surrounding private lands may be developed for residential, or 2 nd homes, therefore easements are more likely to be sought after and further developed; this is similar to what is being observed along the Hyattville Logging Road. Managing for wilderness characteristics may increase landowner conflicts and possible future easements. There are also commercial timber resources which may be recovered. In addition, NSO and CSU stipulations (2% and 80% of the area respectively) will benefit wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
Cody Field Office	
Carter Mountain	The area has an irregular land pattern and contains many inholdings. Secondary vehicle routes provide access to the nearest inholdings. Management actions for the Carter Mountain ACEC and the Absaroka Front SMA help protect naturalness. There are no current oil and gas leases in the area. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics.
Painted Hills	Much of the area lies within the Sheep Mountain Anticline ACEC. Many of the management actions for the ACEC help protect naturalness.
Trout Creek	The area lies within the Craig Thomas Little Mountain SMA and the management actions for that area help protect naturalness. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire area will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.
Sheep Mountain	Management actions for the proposed Sheep Mountain ACEC and the Absaroka front SMA subsequently continue to maintain the integrity of naturalness. There are no current oil and gas leases in the area. A large parcel of private land owned by The Nature Conservancy is being held for possible acquisition by BLM. Nearly all of this land lies on top of the mountain. There is a small parcel on the southwest side of the area that is also part of the proposal. Private and state lands nearly surround the area, and in addition, the boundary is highly irregular, which may prove difficult or inefficient to manage solely for wilderness characteristics. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics.
Rattlesnake Mountain	Area is highly developed. Rattlesnake Road, a dominant feature in the landscape, is the main access route into BLM and many of the spur routes within Rattlesnake Mountain are used primarily for logging and wood cutting activities. Managing for wilderness characteristics in this area will compromise these activities. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Absaroka Front Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation related resources, and visual resources which will directly benefit wilderness characteristics.
Cedar Ridge	Do not manage for wilderness characteristics in the area due to current oil and gas activity where approximately 68% of the area is under lease. Managing to sustain wilderness characteristics will conflict with current land uses.
Little Dry Creek	Do not manage for wilderness characteristics in the area because the majority of area (74%) is under lease, and new wells with associated development are currently proposed. Managing to sustain wilderness characteristics will conflict with current land uses.
North YU Bench	Do not manage for wilderness characteristics in the area because the majority of area (approximately 61%) is under lease. Managing to sustain wilderness characteristics will conflict with current land uses.
Crystal Creek	There is mineral potential (bentonite) present within the area, and mining claims are heading towards the interior of the area. Managing for wilderness characteristics will conflict with current and future land uses. Upon development of the preferred alternative for the Bighorn Basin RMP revision, the entire will be within the Bighorn Master Leasing Plan, which provides for stipulations that will sustain wildlife, recreation, and visual resources which will directly benefit wilderness characteristics.

Table S-1. Rationale for Not Managing Lands with Wilderness Characteristics for Naturalness, Outstanding Opportunities for Solitude, and Primitive and Unconfined Recreation, by Field Office and Unit (Continued)

Unit Containing Wilderness Characteristics	Rationale
Rough Gulch	64% of the area is covered by oil and gas leases. One of the proposed PETM ACEC units lies within a portion of the area. Some of the management actions for the ACEC help protect naturalness. The area is highly valued for its scenery and recreational opportunities (motorized and non-motorized). The area will be designated as part of the McCullough Peaks Special Recreation Management Area, management actions for the SRMA would help protect naturalness (NSO).
Whistle Creek	Portions of the area, approximately 33% of the area, contain oil and gas leases. The area has high potential for oil and gas and moderate to high development potential. The area is highly valued for its scenery and recreational opportunities (motorized and non-motorized). The area will be designated as part of the McCullough Peaks Special Recreation Management Area, management actions for the SRMA would help protect naturalness (NSO).
Coon Creek	83% of the area is covered by oil and gas leases. A portion of the area lies within one of the proposed PETM ACEC parcels, which management actions will benefit wilderness characteristics.
Bald Ridge	Management actions for the ACEC, and Absaroka Front SMA help protect naturalness. The entire area is within the Absaroka Front Management Area, MLP, and nearly the entire area within the Clarks Fork ACEC. These protective management layers will benefit the wilderness characteristics.

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix T

Surface Disturbance and Reasonable Foreseeable Actions

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APPENDIX T

SURFACE DISTURBANCE AND REASONABLE FORESEEABLE ACTIONS

1.0 SUMMARY OF REASONABLE FORESEEABLE ACTIONS

This appendix includes information on surface disturbance and reasonable foreseeable actions within the Planning Area. Table T-1 provides projected acres of surface disturbance by resource. Table T-2 provides foreseeable development project assumptions by resource; the projected surface disturbances in Table T-1 are based on the project assumptions in Table T-2. The purpose of the Resource Management Plan (RMP) is to make land use allocations. The level of detail for impact analysis is to make informed land use allocations. This appendix on surface disturbance and reasonable foreseeable actions is a tool that was used to compare the impacts of land use allocations across the alternatives. Therefore, the estimated total number of individual activities and associated surface disturbance may be exceeded so long as the additional activities or location of the development would not change the land use allocations determined through the Record of Decision. These actions are subject to subsequent permitting and environmental analysis.

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Leasable Oil and Gas (includes CBNG)						
Acres Short-Term Disturbance from BLM Actions	3,552	1,506	3,912	3,429	1,497	3,423
Acres Reclaimed from BLM Actions	2,119	900	2,332	2,046	895	2,042
Acres Long-Term Disturbance from BLM Actions	1,433	606	1,580	1,383	602	1,381
Acres Short-Term Disturbance from Non-BLM Actions	1,533	1,398	1,533	1,527	1,398	1,533
Acres Reclaimed from Non-BLM Actions	913	833	913	909	833	913
Acres Long-Term Disturbance from Non-BLM Actions	620	565	620	618	565	620
Mineral Resources – Locatable						
Acres Short-Term Disturbance from BLM Actions	20,000	15,000	20,000	20,000	15,000	20,000
Acres Reclaimed from BLM Actions	10,000	10,000	10,000	10,000	10,000	10,000
Acres Long-Term Disturbance from BLM Actions	10,000	5,000	10,000	10,000	5,000	10,000
Acres Short-Term Disturbance from Non-BLM Actions	10,000	10,000	10,000	10,000	10,000	10,000
Acres Reclaimed from Non-BLM Actions	4,000	4,000	4,000	4,000	4,000	4,000
Acres Long-Term Disturbance from Non-BLM Actions	6,000	6,000	6,000	6,000	6,000	6,000

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Salable Minerals						
Acres Short-Term Disturbance from BLM Actions	2,000	800	2,000	1,800	800	1,800
Acres Reclaimed from BLM Actions	400	200	400	450	200	450
Acres Long-Term Disturbance from BLM Actions	1,600	600	1,600	1,350	600	1,350
Acres Short-Term Disturbance from Non-BLM Actions	2,800	2,800	2,800	2,800	2,800	2,800
Acres Reclaimed from Non-BLM Actions	1,200	1,200	1,200	1,200	1,200	1,200
Acres Long-Term Disturbance from Non-BLM Actions	1,600	1,600	1,600	1,600	1,600	1,600
Mineral Resources – Other Solid Leasables						
Acres Short-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	40	40	40	40	40	40
Acres Long-Term Disturbance from Non-BLM Actions	160	160	160	160	160	160
Mineral Resources – Leasable Geothermal¹						
Acres Short-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Fire and Fuels Management^{2,3}						
<i>Prescribed Fire</i>						
Acres Short-Term Disturbance from BLM Actions	40,000	20,000	80,000	40,000	18,000	40,000
Acres Reclaimed from BLM Actions	40,000	20,000	80,000	40,000	18,000	40,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<i>Mechanical Fuels Treatment</i>						
Acres Short-Term Disturbance from BLM Actions	30,000	5,000	60,000	30,000	5,000	30,000
Acres Reclaimed from BLM Actions	30,000	5,000	60,000	30,000	5,000	30,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Forest, Woodlands, and Forest Products						
Acres Short-Term Disturbance from BLM Actions	30,000	20,000	40,000	30,000	20,000	30,000
Acres Reclaimed from BLM Actions	30,000	20,000	40,000	30,000	20,000	30,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions ⁴	3,000	3,000	3,000	3,000	3,000	3,000
Acres Reclaimed from Non-BLM Actions	3,000	3,000	3,000	3,000	3,000	3,000
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Invasive Species and Pest Management^{3,5}						
Acres Short-Term Disturbance from BLM Actions	2,000	100	4,000	2,000	100	2,000
Acres Reclaimed from BLM Actions	2,000	100	4,000	2,000	100	2,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	200	200	200	200	200	200
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Fish and Wildlife Resources						
<i>Fisheries and Stream Enhancement Activities</i>						
Acres Short-Term Disturbance from BLM Actions	0	91	0	0	91	0
Acres Reclaimed from BLM Actions	0	91	0	0	91	0
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions ⁴	38	38	38	38	38	38
Acres Reclaimed from Non-BLM Actions	38	38	38	38	38	38
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Watershed Enhancement Projects						
Acres Short-Term Disturbance from BLM Actions	781	1,562	391	781	1,562	781
Acres Reclaimed from BLM Actions	550	1,100	225	550	1,100	550
Acres Long-Term Disturbance from BLM Actions	231	462	166	231	462	166
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Health and Safety – Abandoned Facilities and AML						
<i>Abandoned Facilities</i>						
Acres Short-Term Disturbance from BLM Actions	200	200	200	200	200	200
Acres Reclaimed from BLM Actions	200	200	200	200	200	200
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	200	200	200	200	200	200
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
<i>Abandoned Mine Lands Restoration</i>						
Acres Short-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	2,000	4,000	2,000	2,000	4,000	2,000
Acres Reclaimed from Non-BLM Actions	2,000	4,000	2,000	2,000	4,000	2,000
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Paleontological						
Acres Short-Term Disturbance from BLM Actions	200	250	200	200	250	200
Acres Reclaimed from BLM Actions	150	150	150	150	150	150
Acres Long-Term Disturbance from BLM Actions	50	100	50	50	100	50
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	80	80	80	80	80	80
Acres Long-Term Disturbance from Non-BLM Actions	120	120	120	120	120	120

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Renewable Energy – Wind Energy Development						
Acres Short-Term Disturbance from BLM Actions	200	200	200	200	200	200
Acres Reclaimed from BLM Actions	150	150	150	150	150	150
Acres Long-Term Disturbance from BLM Actions	50	50	50	50	50	50
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	150	150	150	150	150	150
Acres Long-Term Disturbance from Non-BLM Actions	50	50	50	50	50	50
Rights-of-Way (ROW)						
<i>Telephone and Fiber Optics</i>						
Acres Short-Term Disturbance from BLM Actions	218	216	218	218	216	218
Acres Reclaimed from BLM Actions	218	216	218	218	216	218
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions ⁶	168	168	168	168	168	168
Acres Reclaimed from Non-BLM Actions	168	168	168	168	168	168
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
<i>Pipelines (Mineral and Water)⁷</i>						
Acres Short-Term Disturbance from BLM Actions	2,949	2,196	3,101	2,949	2,196	1,178
Acres Reclaimed from BLM Actions	2,949	2,196	3,101	2,949	2,196	1,178
Acres Long-Term Disturbance from BLM Actions	0	0	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	1,456	1,456	1,456	1,456	1,456	1,456
Acres Reclaimed from Non-BLM Actions	1,456	1,456	1,456	1,456	1,456	1,456
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
<i>Roads⁸</i>						
Acres Short-Term Disturbance from BLM Actions	1,966	1,229	4,638	1,966	1,229	1,996
Acres Reclaimed from BLM Actions	983	614	2,319	983	614	672
Acres Long-Term Disturbance from BLM Actions	983	615	2,319	983	615	672
Acres Short-Term Disturbance from Non-BLM Actions	1,127	1,127	1,127	1,127	1,127	1,127
Acres Reclaimed from Non-BLM Actions	563	563	563	563	563	563
Acres Long-Term Disturbance from Non-BLM Actions	564	564	564	564	564	564

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<i>Powerlines</i>						
Acres Short-Term Disturbance from BLM Actions	338	229	359	338	229	165
Acres Reclaimed from BLM Actions	337	228	358	337	228	164
Acres Long-Term Disturbance from BLM Actions	1	1	1	1	1	1
Acres Short-Term Disturbance from Non-BLM Actions	200	200	200	200	200	200
Acres Reclaimed from Non-BLM Actions	199	199	199	199	199	199
Acres Long-Term Disturbance from Non-BLM Actions	1	1	1	1	1	1
<i>Communication Sites</i>						
Acres Short-Term Disturbance from BLM Actions ⁹	10	10	10	10	10	10
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	10	10	10	10	10	10
Acres Short-Term Disturbance from Non-BLM Actions	7	7	7	7	7	7
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	7	7	7	7	7	7
<i>Other Facilities¹⁰</i>						
Acres Short-Term Disturbance from BLM Actions	210	95	233	210	95	181
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	210	95	233	210	95	181
Acres Short-Term Disturbance from Non-BLM Actions	155	74	180	155	74	155
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	155	74	180	155	74	155
Comprehensive Trails and Travel Management						
<i>Motorized Vehicle Use</i>						
Acres Short-Term Disturbance from BLM Actions	1,233	2,776	12,907	5,820	2,729	5,750
Acres Reclaimed from BLM Actions	398	1,708	172	1,879	2,664	1,879
Acres Long-Term Disturbance from BLM Actions	835	1,068	12,735	3,941	1,046	3,917
Acres Short-Term Disturbance from Non-BLM Actions	517	517	517	517	517	517
Acres Reclaimed from Non-BLM Actions	167	167	167	167	167	167
Acres Long-Term Disturbance from Non-BLM Actions	350	350	350	350	350	350

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Recreation						
<i>Recreational Site Development</i>						
Acres Short-Term Disturbance from BLM Actions	349.5	2,253	12,815	349.5	2,180	271
Acres Reclaimed from BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	349.5	2,253	12,815	349.5	2,180	271
Livestock Grazing						
<i>Spring Development</i>						
Acres Short-Term Disturbance from BLM Actions	5	2.5	10	5	2.5	4.75
Acres Reclaimed from BLM Actions	4	2	5	4	2	3.8
Acres Long-Term Disturbance from BLM Actions	1	0.5	5	1	0.5	0.9
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
<i>Pipeline Development</i>						
Acres Short-Term Disturbance from BLM Actions	60	30	120	60	30	57
Acres Reclaimed from BLM Actions	57.5	28.8	115	57.5	28.8	54.7
Acres Long-Term Disturbance from BLM Actions	2.5	1.2	5	2.5	1.2	2.37
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0	0	0
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0	0	0
<i>Reservoir/Pit Development</i>						
Acres Short-Term Disturbance from BLM Actions	40	20	80	40	20	38
Acres Reclaimed from BLM Actions	35	17.5	70	35	17.5	33.2
Acres Long-Term Disturbance from BLM Actions	5	2.5	10	5	2.5	4.75
Acres Short-Term Disturbance from Non-BLM Actions	17	17	17	17	17	17
Acres Reclaimed from Non-BLM Actions	15	15	15	15	15	15
Acres Long-Term Disturbance from Non-BLM Actions	2	2	2	2	2	2

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<i>Fence Development</i>						
Acres Short-Term Disturbance from BLM Actions	250	125	500	250	125	237.5
Acres Reclaimed from BLM Actions	240	120	480	240	120	228
Acres Long-Term Disturbance from BLM Actions	10	5	20	10	5	9.5
Acres Short-Term Disturbance from Non-BLM Actions	105	105	105	105	105	105
Acres Reclaimed from Non-BLM Actions	100	100	100	100	100	100
Acres Long-Term Disturbance from Non-BLM Actions	5	5	5	5	5	5
<i>Well Development</i>						
Acres Short-Term Disturbance from BLM Actions	5	2.5	10	5	2.5	4.75
Acres Reclaimed from BLM Actions	4	2	8	4	2	3.8
Acres Long-Term Disturbance from BLM Actions	1	0.5	2	1	0.5	0.95
Acres Short-Term Disturbance from Non-BLM Actions	2	2	2	2	2	2
Acres Reclaimed from Non-BLM Actions	1.5	1.5	1.5	1.5	1.5	1.5
Acres Long-Term Disturbance from Non-BLM Actions	0.5	0.5	0.5	0.5	0.5	0.5
<i>Reservoir Maintenance Development</i>						
Acres Short-Term Disturbance from BLM Actions	10	5	20	10	5	9.5
Acres Reclaimed from BLM Actions	8	4	16	8	4	7.6
Acres Long-Term Disturbance from BLM Actions	2	1	4	2	1	1.9
Acres Short-Term Disturbance from Non-BLM Actions	4	4	4	4	4	4
Acres Reclaimed from Non-BLM Actions	3	3	3	3	3	3
Acres Long-Term Disturbance from Non-BLM Actions	1	1	1	1	1	1

Table T-1. Summary of Projected Acres of Surface Disturbance by Resource (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Cumulative Disturbance						
Total Acres Short-Term Disturbance from BLM Actions	136,252.5	73,940.0	245,642.0	140,174.5	71,829.3	137,065.4
Total Acres Reclaimed from BLM Actions	120,606.5	63,047.3	204,157.0	121,868.5	62,008.3	119,383.9
Total Acres Long-Term Disturbance from BLM Actions	15,646.0	10,892.7	41,485.0	18,306.0	10,802.0	17,663.4
Total Acres Short-Term Disturbance from Non-BLM Actions	24,129.0	26,183.0	24,154.0	24,135.0	26,183.0	24,129.0
Total Acres Reclaimed from Non-BLM Actions	14,493.5	16,573.5	14,493.5	14,497.5	16,573.5	14,493.5
Total Acres Long-Term Disturbance from Non-BLM Actions	9,635.5	9,609.5	9,660.5	9,637.5	9,609.5	9,635.5
Cumulative Long-Term Acres of Disturbance	25,282	20,502	51,146	27,944	20,412	27,299

¹Based on the Reasonable Foreseeable Development for Geothermal (BLM 2009a), development is unlikely and would only occur on previously disturbed areas.

²Acres disturbed by mechanical fuels treatment and prescribed fire will naturally be reclaimed within 5 years.

³Includes range enhancements and other wildlife habitat restoration actions.

⁴Assumes 10 percent of the BLM actions acreages.

⁵Surface disturbance activities resulting from invasive species projects will be naturally reclaimed within 5 years. Therefore long-term disturbance from BLM actions will be zero.

⁶Based upon 58 percent BLM-administered surface; 42 percent private and state trust lands.

⁷Actions would likely be mostly oil and gas related, including CO₂ and energy pipelines.

⁸Approximately 50 percent of roads would be oil and gas related (based on the Reasonable Foreseeable Development Scenario for Oil and Gas [BLM 2009b; BLM 2013]), with the rest coming from local demand.

⁹20 sites at 0.5 acre each.

¹⁰Actions would likely be mostly oil and gas related.

AML Abandoned Mine Land
 BLM Bureau of Land Management
 CBNG Coalbed natural gas
 CO₂ Carbon dioxide
 ROW Rights-of-Way

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-2. Reasonable Foreseeable Development Assumptions

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Locatable						
Exploration (Number of Active Claims/Acres)	3,167/188,200	-	-	-	-	-
Acres Under Notice (common to all)	155/year	155/year	155/year	155/year	75/year (This number is decreased as ACEC designation in greater sage-grouse Key Habitat Areas precludes Notice submission – all 3809 exploration activities are submitted as Plans).	75/year (This number is decreased as ACEC designation in sage-grouse PHMAs precludes Notice submission – all exploration activities are submitted as Plans).
Acres Closed to Locatable Mineral Entry (surface/mineral estate)	65,090/174,354	271,370/325,102	23,916/47,846	48,728/72,031	1,148,232/ 1,375,585 (Estimate of all land that would be withdrawn from mineral entry. Takes into account acres already withdrawn in Alternative B and adds remaining fed surface/mineral acres included in all Key Habitat Areas).	48,728/72,031 (No locatable mineral withdrawals would be pursued in PHMAs so Alternative F = Alternative D).

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Acres Available for Locatable Mineral Entry (surface/mineral estate)	3,124,724/ 4,033,195	2,918,444/ 3,882,447	3,165,898/ 4,159,703	3,141,086/ 4,135,518	1,976,492/ 2,657,610 (Alternative A – Alternative E closed) (federal surface and mineral estate acres).	3,141,086/ 4,135,518 (No locatable mineral withdrawals would be pursued in PHMAs so Alternative F = Alternative D).
Projected Additional Acres Closed to Locatable Mineral Entry (mineral estate)	21,000	45,000	21,200	21,000	876,862	21,000 (No mineral withdrawal within ACEC is being pursued under Alternative F).

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Assumptions	<p>All BLM-administered mineral estate except in areas specifically withdrawn or closed to mineral entry would remain open for mining claim location, and exploration and development of locatable minerals.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>	<p>Large acreages in ACECs and other special management areas are proposed for withdrawal from mineral entry under the Mining Laws. However, this would not significantly limit opportunities to explore for and develop locatable minerals, as many areas in the Planning Area where locatable minerals occur would remain open to locatable mineral entry.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>	<p>Same as assumption under Alternative A, except less acreage would be proposed for withdrawal from mineral entry under the Mining Laws.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>	<p>Same as assumption under Alternative A, except less acreage would be proposed for withdrawal from mineral entry under the Mining Laws.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>	<p>Locatable mineral exploration would be conducted under a plan of operation and not a notice under Alt E with a Greater Sage-Grouse Key Habitat Areas ACEC designated in the Planning Area; Acres remain the same as Alternative B.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>	<p>Locatable mineral exploration would be conducted under a plan of operation and not a notice under Alt F with a Greater Sage-Grouse PHMAs ACEC designated in the Planning Area; Acres remain the same as Alternative D.</p> <p>Any surface management operations proposed on claims that pre-date a withdrawal would require a validity examination.</p>

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Development (Number of Sites/Acres)	23/31,500	-	-	-	23/31,500	23/31,500
Projected New Acres of Surface Disturbance	1000/year	1000/year	1000/year	1000/year	500/year	1000/year
Assumptions	Assumes 700 acres/year new mining disturbance in the CYFO for bentonite and gypsum and 300 acres/year new mining disturbance in the WFO for bentonite. New closures or withdrawals would not take place in areas where there are active bentonite, gypsum, or uranium mining claims. Assumes no new surface disturbance for uranium development.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Assumes 400 acres/year new mining disturbance in the CYFO for bentonite and gypsum and 100 acres/year new mining disturbance in the WFO for bentonite. New closures or withdrawals would not take place in areas where exploration for or development of locatable minerals are taking place. Assumes no new surface disturbance for uranium development.	Assumes 700 acres/year new mining disturbance in the CYFO for bentonite and gypsum and 300 acres/year new mining disturbance in the WFO for bentonite. New closures or withdrawals would not take place in areas where exploration for or development of locatable minerals are taking place. Assumes no new surface disturbance for uranium development.
Mineral Resources – Oil and Gas						
Federal Well Projections						
Existing Federal Wells						
Number of Existing Federal Wells	2,966	2,966	2,966	2,966	2,966	2,966
Projected Number of Abandoned Existing Federal Wells	697	697	697	697	697	697
Remaining Number of Existing Productive Federal Wells	2,269	2,269	2,269	2,269	2,269	2,269

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Projected New Federal Wells						
Number of Projected New Federal Wells	1,184	502	1,304	1,143	499	1,141
Projected Number of Abandoned New Federal Wells	229	98	251	922	98	220
Projected Productive New Federal Wells	956	404	1,053	922	401	921
Projected Total Productive Federal Wells						
Remaining Number of Existing Productive Federal Wells	2,269	2,269	2,269	2,269	2,269	2,269
Projected Productive New Federal Wells	956	404	1,053	922	401	921
Total Number Productive Federal Wells	3,225	2,673	3,322	3,191	2,670	3,190
Non-federal Well Projections (State and Fee Minerals)						
Existing Productive Non-federal Wells						
Number of Existing Non-federal Wells	1,544	1,544	1,544	1,544	1,544	1,544
Projected Number of Abandoned Non-federal Wells	346	346	346	346	346	346
Remaining Number of Existing Productive Non-federal Wells	1,198	1,198	1,198	1,198	1,198	1,198
Projected New Non-federal Wells						
Number of Projected New Non-federal Wells	511	466	511	509	466	511
Projected Number of Abandoned New Non-federal Wells	98	89	98	97	89	98
Projected Productive New Non-federal Wells	413	377	413	412	377	413
Projected Total Productive Non-federal Wells						
Remaining Number of Existing Productive Non-federal Wells	1,198	1,198	1,198	1,198	1,198	1,198
Projected Productive New Non-federal Wells	413	377	413	412	377	413
Total Number Productive Non-federal Wells	1,611	1,575	1,611	1,611	1,575	1,611
Cumulative Productive Wells						
Total Number Productive Federal Wells	3,225	2,673	3,322	3,191	2,670	3,190
Total Number Productive Non-federal Wells	1,611	1,575	1,611	1,611	1,575	1,611
Total Productive Wells	4,863	4,248	4,933	4,801	4,245	4,801

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Assumptions	All new wells would result in 3 acres of surface disturbance, which would be reduced to 1.5 acres of long-term disturbance through reclamation. A 1.5-acre areas of disturbance is assumed for all existing wells.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A
Assumptions	-	Reductions in non-federal wells from the baseline scenario under this alternative reflect potential impacts on the economic viability of drilling wells in areas where non-federal land is surrounded by BLM-administered lands closed to mineral leasing.	-	Same as Alternative B	Same as Alternative B	-

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Salable						
Mineral Material Disposals (Number of Sites/Acres)	77/3,760	-	-	-	46/800	77/3,760
Acres Closed to Mineral Material Disposals	231,854	2,541,750	348,215	184,193	2,811,915 (Estimate of all public land that would be closed to mineral material disposals. Takes into account acres already closed in Alternative B and adds remaining fed surface/mineral acres included in all Key ACEC areas).	184,913 (No additional public land would be closed to mineral material disposals in PHMAs so Alternative F = Alternative D).
Acres Open to Mineral Material Disposals	3,975,695	1,665,799	3,859,334	4,023,356	1,163,780 (Alternative A – Alternative E closed).	4,023,356 (Alternative F = Alternative D) See above.
Projected New Acres of Surface Disturbance	2,000	800	2,000	1,800	800	1,800
Assumptions	Assumes a total of 2,000 new acres of surface disturbance due to mineral materials disposal over next 20 years = 100 acres/year on public lands in the Planning Area.	Assumes a 60 percent reduction in the amount of public land available for mineral material disposals = 800 new acres of public land surface disturbance over 20 years = 40 acres/year new mineral materials-related disturbance on public lands in the Planning Area.	Assumes a total of 2,000 new acres of surface disturbance due to mineral materials disposal over next 20 years = 100 acres/year on public lands in the Planning Area.	Assumes a total of 2,000 new acres of surface disturbance due to mineral materials disposal over next 20 years = 100 acres/year on public lands in the Planning Area.	Assumes a 60% reduction in the amount of public land available for mineral material disposals = 800 new acres public land disturbance over 20 years = 40 ac/year new mineral materials-related disturbance on public lands in the Planning Area.	Assumes a total of 2,000 new acres of surface disturbance due to mineral materials disposal over next 20 years = 100 acres/year on public lands in the Planning Area.

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Geothermal						
Development (Number of Sites/Acres)	0/0	0/0	0/0	0/0	0/0 (as per Geothermal RFD)	0/0 (as per Geothermal RFD)
Fire and Fuels Management						
Prescribed Fire (acres)	2,000/year	1,000/year	4,000/year	2,000/year	900/year	2000/year
Assumptions			Assumes 2,000 acres for wildlife and 2,000 acres for other purposes.		Alternative E further restricts RX @ or below 12" precipitation zone.	No further restrictions from Alternative D.
Mechanical Fuels Management (acres)	1,500/year	250/year	3,000/year	1,500/year	250/year	1,500/year
Forest, Woodlands, and Forest Products						
Forest Products Sales (acres)	1,500/year	1,000/year	2,000/year	1,500/year	1,000/year	1,500/year
Invasive Species and Pest Management						
Assumptions	For all disturbed areas, assumes 10 percent requires treatment. Ten percent is based on 2 years' experience in treatment of previously disturbed areas for various resources. For federal oil and gas well disturbances, assumes 10 percent requires treatment on short-term disturbance and 10 percent requires treatment on long-term disturbance.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
BLM Road Maintenance	No new disturbance	No new disturbance	No new disturbance	No new disturbance	No new disturbance	No new disturbance
Assumptions	Maintenance actions would be within existing disturbances.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A
Not associated with any surface disturbance (acres)	2,500	1,250	5,000	2,500	1,250	2,500
Assumptions	Based on average treated acres per year regardless if infestation resulting from surface disturbance activities or not.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A
Fish and Wildlife Resources						
Habitat Restoration and Enhancement: Sagebrush (acres)	2,000	1,000	2,000	2,000	900/year	2000/year
Assumptions	Same areas as accounted for in prescribed fire disturbance above.	Same areas as accounted for in prescribed fire disturbance above.	This makes up half of the prescribed fire disturbance above.	Same areas as accounted for in prescribed fire disturbance above.	Alternative E further restricts RX @ or below 12" precipitation zone.	No further restrictions from Alternative D.
Habitat Restoration and Enhancement: Aspen (acres)	50	100	0	50	100	50
Assumptions	Included as part of mechanical fuels management treatment noted above.	Included as part of mechanical fuels management treatment noted above.		Included as part of mechanical fuels management treatment noted above.	No further restrictions from Alternative B.	No further restrictions from Alternative D.

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Watershed Restoration and Enhancement (acres)	2,050	1,100	2,000	2,050	1,100	2,050
Stream Restoration, Structure Removal, and Other Fisheries Enhancements (number of sites/acres)	0	91	0	0	91	0
Assumptions		Over the life of the plan: 80 acres lentic restoration; 10 miles lotic restoration; assumes disturbance on 8 feet on either side of the stream = 10 acres per site.			No further restrictions from Alternative B.	No further restrictions from Alternative D.
Culvert Replacements (number of sites/acres)	0	3/1	0	0	3/1	0
Watershed Enhancement Projects						
Seeding and Restoration Projects (acres)	1,331	2,662	616	1,331	2,662	1,331
Assumptions	Based on watershed restoration projects to date.	Assumes greater emphasis on watershed restoration.	Assumes less emphasis on watershed restoration.	Based on watershed restoration projects to date.	Assumes greater emphasis on watershed restoration.	Assumes less emphasis on watershed restoration.
Abandoned Facilities and AML Restoration						
Abandoned Facility Restoration (acres)	10	10	10	10	10	10
AML Restoration (acres)	100	200	100	100	200	100

Appendix T – Surface Disturbance and Reasonable Foreseeable Actions

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Paleontological						
Fossil Collection (acres)	200	250	200	200	250	200
Assumptions	Currently, less than 10 acres/year are disturbed during paleontological excavations in the Planning Area. Assumes this rate would continue.	Alternative B promotes fossil collection and therefore will result in additional acreages.	Currently, less than 10 acres/year are disturbed during paleontological excavations in the Planning Area. Assumes this rate would continue.	Currently, less than 10 acres/year are disturbed during paleontological excavations in the Planning Area. Assumes this rate would continue.	Alternative E continues to promote fossil collection and therefore will result in additional acreages.	Less than 10 acres/year are disturbed during paleontological excavations in the Planning Area. Alternative F assumes this rate would continue.
Renewable Energy						
Wind Energy Development (number of sites/acres)	1/200	1/200	1/200	1/200	1/200	1/200
Rights-of-Way (ROW)						
Communication Site Development (number of sites/acres)	20/10	20/10	20/10	20/10	20/10	20/10
Powerline Development (number of sites/acres)	196/338	132/229	208/359	196/338	132/229	165/312
Pipeline Development (number of sites/acres)	122/2,949	90/2,196	128/3,101	122/2,949	90/2,196	122/1,178
Road Development (number of sites/acres)	220/1,966	137/1,229	519/4,638	220/1,966	137/1,229	220/1,966
Comprehensive Trails and Travel Management						
Road Maintenance	No new disturbance	No new disturbance	No new disturbance	No new disturbance	No new disturbance	No new disturbance
Assumptions	Assumes maintenance actions would be within existing disturbances.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A

Table T-2. Reasonable Foreseeable Development Assumptions (Continued)

Type of Development/Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
BLM Road and Trail Creation (acres)	1,233	2,776	12,907	5,820	1,221	5,820
Methods/Assumptions	There has been an average of 61 acres/year of new road/trail creation over the past 20 years.	Assumes 138 acres/year of new road/trail construction over the life of the plan.	Assumes 645 acres/year of new road/trail construction over the life of the plan.	Assumes 291 acres/year of new road/trail construction over the life of the plan.	41% more roads and trails than Alternative B in WFO, and 15% more roads and trails in CYFO are subject to closure and reclamation.	Same as Alternative D
Recreation						
Campsites (number of sites/acres)	7/14	27/54	4/8	20/40	26/12	19/38
Interpretive Sites (number of sites/acres)	15/78	30/111	7/70	29/107	28/107	27/105
Other Facilities (number of sites/acres)	29/257.5	44/2,088	16/11,232.5	45/5,750	22/2061.3	26/5672
Livestock Grazing						
Reservoir/Pit Development (number of sites/acres)	73/40	36/20	146/80	73/40	36/20	69/38
Well Development (number of sites/acres)	23/5	12/2.5	46/10	23/5	12/2.5	22/4.7
Spring Development (number of sites/acres)	35/5	17/2.5	70/10	35/5	17/2.5	33/4.75
Fence Development (number of sites/acres)	176/250	88/125	352/500	176/250	88/125	167/237
Reservoir Maintenance Development (number of sites/acres)	47/10	23/5	94/20	47/10	23/5	44.6/9.5

ACEC Area of Critical Environmental Concern
 CYFO Cody Field Office
 PHMA Priority Habitat Management Area
 RFD Reasonable Foreseeable Development
 WFO Worland Field Office

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***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix U

Technical Support Document for Air Quality

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APPENDIX U

TECHNICAL SUPPORT DOCUMENT FOR AIR QUALITY

1.0 INTRODUCTION

This technical support document describes the air quality impact analysis for the Proposed Bighorn Basin Resource Management Plan (RMP) revision, Final Environmental Impact Statement (EIS). This appendix is divided into the following five sections:

- 2.0 Regulatory Framework
- 3.0 Thresholds of Significance
- 4.0 Air Quality Impact Analysis
- 5.0 Emission Calculations
- 6.0 References

Copies of this technical support document and accompanying data files are available upon request from the Bureau of Land Management (BLM) Cody or Worland Field Offices.

2.0 REGULATORY FRAMEWORK

The basic framework for controlling air pollutants in the United States is mandated by the 1970 Clean Air Act (CAA) and its amendments, Environmental Protection Agency (EPA) regulations, including the 1999 Regional Haze Regulations, and state and local air quality regulations. The CAA addresses criteria air pollutants, state and national ambient air quality standards for criteria air pollutants, and the Prevention of Significant Deterioration (PSD) program. The Regional Haze Regulations address visibility impairment. EPA regulations address ambient air quality standards for criteria pollutants, emission control technology, air quality monitoring, and State Implementation Plan (SIP) development (which may include air quality modeling), and air quality related value (AQRV) analyses related to regional haze.

2.1 Ambient Air Quality Constituents

Air pollutants addressed in this study include criteria pollutants, hazardous air pollutants (HAP), sulfur and nitrogen compounds, which could cause visibility impairment (regional haze) or atmospheric deposition impacts, and greenhouse gases.

2.1.1 Criteria Pollutants

Criteria pollutants are those for which national standards of concentration have been established. Ambient air concentrations of these constituents greater than the standards represent a risk to human health. Criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone (O₃), particulate matter (PM₁₀, PM_{2.5}), and lead, each of which is listed below.

Carbon Monoxide. CO is an odorless, colorless gas formed during any combustion process, such as operation of engines, fireplaces, and furnaces. High concentrations of CO affect the oxygen-carrying capacity of the blood and can lead to unconsciousness and asphyxiation. Wildfires are natural sources of CO.

Nitrogen Dioxide. NO₂ is a red-brown gas formed during the operation of internal combustion engines or other burning processes. Such processes emit a mixture of nitrogen gases, collectively called nitrogen oxides (NO_x). NO_x can contribute to brown cloud conditions and can convert to ammonium nitrate particles and nitric acid, which can cause visibility impairment and acid rain. Bacterial action in soil can be a natural source of nitrogen compounds.

Sulfur Dioxide. SO₂ forms during combustion from trace levels of sulfur in coal or diesel fuel. It can convert to ammonium sulfate and sulfuric acid, which can cause visibility impairment and acid rain. Volcanoes are natural sources of SO₂. Anthropogenic sources include refineries and power plants.

Ozone. O₃ is a gas that generally is not emitted directly into the atmosphere, but is formed from the chemical reactions of NO_x and volatile organic compound (VOC) emissions. As stated above, internal combustion engines are the main source of NO_x, while sources of VOCs include, but are not limited to, leaks from oil and gas development operations (“fugitive” emissions), paint, varnish, and various types of vegetation. The faint acrid smell common after thunderstorms is caused by ozone formation caused by lightning. Ozone is a strong oxidizing chemical that can burn lungs and eyes, as well as damage plants.

Particulate Matter. Particulate matter (e.g., soil particles, hair, pollen) are essentially small particles suspended in the air that settle to the ground slowly and may be re-suspended if disturbed. Separate allowable concentration levels for particulate matter are based on the relative size of the particle:

- PM₁₀ particles, particles with diameters of less than 10 micrometers, are small enough to be inhaled and can cause adverse health impacts.
- PM_{2.5} particles, particles with diameters of less than 2.5 micrometers, are so small that they can be drawn deeply into the lungs and cause serious health problems. Particles of this size also are the main cause of visibility impairment.

Lead. Before the widespread use of unleaded fuel in automobiles, lead particles were emitted from automobile tailpipes. Lead is not considered in this RMP and EIS because no proposed projects are expected to emit lead. The lead standard also will not be addressed in this appendix because lead is not a current concern; it will, however, be considered in future projects. Lead is also generally not considered in site specific environmental analysis for similar reasons.

2.1.2 Hazardous Air Pollutants

Although HAPs, including N-hexane, ethylbenzene, toluene, xylene, formaldehyde, and benzene, do not have ambient air quality standards, the EPA has issued reference concentrations for evaluating the inhalation risk for cancerous and noncancerous health impacts, known as reference concentrations for chronic inhalation.

The EIS associated with the Bighorn Basin RMP is a National Environmental Policy Act (NEPA) document and not a regulatory document. However, there are regulatory issues that should be taken into account in preparing this EIS and ensuing project-specific EISs. Actual regulation of HAPs is achieved through compliance with the applicable maximum achievable control technology (MACT) standards and not through ambient air quality standards. Regulatory agencies implement control through Section 112

programs, specifically Section 112(g) case-by-case MACT determinations based on 40 CFR Part 63, Subpart B, and Section 112(d) MACT emission standards.

Any source that emits or has the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAPs is considered a major source and will require a Title V, Part 70, operating permit review and permit. This may include either a case-by-case 112(g) MACT determination, if the source is new or has had major modifications and no applicable MACT emission standard has been promulgated, or compliance with an applicable MACT emission standard. Specific regulations that may apply in the Planning Area include 40 CFR Part 63 Subpart HH, National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities; 40 CFR Part 63 Subpart HHH, National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities; and 40 CFR Part 63 Subpart ZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This last regulation, new in 2004, affects source categories using reciprocating engines for gas compression. HAP emissions are associated with industrial activities, such as oil and gas operations, refineries, paint shops, dry cleaning facilities, and woodworking shops. Because this analysis is qualitative, no specific analyses of either short- or long-term HAP impacts are made.

2.1.3 Atmospheric Deposition Constituents

Sulfur and nitrogen compounds that can be deposited in terrestrial and aquatic ecosystems include nitric acid, nitrate, ammonium, and sulfate. Nitric acid and nitrate are not emitted directly into the air, but form in the atmosphere from industrial and automotive emissions of NO_x. Sulfate is formed in the atmosphere from industrial emission of SO₂. Deposition of nitric acid, nitrate, and sulfate can adversely affect plant growth, soil chemistry, lichens, aquatic environments, and petroglyphs. Ammonium is primarily associated with feedlots and agricultural fertilization. Ammonium deposits can affect terrestrial and aquatic vegetation. Although deposition may be beneficial as a fertilizer, it can adversely affect the timing of plant growth and dormancy. Although this analysis will be qualitative, future specific projects will require quantitative analyses using the criteria listed below.

Greenhouse Gases

Greenhouse gases (GHGs) are pollutants that are effective in preventing heat from escaping the earth's atmosphere and have been attributed to altering components of the earth's climate. These include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Other identified GHGs, including hydroflourocarbons, perflourocarbons, and sulfur hexafluoride were not included in the analysis because proposed activities are not sources of these pollutants and emissions are expected to be insignificant or zero.

3.0 THRESHOLDS OF SIGNIFICANCE

Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS) are health-based standards that identify maximum limits for criteria air pollutant concentrations at all locations to which the public has access. The NAAQS and WAAQS are legally enforceable standards. Concentrations that are above the NAAQS and WAAQS represent a risk to human health and by law, require public safeguards be implemented. State standards must be at least as protective of human health as federal standards, and may be more restrictive than the federal standards as allowed by the CAA. The EPA has developed standards for each pollutant for a specific averaging time. Short averaging times (1, 8, and 24 hours) address short-term exposure, while the annual standards address long-term exposure.

Chapter 3 of the Proposed RMP and Final EIS presented the national primary air quality standards and the Wyoming primary air quality standards. Analyses of proposed alternatives for project-specific EISs compare cumulative concentrations of air pollutants to the NAAQS and WAAQS. The BLM requires that all authorized activities comply with applicable local, state, tribal, and federal air quality laws, regulations, and standards.

3.1.1 Prevention of Significant Deterioration

The goal of the PSD program is to ensure that air quality in areas with clean air does not significantly deteriorate, while a margin for future industrial growth is maintained. Major stationary sources are governed by the PSD program, which is unlikely to apply to BLM sources in the Planning Area with the exception of gas compressor stations. Under the PSD program, each area in the United States is classified by the air quality in that region according to the following system:

- **PSD Class I Areas.** Areas with pristine air quality, such as wilderness areas, national parks, and some Native American reservations, are accorded the strictest protection. Only very small incremental increases in pollutant concentrations are allowed in order to maintain the very clean air quality in these areas.
- **PSD Class II Areas.** Essentially, all areas that are not designated as Class I are designated as Class II. Moderate incremental increases in pollutant concentrations are allowed, although the concentrations are not allowed to reach the concentrations set by Wyoming and federal standards (WAAQS and NAAQS).
- **PSD Class III Areas.** No areas have been designated yet as Class III. A larger incremental increase in pollutant concentrations would be allowed, up to the applicable WAAQS and NAAQS.

The incremental increases allowed for specific pollutants in Class I and Class II areas can be found in the Wyoming Air Quality Standards and Regulations (Wyoming DEQ 2004). Comparisons of potential PM₁₀, NO₂, and SO₂ concentrations with PSD increments are intended to evaluate a threshold of concern only and do not represent a regulatory PSD increment consumption analysis. Regulatory PSD increment consumption analyses are solely the responsibility of the State of Wyoming, which has been granted primacy (with EPA oversight) under the CAA. In project-specific EISs, the BLM does not expect that a PSD analysis will be performed; rather, the PSD standards are used as a reference only to give the public a better understanding of the level of potential impact.

Hazardous Air Pollutants

Section 112 of the CAA lists more than 180 chemicals as HAPs. In addition, Sections 112 (d) and 112(g) require regulatory agencies to establish MACT Standards for sources that emit HAPs. Any source that emits or has the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAPs is considered a major source and will require a Title V, Part 70, operating permit review and permit. In addition to MACT standards, EPA has listed (on its Air Toxics Database) Reference Exposure Levels (RELs) for many of the HAPs. RELs are defined as concentrations at or below which no adverse health effects are expected.

3.2 Regional Haze

Visibility impairment in the form of regional haze obscures the clarity, color, texture, and form of what we see. Haze-causing pollutants (mostly fine particles) are directly emitted into the atmosphere or are formed when gases emitted into the air form particles as they are carried downwind. Emissions from human-caused and natural sources can be carried great distances, contributing to regional haze. The current method for assessing impacts on visibility is described in the Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report—Revised 2010 and is hereafter referred to as the FLAG 2010 method (FLAG 2010). This method compares incremental changes in light extinction relative to estimated natural background to a 5-percent change in light extinction threshold and a 10-percent change in light extinction threshold. Using the 98th percentile values, a 5-percent change in light extinction (approximately equal to 0.5 deciview [dv]) is the threshold recommended in FLAG 2010 and is considered to contribute to regional haze visibility impairment. A 10-percent change in light extinction (approximately equal to 1.0 dv) is considered to cause visibility impairment when compared to background conditions.

The Wyoming Department of Environmental Quality (DEQ)—Air Quality Division (AQD) originally submitted its Regional Haze SIP in accordance with 40 CFR, Part 51.309, in December 2003. This SIP emphasized reductions in SO₂ emissions with a goal of improving visibility on the Colorado Plateau. Since its submission, EPA revised 40 CFR, Parts 51.308 and 309 based on legal actions, and a revised 309 SIP was submitted by Wyoming DEQ in November 2008. A draft supplemental revision to the 309 SIP was prepared in August 2009.

The EPA developed regional haze regulations in response to the CAA amendments of 1977 and 1990. These regulations are intended to maintain visibility on the least-impaired days and to improve visibility on the most-impaired days in mandatory federal Class I areas across the United States, so that visibility in these areas is returned to natural conditions by the year 2064. These regulations require states to submit a regional haze SIP and progress reports to demonstrate reasonable progress toward the 2064 goal.

Atmospheric Deposition

As described in the Federal Land Managers' AQRV Work Group (FLAG) Phase I Report – Revised 2010 (FLAG 2010), the National Park Service, the United States Forest Service (USFS), and the United States Fish and Wildlife Service (USFWS) have established thresholds to evaluate nitrogen and sulfur deposition within Class I areas. These deposition analysis thresholds (DATs) are defined as 0.005 kilogram per hectare per year (kg/ha/yr) in the western United States for both nitrogen and sulfur. These thresholds are typically used to analyze impacts of individual projects. Cumulative impacts are typically compared to the level of concern, which is defined by the National Park Service and USFWS as 3 kg/ha/yr for

nitrogen and 5 kg/ha/yr for sulfur in Rocky Mountain regions. Deposition rates that are below the level of concern are believed to cause no adverse impacts.

Lake Chemistry

The USFWS considers lake chemistry changes to be potentially significant if the screening methodology predicts decreases in acid neutralizing capacity (ANC) of more than defined limits of acceptable change (LAC). A lake's LAC depends on its background ANC value. The LAC is defined as a 10 percent change for lakes with ANC background values greater than 25 microequivalents per liter (eq/l) and is defined as a change of 1 eq/l for lakes with ANC background values less than 25 eq/l. If the ANC of a lake is predicted to decrease by more than the applicable LAC then potential changes to lake chemistry may cause adverse effects and a more detailed analysis of lake chemistry impacts would be required.

3.3 Applicability to the Planning Area

Air pollution impacts are limited by local, state, tribal, and federal air quality regulations, standards, and implementation plans established under the CAA and administered by the Wyoming DEQ AQD with oversight from the EPA. Air quality regulations require that proposed new, or modified existing, air pollutant emission stationary sources (including oil and gas compression facilities) undergo a permitting review before their construction can begin. Therefore, the Wyoming DEQ AQD has the primary authority and responsibility to review permit applications and to require emission permits, fees, and control devices before construction or start of operation. Fugitive dust and exhaust from construction activities, along with air pollutants emitted during operation (for example, well operations, booster and pipeline compressor engines associated with natural gas wells), are potential causes of air quality impacts. These issues are more likely to generate public concern where natural gas development activities occur near residential areas or near sensitive Class I and Class II areas.

The USFS, the National Park Service, and the USFWS, located throughout Wyoming, also have expressed concerns about potential atmospheric deposition (acid rain) and visibility impacts within downwind PSD Class I and PSD Class II sensitive areas under their administrations.

Table U-1 provides a summary of recent air quality conditions for NO₂, ozone, PM₁₀, and PM_{2.5}, taken from measurements for the period 2010-2012 from available monitors located within or nearby the planning area. These include maximum 24 hour and annual averages for PM_{2.5}, maximum 1 hour averages for NO₂, maximum annual averages for PM₁₀, and the 4th highest 8-hour average ozone concentration for each year, from which the ozone design value is derived. Except for a relatively high measured 24-hour average concentration of PM_{2.5} at the Lander site for 2010, located outside the Planning Area, most concentrations measured during this period are well within the applicable standards. Given the Planning Area's current attainment status, future development projects that have the potential to emit more than 250 tons per year of any criteria pollutant (or certain listed sources that have the potential to emit more than 100 tons per year) would be required to undergo a site-specific regulatory PSD increment consumption analysis under the federal New Source Review permitting regulations.

Development projects that require PSD permits also may be required by the applicable air quality regulatory agencies to incorporate additional emission control measures (including a best available control technology [BACT] analysis and determination) to ensure protection of air quality resources and to demonstrate that the combined impacts of all PSD sources will not exceed the allowable incremental air quality impacts for NO₂, PM₁₀, and SO₂. Minor sources having emissions below the cutoff rates

mentioned above do not require PSD permits; nevertheless, their emissions consume increment. A regulatory PSD increment consumption analysis may be conducted, either as part of a New Source Review or independently. The determination of PSD increment consumption is a responsibility of the applicable air quality regulatory agencies, with EPA oversight. In addition, an analysis of cumulative impacts due to all existing sources and the permit applicant’s sources is required during a New Source Review to demonstrate that applicable ambient air quality standards will be met during the operational lifetime of the permit applicant’s operations.

Sources subject to the PSD permit review procedure also are required to demonstrate potential impacts on AQRV. These include visibility impacts, degradation of mountain lakes due to atmospheric deposition (acid rain), and impacts on sensitive flora and fauna in Class I areas. The CAA also provides specific visibility protection procedures for the mandatory federal Class I areas designated by the United States Congress on August 7, 1977, which included wilderness areas greater than 5,000 acres in size, as well as national parks and national memorial parks greater than 6,000 acres in size as of that date.

Table U-1. Recently Observed NO₂, O₃, PM₁₀, and PM_{2.5} Concentrations Within and in the Vicinity of the Planning Area and Applicable Air Quality Standards

Pollutant/Monitoring Site (ID)	Average Time/Measurement	2010	2010	2012	NAAQS
Nitrogen Dioxide (NO₂) (ppb)					
Thunder Basin Grassland	1 hour (max)	15	16	25	100
Ozone (O₃) (ppb)					
Basin	8 hours (4th high)	55	56	57	75
Thunder Basin	8 hours (4th high)	63	61	71	75
PM₁₀ (µg/m³)					
Cody	24 hours (max)	25	46	45	150
Sheridan – Highland Park	24 hours (max)	36	48	25	150
Sheridan – Police Station	24 hours (max)	70	96	75	150
PM_{2.5} (µg/m³)					
Lander	Annual	9.3	7.8	7.8	15
Sheridan – Highland Park	Annual	8.8	5.5	4.3	15
Sheridan – Police Station	Annual	8.7	7.6	8.3	15
Lander	24 hours (98th %)	32.0	30.0	25.0	35
Sheridan – Highland Park	24 hours (98th %)	14.0	15.0	10.0	35
Sheridan – Police Station	24 hours (98th %)	27.0	23.0	19.0	35

- % percent
- NAAQS National Ambient Air Quality Standards
- NO₂ nitrogen dioxide
- O₃ ozone
- PM_{2.5} particulate matter less than 2.5 microns in diameter
- PM₁₀ particulate matter less than 10 microns in diameter
- ppb parts per billion
- ppm parts per million
- µg/m³ micrograms per cubic meter

4.0 AIR QUALITY IMPACT ANALYSIS

As described in Chapter 4, a qualitative emission comparison approach was used for this assessment. A qualitative method was selected because of a lack of specific project information on location, types, and magnitude of potential projects. Emissions calculations (see 5.0 *Emission Calculations*) were based on the best available engineering data and assumptions, emission inventory procedures, and professional and scientific judgment. For any future projects, significance criteria for potential air quality impacts will include local, state, tribal, and federally enforced legal requirements to ensure that air pollutant concentrations remain within specific allowable levels.

It is important to note that before actual development could occur, the applicable air quality regulatory agencies (including the state, tribe, or the EPA) would need to review specific air pollutant emissions preconstruction permit applications that examine potential project-specific air quality impacts. As part of these permit reviews (depending on source size), the air quality regulatory agencies could require additional quantitative air quality impact analyses or mitigation measures. Thus, before development occurred, additional site-specific air quality analyses may need to be performed to ensure protection of air quality. Federal land managers may require a demonstration that potential impacts from proposed projects would not adversely affect AQRV (including visibility) in sensitive Class I and Class II areas.

5.0 EMISSION CALCULATIONS

For this analysis, emissions of PM₁₀, PM_{2.5}, NO_x, SO₂, CO, VOC, and HAPs were estimated for a 20-year period, beginning with 2008 as the base year, 2018 as the mid-point interim year, and 2027 as the end of this period. Emissions were estimated for the six alternatives: Alternative A (Current Management), Alternative B (Least Resource Use), Alternative C (More Resource Use), Alternative D (Preferred Alternative), Alternative E (Sage-Grouse Key Habitat Areas ACEC), and Alternative F (Sage-Grouse Priority Habitat Management Areas ACEC). Emissions were estimated for the base year 2008 corresponding to Alternative A while emissions for all alternatives were estimated for 2018 and 2027. A set of spreadsheets, originally developed for use in preparing emissions for the Casper RMP revision (BLM 2007), were updated and adapted for use in estimating emissions for the Planning Area for these years. The spreadsheets were updated with the latest emission factors for motor vehicles, off-road engine types, and other activities corresponding to the base year (2008), and the out years, 2018 and 2027. Emission factors used to estimate emissions for various categories were obtained from (1) the EPA NONROAD2008a Emissions Model (EPA 2008), (2) Wyoming DEQ AQD BACT levels for natural gas-fired internal combustion engines (Wyoming DEQ 2011), and (3) the MOBILE6.2.03 emission factor model for on-road vehicles (EPA 2003). Information regarding equipment types, numbers, activity, etc., for the various emission categories/activities was provided by specialists in the BLM Cody (CYFO) and Worland (WFO) Field Offices.

When reviewing the emission inventory, it is important to understand that assumptions were made regarding development. For example, there is uncertainty regarding ultimate development of energy resources (e.g., number of wells, equipment used, specific locations of wells, etc.). In general, the assumptions that were made would tend to result in a conservatively high estimate of emissions. For instance, given the number of sources included in this analysis, the likelihood that all emission sources would actually operate at their reasonable, foreseeable maximum emission rates over an entire year (or even 24 hours) is small. A summary of total emissions for each pollutant species from all BLM activities is presented in Chapter 4, *Air Quality* section. Detailed emission totals for each category/planning year are presented at the end of this section.

The analysis includes emissions estimates for the following activities: (1) oil development, (2) natural gas development, (3) salable minerals development, (4) locatable minerals development, (5) renewable energy development, (6) livestock management activities, (7) vegetation management, (8) vegetation management of invasive species, (9) fire management (including prescribed fire), (10) forest and woodlands activities, (11) rights-of-way (ROW) and corridors, (12) off-highway vehicle (OHV) use, and (13) resource road maintenance. Because of the difficulty in accurately estimating emission factors for fugitive VOC emissions from oil and gas development operations, and emissions from any prescribed fire activities conducted on BLM land within the Planning Area, these types of emissions have not been estimated in this analysis. Also, activities related to cultural resources, paleontology, recreation, and wildlife and fish would produce inconsequential amounts of air emissions and are not included in the emission summaries.

5.1.1 Assumptions Used in Developing Emissions for the Bighorn Basin RMP

The following assumptions were used in the emission calculations:

- All emission sources operated at their reasonably foreseeable maximum emission rates (as identified in the other resource sections of this document) simultaneously throughout the area.
- All conventional oil and gas wells existing currently and projected in the reasonably foreseeable development (RFD) scenario, were assumed to be fully operational and to remain operating, except for normal projected well closures throughout the area. Well numbers were provided by the CYFO and the WFO.
- Activity data associated with management actions other than those related to conventional natural gas and oil wells were averaged over the entire analysis period to produce annual average emissions. Oil and gas activity follows RFD projections both in time and duration.
- Induced or secondary growth related to increases in vehicle miles traveled is not included in the emissions inventory. Only activities directly related to BLM actions are considered.
- Stationary sources associated with oil and gas development would operate at emission levels based on currently observed BACT levels, and compressor stations for natural gas would be equipped with nonselective catalytic reduction (NSCR) catalyst. Also, it is assumed that conventional natural gas well fields would use gas gathering systems and process gas through centralized dehydration units.
- Activity data associated with management actions other than those related to conventional natural gas wells were averaged over the entire analysis period to produce annual average emissions, except for renewable energy development, where the single development activity was assumed to occur in one year (2018).
- EPA off-road emission standards were used to estimate emissions for non-road sources in project years 2008, 2018, and 2027. This approach simulates the replacement of existing sources by new lower-emitting equipment with future EPA off-road engine emission standards.
- Use of water application as a best management practice (BMP) would reduce fugitive dust emissions from ground-disturbing activities during construction and reclamation activities and maintenance of roads at project sites by 50 percent from uncontrolled levels.
- BMPs for surface-disturbing activities are applied under all alternatives. Appendix H lists standard mitigation guidelines that are used in the Planning Area to mitigate adverse impacts caused by surface-disturbing activities. These BMPs provide protection to soil resources and minimize adverse impacts to soil stability, compaction, and productivity.

Detailed descriptions for emissions estimation for each activity follow. Individual tables of air emissions for all BLM activities were calculated in spreadsheets for each activity.

5.1.2 Oil and Natural Gas Wells Emissions Estimation

Criteria pollutant emissions from oil and conventional natural gas wells development were calculated based on data provided by the CYFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions from conventional natural gas wells include the following:

- Fugitive dust and combustive emissions from well pad construction activities
- Fugitive dust and combustive emissions from road traffic
- Combustive emissions from natural gas-fired compressors
- Fugitive dust and combustive emissions from separators, dehydrators, and water-tank heater operations
- Fugitive dust and combustive emissions from compressor station visits
- Fugitive dust and combustive emissions from well workover operations
- Fugitive dust and combustive emissions from well and pipeline visits for inspection and repair
- VOC emissions from tank condensate and truck loadout (for natural gas wells only)
- Fugitive dust and combustive emissions from road-maintenance activities
- Fugitive dust and combustive emissions from road and well reclamation activities

Estimated emissions from oil wells include the following:

- Fugitive dust and combustive emissions from well pad construction activities
- Fugitive dust and combustive emissions from road traffic
- Fugitive dust and combustive emissions from well workover operations
- Fugitive dust and combustive emissions from well and pipeline visits for inspection and repair
- Fugitive dust and combustive emissions from road maintenance activities

5.1.3 Salable and Locatable Minerals Emissions Estimation

Criteria pollutant emissions from salable and locatable minerals operations were calculated based on data provided by the CYFO and used best available information, BACT, AP-42, and emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust emissions from sand and gravel or mineral processing
- Emissions from truck traffic on unpaved roads at the sand and gravel or mineral processing plant
- Emissions from batch-drop operations
- Fugitive dust and combustive emissions from development and reclamation activities

5.1.4 Renewable Energy Development Emissions Estimation

Criteria pollutant emissions from renewable energy activities were calculated based on data provided by the CYFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from wind-energy development
- Fugitive dust emissions from commuting vehicles on unpaved roads
- Combustive emissions from commuting vehicles on unpaved and paved roads

5.1.5 Livestock Management Emissions Estimation

Criteria pollutant emissions from livestock management projects were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from construction of springs, reservoirs and pits, wells, pipelines, fences, and reservoir maintenance
- Fugitive dust emissions from commuting vehicles on unpaved roads
- Combustive emissions from commuting vehicles on unpaved and paved roads

5.1.6 Vegetation Emissions Estimation

Criteria pollutant emissions from vegetation operations including management of invasive species were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from vegetative mechanical treatments (excluding hand work)
- Fugitive dust emissions from commuting vehicles on unpaved roads
- Combustive emissions from commuting vehicles on unpaved and paved roads

5.1.7 Fire Management Emissions Estimation

Criteria pollutant emissions from fire management activities were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from mechanical treatments (hand work) and prescribed fire
- Fugitive dust emissions from commuting vehicles on unpaved roads
- Combustive emissions from commuting vehicles on unpaved and paved roads

5.1.8 Forest and Woodlands Emissions Estimation

Criteria pollutant emissions from forest and woodlands activities were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from silviculture treatments, forest products, weed treatments, and insect control
- Fugitive dust emissions from commuting vehicles on unpaved roads
- Combustive emissions from commuting vehicles on unpaved and paved roads

5.1.9 Rights-of-Way Corridor Emissions Estimation

Criteria pollutant emissions from ROW corridor operations were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include the following:

- Fugitive dust and combustive emissions from construction of roads, telephone and fiber optics, powerlines, pipelines (mineral/water), communication sites, and other facilities
- Fugitive dust and combustive emissions for commuting vehicle road traffic

5.1.10 Off-Highway Vehicles Emissions Estimation

Criteria pollutant emissions from OHVs were calculated using the EPA's NONROAD2008a emissions model for Park, Hot Springs, Big Horn, and Washakie Counties for 2008, 2018, and 2027. OHVs for this category include all-terrain vehicles (ATVs), off-road motorcycles (dirt bikes), and snowmobiles. It was assumed in this analysis that activity (and resulting emissions) for this category would be the same for all alternatives for 2018 and 2027. As a check of the estimates from the NONROAD2008 model, Table U-2 provides estimates for "nonroad recreational equipment" for 2002 for these counties obtained from the Western Regional Air Partnership (WRAP) web site (WRAP 2009). It is assumed that ATVs, off-road motorcycles, and snowmobiles make up the majority of the recreational equipment category. The estimates prepared by WRAP are comparable to those provided by the NONROAD2008 model for 2005 for these counties.

Table U-2. 2002 Annual Nonroad Emission Estimates for Recreational Equipment for the Planning Area Prepared by WRAP

County	Emissions					
	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	SO ₂ (tpy)
Big Horn County	231.97	3.36	837.81	5.35	4.93	0.49
Hot Springs County	504.68	3.80	1,281.48	11.62	10.69	0.93
Park County	192.09	7.47	754.66	5.86	5.43	0.77
Washakie County	284.28	2.35	730.65	6.59	6.07	0.54
Total	1,213.03	16.98	3,604.60	29.43	27.12	2.72

Source: WRAP 2009

Note: Totals may not add up due to rounding

CO	carbon monoxide	SO ₂	sulfur dioxide
NO _x	nitrogen oxide	tpy	tons per year
PM _{2.5}	particulate matter less than 2.5 microns in diameter	VOC	volatile organic compound
PM ₁₀	particulate matter less than 10 microns in diameter	WRAP	Western Regional Air Partnership

5.1.11 Road Maintenance Emissions Estimation

Criteria pollutant emissions from road maintenance activities (excluding well road maintenance) were calculated based on data provided by the WFO and used best available information, BACT, AP-42, and the emission studies from other BLM documents. Estimated emissions include fugitive dust and combustive emissions resulting from the use of a grader. It was assumed that the majority of road maintenance activities would occur in the summer and only once in the winter.

5.1.12 Summary of Emissions for All BLM Activities

Tables U-3 through U-189 summarize the projected total annual emissions by resource for 2008, 2018, and 2027. Air quality impacts would primarily result from minerals development and production and oil and natural gas development activities; emissions associated with these actions would outweigh those produced from other proposed activities. Alternative E would result in the lowest levels of emissions in 2018 and 2027 for all pollutants, while Alternative C would result in the highest levels of emissions for these two years, and except for volatile organic compound (VOC) emissions, higher emissions than in the 2008 base year. Alternative C would have the greatest potential to contribute to exceedances of the NAAQS or WAAQS of any alternative. Alternatives D and F would result in comparable impacts to the base line year (i.e., 2008), except that VOC emissions are expected to decrease slightly in 2018 and further by 2027; projected emissions are, therefore, unlikely to contribute to an exceedance of a NAAQS or WAAQS. As noted above in Section 2, Alternative E is essentially the same as Alternative B, except that it designates BLM-administered lands within greater sage-grouse Key Habitat Areas as Areas of Critical Environmental Concern (ACECs), which would limit resource development and other activities in these areas, and result in the least amount of emissions of all the alternatives. Alternative F is the nearly the same as Alternative D, except it designates certain areas as Greater Sage-Grouse Priority Habitat Management Areas, which would also limit resource development and other activities, but not as much as those identified in Alternative E.

**Table U-3. Summary of Output - Alternative A
Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	13	12	244	5	63	18	2	26,254	0	0	26,345	23,829
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	79	8	1	0	1	0	0	163	0		163	148
Sub-total: Construction	99	21	244	5	63	18	2	26,416	0	0	26,508	23,977
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	503	0	0	505	457
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	40	4	0	0	8	0	0	163	0		163	148
Sub-total: Operations	42	5	7	0	10	1	0	668	0	0	670	606
Road Maintenance	5	1	2	0	1	0	0	199	0		199	181
Sub-total: Maintenance	5	1	2	0	1	0	0	199	0	0	199	181
Total Emissions	146	26	253	5	74	19	2	27,283	0	0	27,377	24,764

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-4. Summary of Output - Alternative A
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	13	12	244	5	63	18	2	26,254	0	0	26,345	23,829
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	79	8	1	0	1	0	0	163	0		163	148
Sub-total: Construction	99	21	244	5	63	18	2	26,416	0	0	26,508	23,976
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	503	0	0	505	457
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	42	4	0	0	8	0	0	168	0		168	153
Sub-total: Operations	43	5	7	0	11	1	0	673	0	0	675	611
Road Maintenance	6	1	2	0	1	0	0	206	0		206	187
Sub-total: Maintenance	6	1	2	0	1	0	0	206	0	0	206	187
Total Emissions	148	27	253	5	75	19	2	27,294	0	0	27,388	24,774

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-5. Summary of Output - Alternative A
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	13	12	244	5	63	18	2	26,254	0	0	26,345	23,829
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	79	8	1	0	1	0	0	163	0		163	148
Sub-total: Construction	99	21	244	5	63	18	2	26,416	0	0	26,508	23,977
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	503	0	0	505	457
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	43	4	0	0	9	0	0	173	0		173	157
Sub-total: Operations	45	5	7	0	11	1	0	678	0	0	680	616
Road Maintenance	5	1	1	0	1	0	0	176	0		176	160
Sub-total: Maintenance	5	1	1	0	1	0	0	176	0	0	176	160
Total Emissions	148	27	252	5	75	19	2	27,270	0	0	27,364	24,753

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-6. Summary of Output - Alternative B
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	6	5	106	2	27	8	1	11,422	0	0	11,462	10,367
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	34	3	0	0	0	0	0	71	0		71	64
Sub-total: Construction	43	9	106	2	28	8	1	11,493	0	0	11,532	10,431
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	3	0	1	0	0	219	0	0	220	199
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	28	3	0	0	6	0	0	112	0		112	101
Sub-total: Operations	28	3	3	0	7	0	0	331	0	0	332	301
Road Maintenance	4	0	1	0	0	0	0	137	0		137	124
Sub-total: Maintenance	4	0	1	0	0	0	0	137	0	0	137	124
Total Emissions	75	13	110	2	34	8	1	11,960	0	0	12,001	10,856

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-7. Summary of Output - Alternative B
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	6	5	106	2	27	8	1	11,422	0	0	11,462	10,367
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	34	3	0	0	0	0	0	71	0		71	64
Sub-total: Construction	43	9	106	2	28	8	1	11,493	0	0	11,532	10,431
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	3	0	1	0	0	219	0	0	220	199
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	36	4	0	0	7	0	0	146	0		146	133
Sub-total: Operations	37	4	3	0	8	1	0	365	0	0	366	332
Road Maintenance	4	0	1	0	0	0	0	149	0		149	135
Sub-total: Maintenance	4	0	1	0	0	0	0	149	0	0	149	135
Total Emissions	84	14	111	2	36	8	1	12,006	0	0	12,047	10,898

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-8. Summary of Output - Alternative C
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	14	14	267	6	69	19	2	28,734	0	0	28,833	26,080
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	87	9	1	0	1	0	0	178	0		178	162
Sub-total: Construction	108	23	267	6	69	20	2	28,912	0	0	29,012	26,241
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	7	0	2	1	0	551	0	0	553	500
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	1
Well Visits for Inspection & Repair - Operations	32	3	0	0	6	0	0	127	0		128	116
Sub-total: Operations	34	4	7	0	9	1	0	680	0	0	682	617
Road Maintenance	4	0	1	0	0	0	0	156	0		156	142
Sub-total: Maintenance	4	0	1	0	0	0	0	156	0	0	156	142
Total Emissions	146	27	276	6	79	21	2	29,748	0	0	29,850	27,000

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-9. Summary of Output - Alternative C
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	14	14	267	6	69	19	2	28,734	0	0	28,833	26,080
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	87	9	1	0	1	0	0	178	0		178	162
Sub-total: Construction	108	23	267	6	69	20	2	28,912	0	0	29,012	26,242
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	7	0	2	1	0	551	0	0	553	500
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	1
Well Visits for Inspection & Repair - Operations	44	4	0	0	9	0	0	177	0		178	162
Sub-total: Operations	46	5	7	0	11	1	0	730	0	0	732	663
Road Maintenance	5	1	1	0	1	0	0	181	0		181	164
Sub-total: Maintenance	5	1	1	0	1	0	0	181	0	0	181	164
Total Emissions	159	29	276	6	81	21	2	29,822	0	0	29,925	27,069

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-10. Summary of Output - Alternative D
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	12	12	235	5	60	17	2	25,371	0	0	25,460	23,028
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	76	8	1	0	1	0	0	157	0		157	143
Sub-total: Construction	95	21	236	5	61	17	2	25,529	0	0	25,617	23,171
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	486	0	0	488	441
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	31	3	0	0	6	0	0	124	0		125	113
Sub-total: Operations	33	4	6	0	8	1	0	612	0	0	614	556
Road Maintenance	4	0	1	0	0	0	0	152	0		152	138
Sub-total: Maintenance	4	0	1	0	0	0	0	152	0	0	152	138
Total Emissions	132	25	244	5	70	18	2	26,293	0	0	26,383	23,865

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-11. Summary of Output - Alternative D
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	6	5	106	2	27	8	1	11,398	0	0	11,438	10,345
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	34	3	0	0	0	0	0	71	0		71	64
Sub-total: Construction	43	9	106	2	27	8	1	11,469	0	0	11,508	10,409
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	3	0	1	0	0	218	0	0	219	198
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	28	3	0	0	6	0	0	111	0		112	101
Sub-total: Operations	28	3	3	0	7	0	0	331	0	0	332	300
Road Maintenance	4	0	1	0	0	0	0	137	0		137	124
Sub-total: Maintenance	4	0	1	0	0	0	0	137	0	0	137	124
Total Emissions	75	13	110	2	34	8	1	11,936	0	0	11,977	10,834

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-12. Summary of Output - Alternative E
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	6	5	106	2	27	8	1	11,398	0	0	11,438	10,345
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	34	3	0	0	0	0	0	71	0		71	64
Sub-total: Construction	43	9	106	2	27	8	1	11,469	0	0	11,508	10,409
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	3	0	1	0	0	218	0	0	219	198
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	28	3	0	0	6	0	0	111	0		112	101
Sub-total: Operations	28	3	3	0	7	0	0	331	0	0	332	300
Road Maintenance	4	0	1	0	0	0	0	137	0		137	124
Sub-total: Maintenance	4	0	1	0	0	0	0	137	0	0	137	124
Total Emissions	75	13	110	2	34	8	1	11,936	0	0	11,977	10,834

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-13. Summary of Output - Alternative E
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	13	12	244	5	63	18	2	26,254	0	0	26,345	23,829
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	79	8	1	0	1	0	0	163	0		163	148
Sub-total: Construction	99	21	244	5	63	18	2	26,416	0	0	26,508	23,977
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	503	0	0	505	457
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	43	4	0	0	9	0	0	173	0		173	157
Sub-total: Operations	45	5	7	0	11	1	0	678	0	0	680	616
Road Maintenance	5	1	1	0	1	0	0	176	0		176	160
Sub-total: Maintenance	5	1	1	0	1	0	0	176	0	0	176	160
Total Emissions	148	27	252	5	75	19	2	27,270	0	0	27,364	24,753

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-14. Summary of Output - Alternative F
Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	12	12	235	5	60	17	2	25,324	0	0	25,412	22,985
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	76	8	1	0	1	0	0	157	0		157	142
Sub-total: Construction	95	21	236	5	61	17	2	25,481	0	0	25,569	23,127
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	485	0	0	487	441
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	31	3	0	0	6	0	0	124	0		125	113
Sub-total: Operations	33	4	6	0	8	1	0	611	0	0	613	555
Road Maintenance	4	0	1	0	0	0	0	152	0		152	138
Sub-total: Maintenance	4	0	1	0	0	0	0	152	0	0	152	138
Total Emissions	132	25	243	5	70	18	2	26,244	0	0	26,334	23,820

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-15. Summary of Output - Alternative F
Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	12	12	235	5	60	17	2	25,324	0	0	25,412	22,985
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	76	8	1	0	1	0	0	157	0		157	142
Sub-total: Construction	95	21	236	5	61	17	2	25,481	0	0	25,569	23,128
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	6	0	2	0	0	485	0	0	487	441
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	43	4	0	0	9	0	0	171	0		172	156
Sub-total: Operations	44	5	7	0	11	1	0	658	0	0	660	598
Road Maintenance	5	1	1	0	1	0	0	175	0		175	159
Sub-total: Maintenance	5	1	1	0	1	0	0	175	0	0	175	159
Total Emissions	144	26	244	5	72	18	2	26,313	0	0	26,404	23,884

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-16. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	62	6	1	0	12	1	0	248	0		248	225
Sub-total: Operations	64	7	10	0	15	1	0	966	0	0	969	877
Road Maintenance	8	1	2	0	1	0	0	303	0		303	275
Sub-total: Maintenance	8	1	2	0	1	0	0	303	0	0	303	275
Total Emissions	212	38	360	7	107	27	3	38,866	0	0	38,999	35,278

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-17. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,914
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	63	6	1	0	13	1	0	253	0		254	231
Sub-total: Operations	65	7	10	0	16	1	0	972	0	0	975	883
Road Maintenance	8	1	3	0	1	0	0	310	0		310	282
Sub-total: Maintenance	8	1	3	0	1	0	0	310	0	0	310	282
Total Emissions	214	38	360	7	107	27	3	38,879	0	0	39,012	35,289

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-18. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	64	6	1	0	13	1	0	259	0		260	236
Sub-total: Operations	67	7	10	0	16	1	0	977	0	0	981	888
Road Maintenance	7	1	2	0	1	0	0	264	0		264	240
Sub-total: Maintenance	7	1	2	0	1	0	0	264	0	0	264	240
Total Emissions	214	38	359	7	107	27	3	38,839	0	0	38,972	35,253

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-19. Summary of Output - Alternative B
Cumulative Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	62	6	1	0	12	1	0	248	0		248	225
Sub-total: Operations	64	7	10	0	15	1	0	966	0	0	969	877
Road Maintenance	8	1	2	0	1	0	0	303	0		303	275
Sub-total: Maintenance	8	1	2	0	1	0	0	303	0	0	303	275
Total Emissions	212	38	360	7	107	27	3	38,866	0	0	38,999	35,278

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-20. Summary of Output - Alternative B
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	11	10	201	4	52	15	1	21,628	0	0	21,703	19,630
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	65	7	1	0	1	0	0	134	0		134	122
Sub-total: Construction	81	18	201	4	52	15	1	21,762	0	0	21,837	19,752
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	5	0	2	0	0	415	0	0	416	376
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	59	6	1	0	12	1	0	239	0		240	217
Sub-total: Operations	61	6	6	0	14	1	0	655	0	0	657	595
Road Maintenance	8	1	2	0	1	0	0	292	0		293	265
Sub-total: Maintenance	8	1	2	0	1	0	0	292	0	0	293	265
Total Emissions	150	25	209	4	67	16	2	22,709	0	0	22,786	20,612

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-21. Summary of Output - Alternative B
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	11	10	201	4	52	15	1	21,628	0	0	21,703	19,631
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	65	7	1	0	1	0	0	134	0		134	122
Sub-total: Construction	81	18	201	4	52	15	1	21,762	0	0	21,837	19,752
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	5	0	2	0	0	415	0	0	416	376
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	57	6	1	0	12	1	0	230	0		231	210
Sub-total: Operations	59	6	6	0	13	1	0	646	0	0	648	587
Road Maintenance	6	1	2	0	1	0	0	235	0		235	213
Sub-total: Maintenance	6	1	2	0	1	0	0	235	0	0	235	213
Total Emissions	146	24	209	4	66	16	2	22,642	0	0	22,720	20,552

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-22. Summary of Output - Alternative C
Cumulative Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles – Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	62	6	1	0	12	1	0	248	0		248	225
Sub-total: Operations	64	7	10	0	15	1	0	966	0	0	969	877
Road Maintenance	8	1	2	0	1	0	0	303	0		303	275
Sub-total: Maintenance	8	1	2	0	1	0	0	303	0	0	303	275
Total Emissions	212	38	360	7	107	27	3	38,866	0	0	38,999	35,278

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-23. Summary of Output - Alternative C
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	4	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	19	19	370	8	95	27	3	39,846	0	0	39,984	36,165
Wind Erosion	7	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	120	12	1	0	1	0	0	247	0		247	224
Sub-total: Construction	150	32	371	8	96	27	3	40,092	0	0	40,231	36,389
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	1	10	0	3	1	0	764	0	0	767	693
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	64	6	1	0	13	1	0	256	0		256	233
Sub-total: Operations	66	7	10	0	16	1	0	1,022	0	0	1,025	928
Road Maintenance	8	1	3	0	1	0	0	313	0		313	284
Sub-total: Maintenance	8	1	3	0	1	0	0	313	0	0	313	284
Total Emissions	224	40	383	8	113	29	3	41,427	0	0	41,569	37,601

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-24. Summary of Output - Alternative C
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	4	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	19	19	370	8	95	27	3	39,846	0	0	39,984	36,166
Wind Erosion	7	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	120	12	1	0	1	0	0	247	0		247	224
Sub-total: Construction	150	32	371	8	96	27	3	40,092	0	0	40,231	36,390
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	1	10	0	3	1	0	764	0	0	767	693
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	66	7	1	0	13	1	0	264	0		264	240
Sub-total: Operations	68	7	10	0	17	1	0	1,030	0	0	1,033	935
Road Maintenance	7	1	2	0	1	0	0	269	0		269	244
Sub-total: Maintenance	7	1	2	0	1	0	0	269	0	0	269	244
Total Emissions	225	40	383	8	113	29	3	41,391	0	0	41,533	37,570

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-25. Summary of Output - Alternative D
Cumulative Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	62	6	1	0	12	1	0	248	0		248	225
Sub-total: Operations	64	7	10	0	15	1	0	966	0	0	969	877
Road Maintenance	8	1	2	0	1	0	0	303	0		303	275
Sub-total: Maintenance	8	1	2	0	1	0	0	303	0	0	303	275
Total Emissions	212	38	360	7	107	27	3	38,866	0	0	38,999	35,278

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-26. Summary of Output - Alternative D
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	17	338	7	87	25	2	36,436	0	0	36,562	33,070
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	110	11	1	0	1	0	0	226	0		226	205
Sub-total: Construction	137	30	339	7	88	25	3	36,661	0	0	36,788	33,275
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	698	0	0	701	634
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	63	6	1	0	13	1	0	252	0		253	230
Sub-total: Operations	65	7	9	0	16	1	0	953	0	0	956	866
Road Maintenance	8	1	2	0	1	0	0	309	0		309	281
Sub-total: Maintenance	8	1	2	0	1	0	0	309	0	0	309	281
Total Emissions	210	37	351	7	104	26	3	37,923	0	0	38,053	34,421

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-27. Summary of Output - Alternative D
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	17	338	7	87	25	2	36,436	0	0	36,562	33,071
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	110	11	1	0	1	0	0	226	0		226	205
Sub-total: Construction	137	30	339	7	88	25	3	36,661	0	0	36,788	33,276
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	698	0	0	701	634
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	64	6	1	0	13	1	0	257	0		258	234
Sub-total: Operations	66	7	9	0	16	1	0	958	0	0	961	870
Road Maintenance	7	1	2	0	1	0	0	263	0		263	238
Sub-total: Maintenance	7	1	2	0	1	0	0	263	0	0	263	238
Total Emissions	210	37	351	7	105	26	3	37,882	0	0	38,012	34,385

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-28. Summary of Output - Alternative E
Cumulative Total Annual Emissions from Oil Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	18	347	7	89	25	3	37,366	0	0	37,495	33,915
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles – Construction	113	11	1	0	1	0	0	231	0		232	210
Sub-total: Construction	140	30	348	7	90	26	3	37,597	0	0	37,727	34,125
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	716	0	0	719	650
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	62	6	1	0	12	1	0	248	0		248	225
Sub-total: Operations	64	7	10	0	15	1	0	966	0	0	969	877
Road Maintenance	8	1	2	0	1	0	0	303	0		303	275
Sub-total: Maintenance	8	1	2	0	1	0	0	303	0	0	303	275
Total Emissions	212	38	360	7	107	27	3	38,866	0	0	38,999	35,278

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-29. Summary of Output - Alternative E
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	10	10	200	4	52	15	1	21,604	0	0	21,679	19,608
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	65	7	1	0	1	0	0	134	0		134	121
Sub-total: Construction	81	18	201	4	52	15	1	21,738	0	0	21,813	19,730
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	5	0	2	0	0	414	0	0	416	376
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	59	6	1	0	12	1	0	239	0		240	217
Sub-total: Operations	61	6	6	0	14	1	0	654	0	0	656	594
Road Maintenance	8	1	2	0	1	0	0	292	0		293	265
Sub-total: Maintenance	8	1	2	0	1	0	0	292	0	0	293	265
Total Emissions	150	25	209	4	67	16	2	22,684	0	0	22,762	20,590

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-30. Summary of Output - Alternative E
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	10	10	200	4	52	15	1	21,604	0	0	21,679	19,609
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	65	7	1	0	1	0	0	134	0		134	122
Sub-total: Construction	81	18	201	4	52	15	1	21,738	0	0	21,813	19,730
Well Workover Operations - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	0	0	5	0	2	0	0	414	0	0	416	376
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	1	0		1	1
Well Visits for Inspection & Repair - Operations	57	6	1	0	12	1	0	230	0		231	209
Sub-total: Operations	59	6	6	0	13	1	0	645	0	0	648	586
Road Maintenance	6	1	2	0	1	0	0	235	0		235	213
Sub-total: Maintenance	6	1	2	0	1	0	0	235	0	0	235	213
Total Emissions	146	24	209	4	66	16	2	22,618	0	0	22,695	20,530

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-31. Summary of Output - Alternative F
Cumulative Total Annual Emissions from Oil Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	17	338	7	87	25	2	36,436	0	0	36,562	33,070
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	110	11	1	0	1	0	0	226	0		226	205
Sub-total: Construction	137	30	339	7	88	25	3	36,661	0	0	36,788	33,275
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	698	0	0	701	634
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	63	6	1	0	13	1	0	252	0		253	230
Sub-total: Operations	65	7	9	0	16	1	0	953	0	0	956	866
Road Maintenance	8	1	2	0	1	0	0	309	0		309	281
Sub-total: Maintenance	8	1	2	0	1	0	0	309	0	0	309	281
Total Emissions	210	37	351	7	104	26	3	37,923	0	0	38,053	34,421

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-32. Summary of Output - Alternative F
Cumulative Total Annual Emissions from Oil Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions	18	17	338	7	87	25	2	36,436	0	0	36,562	33,071
Wind Erosion	6	1	---	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Construction	110	11	1	0	1	0	0	226	0		226	205
Sub-total: Construction	137	30	339	7	88	25	3	36,661	0	0	36,788	33,276
Well Workover Operations - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - On-site Exhaust	1	0	9	0	3	1	0	698	0	0	701	634
Well Workover Operations - On-road Exhaust	0	0	0	0	0	0	0	2	0		2	2
Well Visits for Inspection & Repair - Operations	64	6	1	0	13	1	0	257	0		258	234
Sub-total: Operations	66	7	9	0	16	1	0	958	0	0	961	870
Road Maintenance	7	1	2	0	1	0	0	263	0		263	238
Sub-total: Maintenance	7	1	2	0	1	0	0	263	0	0	263	238
Total Emissions	210	37	351	7	105	26	3	37,882	0	0	38,012	34,385

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-33. Summary of Output - Alternative A
Total Annual Emissions from Natural Gas Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	32	1	9	2	0	3,671	0	0	3,684	3,332
Well Completion Flaring	0	0	0	0	1	4	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	79	0		79	72
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	32	1	10	7	1	3,751	0	0	3,763	3,405
Natural Gas Compression - Operations ^a	3	3	86	0	43	43	13	34,182	71	0	35,778	32,519
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	73	0	0	73	66
Dehy Venting and Flashing	---	---	---	---	---	28	11	306	19		698	670
Station Visits - Operations	3	0	0	0	0	0	0	10	0		10	9
Well Workover - Operations	0	0	1	0	0	0	0	76	0	0	76	69
Well & Pipeline Visits for Inspection & Repair - Operations	12	1	0	0	0	0	0	21	0		21	19
Tanks Condensate and Loadout	---	---	---	---	---	33	3	2	5		117	117
Wellhead Fugitives	---	---	---	---	---	182	18	107	1,669		35,154	35,144
Pneumatic Devices	---	---	---	---	---	134	13	79	1,226		25,818	25,811
Sub-total: Operations	18	4	86	0	43	420	58	34,855	2,990	0	97,745	94,423
Road Maintenance	3	0	1	0	0	0	0	91	0		91	83
Sub-total: Maintenance	3	0	1	0	0	0	0	91	0	0	91	83
Road Reclamation	0	0	0	0	0	0	0	5	0		5	5
Well Reclamation	1	0	0	0	0	0	0	16	0		16	14
Sub-total: Reclamation	1	0	0	0	0	0	0	21	0	0	21	19
Total Emissions	36	8	119	1	54	427	59	38,718	2,990	0	101,621	97,930

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-34. Summary of Output - Alternative A
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	32	1	9	2	0	3,671	0	0	3,684	3,332
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	79	0		79	72
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	32	1	9	5	0	3,751	0	0	3,763	3,405
Natural Gas Compression - Operations ^a	3	3	88	0	44	44	13	35,242	74	0	36,888	33,528
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	75	0	0	75	68
Dehy Venting and Flashing	---	---	---	---	---	16	6	173	11		395	379
Station Visits - Operations	3	0	0	0	0	0	0	10	0		10	9
Well Workover - Operations	0	0	1	0	0	0	0	76	0	0	76	69
Well & Pipeline Visits for Inspection & Repair - Operations	12	1	0	0	0	0	0	22	0		22	20
Tanks Condensate and Loadout	---	---	---	---	---	19	2	1	3		66	66
Wellhead Fugitives	---	---	---	---	---	188	19	111	1,721		36,244	36,234
Pneumatic Devices	---	---	---	---	---	138	14	81	1,264		26,619	26,611
Sub-total: Operations	19	5	89	0	45	404	54	35,790	3,072	0	100,395	96,983
Road Maintenance	3	0	0	0	0	0	0	94	0		94	85
Sub-total: Maintenance	3	0	0	0	0	0	0	94	0	0	94	85
Road Reclamation	0	0	0	0	0	0	0	5	0		5	5
Well Reclamation	1	0	0	0	0	0	0	16	0		16	15
Sub-total: Reclamation	1	0	0	0	0	0	0	22	0	0	22	20
Total Emissions	36	8	121	1	54	409	54	39,657	3,072	0	104,274	100,493

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-35. Summary of Output - Alternative A
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	32	1	9	2	0	3,671	0	0	3,684	3,332
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	79	0		79	72
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	32	1	9	5	0	3,751	0	0	3,763	3,405
Natural Gas Compression - Operations ^a	3	3	91	0	45	45	14	36,303	76	0	37,998	34,537
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	77	0	0	77	70
Dehy Venting and Flashing	---	---	---	---	---	12	5	134	8		306	293
Station Visits - Operations	3	0	0	0	0	0	0	10	0		10	9
Well Workover - Operations	0	0	0	0	0	0	0	76	0	0	76	69
Well & Pipeline Visits for Inspection & Repair - Operations	13	1	0	0	0	0	0	22	0		22	20
Tanks Condensate and Loadout	---	---	---	---	---	14	1	1	2		51	51
Wellhead Fugitives	---	---	---	---	---	193	19	114	1,772		37,335	37,324
Pneumatic Devices	---	---	---	---	---	142	14	84	1,302		27,420	27,412
Sub-total: Operations	19	5	91	0	46	408	53	36,820	3,161	0	103,295	99,785
Road Maintenance	3	0	0	0	0	0	0	97	0		97	88
Sub-total: Maintenance	3	0	0	0	0	0	0	97	0	0	97	88
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	1	0	0	0	0	0	0	17	0		17	15
Sub-total: Reclamation	1	0	0	0	0	0	0	19	0	0	19	17
Total Emissions	37	8	123	1	55	412	54	40,687	3,161	0	107,174	103,295

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-36. Summary of Output - Alternative B
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	14	0	4	1	0	1,600	0	0	1,605	1,452
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	4	0	0	0	0	0	0	35	0		35	32
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	6	1	14	0	4	2	0	1,635	0	0	1,640	1,484
Natural Gas Compression - Operations ^a	2	2	59	0	29	29	9	23,418	49	0	24,512	22,279
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	50	0	0	50	45
Dehy Venting and Flashing	---	---	---	---	---	7	3	76	5		172	165
Station Visits - Operations	2	0	0	0	0	0	0	7	0		7	6
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	33	30
Well & Pipeline Visits for Inspection & Repair - Operations	8	1	0	0	0	0	0	14	0		14	13
Tanks Condensate and Loadout	---	---	---	---	---	8	1	1	1		29	29
Wellhead Fugitives	---	---	---	---	---	125	12	73	1,143		24,084	24,077
Pneumatic Devices	---	---	---	---	---	92	9	54	840		17,688	17,683
Sub-total: Operations	12	3	59	0	30	261	34	23,725	2,038	0	66,588	64,327
Road Maintenance	2	0	0	0	0	0	0	62	0		62	57
Sub-total: Maintenance	2	0	0	0	0	0	0	62	0	0	62	57
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	0	0	0	0	0	0	0	11	0		11	10
Sub-total: Reclamation	1	0	0	0	0	0	0	14	0	0	14	13
Total Emissions	21	5	73	0	34	263	34	25,437	2,038	0	68,306	65,881

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-37. Summary of Output - Alternative B
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	14	0	4	1	0	1,600	0	0	1,605	1,452
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	4	0	0	0	0	0	0	35	0		35	32
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	6	1	14	0	4	2	0	1,635	0	0	1,640	1,484
Natural Gas Compression - Operations ^a	3	3	77	0	38	38	11	30,563	64	0	31,991	29,076
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	65	0	0	65	59
Dehy Venting and Flashing	---	---	---	---	---	7	3	79	5		179	172
Station Visits - Operations	3	0	0	0	0	0	0	9	0		9	8
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	33	30
Well & Pipeline Visits for Inspection & Repair - Operations	11	1	0	0	0	0	0	19	0		19	17
Tanks Condensate and Loadout	---	---	---	---	---	8	1	1	1		30	30
Wellhead Fugitives	---	---	---	---	---	163	16	96	1,492		31,432	31,423
Pneumatic Devices	---	---	---	---	---	120	12	70	1,096		23,085	23,078
Sub-total: Operations	16	4	77	0	39	336	43	30,934	2,658	0	86,843	83,894
Road Maintenance	2	0	0	0	0	0	0	81	0		81	74
Sub-total: Maintenance	2	0	0	0	0	0	0	81	0	0	81	74
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	0	0	0	0	0	0	0	14	0		14	13
Sub-total: Reclamation	1	0	0	0	0	0	0	16	0	0	16	15
Total Emissions	25	6	91	0	43	338	43	32,666	2,658	0	88,580	85,466

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-38. Summary of Output - Alternative C
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	35	1	9	3	0	4,018	0	0	4,031	3,647
Well Completion Flaring	0	0	0	0	0	3	0	0	0	0	0	0
Commuting Vehicles - Construction	10	1	0	0	0	0	0	87	0		87	79
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	16	3	35	1	10	5	1	4,105	0	0	4,118	3,726
Natural Gas Compression - Operations ^a	2	2	67	0	34	34	10	26,766	56	0	28,016	25,464
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	57	0	0	57	52
Dehy Venting and Flashing	---	---	---	---	---	13	5	142	9		323	310
Station Visits - Operations	2	0	0	0	0	0	0	8	0		8	7
Well Workover - Operations	0	0	1	0	0	0	0	83	0	0	83	75
Well & Pipeline Visits for Inspection & Repair - Operations	9	1	0	0	0	0	0	16	0		16	15
Tanks Condensate and Loadout	---	---	---	---	---	15	2	1	3		54	54
Wellhead Fugitives	---	---	---	---	---	143	14	84	1,307		27,527	27,519
Pneumatic Devices	---	---	---	---	---	105	10	62	960		20,217	20,211
Sub-total: Operations	14	4	68	0	34	309	41	27,218	2,334	0	76,301	73,707
Road Maintenance	2	0	0	0	0	0	0	71	0		71	65
Sub-total: Maintenance	2	0	0	0	0	0	0	71	0	0	71	65
Road Reclamation	0	0	0	0	0	0	0	4	0		4	4
Well Reclamation	0	0	0	0	0	0	0	12	0		12	11
Sub-total: Reclamation	1	0	0	0	0	0	0	17	0	0	17	15
Total Emissions	32	7	103	1	44	315	42	31,410	2,334	0	80,507	77,512

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-39. Summary of Output - Alternative C
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	35	1	9	3	0	4,018	0	0	4,031	3,647
Well Completion Flaring	0	0	0	0	0	3	0	0	0	0	0	0
Commuting Vehicles - Construction	10	1	0	0	0	0	0	87	0		87	79
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	16	3	35	1	10	5	1	4,105	0	0	4,118	3,726
Natural Gas Compression - Operations ^a	3	3	93	0	47	47	14	37,259	78	0	38,999	35,447
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	79	0	0	79	72
Dehy Venting and Flashing	---	---	---	---	---	14	5	147	9		335	322
Station Visits - Operations	3	0	0	0	0	0	0	11	0		11	10
Well Workover - Operations	0	0	1	0	0	0	0	83	0	0	83	75
Well & Pipeline Visits for Inspection & Repair - Operations	13	1	0	0	0	0	0	23	0		23	21
Tanks Condensate and Loadout	---	---	---	---	---	16	2	1	3		56	56
Wellhead Fugitives	---	---	---	---	---	198	20	117	1,819		38,319	38,308
Pneumatic Devices	---	---	---	---	---	146	15	86	1,336		28,142	28,134
Sub-total: Operations	20	5	94	0	47	420	55	37,805	3,245	0	106,047	102,443
Road Maintenance	3	0	0	0	0	0	0	99	0		99	90
Sub-total: Maintenance	3	0	0	0	0	0	0	99	0	0	99	90
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	1	0	0	0	0	0	0	17	0		17	16
Sub-total: Reclamation	1	0	0	0	0	0	0	20	0	0	20	18
Total Emissions	39	9	129	1	58	426	56	42,029	3,245	0	110,284	106,277

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-40. Summary of Output - Alternative D
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	31	1	8	2	0	3,548	0	0	3,560	3,221
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	77	0		77	70
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	31	1	9	5	0	3,625	0	0	3,637	3,290
Natural Gas Compression - Operations ^a	2	2	65	0	33	33	10	26,115	55	0	27,334	24,844
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	55	0	0	55	50
Dehy Venting and Flashing	---	---	---	---	---	11	4	122	7		279	268
Station Visits - Operations	2	0	0	0	0	0	0	7	0		7	7
Well Workover - Operations	0	0	0	0	0	0	0	73	0	0	73	66
Well & Pipeline Visits for Inspection & Repair - Operations	9	1	0	0	0	0	0	16	0		16	14
Tanks Condensate and Loadout	---	---	---	---	---	13	1	1	2		47	47
Wellhead Fugitives	---	---	---	---	---	139	14	82	1,275		26,857	26,850
Pneumatic Devices	---	---	---	---	---	102	10	60	936		19,725	19,719
Sub-total: Operations	14	3	66	0	33	298	39	26,532	2,276	0	74,394	71,865
Road Maintenance	2	0	0	0	0	0	0	70	0		70	63
Sub-total: Maintenance	2	0	0	0	0	0	0	70	0	0	70	63
Road Reclamation	0	0	0	0	0	0	0	4	0		4	4
Well Reclamation	0	0	0	0	0	0	0	12	0		12	11
Sub-total: Reclamation	1	0	0	0	0	0	0	16	0	0	16	15
Total Emissions	30	7	97	1	42	303	40	30,243	2,276	0	78,117	75,234

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-41. Summary of Output - Alternative D
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	31	1	8	2	0	3,548	0	0	3,560	3,221
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	77	0		77	70
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	31	1	9	5	0	3,625	0	0	3,637	3,290
Natural Gas Compression - Operations ^a	3	3	90	0	45	45	14	35,957	75	0	37,636	34,208
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	76	0	0	76	69
Dehy Venting and Flashing	---	---	---	---	---	12	4	127	8		290	278
Station Visits - Operations	3	0	0	0	0	0	0	10	0		10	9
Well Workover - Operations	0	0	0	0	0	0	0	73	0	0	73	66
Well & Pipeline Visits for Inspection & Repair - Operations	13	1	0	0	0	0	0	22	0		22	20
Tanks Condensate and Loadout	---	---	---	---	---	14	1	1	2		49	49
Wellhead Fugitives	---	---	---	---	---	191	19	113	1,756		36,979	36,969
Pneumatic Devices	---	---	---	---	---	141	14	83	1,289		27,158	27,151
Sub-total: Operations	19	5	91	0	46	403	52	36,462	3,130	0	102,294	98,818
Road Maintenance	3	0	0	0	0	0	0	96	0		96	87
Sub-total: Maintenance	3	0	0	0	0	0	0	96	0	0	96	87
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	1	0	0	0	0	0	0	17	0		17	15
Sub-total: Reclamation	1	0	0	0	0	0	0	19	0	0	19	17
Total Emissions	36	8	122	1	55	407	53	40,202	3,130	0	106,046	102,213

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-42. Summary of Output - Alternative E
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	14	0	4	1	0	1,597	0	0	1,602	1,449
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	4	0	0	0	0	0	0	35	0		35	32
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	6	1	14	0	4	2	0	1,631	0	0	1,637	1,481
Natural Gas Compression - Operations ^a	2	2	59	0	29	29	9	23,412	49	0	24,506	22,273
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	50	0	0	50	45
Dehy Venting and Flashing	---	---	---	---	---	7	3	76	5		172	165
Station Visits - Operations	2	0	0	0	0	0	0	7	0		7	6
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	33	30
Well & Pipeline Visits for Inspection & Repair - Operations	8	1	0	0	0	0	0	14	0		14	13
Tanks Condensate and Loadout	---	---	---	---	---	8	1	1	1		29	29
Wellhead Fugitives	---	---	---	---	---	125	12	73	1,143		24,078	24,071
Pneumatic Devices	---	---	---	---	---	92	9	54	840		17,683	17,678
Sub-total: Operations	12	3	59	0	30	261	34	23,719	2,037	0	66,572	64,311
Road Maintenance	2	0	0	0	0	0	0	62	0		62	57
Sub-total: Maintenance	2	0	0	0	0	0	0	62	0	0	62	57
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	0	0	0	0	0	0	0	11	0		11	10
Sub-total: Reclamation	1	0	0	0	0	0	0	14	0	0	14	13
Total Emissions	21	5	73	0	34	263	34	25,428	2,038	0	68,286	65,862

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-43. Summary of Output - Alternative E
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	14	0	4	1	0	1,597	0	0	1,602	1,449
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	4	0	0	0	0	0	0	35	0		35	32
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	6	1	14	0	4	2	0	1,631	0	0	1,637	1,481
Natural Gas Compression - Operations ^a	3	3	77	0	38	38	11	30,552	64	0	31,979	29,066
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	65	0	0	65	59
Dehy Venting and Flashing	---	---	---	---	---	7	3	79	5		179	172
Station Visits - Operations	3	0	0	0	0	0	0	9	0		9	8
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	33	30
Well & Pipeline Visits for Inspection & Repair - Operations	11	1	0	0	0	0	0	19	0		19	17
Tanks Condensate and Loadout	---	---	---	---	---	8	1	1	1		30	30
Wellhead Fugitives	---	---	---	---	---	163	16	96	1,492		31,420	31,412
Pneumatic Devices	---	---	---	---	---	119	12	70	1,096		23,076	23,069
Sub-total: Operations	16	4	77	0	39	336	43	30,922	2,657	0	86,810	83,862
Road Maintenance	2	0	0	0	0	0	0	81	0		81	74
Sub-total: Maintenance	2	0	0	0	0	0	0	81	0	0	81	74
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	0	0	0	0	0	0	0	14	0		14	13
Sub-total: Reclamation	1	0	0	0	0	0	0	16	0	0	16	15
Total Emissions	25	6	91	0	43	338	43	32,651	2,657	0	88,544	85,432

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-44. Summary of Output - Alternative F
Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	31	1	8	2	0	3,542	0	0	3,554	3,214
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	77	0		77	70
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	31	1	9	4	0	3,618	0	0	3,630	3,284
Natural Gas Compression - Operations ^a	2	2	65	0	33	33	10	26,109	55	0	27,328	24,839
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	55	0	0	55	50
Dehy Venting and Flashing	---	---	---	---	---	11	4	122	7		279	268
Station Visits - Operations	2	0	0	0	0	0	0	7	0		7	7
Well Workover - Operations	0	0	0	0	0	0	0	73	0	0	73	66
Well & Pipeline Visits for Inspection & Repair - Operations	9	1	0	0	0	0	0	16	0		16	14
Tanks Condensate and Loadout	---	---	---	---	---	13	1	1	2		47	47
Wellhead Fugitives	---	---	---	---	---	139	14	82	1,275		26,851	26,844
Pneumatic Devices	---	---	---	---	---	102	10	60	936		19,720	19,715
Sub-total: Operations	14	3	66	0	33	298	39	26,526	2,275	0	74,378	71,849
Road Maintenance	2	0	0	0	0	0	0	70	0		70	63
Sub-total: Maintenance	2	0	0	0	0	0	0	70	0	0	70	63
Road Reclamation	0	0	0	0	0	0	0	4	0		4	4
Well Reclamation	0	0	0	0	0	0	0	12	0		12	11
Sub-total: Reclamation	1	0	0	0	0	0	0	16	0	0	16	15
Total Emissions	30	7	97	1	42	303	40	30,230	2,275	0	78,094	75,211

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-45. Summary of Output - Alternative F
Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	31	1	8	2	0	3,542	0	0	3,554	3,214
Well Completion Flaring	0	0	0	0	0	2	0	0	0	0	0	0
Commuting Vehicles - Construction	9	1	0	0	0	0	0	77	0		77	70
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	14	3	31	1	9	4	0	3,618	0	0	3,630	3,284
Natural Gas Compression - Operations ^a	3	3	90	0	45	45	14	35,945	75	0	37,624	34,197
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	76	0	0	76	69
Dehy Venting and Flashing	---	---	---	---	---	12	4	127	8		290	278
Station Visits - Operations	3	0	0	0	0	0	0	10	0		10	9
Well Workover - Operations	0	0	0	0	0	0	0	73	0	0	73	66
Well & Pipeline Visits for Inspection & Repair - Operations	13	1	0	0	0	0	0	22	0		22	20
Tanks Condensate and Loadout	---	---	---	---	---	14	1	1	2		49	49
Wellhead Fugitives	---	---	---	---	---	191	19	113	1,755		36,967	36,957
Pneumatic Devices	---	---	---	---	---	141	14	83	1,289		27,150	27,142
Sub-total: Operations	19	5	91	0	46	403	52	36,450	3,129	0	102,261	98,787
Road Maintenance	3	0	0	0	0	0	0	96	0		96	87
Sub-total: Maintenance	3	0	0	0	0	0	0	96	0	0	96	87
Road Reclamation	0	0	0	0	0	0	0	2	0		2	2
Well Reclamation	1	0	0	0	0	0	0	17	0		17	15
Sub-total: Reclamation	1	0	0	0	0	0	0	19	0	0	19	17
Total Emissions	36	8	122	1	55	407	53	40,183	3,129	0	106,006	102,175

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-46. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	3	2	45	1	12	3	0	5,223	0	0	5,241	4,741
Well Completion Flaring	0	0	0	0	1	4	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	113	0		113	103
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	45	1	13	7	1	5,336	0	0	5,354	4,844
Natural Gas Compression - Operations ^a	4	4	130	0	65	65	20	51,976	109	0	54,403	49,448
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	110	0	0	110	100
Dehy Venting and Flashing	---	---	---	---	---	28	11	306	19		698	670
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	13
Well Workover - Operations	0	0	1	0	0	0	0	107	0	0	108	98
Well & Pipeline Visits for Inspection & Repair - Operations	18	2	0	0	0	0	0	32	0		32	29
Tanks Condensate and Loadout	---	---	---	---	---	33	3	2	5		117	117
Wellhead Fugitives	---	---	---	---	---	277	28	163	2,538		53,454	53,439
Pneumatic Devices	---	---	---	---	---	203	20	120	1,864		39,258	39,247
Sub-total: Operations	27	7	131	0	66	607	81	52,832	4,534	0	148,196	143,160
Road Maintenance	4	0	1	0	0	0	0	139	0		139	126
Sub-total: Maintenance	4	0	1	0	0	0	0	139	0	0	139	126
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	24	0		24	22
Sub-total: Reclamation	1	0	0	0	0	0	0	32	0	0	32	29
Total Emissions	53	12	178	1	80	614	82	58,339	4,534	1	153,721	148,159

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-47. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	3	2	45	1	12	3	0	5,223	0	0	5,241	4,741
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	113	0		113	103
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	45	1	13	7	1	5,336	0	0	5,354	4,844
Natural Gas Compression - Operations ^a	5	5	133	0	67	67	20	53,192	111	0	55,676	50,604
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	113	0	0	113	102
Dehy Venting and Flashing	---	---	---	---	---	24	9	261	16		596	572
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	107	0	0	108	98
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	0	0	0	33	0		33	29
Tanks Condensate and Loadout	---	---	---	---	---	28	3	2	5		100	100
Wellhead Fugitives	---	---	---	---	---	283	28	167	2,597		54,704	54,689
Pneumatic Devices	---	---	---	---	---	208	21	122	1,907		40,176	40,165
Sub-total: Operations	28	7	134	0	68	610	81	54,012	4,636	0	151,521	146,373
Road Maintenance	4	0	0	0	0	0	0	142	0		142	129
Sub-total: Maintenance	4	0	0	0	0	0	0	142	0	0	142	129
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	25	0		25	22
Sub-total: Reclamation	1	0	0	0	0	0	0	33	0	0	33	30
Total Emissions	54	12	180	1	81	617	82	59,523	4,636	1	157,050	151,375

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-48. Summary of Output - Alternative A
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	3	2	45	1	12	3	0	5,223	0	0	5,241	4,741
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	113	0		113	103
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	45	1	13	7	1	5,336	0	0	5,354	4,844
Natural Gas Compression - Operations ^a	5	5	136	0	68	68	20	54,408	114	0	56,949	51,761
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	115	0	0	116	105
Dehy Venting and Flashing	---	---	---	---	---	18	7	201	12		458	439
Station Visits - Operations	4	0	0	0	0	0	0	16	0		16	14
Well Workover - Operations	0	0	1	0	0	0	0	107	0	0	108	98
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	1	0	0	33	0		33	30
Tanks Condensate and Loadout	---	---	---	---	---	22	2	1	4		77	77
Wellhead Fugitives	---	---	---	---	---	290	29	171	2,656		55,955	55,939
Pneumatic Devices	---	---	---	---	---	213	21	125	1,951		41,095	41,083
Sub-total: Operations	29	7	137	0	69	611	80	55,178	4,737	0	154,805	149,546
Road Maintenance	4	0	0	0	0	0	0	145	0		145	132
Sub-total: Maintenance	4	0	0	0	0	0	0	145	0	0	145	132
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	1	0	0	0	0	0	0	25	0		25	23
Sub-total: Reclamation	1	0	0	0	0	0	0	29	0	0	29	26
Total Emissions	54	12	183	1	83	618	81	60,688	4,737	1	160,333	154,547

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-49. Summary of Output - Alternative B
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	26	1	7	2	0	3,025	0	0	3,036	2,746
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	8	1	0	0	0	0	0	66	0		66	59
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	12	3	26	1	8	3	0	3,091	0	0	3,101	2,806
Natural Gas Compression - Operations ^a	4	4	126	0	63	63	19	50,150	105	0	52,491	47,710
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	106	0	0	106	96
Dehy Venting and Flashing	---	---	---	---	---	15	6	162	10		369	354
Station Visits - Operations	4	0	0	0	0	0	0	14	0		14	13
Well Workover - Operations	0	0	0	0	0	0	0	62	0	0	62	56
Well & Pipeline Visits for Inspection & Repair - Operations	18	2	0	0	0	0	0	31	0		31	28
Tanks Condensate and Loadout	---	---	---	---	---	17	2	1	3		62	62
Wellhead Fugitives	---	---	---	---	---	267	27	157	2,448		51,575	51,561
Pneumatic Devices	---	---	---	---	---	196	20	115	1,798		37,878	37,868
Sub-total: Operations	26	7	126	0	64	559	73	50,799	4,364	0	142,590	137,748
Road Maintenance	4	0	0	0	0	0	0	134	0		134	121
Sub-total: Maintenance	4	0	0	0	0	0	0	134	0	0	134	121
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	23	0		23	21
Sub-total: Reclamation	1	0	0	0	0	0	0	31	0	0	31	28
Total Emissions	43	10	153	1	72	562	73	54,054	4,364	0	145,856	140,703

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-50. Summary of Output - Alternative B
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	26	1	7	2	0	3,025	0	0	3,036	2,746
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	8	1	0	0	0	0	0	66	0		66	59
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	12	3	26	1	8	3	0	3,091	0	0	3,101	2,806
Natural Gas Compression - Operations ^a	4	4	121	0	61	61	18	48,323	101	0	50,580	45,972
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	102	0	0	103	93
Dehy Venting and Flashing	---	---	---	---	---	11	4	124	8		284	272
Station Visits - Operations	4	0	0	0	0	0	0	14	0		14	12
Well Workover - Operations	0	0	0	0	0	0	0	62	0	0	62	56
Well & Pipeline Visits for Inspection & Repair - Operations	17	2	0	0	0	0	0	30	0		30	27
Tanks Condensate and Loadout	---	---	---	---	---	13	1	1	2		48	48
Wellhead Fugitives	---	---	---	---	---	257	26	152	2,359		49,697	49,683
Pneumatic Devices	---	---	---	---	---	189	19	111	1,733		36,499	36,488
Sub-total: Operations	25	6	122	0	61	532	68	48,919	4,203	0	137,315	132,651
Road Maintenance	4	0	0	0	0	0	0	129	0		129	117
Sub-total: Maintenance	4	0	0	0	0	0	0	129	0	0	129	117
Road Reclamation	0	0	0	0	0	0	0	3	0		3	3
Well Reclamation	1	0	0	0	0	0	0	22	0		22	20
Sub-total: Reclamation	1	0	0	0	0	0	0	25	0	0	25	23
Total Emissions	42	9	148	1	69	535	69	52,164	4,203	0	140,570	135,597

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-51. Summary of Output - Alternative C
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	3	3	48	1	13	4	0	5,570	0	0	5,588	5,055
Well Completion Flaring	0	0	0	0	1	4	0	0	0	0	0	0
Commuting Vehicles - Construction	14	1	0	0	1	0	0	120	0		120	109
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	22	5	48	1	14	7	1	5,690	0	0	5,709	5,165
Natural Gas Compression - Operations ^a	5	5	134	0	67	67	20	53,670	112	0	56,177	51,059
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	114	0	0	114	103
Dehy Venting and Flashing	---	---	---	---	---	26	10	284	17		648	622
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	115	0	0	115	104
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	1	0	0	33	0		33	30
Tanks Condensate and Loadout	---	---	---	---	---	31	3	2	5		109	109
Wellhead Fugitives	---	---	---	---	---	286	29	168	2,620		55,196	55,181
Pneumatic Devices	---	---	---	---	---	210	21	124	1,924		40,537	40,526
Sub-total: Operations	28	7	136	0	68	620	83	54,525	4,679	0	152,945	147,748
Road Maintenance	4	0	0	0	0	0	0	143	0		143	130
Sub-total: Maintenance	4	0	0	0	0	0	0	143	0	0	143	130
Road Reclamation	0	0	0	0	0	0	0	8	0		8	8
Well Reclamation	1	0	0	0	0	0	0	25	0		25	23
Sub-total: Reclamation	1	0	0	0	0	0	0	33	0	0	33	30
Total Emissions	55	12	185	1	83	628	83	60,391	4,680	1	158,830	153,072

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-52. Summary of Output - Alternative C
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	3	3	48	1	13	4	0	5,570	0	0	5,588	5,055
Well Completion Flaring	0	0	0	0	1	4	0	0	0	0	0	0
Commuting Vehicles - Construction	14	1	0	0	1	0	0	120	0		120	109
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	22	5	48	1	14	7	1	5,690	0	0	5,709	5,165
Natural Gas Compression - Operations ^a	5	5	139	0	69	69	21	55,364	116	0	57,950	52,671
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	117	0	0	118	107
Dehy Venting and Flashing	---	---	---	---	---	20	8	219	13		498	478
Station Visits - Operations	5	0	0	0	0	0	0	16	0		16	14
Well Workover - Operations	0	0	1	0	0	0	0	115	0	0	115	104
Well & Pipeline Visits for Inspection & Repair - Operations	20	2	0	0	1	0	0	34	0		34	31
Tanks Condensate and Loadout	---	---	---	---	---	23	2	2	4		84	84
Wellhead Fugitives	---	---	---	---	---	295	29	174	2,703		56,939	56,922
Pneumatic Devices	---	---	---	---	---	216	22	127	1,985		41,817	41,805
Sub-total: Operations	29	7	140	0	70	625	82	56,167	4,821	1	157,570	152,216
Road Maintenance	4	0	0	0	0	0	0	148	0		148	134
Sub-total: Maintenance	4	0	0	0	0	0	0	148	0	0	148	134
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	1	0	0	0	0	0	0	25	0		25	23
Sub-total: Reclamation	1	0	0	0	0	0	0	29	0	0	29	26
Total Emissions	56	12	189	1	85	632	83	62,034	4,821	1	163,456	157,541

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-53. Summary of Output - Alternative D
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	26	1	7	2	0	3,022	0	0	3,032	2,743
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	8	1	0	0	0	0	0	65	0		65	59
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	12	3	26	1	8	3	0	3,088	0	0	3,098	2,802
Natural Gas Compression - Operations ^a	4	4	126	0	63	63	19	50,144	105	0	52,485	47,704
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	106	0	0	106	96
Dehy Venting and Flashing	---	---	---	---	---	15	6	162	10		369	354
Station Visits - Operations	4	0	0	0	0	0	0	14	0		14	13
Well Workover - Operations	0	0	0	0	0	0	0	62	0	0	62	56
Well & Pipeline Visits for Inspection & Repair - Operations	18	2	0	0	0	0	0	31	0		31	28
Tanks Condensate and Loadout	---	---	---	---	---	17	2	1	3		62	62
Wellhead Fugitives	---	---	---	---	---	267	27	157	2,448		51,569	51,555
Pneumatic Devices	---	---	---	---	---	196	20	115	1,798		37,874	37,863
Sub-total: Operations	26	7	126	0	64	558	73	50,793	4,364	0	142,574	137,732
Road Maintenance	4	0	0	0	0	0	0	134	0		134	121
Sub-total: Maintenance	4	0	0	0	0	0	0	134	0	0	134	121
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	23	0		23	21
Sub-total: Reclamation	1	0	0	0	0	0	0	31	0	0	31	28
Total Emissions	43	10	153	1	72	562	73	54,045	4,364	0	145,836	140,684

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-54. Summary of Output - Alternative D
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	44	1	12	3	0	5,093	0	0	5,111	4,623
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	110	0		110	100
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	44	1	13	6	1	5,204	0	0	5,221	4,723
Natural Gas Compression - Operations ^a	5	5	135	0	68	68	20	54,039	113	0	56,563	51,410
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	115	0	0	115	104
Dehy Venting and Flashing	---	---	---	---	---	18	7	191	12		435	418
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	105	0	0	105	95
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	1	0	0	33	0		33	30
Tanks Condensate and Loadout	---	---	---	---	---	20	2	1	3		73	73
Wellhead Fugitives	---	---	---	---	---	288	29	169	2,638		55,576	55,560
Pneumatic Devices	---	---	---	---	---	211	21	124	1,938		40,816	40,805
Sub-total: Operations	28	7	136	0	69	605	79	54,793	4,704	0	153,731	148,508
Road Maintenance	4	0	0	0	0	0	0	144	0		144	131
Sub-total: Maintenance	4	0	0	0	0	0	0	144	0	0	144	131
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	1	0	0	0	0	0	0	25	0		25	23
Sub-total: Reclamation	1	0	0	0	0	0	0	28	0	0	28	26
Total Emissions	53	12	181	1	82	612	80	60,169	4,704	1	159,124	153,388

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-55. Summary of Output - Alternative E
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	44	1	12	3	0	5,093	0	0	5,111	4,623
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	110	0		110	100
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	44	1	13	6	1	5,204	0	0	5,221	4,723
Natural Gas Compression - Operations ^a	5	5	133	0	66	66	20	53,008	111	0	55,483	50,429
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	112	0	0	113	102
Dehy Venting and Flashing	---	---	---	---	---	23	9	248	15		566	543
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	105	0	0	105	95
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	0	0	0	32	0		32	29
Tanks Condensate and Loadout	---	---	---	---	---	27	3	2	4		95	95
Wellhead Fugitives	---	---	---	---	---	282	28	166	2,588		54,515	54,499
Pneumatic Devices	---	---	---	---	---	207	21	122	1,901		40,037	40,026
Sub-total: Operations	28	7	134	0	67	606	80	53,811	4,619	0	150,961	145,832
Road Maintenance	4	0	0	0	0	0	0	141	0		141	128
Sub-total: Maintenance	4	0	0	0	0	0	0	141	0	0	141	128
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	25	0		25	22
Sub-total: Reclamation	1	0	0	0	0	0	0	33	0	0	33	30
Total Emissions	53	12	179	1	81	612	81	59,188	4,619	1	156,356	150,713

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-56. Summary of Output - Alternative E
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	1	1	26	1	7	2	0	3,022	0	0	3,032	2,743
Well Completion Flaring	0	0	0	0	0	1	0	0	0	0	0	0
Commuting Vehicles - Construction	8	1	0	0	0	0	0	65	0		65	59
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	12	3	26	1	8	3	0	3,088	0	0	3,098	2,802
Natural Gas Compression - Operations ^a	4	4	121	0	61	61	18	48,311	101	0	50,567	45,961
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	102	0	0	103	93
Dehy Venting and Flashing	---	---	---	---	---	11	4	124	8		284	272
Station Visits - Operations	4	0	0	0	0	0	0	14	0		14	12
Well Workover - Operations	0	0	0	0	0	0	0	62	0	0	62	56
Well & Pipeline Visits for Inspection & Repair - Operations	17	2	0	0	0	0	0	30	0		30	27
Tanks Condensate and Loadout	---	---	---	---	---	13	1	1	2		48	48
Wellhead Fugitives	---	---	---	---	---	257	26	151	2,359		49,685	49,671
Pneumatic Devices	---	---	---	---	---	189	19	111	1,732		36,490	36,480
Sub-total: Operations	25	6	122	0	61	532	68	48,907	4,202	0	137,282	132,620
Road Maintenance	4	0	0	0	0	0	0	129	0		129	117
Sub-total: Maintenance	4	0	0	0	0	0	0	129	0	0	129	117
Road Reclamation	0	0	0	0	0	0	0	3	0		3	3
Well Reclamation	1	0	0	0	0	0	0	22	0		22	20
Sub-total: Reclamation	1	0	0	0	0	0	0	25	0	0	25	23
Total Emissions	42	9	148	1	69	535	69	52,149	4,202	0	140,534	135,562

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-57. Summary of Output - Alternative F
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	44	1	12	3	0	5,093	0	0	5,111	4,623
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	110	0		110	100
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	44	1	13	6	1	5,204	0	0	5,221	4,723
Natural Gas Compression - Operations ^a	5	5	133	0	66	66	20	53,008	111	0	55,483	50,429
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	112	0	0	113	102
Dehy Venting and Flashing	---	---	---	---	---	23	9	248	15		566	543
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	105	0	0	105	95
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	0	0	0	32	0		32	29
Tanks Condensate and Loadout	---	---	---	---	---	27	3	2	4		95	95
Wellhead Fugitives	---	---	---	---	---	282	28	166	2,588		54,515	54,499
Pneumatic Devices	---	---	---	---	---	207	21	122	1,901		40,037	40,026
Sub-total: Operations	28	7	134	0	67	606	80	53,811	4,619	0	150,961	145,832
Road Maintenance	4	0	0	0	0	0	0	141	0		141	128
Sub-total: Maintenance	4	0	0	0	0	0	0	141	0	0	141	128
Road Reclamation	0	0	0	0	0	0	0	8	0		8	7
Well Reclamation	1	0	0	0	0	0	0	25	0		25	22
Sub-total: Reclamation	1	0	0	0	0	0	0	33	0	0	33	30
Total Emissions	53	12	179	1	81	612	81	59,188	4,619	1	156,356	150,713

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-58. Summary of Output - Alternative F
Cumulative Total Annual Emissions from Natural Gas Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	2	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	2	2	44	1	12	3	0	5,093	0	0	5,111	4,623
Well Completion Flaring	0	0	0	0	1	3	0	0	0	0	0	0
Commuting Vehicles - Construction	13	1	0	0	1	0	0	110	0		110	100
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---	---
Sub-total: Construction	20	4	44	1	13	6	1	5,204	0	0	5,221	4,723
Natural Gas Compression - Operations ^a	5	5	135	0	68	68	20	54,039	113	0	56,563	51,410
Separator, Dehydrator & Water Tank Heaters - Operations ^a	0	0	0	0	0	0	0	115	0	0	115	104
Dehy Venting and Flashing	---	---	---	---	---	18	7	191	12		435	418
Station Visits - Operations	4	0	0	0	0	0	0	15	0		15	14
Well Workover - Operations	0	0	1	0	0	0	0	105	0	0	105	95
Well & Pipeline Visits for Inspection & Repair - Operations	19	2	0	0	1	0	0	33	0		33	30
Tanks Condensate and Loadout	---	---	---	---	---	20	2	1	3		73	73
Wellhead Fugitives	---	---	---	---	---	288	29	169	2,638		55,576	55,560
Pneumatic Devices	---	---	---	---	---	211	21	124	1,938		40,816	40,805
Sub-total: Operations	28	7	136	0	69	605	79	54,793	4,704	0	153,731	148,508
Road Maintenance	4	0	0	0	0	0	0	144	0		144	131
Sub-total: Maintenance	4	0	0	0	0	0	0	144	0	0	144	131
Road Reclamation	0	0	0	0	0	0	0	4	0		4	3
Well Reclamation	1	0	0	0	0	0	0	25	0		25	23
Sub-total: Reclamation	1	0	0	0	0	0	0	28	0	0	28	26
Total Emissions	53	12	181	1	82	612	80	60,169	4,704	1	159,124	153,388

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1; dehydrator unit HAP and formaldehyde HAP (gas compression) added separately

Note: Sub-totals and totals may not add up due to rounding

**Table U-59 Summary of Output - Alternative A
Total Annual Emissions from CBNG Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Wind Erosion	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Equipment Combustive Emissions ^a	0	0	0	0	0	0	0	0	0	0	0	0
Commuting Vehicles - Construction	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Construction	0	0	0	0	0	0	0	0	0	0	0	0
Natural Gas Compression - Operations ^a	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	0	0	0	0	0	0	0	0	0	0
Wellhead Fugitives	0	0	0	0	0	0	0	0	0	0	0	0
Pneumatics	0	0	0	0	0	0	0	0	0	0	0	0
Station Visits - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Well Workover - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Operations	0	0	0	0	0	0	0	0	0	0	0	0
Road Maintenance	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Maintenance	0	0	0	0	0	0	0	0	0	0	0	0
Road Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Well Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Total Emissions	0	0	0	0	0	0	0	0	0	0	0	0

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: No CBNG well development occurred during 2008 in the Planning Area

**Table U-60 Summary of Output - Alternative A
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	457	0	0	458	416
Commuting Vehicles - Construction	2	0	0	0	0	0	0	24	0		24	22
Sub-total: Construction	4	1	3	0	1	0	0	481	0	0	482	438
Natural Gas Compression - Operations ^a	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	3	87		1,828	1,659
Pneumatics	---	---	---	---	---	3	0	43	679		14,299	12,976
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	35	0	0	35	32
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	2	0		2	2
Sub-total: Operations	1	0	1	0	1	4	0	1,074	766	0	17,157	15,569
Road Maintenance	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Maintenance	0	0	0	0	0	0	0	2	0	0	2	2
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		2	1
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	1
Total Emissions	5	1	5	0	2	4	0	1,559	766	0	17,643	16,010

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-61 Summary of Output - Alternative A
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	457	0	0	458	416
Commuting Vehicles - Construction	2	0	0	0	0	0	0	24	0		24	22
Sub-total: Construction	4	1	3	0	1	0	0	481	0	0	482	438
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	6	174		3,656	3,318
Pneumatics	---	---	---	---	---	7	1	87	1,358		28,599	25,952
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	35	0	0	35	32
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	7	1	1,119	1,532	0	33,283	30,202
Road Maintenance	0	0	0	0	0	0	0	5	0		5	4
Sub-total: Maintenance	0	0	0	0	0	0	0	5	0	0	5	4
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	3	0		3	3
Sub-total: Reclamation	0	0	0	0	0	0	0	3	0	0	3	3
Total Emissions	4	1	5	0	2	8	1	1,608	1,532	0	33,773	30,647

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-62 Summary of Output - Alternative B
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	0	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	1	0	0	0	0	127	0	0	127	115
Commuting Vehicles - Construction	0	0	0	0	0	0	0	7	0		7	6
Sub-total: Construction	1	0	1	0	0	0	0	133	0	0	134	121
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	1	24		512	465
Pneumatics	---	---	---	---	---	1	0	12	190		4,004	3,633
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	10	0	0	10	9
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	1	0	1,014	214	0	5,518	5,008
Road Maintenance	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Maintenance	0	0	0	0	0	0	0	1	0	0	1	1
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Total Emissions	1	0	2	0	1	1	0	1,148	214	0	5,653	5,130

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-63 Summary of Output - Alternative B
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	0	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	1	0	0	0	0	127	0	0	127	115
Commuting Vehicles - Construction	0	0	0	0	0	0	0	7	0		7	6
Sub-total: Construction	1	0	1	0	0	0	0	133	0	0	134	121
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	2	49		1,024	929
Pneumatics	---	---	---	---	---	2	0	24	380		8,008	7,266
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	10	0	0	10	9
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	2	0	1,026	429	0	10,034	9,105
Road Maintenance	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Maintenance	0	0	0	0	0	0	0	1	0	0	1	1
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	1	0	2	0	1	2	0	1,162	429	0	10,170	9,228

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-64 Summary of Output - Alternative C
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	4	0	1	0	0	545	0	0	547	496
Commuting Vehicles - Construction	2	0	0	0	0	0	0	28	0		28	26
Sub-total: Construction	4	1	4	0	1	0	0	573	0	0	575	522
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	4	103		2,170	1,969
Pneumatics	---	---	---	---	---	4	0	52	806		16,969	15,398
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	42	0	0	42	38
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	2	0		2	2
Sub-total: Operations	1	0	1	0	1	4	0	1,090	909	0	20,175	18,307
Road Maintenance	0	0	0	0	0	0	0	3	0		3	3
Sub-total: Maintenance	0	0	0	0	0	0	0	3	0	0	3	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	6	1	5	0	2	5	0	1,668	909	0	20,755	18,834

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-65 Summary of Output - Alternative C
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	4	0	1	0	0	545	0	0	547	496
Commuting Vehicles - Construction	2	0	0	0	0	0	0	28	0		28	26
Sub-total: Construction	4	1	4	0	1	0	0	573	0	0	575	522
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	8	206		4,339	3,937
Pneumatics	---	---	---	---	---	8	1	103	1,611		33,937	30,796
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	42	0	0	42	38
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	9	1	1,143	1,817	0	39,311	35,672
Road Maintenance	0	0	0	0	0	0	0	6	0		6	5
Sub-total: Maintenance	0	0	0	0	0	0	0	6	0	0	6	5
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	4	0		4	3
Sub-total: Reclamation	0	0	0	0	0	0	0	4	0	0	4	3
Total Emissions	5	1	5	0	2	9	1	1,726	1,817	0	39,895	36,203

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-66 Summary of Output - Alternative D
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	435	0	0	436	396
Commuting Vehicles - Construction	2	0	0	0	0	0	0	23	0		23	21
Sub-total: Construction	3	1	3	0	1	0	0	458	0	0	459	417
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	3	82		1,731	1,571
Pneumatics	---	---	---	---	---	3	0	41	643		13,537	12,284
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	34	30
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	2	0		2	1
Sub-total: Operations	1	0	1	0	1	3	0	1,070	725	0	16,295	14,787
Road Maintenance	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Maintenance	0	0	0	0	0	0	0	2	0	0	2	2
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	5	1	4	0	2	4	0	1,531	725	0	16,758	15,207

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-67 Summary of Output - Alternative D
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	435	0	0	436	396
Commuting Vehicles - Construction	2	0	0	0	0	0	0	23	0		23	21
Sub-total: Construction	3	1	3	0	1	0	0	458	0	0	459	417
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	6	165		3,461	3,141
Pneumatics	---	---	---	---	---	6	1	82	1,285		27,074	24,568
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	34	30
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	7	1	1,112	1,450	0	31,561	28,640
Road Maintenance	0	0	0	0	0	0	0	5	0		5	4
Sub-total: Maintenance	0	0	0	0	0	0	0	5	0	0	5	4
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	3	0		3	3
Sub-total: Reclamation	0	0	0	0	0	0	0	3	0	0	3	3
Total Emissions	4	1	4	0	2	7	1	1,577	1,450	0	32,028	29,063

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-68 Summary of Output - Alternative E
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	0	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	1	0	0	0	0	116	0	0	116	105
Commuting Vehicles - Construction	0	0	0	0	0	0	0	6	0		6	5
Sub-total: Construction	1	0	1	0	0	0	0	122	0	0	122	111
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	1	22		463	420
Pneumatics	---	---	---	---	---	1	0	11	172		3,623	3,287
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	9	0	0	9	8
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	1	0	1,012	194	0	5,087	4,617
Road Maintenance	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Maintenance	0	0	0	0	0	0	0	1	0	0	1	1
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Total Emissions	1	0	2	0	1	1	0	1,134	194	0	5,211	4,728

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-69 Summary of Output - Alternative E
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	0	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	1	0	0	0	0	116	0	0	116	105
Commuting Vehicles - Construction	0	0	0	0	0	0	0	6	0		6	5
Sub-total: Construction	1	0	1	0	0	0	0	122	0	0	122	111
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	2	44		926	841
Pneumatics	---	---	---	---	---	2	0	22	344		7,245	6,574
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	9	0	0	9	8
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	2	0	1,023	388	0	9,173	8,324
Road Maintenance	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Maintenance	0	0	0	0	0	0	0	1	0	0	1	1
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	1	0	2	0	1	2	0	1,147	388	0	9,297	8,436

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-70 Summary of Output - Alternative F
Total Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	435	0	0	436	396
Commuting Vehicles - Construction	2	0	0	0	0	0	0	23	0		23	21
Sub-total: Construction	3	1	3	0	1	0	0	458	0	0	459	417
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	3	82		1,731	1,571
Pneumatics	---	---	---	---	---	3	0	41	643		13,537	12,284
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	34	30
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	2	0		2	1
Sub-total: Operations	1	0	1	0	1	3	0	1,070	725	0	16,295	14,787
Road Maintenance	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Maintenance	0	0	0	0	0	0	0	2	0	0	2	2
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	5	1	4	0	2	4	0	1,531	725	0	16,758	15,207

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-71 Summary of Output - Alternative F
Total Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	435	0	0	436	396
Commuting Vehicles - Construction	2	0	0	0	0	0	0	23	0		23	21
Sub-total: Construction	3	1	3	0	1	0	0	458	0	0	459	417
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	6	165		3,461	3,141
Pneumatics	---	---	---	---	---	6	1	82	1,285		27,074	24,568
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	33	0	0	34	30
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	7	1	1,112	1,450	0	31,561	28,640
Road Maintenance	0	0	0	0	0	0	0	5	0		5	4
Sub-total: Maintenance	0	0	0	0	0	0	0	5	0	0	5	4
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	3	0		3	3
Sub-total: Reclamation	0	0	0	0	0	0	0	3	0	0	3	3
Total Emissions	4	1	4	0	2	7	1	1,577	1,450	0	32,028	29,063

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-72 Summary of Output - Alternative A
Total Cumulative Annual Emissions from CBNG Wells - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Wind Erosion	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Equipment Combustive Emissions ^a	0	0	0	0	0	0	0	0	0	0	0	0
Commuting Vehicles - Construction	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Construction	0	0	0	0	0	0	0	0	0	0	0	0
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	0	0	0	0	0	0	0	0	0	0
Wellhead Fugitives	0	0	0	0	0	0	0	0	0	0	0	0
Pneumatics	0	0	0	0	0	0	0	0	0	0	0	0
Station Visits - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Well Workover - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Operations	0	0	0	0	0	0	0	0	0	0	0	0
Road Maintenance	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Maintenance	0	0	0	0	0	0	0	0	0	0	0	0
Road Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Well Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total: Reclamation	0	0	0	0	0	0	0	0	0	0	0	0
Total Emissions	0	0	0	0	0	0	0	0	0	0	0	0

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: No CBNG well development occurred during 2008 in the Planning Area

**Table U-73 Summary of Output - Alternative A
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	705	0	0	707	642
Commuting Vehicles - Construction	3	0	0	0	0	0	0	37	0		37	33
Sub-total: Construction	5	1	5	0	2	0	0	741	0	0	744	675
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	5	133		2,803	2,544
Pneumatics	---	---	---	---	---	5	1	67	1,041		21,926	19,896
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	54	0	0	54	49
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	3	0		3	2
Sub-total: Operations	2	0	1	0	1	6	1	1,119	1,174	0	25,778	23,392
Road Maintenance	0	0	0	0	0	0	0	4	0		4	3
Sub-total: Maintenance	0	0	0	0	0	0	0	4	0	0	4	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	7	1	7	0	3	6	1	1,866	1,174	0	26,528	24,073

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-74 Summary of Output - Alternative A
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	705	0	0	707	642
Commuting Vehicles - Construction	3	0	0	0	0	0	0	37	0		37	33
Sub-total: Construction	5	1	5	0	2	0	0	741	0	0	744	675
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	10	267		5,607	5,088
Pneumatics	---	---	---	---	---	10	1	133	2,082		43,852	39,793
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	54	0	0	54	49
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	11	1	1,188	2,348	0	50,505	45,830
Road Maintenance	0	0	0	0	0	0	0	8	0		8	7
Sub-total: Maintenance	0	0	0	0	0	0	0	8	0	0	8	7
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	5	0		5	4
Sub-total: Reclamation	0	0	0	0	0	0	0	5	0	0	5	4
Total Emissions	6	1	7	0	3	12	1	1,941	2,348	0	51,261	46,516

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-75 Summary of Output - Alternative B
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	336	0	0	337	306
Commuting Vehicles - Construction	1	0	0	0	0	0	0	17	0		18	16
Sub-total: Construction	3	0	3	0	1	0	0	353	0	0	354	322
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	2	64		1,341	1,217
Pneumatics	---	---	---	---	---	2	0	32	498		10,486	9,516
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	26	0	0	26	23
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	1	0		1	1
Sub-total: Operations	1	0	1	0	1	3	0	1,052	562	0	12,847	11,657
Road Maintenance	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Maintenance	0	0	0	0	0	0	0	2	0	0	2	2
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	3	1	4	0	2	3	0	1,408	562	0	13,204	11,982

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-76 Summary of Output - Alternative B
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	3	0	1	0	0	336	0	0	337	306
Commuting Vehicles - Construction	1	0	0	0	0	0	0	17	0		18	16
Sub-total: Construction	3	0	3	0	1	0	0	353	0	0	354	322
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	5	127		2,681	2,433
Pneumatics	---	---	---	---	---	5	0	64	996		20,972	19,031
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	26	0	0	26	23
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	5	1	1,085	1,123	0	24,672	22,389
Road Maintenance	0	0	0	0	0	0	0	4	0		4	3
Sub-total: Maintenance	0	0	0	0	0	0	0	4	0	0	4	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	3	1	4	0	2	6	1	1,444	1,123	0	25,033	22,716

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-77 Summary of Output - Alternative C
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	6	0	2	0	0	793	0	0	795	722
Commuting Vehicles - Construction	3	0	0	0	0	0	0	41	0		41	38
Sub-total: Construction	6	1	6	0	2	1	0	834	0	0	837	759
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	6	151		3,169	2,876
Pneumatics	---	---	---	---	---	6	1	75	1,177		24,786	22,492
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	61	0	0	61	55
Well & Pipeline Visits for Inspection & Repair - Operations	2	0	0	0	0	0	0	3	0		3	3
Sub-total: Operations	2	0	1	0	1	6	1	1,135	1,327	0	29,011	26,326
Road Maintenance	0	0	0	0	0	0	0	4	0		4	4
Sub-total: Maintenance	0	0	0	0	0	0	0	4	0	0	4	4
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	3	0		3	2
Sub-total: Reclamation	0	0	0	0	0	0	0	3	0	0	3	2
Total Emissions	8	1	7	0	3	7	1	1,976	1,327	0	29,855	27,091

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-78 Summary of Output - Alternative C
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	6	0	2	0	0	793	0	0	795	722
Commuting Vehicles - Construction	3	0	0	0	0	0	0	41	0		41	38
Sub-total: Construction	6	1	6	0	2	1	0	834	0	0	837	759
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	11	301		6,338	5,751
Pneumatics	---	---	---	---	---	12	1	151	2,353		49,571	44,983
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	61	0	0	61	55
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	13	1	1,213	2,655	0	56,963	51,690
Road Maintenance	0	0	0	0	0	0	0	9	0		9	8
Sub-total: Maintenance	0	0	0	0	0	0	0	9	0	0	9	8
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	5	0		5	5
Sub-total: Reclamation	0	0	0	0	0	0	0	5	0	0	5	5
Total Emissions	7	1	7	0	3	13	1	2,061	2,655	0	57,813	52,462

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-79 Summary of Output - Alternative D
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	683	0	0	685	621
Commuting Vehicles - Construction	3	0	0	0	0	0	0	36	0		36	32
Sub-total: Construction	5	1	5	0	2	0	0	718	0	0	720	654
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	5	130		2,730	2,477
Pneumatics	---	---	---	---	---	5	1	65	1,014		21,354	19,377
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	52	0	0	53	48
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	3	0		3	2
Sub-total: Operations	2	0	1	0	1	5	1	1,115	1,144	0	25,132	22,805
Road Maintenance	0	0	0	0	0	0	0	4	0		4	3
Sub-total: Maintenance	0	0	0	0	0	0	0	4	0	0	4	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	7	1	6	0	3	6	1	1,839	1,144	0	25,858	23,465

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-80 Summary of Output - Alternative D
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	683	0	0	685	621
Commuting Vehicles - Construction	3	0	0	0	0	0	0	36	0		36	32
Sub-total: Construction	5	1	5	0	2	0	0	718	0	0	720	654
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	10	260		5,460	4,955
Pneumatics	---	---	---	---	---	10	1	130	2,028		42,708	38,755
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	52	0	0	53	48
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	11	1	1,182	2,287	0	49,213	44,658
Road Maintenance	0	0	0	0	0	0	0	7	0		7	7
Sub-total: Maintenance	0	0	0	0	0	0	0	7	0	0	7	7
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	4	0		4	4
Sub-total: Reclamation	0	0	0	0	0	0	0	5	0	0	5	4
Total Emissions	6	1	6	0	3	11	1	1,912	2,287	0	49,945	45,323

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-81 Summary of Output - Alternative E
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	2	0	1	0	0	325	0	0	326	296
Commuting Vehicles - Construction	1	0	0	0	0	0	0	17	0		17	15
Sub-total: Construction	3	0	2	0	1	0	0	342	0	0	343	311
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	2	61		1,292	1,172
Pneumatics	---	---	---	---	---	2	0	31	480		10,105	9,170
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	25	0	0	25	23
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	1	0		1	1
Sub-total: Operations	1	0	1	0	1	3	0	1,050	541	0	12,416	11,266
Road Maintenance	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Maintenance	0	0	0	0	0	0	0	2	0	0	2	2
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	1	0		1	1
Sub-total: Reclamation	0	0	0	0	0	0	0	1	0	0	1	1
Total Emissions	3	1	3	0	2	3	0	1,394	541	0	12,761	11,580

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-82 Summary of Output - Alternative E
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	2	0	1	0	0	325	0	0	326	296
Commuting Vehicles - Construction	1	0	0	0	0	0	0	17	0		17	15
Sub-total: Construction	3	0	2	0	1	0	0	342	0	0	343	311
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	5	123		2,584	2,345
Pneumatics	---	---	---	---	---	5	0	61	959		20,210	18,339
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	25	0	0	25	23
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	5	1	1,081	1,082	0	23,811	21,607
Road Maintenance	0	0	0	0	0	0	0	3	0		3	3
Sub-total: Maintenance	0	0	0	0	0	0	0	3	0	0	3	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	3	0	3	0	2	5	1	1,429	1,082	0	24,160	21,924

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-83 Summary of Output - Alternative F
Total Cumulative Annual Emissions from CBNG Wells - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	683	0	0	685	621
Commuting Vehicles - Construction	3	0	0	0	0	0	0	36	0		36	32
Sub-total: Construction	5	1	5	0	2	0	0	718	0	0	720	654
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	0	0	5	130		2,730	2,477
Pneumatics	---	---	---	---	---	5	1	65	1,014		21,354	19,377
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	52	0	0	53	48
Well & Pipeline Visits for Inspection & Repair - Operations	1	0	0	0	0	0	0	3	0		3	2
Sub-total: Operations	2	0	1	0	1	5	1	1,115	1,144	0	25,132	22,805
Road Maintenance	0	0	0	0	0	0	0	4	0		4	3
Sub-total: Maintenance	0	0	0	0	0	0	0	4	0	0	4	3
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	2	0		2	2
Sub-total: Reclamation	0	0	0	0	0	0	0	2	0	0	2	2
Total Emissions	7	1	6	0	3	6	1	1,839	1,144	0	25,858	23,465

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-84 Summary of Output - Alternative F
Total Cumulative Annual Emissions from CBNG Wells - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Well Pad & Station Construction - Fugitive Dust	1	0	---	---	---	---	---	---	---	---	---	---
Wind Erosion	1	0	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Combustive Emissions ^a	0	0	5	0	2	0	0	683	0	0	685	621
Commuting Vehicles - Construction	3	0	0	0	0	0	0	36	0		36	32
Sub-total: Construction	5	1	5	0	2	0	0	718	0	0	720	654
Natural Gas Compression - Operations	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrators	0	0	0	0	0	0	0	0	0	0	0	0
Central Processing Heaters	0	0	1	0	1	0	0	990	0	0	992	901
Wellhead Fugitives	---	---	---	---	---	1	0	10	260		5,460	4,955
Pneumatics	---	---	---	---	---	10	1	130	2,028		42,708	38,755
Station Visits - Operations	0	0	0	0	0	0	0	0	0		0	0
Well Workover - Operations	0	0	0	0	0	0	0	52	0	0	53	48
Well & Pipeline Visits for Inspection & Repair - Operations	0	0	0	0	0	0	0	0	0		0	0
Sub-total: Operations	0	0	1	0	1	11	1	1,182	2,287	0	49,213	44,658
Road Maintenance	0	0	0	0	0	0	0	7	0		7	7
Sub-total: Maintenance	0	0	0	0	0	0	0	7	0	0	7	7
Road Reclamation	0	0	0	0	0	0	0	0	0		0	0
Well Reclamation	0	0	0	0	0	0	0	4	0		4	4
Sub-total: Reclamation	0	0	0	0	0	0	0	5	0	0	5	4
Total Emissions	6	1	6	0	3	11	1	1,912	2,287	0	49,945	45,323

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-85. Summary of Output - Alternative A
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	81	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	588	59	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	1	1	12	0	5	1	0	1,356	0	1,356	1,231
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---
Total Emissions	679	73	15	0	8	2	0	2,096	0	2,096	1,902

^aHAPs = Hazardous Air Pollutants, assumed = VOCs*0.1, and formaldehyde HAP added for gas compression

Note: Sub-totals and totals may not add up due to rounding

**Table U-86. Summary of Output - Alternative A
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	81	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	588	59	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	4	0	2	1	0	1,426	0	1,426	1,294
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---
Total Emissions	679	73	7	0	5	2	0	2,165	0	2,166	1,965

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-87. Summary of Output - Alternative A
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	81	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	588	59	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	1	0	1	0	0	1,426	0	1,426	1,294
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---
Total Emissions	678	73	4	0	4	2	0	2,165	0	2,166	1,966

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-88. Summary of Output - Alternative B
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	78	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	564	56	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	4	0	2	0	0	1,369	0	1,369	1,242
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---
Total Emissions	652	70	7	0	5	2	0	2,108	0	2,109	1,914

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-89. Summary of Output - Alternative B
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	97	15	---	---	---	---	---	---	---	---	---
Unpaved Roads	705	71	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	2	0	1	0	0	1,711	0	1,711	1,553
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---
Total Emissions	812	87	4	0	4	2	0	2,451	0	2,451	2,224

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-90. Summary of Output - Alternative C
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	98	15	---	---	---	---	---	---	---	---	---
Unpaved Roads	705	71	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	1	1	5	0	2	1	0	1,711	0	1,711	1,553
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---
Total Emissions	813	87	8	0	5	2	0	2,450	0	2,451	2,224

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-91. Summary of Output - Alternative C
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	97	15	---	---	---	---	---	---	---	---	---
Unpaved Roads	705	71	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	2	0	1	0	0	1,711	0	1,711	1,553
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---
Total Emissions	812	87	4	0	4	2	0	2,451	0	2,451	2,224

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-92. Summary of Output - Alternative D
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	73	11	---	---	---	---	---	---	---	---	---
Unpaved Roads	529	53	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	4	0	1	0	0	1,283	0	1,283	1,164
Wind Erosion	5	1	---	---	---	---	---	---	---	---	---
Total Emissions	612	66	7	0	5	2	0	2,022	0	2,023	1,836

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-93. Summary of Output - Alternative D
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	80	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	576	58	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	2	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	1	0	1	0	0	1,397	0	1,397	1,268
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---
Total Emissions	659	71	4	0	4	2	0	2,137	0	2,137	1,940

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-94. Summary of Output - Alternative E
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	80	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	576	58	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	2	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	4	0	2	0	0	1,397	0	1,397	1,268
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---
Total Emissions	660	71	7	0	5	2	0	2,136	0	2,137	1,939

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-95. Summary of Output - Alternative E
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	73	11	---	---	---	---	---	---	---	---	---
Unpaved Roads	529	53	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	4	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	1	0	0	0	0	1,283	0	1,283	1,165
Wind Erosion	4	1	---	---	---	---	---	---	---	---	---
Total Emissions	611	65	4	0	4	1	0	2,023	0	2,024	1,836

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-96. Summary of Output - Alternative F
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	81	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	588	59	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	2	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	4	0	2	1	0	1,426	0	1,426	1,294
Wind Erosion	3	0	---	---	---	---	---	---	---	---	---
Total Emissions	674	72	7	0	5	2	0	2,165	0	2,166	1,965

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-97. Summary of Output - Alternative F
Annual Emissions Estimation for Salable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Product Handling, Transfer, and Storage	81	12	---	---	---	---	---	---	---	---	---
Unpaved Roads	588	59	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	3	0	3	1	0	739	0	740	672
Heavy Equipment - Dust	2	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Combustive	0	0	1	0	1	0	0	1,426	0	1,426	1,294
Wind Erosion	2	0	---	---	---	---	---	---	---	---	---
Total Emissions	673	72	4	0	4	2	0	2,165	0	2,166	1,966

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-98. Summary of Output - Alternative A
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	439	122	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,124	308	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-99. Summary of Output - Alternative A
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	507	137	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,192	322	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-100. Summary of Output - Alternative A
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	423	124	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,108	310	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-101. Summary of Output - Alternative B
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	507	137	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,192	322	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-102. Summary of Output - Alternative B
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	423	124	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,108	310	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-103. Summary of Output - Alternative C
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	507	137	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,192	322	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-104. Summary of Output - Alternative C
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	423	124	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,108	310	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-105. Summary of Output - Alternative D
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	507	137	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,192	322	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-106. Summary of Output - Alternative D
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	423	124	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,108	310	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-107. Summary of Output - Alternative E
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	344	92	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	13	2										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,022	277	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-108. Summary of Output - Alternative E
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	302	85	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	13	2										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	1,980	270	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-109. Summary of Output - Alternative F
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	507	137	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,192	322	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-110. Summary of Output - Alternative F
Annual Emissions Estimation for Locatable Minerals Equipment Usage - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric Tonnes
Product Handling, Transfer, and Storage	1,197	132	47									
Batch Drop	2	0										
Mine Development	423	124	---	---	---	---	---	---	---	---	---	---
Unpaved Roads	462	46	---	---	---	---	---	---	---	---	---	---
Commuting - Exhaust	0	0	5	0	7	3	0	1,155	0		1,156	1,049
Heavy Equipment - Dust	20	3										
Heavy Equipment - Combustive	5	5	36	2	14	5	0	11,368	0		11,370	10,317
Total Emissions	2,108	310	88	2	21	7	1	12,523	0	0	12,525	11,366

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-111. Summary of Output - Alternative A
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	0	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	2	0	1	0	0	170	0	170	154
Sub-total: Heavy Equipment	1	0	2	0	1	0	0	170	0	170	154
Commuting Vehicles - Fugitive Dust	27	2	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	7	3	0	749	0	749	680
Sub-total: Commuting Vehicles	27	3	3	0	7	3	0	749	0	749	680
Total Emissions	27	3	4	0	8	3	0	919	0	919	834

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-112. Summary of Output - Alternative A
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	179	18	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	8	0	4	1	0	2,115	0	2,116	1,920
Sub-total: Heavy Equipment	179	19	8	0	4	1	0	2,115	0	2,116	1,920
Commuting Vehicles - Fugitive Dust	50	5	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	7	3	0	1,644	0	1,644	1,492
Sub-total: Commuting Vehicles	50	5	3	0	7	3	0	1,644	0	1,644	1,492
Total Emissions	230	24	11	0	10	4	0	3,759	0	3,760	3,412

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-113. Summary of Output - Alternative A
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	106	11	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	866	0	866	786
Sub-total: Heavy Equipment	106	11	1	0	1	0	0	866	0	866	786
Commuting Vehicles - Fugitive Dust	76	8	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	7	3	0	1,644	0	1,644	1,492
Sub-total: Commuting Vehicles	76	8	3	0	7	3	0	1,644	0	1,644	1,492
Total Emissions	182	19	4	0	7	3	0	2,510	0	2,511	2,278

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-114. Summary of Output - Alternative B
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	149	15	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	6	0	3	1	0	1,567	0	1,567	1,422
Sub-total: Heavy Equipment	150	15	6	0	3	1	0	1,567	0	1,567	1,422
Commuting Vehicles - Fugitive Dust	36	4	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	2	0	5	2	0	1,133	0	1,134	1,029
Sub-total: Commuting Vehicles	36	4	2	0	5	2	0	1,133	0	1,134	1,029
Total Emissions	186	19	8	0	8	3	0	2,700	0	2,700	2,450

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-115. Summary of Output - Alternative B
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	76	8	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	767	0	767	696
Sub-total: Heavy Equipment	77	8	1	0	1	0	0	767	0	767	696
Commuting Vehicles - Fugitive Dust	63	6	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	2	0	5	2	0	1,133	0	1,134	1,029
Sub-total: Commuting Vehicles	63	6	2	0	5	2	0	1,133	0	1,134	10,29
Total Emissions	139	14	3	0	5	2	0	1,900	0	1,901	1,725

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-116. Summary of Output - Alternative C
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	202	20	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	10	0	5	1	0	2,658	0	2,659	2,413
Sub-total: Heavy Equipment	203	21	10	0	5	1	0	2,658	0	2,659	2,413
Commuting Vehicles - Fugitive Dust	60	6	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	4	0	7	3	0	2,207	0	2,208	2,004
Sub-total: Commuting Vehicles	60	6	4	0	7	3	0	2,207	0	2,208	2,004
Total Emissions	264	27	14	1	12	4	0	4,866	0	4,867	4,416

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-117. Summary of Output - Alternative C
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	129	13	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	990	0	990	898
Sub-total: Heavy Equipment	130	13	1	0	1	0	0	990	0	990	898
Commuting Vehicles - Fugitive Dust	82	9	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	4	0	7	3	0	2,207	0	2,208	2,004
Sub-total: Commuting Vehicles	82	9	4	0	7	3	0	2,207	0	2,208	2,004
Total Emissions	212	22	5	0	8	4	0	3,197	0	3,198	2,902

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-118. Summary of Output - Alternative D
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	179	18	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	8	0	4	1	0	2,115	0	2,116	1,920
Sub-total: Heavy Equipment	179	19	8	0	4	1	0	2,115	0	2,116	1,920
Commuting Vehicles - Fugitive Dust	50	5	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	7	3	0	1,644	0	1,644	1,492
Sub-total: Commuting Vehicles	50	5	3	0	7	3	0	1,644	0	1,644	1,492
Total Emissions	230	24	11	0	10	4	0	3,759	0	3,760	3,412

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-119. Summary of Output - Alternative D
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	106	11	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	866	0	866	786
Sub-total: Heavy Equipment	106	11	1	0	1	0	0	866	0	866	786
Commuting Vehicles - Fugitive Dust	76	8	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	7	3	0	1,644	0	1,644	1,492
Sub-total: Commuting Vehicles	76	8	3	0	7	3	0	1,644	0	1,644	1,492
Total Emissions	182	19	4	0	7	3	0	2,510	0	2,511	2,278

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-120. Summary of Output - Alternative E
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	149	15	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	6	0	3	1	0	1,567	0	1,567	1,422
Sub-total: Heavy Equipment	150	15	6	0	3	1	0	1,567	0	1,567	1,422
Commuting Vehicles - Fugitive Dust	36	4	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	2	0	5	2	0	1,133	0	1,134	1,029
Sub-total: Commuting Vehicles	36	4	2	0	5	2	0	1,133	0	1,134	1,029
Total Emissions	186	19	8	0	8	3	0	2,700	0	2,700	2,450

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-121. Summary of Output - Alternative E
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	76	8	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	767	0	767	696
Sub-total: Heavy Equipment	77	8	1	0	1	0	0	767	0	767	696
Commuting Vehicles - Fugitive Dust	63	6	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	2	0	5	2	0	1,133	0	1,134	1,029
Sub-total: Commuting Vehicles	63	6	2	0	5	2	0	1,133	0	1,134	1,029
Total Emissions	139	14	3	0	5	2	0	1,900	0	1,901	1,725

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

Table U-122. Summary of Output - Alternative F
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2018

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	124	12	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	1	1	8	0	4	1	0	2,035	0	2,035	1,847
Sub-total: Heavy Equipment	125	13	8	0	4	1	0	2,035	0	2,035	1,847
Commuting Vehicles - Fugitive Dust	45	4	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	6	3	0	1,520	0	1,521	1,380
Sub-total: Commuting Vehicles	45	5	3	0	6	3	0	1,520	0	1,521	1,380
Total Emissions	170	18	11	0	10	4	0	3,555	0	3,556	3,227

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-123. Summary of Output - Alternative F
Total Annual Emissions from Renewable Energy, Rights-of-Way, and Corridor Development - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	51	5	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	1	0	0	848	0	848	769
Sub-total: Heavy Equipment	52	5	1	0	1	0	0	848	0	848	769
Commuting Vehicles - Fugitive Dust	70	7	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	3	0	6	3	0	1,520	0	1,521	1,380
Sub-total: Commuting Vehicles	71	7	3	0	6	3	0	1,520	0	1,521	1,380
Total Emissions	122	13	4	0	7	3	0	2,368	0	2,369	2,150

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-124. Summary of Output - Alternative A
Total Annual Emissions from Livestock Grazing Projects - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	6	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	0	0	0	78	0	78	71
Sub-total: Construction	6	1	1	0	0	0	0	78	0	78	71
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	13	1	404	0	407	369
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	13	1	404	5,708	120,273	109,140
Total Emissions	34	2	2	0	14	13	1	482	5,708	120,351	109,211

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-125. Summary of Output - Alternative A
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	6	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	84	0	84	76
Sub-total: Construction	6	1	0	0	0	0	0	84	0	84	76
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	13	1	404	0	407	369
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	13	1	404	5,708	120,273	109,140
Total Emissions	34	2	2	0	14	13	1	488	5,708	120,356	109,216

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-126. Summary of Output - Alternative A
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	6	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	81	0	81	74
Sub-total: Construction	6	1	0	0	0	0	0	81	0	81	74
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	13	1	404	0	407	369
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	13	1	404	5,708	120,273	109,140
Total Emissions	34	2	1	0	13	13	1	485	5,708	120,354	109,214

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-127. Summary of Output - Alternative B
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	42	0	42	38
Sub-total: Construction	3	0	0	0	0	0	0	42	0	42	38
Commuting Vehicles - Fugitive Dust	14	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	1	0	7	6	1	201	0	203	184
Enteric Fermentation and Manure	---	---	---	---	---	---	---		2,875	60,372	54,784
Sub-total: Operations and Maintenance	14	1	1	0	7	6	1	201	2,875	60,575	54,968
Total Emissions	17	1	1	0	7	6	1	243	2,875	60,616	55,006

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-128. Summary of Output - Alternative B
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	41	0	41	37
Sub-total: Construction	3	0	0	0	0	0	0	41	0	41	37
Commuting Vehicles - Fugitive Dust	14	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	1	0	7	6	1	201	0	203	184
Enteric Fermentation and Manure	---	---	---	---	---	---	---		2,875	60,372	54,784
Sub-total: Operations and Maintenance	14	1	1	0	7	6	1	201	2,875	60,575	54,968
Total Emissions	17	1	1	0	7	6	1	242	2,875	60,615	55,005

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-129. Summary of Output - Alternative C
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	11	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	1	0	0	0	0	167	0	167	152
Sub-total: Construction	11	1	1	0	0	0	0	167	0	167	152
Commuting Vehicles - Fugitive Dust	29	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	26	25	3	456	0	461	418
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	30	2	1	0	26	25	3	456	5,708	120,327	109,189
Total Emissions	41	3	2	0	26	25	3	623	5,708	120,494	109,341

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-130. Summary of Output - Alternative C
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	11	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	162	0	162	147
Sub-total: Construction	11	1	0	0	0	0	0	162	0	162	147
Commuting Vehicles - Fugitive Dust	29	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	26	25	3	456	0	461	418
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	30	2	1	0	26	25	3	456	5,708	120,327	109,189
Total Emissions	41	3	2	0	26	25	3	618	5,708	120,489	109,337

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-131. Summary of Output - Alternative D
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	6	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	84	0	84	76
Sub-total: Construction	6	1	0	0	0	0	0	84	0	84	76
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	13	1	404	0	407	369
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	13	1	404	5,708	120,273	109,140
Total Emissions	34	2	2	0	14	13	1	488	5,708	120,356	109,216

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-132. Summary of Output - Alternative D
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	6	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	81	0	81	74
Sub-total: Construction	6	1	0	0	0	0	0	81	0	81	74
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	13	1	404	0	407	369
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	13	1	404	5,708	120,273	109,140
Total Emissions	34	2	1	0	13	13	1	485	5,708	120,354	109,214

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-133. Summary of Output - Alternative E
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	42	0	42	38
Sub-total: Construction	3	0	0	0	0	0	0	42	0	42	38
Commuting Vehicles - Fugitive Dust	14	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	1	0	7	6	1	201	0	203	184
Enteric Fermentation and Manure	---	---	---	---	---	---	---		2,875	60,372	54,784
Sub-total: Operations and Maintenance	14	1	1	0	7	6	1	201	2,875	60,575	54,968
Total Emissions	17	1	1	0	7	6	1	243	2,875	60,616	55,006

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-134. Summary of Output - Alternative E
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	41	0	41	37
Sub-total: Construction	3	0	0	0	0	0	0	41	0	41	37
Commuting Vehicles - Fugitive Dust	14	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	1	0	7	6	1	201	0	203	184
Enteric Fermentation and Manure	---	---	---	---	---	---	---		2,875	60,372	54,784
Sub-total: Operations and Maintenance	14	1	1	0	7	6	1	201	2,875	60,575	54,968
Total Emissions	17	1	1	0	7	6	1	242	2,875	60,615	55,005

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-135. Summary of Output - Alternative F
Total Annual Emissions from Livestock Grazing Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	5	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	79	0	79	72
Sub-total: Construction	5	1	0	0	0	0	0	79	0	79	72
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	12	1	401	0	404	367
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	12	1	401	5,708	120,270	109,138
Total Emissions	33	2	2	0	13	12	1	481	5,708	120,349	109,210

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-136. Summary of Output - Alternative F
Total Annual Emissions from Livestock Grazing Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	5	1	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	0	0	0	77	0	77	70
Sub-total: Construction	5	1	0	0	0	0	0	77	0	77	70
Commuting Vehicles - Fugitive Dust	28	1	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	13	12	1	401	0	404	367
Enteric Fermentation and Manure	---	---	---	---	---	---	---		5,708	119,866	108,771
Sub-total: Operations and Maintenance	28	1	1	0	13	12	1	401	5,708	120,270	109,138
Total Emissions	33	2	1	0	13	12	1	478	5,708	120,347	109,208

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-137. Summary of Output - Alternative A
Total Annual Emissions from Forest Products - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	319	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	319	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-138. Summary of Output - Alternative A
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	319	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	319	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-139. Summary of Output - Alternative A
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	319	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	319	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-140. Summary of Output - Alternative B
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	213	21	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	213	21	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	216	22	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-141. Summary of Output - Alternative B
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	213	21	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	213	21	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	216	22	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-142. Summary of Output - Alternative C
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	429	43	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	429	43	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	432	43	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-143. Summary of Output - Alternative C
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	429	43	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	429	43	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	432	43	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-144. Summary of Output - Alternative D
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	319	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	319	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-145. Summary of Output - Alternative D
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	319	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	319	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-146. Summary of Output - Alternative E
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	213	21	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	213	21	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	216	22	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-147. Summary of Output - Alternative E
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	213	21	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	213	21	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	216	22	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-148. Summary of Output - Alternative F
Total Annual Emissions from Forest Products - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	320	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	320	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-149. Summary of Output - Alternative F
Total Annual Emissions from Forest Products - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	320	32	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust	0	0	0	0	1	0	0	17	0	17	15
Sub-total: Heavy Equipment	320	32	0	0	1	0	0	17	0	17	15
Commuting Vehicles - Fugitive Dust	3	0	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	0	0	0	19	0	19	18
Sub-total: Commuting Vehicles	3	0	0	0	0	0	0	19	0	19	18
Total Emissions	322	32	0	0	1	0	0	36	0	36	33

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-150. Summary of Output - Alternative A
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.01	96.19

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-151. Summary of Output - Alternative A
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.01	96.19

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-152. Summary of Output - Alternative A
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.05	96.23

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-153. Summary of Output - Alternative B
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	10.50	1.05	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.03	0.03	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Sub-total: Heavy Equipment	10.53	1.08	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Commuting Vehicles - Fugitive Dust	6.30	0.63	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.01	0.01	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.17	7.41
Sub-total: Commuting Vehicles	6.31	0.63	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.17	7.41
Total Emissions	16.84	1.71	0.29	0.01	0.34	0.09	0.01	52.99	0.00	53.00	48.10

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-154. Summary of Output - Alternative B
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	10.50	1.05	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.03	0.03	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Sub-total: Heavy Equipment	10.53	1.08	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Commuting Vehicles - Fugitive Dust	6.30	0.63	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.01	0.01	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.19	7.43
Sub-total: Commuting Vehicles	6.31	0.63	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.19	7.43
Total Emissions	16.84	1.71	0.29	0.01	0.34	0.09	0.01	52.99	0.00	53.02	48.12

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-155. Summary of Output - Alternative C
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	42.00	4.20	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.12	0.12	0.70	0.03	0.68	0.10	0.01	179.29	0.00	179.33	162.73
Sub-total: Heavy Equipment	42.12	4.32	0.70	0.03	0.68	0.10	0.01	179.29	0.00	179.33	162.73
Commuting Vehicles - Fugitive Dust	25.19	2.51	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.04	0.03	0.47	0.00	0.68	0.26	0.03	32.68	0.00	32.68	29.66
Sub-total: Commuting Vehicles	25.22	2.54	0.47	0.00	0.68	0.26	0.03	32.68	0.00	32.68	29.66
Total Emissions	67.34	6.86	1.17	0.03	1.36	0.36	0.04	211.98	0.00	212.01	192.39

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-156. Summary of Output - Alternative C
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	42.00	4.20	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.12	0.12	0.70	0.03	0.68	0.10	0.01	179.29	0.00	179.33	162.73
Sub-total: Heavy Equipment	42.12	4.32	0.70	0.03	0.68	0.10	0.01	179.29	0.00	179.33	162.73
Commuting Vehicles - Fugitive Dust	25.19	2.51	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.04	0.03	0.47	0.00	0.68	0.26	0.03	32.68	0.00	32.77	29.73
Sub-total: Commuting Vehicles	25.22	2.54	0.47	0.00	0.68	0.26	0.03	32.68	0.00	32.77	29.73
Total Emissions	67.34	6.86	1.17	0.03	1.36	0.36	0.04	211.98	0.01	212.10	192.46

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-157. Summary of Output - Alternative D
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.01	96.19

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-158. Summary of Output - Alternative D
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.05	96.23

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-159. Summary of Output - Alternative E
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	10.50	1.05	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.03	0.03	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Sub-total: Heavy Equipment	10.53	1.08	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Commuting Vehicles - Fugitive Dust	6.30	0.63	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.01	0.01	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.17	7.41
Sub-total: Commuting Vehicles	6.31	0.63	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.17	7.41
Total Emissions	16.84	1.71	0.29	0.01	0.34	0.09	0.01	52.99	0.00	53.00	48.10

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-160. Summary of Output - Alternative E
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	10.50	1.05	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.03	0.03	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Sub-total: Heavy Equipment	10.53	1.08	0.18	0.01	0.17	0.03	0.00	44.82	0.00	44.83	40.68
Commuting Vehicles - Fugitive Dust	6.30	0.63	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.01	0.01	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.19	7.43
Sub-total: Commuting Vehicles	6.31	0.63	0.12	0.00	0.17	0.06	0.01	8.17	0.00	8.19	7.43
Total Emissions	16.84	1.71	0.29	0.01	0.34	0.09	0.01	52.99	0.00	53.02	48.12

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-161. Summary of Output - Alternative F
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.34	14.83
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.01	96.19

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-162. Summary of Output - Alternative F
Total Annual Emissions from Vegetation Management of Invasive Species - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq}	CO _{2eq} metric tonnes
Heavy Equipment - Fugitive Dust	21.00	2.10	---	---	---	---	---	---	---	---	---
Heavy Equipment - Vehicle Exhaust ^a	0.06	0.06	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Sub-total: Heavy Equipment	21.06	2.16	0.35	0.02	0.34	0.05	0.01	89.65	0.00	89.66	81.36
Commuting Vehicles - Fugitive Dust	12.59	1.25	---	---	---	---	---	---	---	---	---
Commuting Vehicles - Vehicle Exhaust	0.02	0.02	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Sub-total: Commuting Vehicles	12.61	1.27	0.24	0.00	0.34	0.13	0.01	16.34	0.00	16.38	14.87
Total Emissions	33.67	3.43	0.59	0.02	0.68	0.18	0.02	105.99	0.00	106.05	96.23

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-163. Summary of Output - Alternative A
Total Annual Emissions from Fire Management Projects - Year 2008**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	1	1	3	0	9	2	0	406	0		406	369
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	1	0	7	7	1	164	0		165	150
Total Emissions	266	167	54	14	1,814	100	10	570	95	14	6,850	6,216

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-164. Summary of Output - Alternative A
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	266	166	51	14	1,806	99	10	286	95	14	6,565	5,957

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-165. Summary of Output - Alternative A
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	2	0	8	2	0	408	0		409	371
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	163	0		164	149
Total Emissions	266	167	52	14	1,813	100	10	571	95	14	6,851	6,217

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-166. Summary of Output - Alternative B
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	114	81	25	7	899	46	5	0	48	7	3,139	2,849
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	152	85	26	7	907	53	5	286	48	7	3,426	3,109

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-167. Summary of Output - Alternative B
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	114	81	25	7	899	46	5	0	48	7	3,139	2,849
Heavy Equipment Exhaust	1	1	4	0	21	4	0	1,049	0		1,050	952
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	18	17	2	417	0		420	381
Total Emissions	154	87	30	7	938	68	7	1,466	48	7	4,609	4,182

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-168. Summary of Output - Alternative C
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	455	324	100	28	3,597	183	18	0	190	28	12,556	11,394
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	493	328	101	28	3,605	190	19	286	191	28	12,843	11,654

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-169. Summary of Output - Alternative C
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	455	324	100	28	3,597	183	18	0	190	28	12,556	11,394
Heavy Equipment Exhaust	1	1	3	0	16	3	0	638	0		638	579
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	13	13	1	239	0		242	219
Total Emissions	494	329	104	28	3,626	200	20	877	191	28	13,436	12,193

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-170. Summary of Output - Alternative D
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	266	166	51	14	1,806	99	10	286	95	14	6,565	5,957

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-171. Summary of Output - Alternative D
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	1	0	5	1	0	279	0		279	253
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	5	4	0	112	0		113	103
Total Emissions	266	166	51	14	1,808	97	10	391	95	14	6,670	6,053

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-172. Summary of Output - Alternative E
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	104	73	23	6	809	41	4	0	43	6	2,825	2,564
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	142	77	23	6	817	48	5	286	43	6	3,112	2,824

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-173. Summary of Output - Alternative E
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	104	73	23	6	809	41	4	0	43	6	2,825	2,564
Heavy Equipment Exhaust	1	1	4	0	21	4	0	1,049	0		1,050	952
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	1	1	1	0	18	17	2	417	0		420	381
Total Emissions	144	79	27	6	849	63	6	1,466	43	6	4,295	3,897

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-174. Summary of Output - Alternative F
Total Annual Emissions from Fire Management Projects - Year 2018**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	1	0	1	0	0	132	0		132	120
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	7	7	1	154	0		154	140
Total Emissions	266	166	51	14	1,806	99	10	286	95	14	6,565	5,957

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-175. Summary of Output - Alternative F
Total Annual Emissions from Fire Management Projects - Year 2027**

Activity	Annual Emissions (Tons)											
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	N ₂ O	CO _{2eq}	CO _{2eq} metric tonnes
Fugitive Dust and Smoke	227	162	50	14	1,798	92	9	0	95	14	6,278	5,697
Heavy Equipment Exhaust	0	0	1	0	5	1	0	279	0		279	253
Commuting Vehicles - Fugitive Dust	38	4	---	---	---	---	---	---	---		---	---
Commuting Vehicles - Vehicle Exhaust	0	0	0	0	5	4	0	112	0		113	103
Total Emissions	266	166	51	14	1,808	97	10	391	95	14	6,670	6,053

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-176. Summary of Output - All Alternatives
Annual Criteria Air Pollutant Emissions from Off-highway Vehicles for Park, Hot Springs, Big Horn and Washakie Counties**

	2008				2018				2027			
	ATVs	Off-road Motorcycles	Snow- mobiles	2008 total	ATVs	Off-road Motorcycles	Snow- mobiles	2018 total	ATVs	Off-road Motorcycles	Snow- mobiles	2027 total
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
PM ₁₀	7.3	5.2	18.1	30.6	3.4	4.3	15.2	22.8	1.6	4.09	12.37	18.1
PM _{2.5}	6.6	4.7	16.2	27.5	3.0	3.8	13.7	20.6	1.4	3.7	11.1	16.2
NO _x	8.4	1.5	11.1	21.0	9.1	2.1	33.8	44.9	8.9	2.29	46.63	57.8
SO ₂	0.7	0.2	2.7	3.5	1.0	0.2	3.3	4.5	1.0	0.25	3.61	4.9
CO	680.2	169.5	1573.3	2423.0	829.6	179.8	1289.0	2298.4	829.0	187.11	1164.35	2180.5
VOC	219.4	137.6	693.8	1050.7	119.6	114.2	493.0	726.9	73.2	110.81	392.12	576.1

Note: Sub-totals and totals may not add up due to rounding

Tpy tons per year

**Table U-177. Summary of Output - Alternative A
Total Annual Emissions from Road Maintenance Projects - Year 2008**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.43	0.41	5.59	0.13	2.09	0.50	0.05	610.54	0.01	610.70	554.17
Total Emissions	80.19	8.97	5.59	0.13	2.09	0.50	0.05	610.54	0.01	610.70	554.17

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-178. Summary of Output - Alternative A
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.29	0.28	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	80.05	8.83	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-179. Summary of Output - Alternative A
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.18	0.17	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	79.95	8.72	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-180. Summary of Output - Alternative B
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	60.61	6.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.22	0.21	1.60	0.08	0.71	0.38	0.04	468.99	0.00	469.06	425.64
Total Emissions	60.83	6.71	1.60	0.08	0.71	0.38	0.04	468.99	0.00	469.06	425.64

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-181. Summary of Output - Alternative B
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	60.61	6.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.14	0.13	0.48	0.07	0.24	0.38	0.04	468.99	0.00	469.06	425.64
Total Emissions	60.75	6.63	0.48	0.07	0.24	0.38	0.04	468.99	0.00	469.06	425.64

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-182. Summary of Output - Alternative C
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	125.95	13.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.45	0.44	3.32	0.17	1.47	0.79	0.08	974.53	0.01	974.67	884.45
Total Emissions	126.40	13.94	3.32	0.17	1.47	0.79	0.08	974.53	0.01	974.67	884.45

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-183. Summary of Output - Alternative C
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	125.95	13.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.28	0.27	0.99	0.15	0.49	0.79	0.08	974.53	0.01	974.67	884.45
Total Emissions	126.23	13.78	0.99	0.15	0.49	0.79	0.08	974.53	0.01	974.67	884.45

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-184. Summary of Output - Alternative D
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.29	0.28	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	80.05	8.83	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-185. Summary of Output - Alternative D
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.18	0.17	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	79.95	8.72	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-186. Summary of Output - Alternative E
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	60.61	6.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.22	0.21	1.60	0.08	0.71	0.38	0.04	468.99	0.00	469.06	425.64
Total Emissions	60.83	6.71	1.60	0.08	0.71	0.38	0.04	468.99	0.00	469.06	425.64

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-187. Summary of Output - Alternative E
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	60.61	6.50	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.14	0.13	0.48	0.07	0.24	0.38	0.04	468.99	0.00	469.06	425.64
Total Emissions	60.75	6.63	0.48	0.07	0.24	0.38	0.04	468.99	0.00	469.06	425.64

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-188. Summary of Output - Alternative F
Total Annual Emissions from Road Maintenance Projects - Year 2018**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.29	0.28	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	80.05	8.83	2.10	0.11	0.93	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

**Table U-189. Summary of Output - Alternative F
Total Annual Emissions from Road Maintenance Projects - Year 2027**

Activity	Annual Emissions (Tons)										
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs ^a	CO ₂	CH ₄	CO _{2eq} tons	CO _{2eq} metric tonnes
Road Maintenance - Fugitive Dust	79.77	8.55	---	---	---	---	---				
Road Maintenance - Combustive Emissions ^a	0.18	0.17	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15
Total Emissions	79.95	8.72	0.63	0.10	0.31	0.50	0.05	617.20	0.00	617.29	560.15

^aHAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Note: Sub-totals and totals may not add up due to rounding

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***Proposed Resource Management Plan and
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Appendix V

Water Erosion Prediction Project (WEPP)
Technical Support Document

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APPENDIX V

WATER EROSION PREDICTION PROJECT (WEPP) TECHNICAL SUPPORT DOCUMENT

1.0 WEPP ANALYSIS

This appendix describes the process and results of the quantitative analysis conducted by the Bureau of Land Management (BLM) using the Water Erosion Prediction Project (WEPP) model for the Bighorn Basin Resource Management Plan (RMP) revision. The WEPP model was used to predict how management under each alternative would impact erosion in the Planning Area. WEPP simulates the conditions that impact erosion, such as the amount of vegetation canopy and soil water content. Specifically, the BLM used the WEPP model to calculate runoff amounts and erosion rates which were based on a series of parameters designed to estimate conditions in the Planning Area and model the impacts of management actions. The results of the analysis are described in the *Soil* and *Water* sections of Chapter 4 of the Proposed RMP and Final Environmental Impact Statement.

The WEPP model used by the BLM is a web-based interface designed by the United States Forest Service. The WEPP model can be accessed at: <http://forest.moscowfs.wsu.edu/fswepp/>. Erosion rates are inherently difficult to predict, and the rates of erosion predicted by WEPP are within +/-50 percent. Despite this lack of precision, these rates are appropriate for comparing and analyzing impacts of the alternatives on the soil resource. Erosion rates were calculated for different resource programs using surface disturbance acreage figures as projected in Appendix T.

Two modules available in the WEPP interface were used by the BLM to estimate erosion rates: WEPP Road and Disturbed WEPP. The WEPP Road module was used to predict erosion rates for new roads built in the Planning Area over the life of the plan. Disturbed WEPP was used to estimate runoff amounts and all other erosion rates as a result of surface-disturbing activity in the Planning Area. WEPP allows users to predict erosion rates for numerous forest and rangeland erosion conditions. In order to estimate these conditions, the BLM used certain assumptions and input parameters for the analysis.

Climate parameters used by the WEPP model were developed using Worland, Wyoming precipitation data at 5,000 feet of elevation in order to represent the entire Planning Area. Both the Disturbed WEPP and WEPP Road modules are limited to four soil textures (clay loam, silt loam, sandy loam, and loam); a loam soil texture was used for all erosion predictions.

All WEPP erosion analyses were conducted using a 50-year simulation to represent the return interval.

The following parameters were used to simulate conditions in the Planning Area:

- Slopes used in Disturbed WEPP: Upper slope 0 to 25 percent; lower slope 5 to 25 percent
- Slope lengths used in Disturbed WEPP: 300 feet (standard length used for environmental analysis in the Planning Area)
- Gradients used in WEPP Road: Road gradient 4 percent; fill gradient 30 percent; buffer gradient 15 percent
- Lengths used in WEPP Road: Road length 200 feet; fill length 15 feet; buffer length 130 feet
- Width used in WEPP Road: Road width 12 feet
- Rock cover used in Disturbed WEPP and WEPP Road: 5 percent

Appendix V – Water Erosion Prediction Project (WEPP)

In addition to simulating conditions in the Planning Area the BLM needed to model the conditions for short-term and long-term surface disturbances. Disturbed WEPP has eight vegetative treatment options available: 20-year-old forest, 5-year-old forest, shrub-dominated rangeland, tall-grass prairie, short-grass prairie, low-severity fire, high-severity fire, and skid trail. By adjusting cover parameters, these vegetative treatment options can be applied to a wide variety of vegetative communities and land uses. In order to simulate short-term and long-term disturbances, the following vegetation treatment and cover parameters were used:

- Short-term disturbance: high-severity fire with zero percent cover
- Long-term disturbance: short-grass prairie with 40 percent cover

The WEPP model, using these input parameters, calculated an initial average erosion rate of 4.165 tons per acre per year for short-term disturbances and a rate of 1.602 tons per acre per year for post-reclamation disturbances in the long term. Runoff amounts were calculated using the same parameters. The WEPP model estimated that areas impacted by short-term surface disturbance would experience 0.34 inches of runoff per year, and in the long term, average runoff would drop to 0.19 inches per year. The WEPP model estimated that with no disturbance there would be only trace amounts of annual runoff.

The WEPP Road module simulates road conditions using options for road design, road surface, and traffic level. Road design has four options including insloped, bare ditch; insloped, vegetated or rocked ditch; outsloped, rutted; and outsloped, unrutted. WEPP Road module options for road surface include native, graveled, or paved, and traffic level can be represented by a high, low, or no traffic option. For this analysis, the insloped, bare ditch road design, native road surface, and high traffic level were used. Using these parameters, the BLM calculated the erosion rate associated with road development to be 292.4 pounds per year per 200 foot long, 12 foot wide stretch of road.

Using these average erosion rates and the surface disturbance acreage figures as projected in Appendix T, the BLM calculated the erosion figures displayed in Table V-1.

Table V-1. Estimated Annual Erosion from BLM Actions by Resource (Tons/Year)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Mineral Resources – Leasable Oil and Gas (includes CBNG)						
Tons of Erosion from Disturbance in Short Term	14,794	6,272	16,293	14,282	6,235	14,257
Tons of Erosion from Disturbance in Long Term	2,296	971	2,531	2,216	964	2,212
Mineral Resources – Locatable Minerals						
Tons of Erosion from Disturbance in Short Term	83,300	62,475	83,300	83,300	62,475	83,300
Tons of Erosion from Disturbance in Long Term	16,020	8,010	16,020	16,020	8,010	16,020
Mineral Resources – Salable Minerals						
Tons of Erosion from Disturbance in Short Term	8,330	3,332	8,330	7,497	332	7,497
Tons of Erosion from Disturbance in Long Term	2,563	961	2,563	2,163	961	2,163
Mineral Resources – Other Solid Leasables						
Tons of Erosion from Disturbance in Short Term	0	0	0	0	0	0
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Mineral Resources – Leasable Geothermal						
Tons of Erosion from Disturbance in Short Term	0	0	0	0	0	0
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Fire and Fuels Management^{1,2}						
<i>Prescribed Fire</i>						
Tons of Erosion from Disturbance in Short Term	166,600	83,300	333,200	166,600	74,970	166,600
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
<i>Mechanical Fuels Treatment</i>						
Tons of Erosion from Disturbance in Short Term	124,950	20,825	249,900	124,950	20,825	124,950
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0

Appendix V – Water Erosion Prediction Project (WEPP)

Table V-1. Estimated Annual Erosion from BLM Actions by Resource (Tons/Year) (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Forest, Woodlands, and Forest Products						
Tons of Erosion from Disturbance in Short Term	124,950	83,300	166,600	124,950	83,300	124,950
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Invasive Species³						
Tons of Erosion from Disturbance in Short Term	8,330	417	16,660	8,330	417	8,330
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Fish and Wildlife Resources						
<i>Fisheries and Stream Enhancement Activities</i>						
Tons of Erosion from Disturbance in Short Term	0	379	0	0	379	0
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Watershed Enhancement Projects						
Tons of Erosion from Disturbance in Short Term	3,253	6,506	1,629	3,253	6,506	3,253
Tons of Erosion from Disturbance in Long Term	370	740	266	370	740	266
Health and Safety – Abandoned Facilities and AML						
<i>Abandoned Facilities</i>						
Tons of Erosion from Disturbance in Short Term	833	833	833	833	833	833
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
<i>Abandoned Mine Lands Restoration</i>						
Tons of Erosion from Disturbance in Short Term	0	0	0	0	0	0
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
Paleontological						
Tons of Erosion from Disturbance in Short Term	833	1,041	833	833	1,041	833
Tons of Erosion from Disturbance in Long Term	80	160	80	80	160	80

Table V-1. Estimated Annual Erosion from BLM Actions by Resource (Tons/Year) (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Renewable Energy – Wind Energy Development						
Tons of Erosion from Disturbance in Short Term	833	833	833	833	833	833
Tons of Erosion from Disturbance in Long Term	80	80	80	80	80	80
Rights-of-Way (ROW)						
<i>Telephone and Fiber Optics</i>						
Tons of Erosion from Disturbance in Short Term	908	900	908	908	900	908
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
<i>Pipelines (Mineral and Water)⁴</i>						
Tons of Erosion from Disturbance in Short Term	12,283	9,146	12,916	12,283	9,146	4,906
Tons of Erosion from Disturbance in Long Term	0	0	0	0	0	0
<i>Roads^{5,6}</i>						
Tons of Erosion from Disturbance in Short Term	5,217	3,261	12,307	5,217	3,261	3,564
Tons of Erosion from Disturbance in Long Term	2,608	1,632	6,154	2,608	1,629	1,783
<i>Powerlines</i>						
Tons of Erosion from Disturbance in Short Term	1,408	954	1,495	1,408	954	687
Tons of Erosion from Disturbance in Long Term	2	2	2	2	2	2
<i>Communication Sites</i>						
Tons of Erosion from Disturbance in Short Term	42	42	42	42	42	42
Tons of Erosion from Disturbance in Long Term	16	16	16	16	16	16
<i>Other Facilities⁷</i>						
Tons of Erosion from Disturbance in Short Term	875	396	970	875	396	754
Tons of Erosion from Disturbance in Long Term	336	152	373	336	152	290

Appendix V – Water Erosion Prediction Project (WEPP)

Table V-1. Estimated Annual Erosion from BLM Actions by Resource (Tons/Year) (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Comprehensive Trails and Travel Management						
<i>Motorized Vehicle Use</i>						
Tons of Erosion from Disturbance in Short Term	5,135	11,562	53,758	24,240	11,366	23,949
Tons of Erosion from Disturbance in Long Term	1,338	1,711	20,401	6,313	1,676	6,275
Recreation						
<i>Recreational Site Development</i>						
Tons of Erosion from Disturbance in Short Term	1,456	9,384	53,374	1,456	9,080	1,129
Tons of Erosion from Disturbance in Long Term	560	3,609	20,530	560	3,493	434
Livestock Grazing						
<i>Spring Development</i>						
Tons of Erosion from Disturbance in Short Term	21	10	42	21	10	20
Tons of Erosion from Disturbance in Long Term	2	1	8	2	1	1
<i>Pipeline Development</i>						
Tons of Erosion from Disturbance in Short Term	250	125	500	250	125	237
Tons of Erosion from Disturbance in Long Term	4	2	8	4	2	4
<i>Reservoir/Pit Development</i>						
Tons of Erosion from Disturbance in Short Term	167	83	333	167	83	158
Tons of Erosion from Disturbance in Long Term	8	4	16	8	4	8
<i>Fence Development</i>						
Tons of Erosion from Disturbance in Short Term	1,041	521	2,083	1,041	521	989
Tons of Erosion from Disturbance in Long Term	16	8	32	16	8	15

Table V-1. Estimated Annual Erosion from BLM Actions by Resource (Tons/Year) (Continued)

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<i>Well Development</i>						
Tons of Erosion from Disturbance in Short Term	21	10	42	21	10	20
Tons of Erosion from Disturbance in Long Term	2	1	3	2	1	2
<i>Reservoir Maintenance Development</i>						
Tons of Erosion from Disturbance in Short Term	42	21	83	42	21	35
Tons of Erosion from Disturbance in Long Term	3	2	6	3	4	8
Cumulative Disturbance						
Total Tons of Erosion from Disturbance in Short Term	567,492	307,960	1,023,099	583,827	299,169	570,877
Total Tons of Erosion from Disturbance in Long Term	25,065	17,450	66,459	29,326	17,305	28,297

¹Acres disturbed by mechanical fuels treatment and prescribed fire will naturally be reclaimed within 5 years. Therefore long-term erosion will be zero.

²Includes range enhancements and other wildlife habitat restoration actions.

³Surface disturbance activities resulting from invasive species projects will be naturally reclaimed within 5 years. Therefore long-term erosion will be zero.

⁴Actions would likely be mostly oil and gas related, including carbon dioxide and energy pipeline.

⁵Calculated using WEPP Road module and parameters.

⁶Approximately 50 percent of roads would be oil and gas related, with the rest coming from local demand.

⁷Actions would likely be mostly oil and gas related.

AML Abandoned Mine Land
 BLM Bureau of Land Management
 CBNG coalbed natural gas
 ROW Right-of-way
 WEPP Water Erosion Prediction Project

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Appendix W

Utilization Levels in the Planning Area

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APPENDIX W

UTILIZATION LEVELS IN THE PLANNING AREA

1.0 INTRODUCTION

Utilization is the percentage of forage that has been consumed or destroyed during a specific period. By comparing measured utilization with appropriate use levels for key forage plants, and by comparing utilization with actual use, climate, and trend data, short- and long-term stocking level adjustments can be made. Utilization monitoring provides an index to the amount of the current year's standing crop that remains on the range following grazing. This standing crop helps maintain soil productivity, livestock diet quality, wildlife habitat, and forage plant vigor.

Use pattern mapping will be collected on scheduled allotments to provide an estimate of forage utilization on a pasture or allotment basis. On priority allotments, more detailed utilization data may be collected on key forage plants along permanent transects on existing or new, cooperatively established key areas.

Utilization will be measured on the standing vegetation in a pasture or allotment using Bureau of Land Management (BLM) approved methods. When practical, the times for measuring utilization will be agreed upon by the BLM and livestock grazing permittees, or otherwise will be consistent with federal regulations and BLM policy.

The utilization levels provided in Table W-1 are generally considered to be appropriate for the precipitation levels, vegetative communities, and grazing seasons encountered in the Planning Area. These utilization levels will be considered during the allotment monitoring, assessment, and evaluation process, as well as during activity plan development and the National Environmental Policy Act (NEPA) and permit/lease renewal process, and will be linked to climatic conditions and site-specific vegetative community information.

Although utilization levels may vary from year to year, utilization levels which consistently exceed the levels displayed in Table W-1 would not be expected to meet watershed and vegetation management objectives. Some exceptions may occur. Specialized grazing management may require utilization levels different than those cited.

Although the growing season varies by precipitation zone and from year to year, the growth curves described in the Natural Resources Conservation Service (NRCS) Ecological Site Technical Guides would be used as a guide to growing seasons.

The utilization levels in the Planning Area (Table W-1) were developed from 30 years of experience and success by the BLM in the Wind River/Bighorn Basin District. The prescribed and/or desired grazing management that provides plant recovery time and associated utilization levels is supported by the references provided following the table.

Table W-1. Utilization Levels in the Planning Area

On an allotment-by-allotment basis, the following utilization levels ¹ for key species and key areas would be established ² as appropriate in allotments not meeting or not making acceptable progress toward meeting rangeland health standards due to current livestock grazing use or not meeting allotment objectives under current prescribed grazing management. ³		On an allotment-by-allotment basis, the following utilization levels ¹ for key species and key areas would be established ² as appropriate in allotments meeting or making acceptable progress toward meeting rangeland health standards under current livestock grazing use and/or meeting allotment objectives under current prescribed grazing management. ³	
Key grass species on key upland sites receiving 14 or less inches annual precipitation	35% or less utilization of current standing crop during growing season ⁴ 50% or less utilization of current year’s growth during dormant season ⁵	Key grass species on key upland sites receiving 14 or less inches annual precipitation	50% or less utilization of current standing crop during growing season ⁴ 60% or less utilization of current year’s growth during dormant season ⁵
Key grass species on key upland sites receiving greater than 14 inches annual precipitation	45% or less utilization of current standing crop during growing season ⁴ 60% or less utilization of current year’s growth during dormant season ⁵	Key grass species on key upland sites receiving greater than 14 inches annual precipitation	55% or less utilization of current standing crop during growing season ⁴ 65% or less utilization of current year’s growth during dormant season ⁵
Key grass species on all riparian sites	Less than 50% utilization of current year’s growth	Key grass species on all riparian sites	Less than 50% utilization of current year’s growth
Key shrub/woody species on all sites	Less than 35% utilization of current year’s growth	Key shrub/woody species on all sites	Less than 40% utilization of current year’s growth

¹In areas where extensive wildlife use occurs (crucial winter ranges for elk, bighorn sheep, pronghorn, and winter sage-grouse concentration areas or sage-grouse nesting habitat and brood rearing habitat), utilization levels may need to be adjusted downward to ensure that total utilization of the current year’s growth following the use period of large ungulates (livestock and /or wildlife) does not exceed the prescribed level for dormant season use. During the collection/evaluation of utilization data if desired levels are consistently exceeded and the causal factor(s) are identified (livestock/wildlife/wild horses etc.), management actions/mitigation to alleviate the overuse would be employed and directed towards those responsible for the overuse. Please refer to Section 3.6.7 of the document for more information about wildlife and livestock grazing.

²Although levels may vary widely from year to year, utilization levels which consistently exceed these would not be expected to meet watershed and vegetation management objectives and would necessitate an adjustment in management.

³“Prescribed grazing” is defined as the controlled harvest of vegetation with grazing or browsing animals designed to meet rangeland health standards and allotment specific resource objectives. Prescribed grazing management is outlined in management agreements, allotment management plans, the terms and conditions of a permit or lease, etc. Grazing systems (rest rotation, deferred rotation, short duration, conservatively stocked season-long, etc.), range improvement projects, utilization standards, etc., are tools which could be used on an allotment specific basis to achieve resource objectives.

⁴Growing season in the 5-9 inch precipitation zone is generally considered to be April-June. Growing season in the 10-14 inch precipitation zone is generally considered to be May-July 15. Growing season in the 15-19 inch precipitation zone is generally considered to be May 15-August 1.

⁵Dormant season is defined as the period outside of growing season.

Sources: Holecheck et al. 2010; Anderson 1991; Mueggler 1975; Cagney et al. 2010

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Appendix X

Visual Resource Inventory

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APPENDIX X

VISUAL RESOURCE INVENTORY

1.0 OVERVIEW

The visual resource inventory process provides Bureau of Land Management (BLM) managers with a means for determining visual values. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources. Classes I and II being the most valued, Class III representing a moderate value, and Class IV being of least value. The inventory classes provide the basis for considering visual values in the resource management planning (RMP) process. Visual Resource Management classes are established through the RMP process for all BLM-administered lands. During the RMP process, the class boundaries are adjusted as necessary to reflect the resource allocation decisions made in RMPs.

2.0 DELINEATING SCENIC QUALITY RATING UNITS

The Planning Area is subdivided into scenic quality rating units (SQRUs) for rating purposes. Rating areas are delineated on a basis of: like physiographic characteristics; similar visual patterns, texture, color, variety, etc.; and areas which have similar impacts from man-made modifications. The size of SQRU's may vary from several thousand acres to 100 or less acres, depending on the homogeneity of the landscape features and the detail desired in the inventory. Refer to Map X-1 to see the SQRUs delineated for the Bighorn Basin.

3.0 SCENIC QUALITY EVALUATION

Scenic quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are given an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural. During the rating process, each of these factors are ranked on a comparative basis with similar features within the physiographic province. The "Ecoregions of the United States" by R.G. Bailey is used in making these refinements (Bailey 1994). An important premise of the evaluation is that all public lands have scenic value, but areas with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that the evaluation of scenic quality is done in relationship to the natural landscape. This does not mean that man-made features within a landscape necessarily detract from the scenic value. Man-made features that complement the natural landscape may enhance the scenic value. Evaluations should avoid any bias against man-made modification to natural landscape. Each SQRU is evaluated by an interdisciplinary team by observing the area from several important viewpoints. Scores should reflect the evaluator's overall impression of the area. Refer to Map X-2 for an illustration of the scenic quality evaluation for the Bighorn Basin.

4.0 SENSITIVITY LEVEL ANALYSIS

Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern. In evaluating sensitivity levels, the following six key factors are considered:

1. **Type of Users.** Visual sensitivity will vary with the type of users. Recreational sightseers may be highly sensitive to any changes in visual quality, whereas workers who pass through the area on a regular basis may not be as sensitive to change.
2. **Amount of Use.** Areas seen and used by large numbers of people are potentially more sensitive. Protection of visual values usually becomes more important as the number of viewers increase.
3. **Public Interest.** The visual quality of an area may be of concern to local, state, or national groups. Indicators of this concern are usually expressed in public meetings, letters, newspaper or magazine articles, newsletters, land-use plans, etc. Public controversy created in response to proposed activities that would change the landscape character should also be considered.
4. **Adjacent Land Uses.** The interrelationship with land uses in adjacent lands can affect the visual sensitivity of an area. For example, an area within the view shed of a residential area may be very sensitive, whereas an area surrounded by commercially developed lands may not be visually sensitive.
5. **Special Areas.** Management objectives for special areas such as Natural Areas, Wilderness Areas or Wilderness Study Areas, Wild and Scenic Rivers, Scenic Areas, Scenic Roads or Trails, and Areas of Critical Environmental Concern, frequently require special consideration for the protection of the visual values. This does not necessarily mean that these areas are scenic, but rather that one of the management objectives may be to preserve the natural landscape setting. The management objectives for these areas may be used as a basis for assigning sensitivity levels.
6. **Other Factors.** Consider any other information such as research or studies that includes indicators of visual sensitivity.

Map X-3 illustrates the sensitivity levels evaluated for the Bighorn Basin.

5.0 DISTANCE ZONES

Landscapes are subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are: foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations which are less than 3 to 5 miles away. Seen areas beyond the foreground-middleground zone but usually less than 15 miles away are in the background zone. Areas not seen as foreground-middleground or background (i.e., hidden from view) are in the seldom-seen zone. For the Bighorn Basin, linear transportation routes transect through nearly the entire planning area, which eliminates the background and seldom seen areas. As a result, the entire Bighorn Basin Planning Area is evaluated and delineated as foreground/middle ground zone. Refer to Map X-4 for an illustration of the Planning Area's distance zones.

6.0 VISUAL RESOURCE INVENTORY CLASSES

After evaluating and rating scenic quality, sensitivity levels, and delineating distance zones, visual resource inventory classes are assigned to each SQRU. Class I is assigned to those areas where a management decision has been made previously to maintain a natural landscape. This includes areas such as national wilderness areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. Classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance zones. This is accomplished by combining the three overlays for scenic quality, sensitivity levels, and distance zones and using the guidelines shown in Table X-1 to assign the proper class. The end product is a visual resource inventory class overlay as shown in Map X-5. Inventory classes are informational in nature and provide the basis for considering visual values in the RMP process.

Table X-1. Visual Resource Inventory Matrix

		Visual Sensitivity Levels						
		High			Medium			Low
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III	III*	III	IV	IV	IV
				IV*				
	C	III	IV	IV	IV	IV	IV	IV
		f/m	b	s/s	f/m	b	s/s	s/s
		Distance Zones						

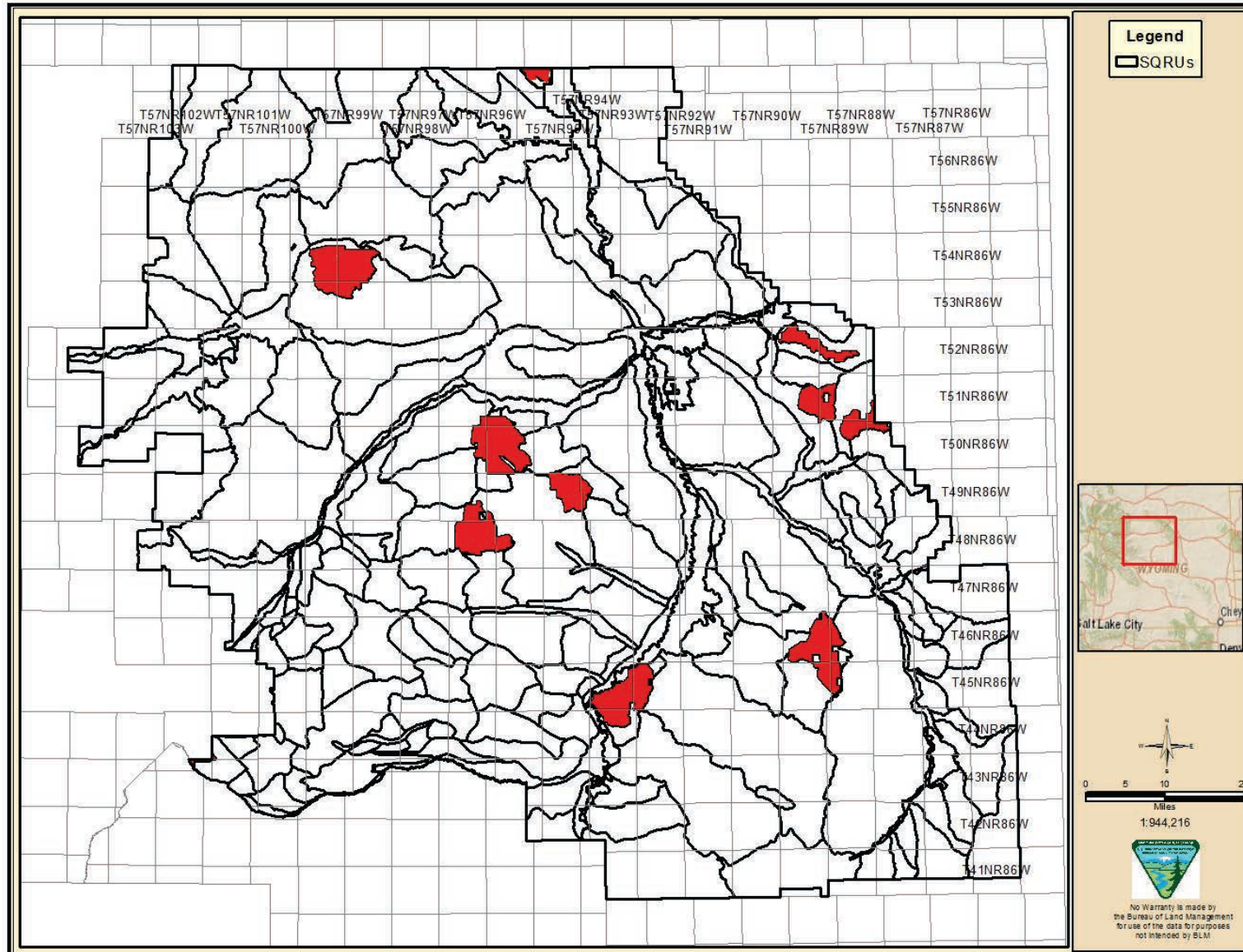
Source: BLM 1986

Distance zones: f/m = foreground-midground, b = background, s/s = seldom seen areas

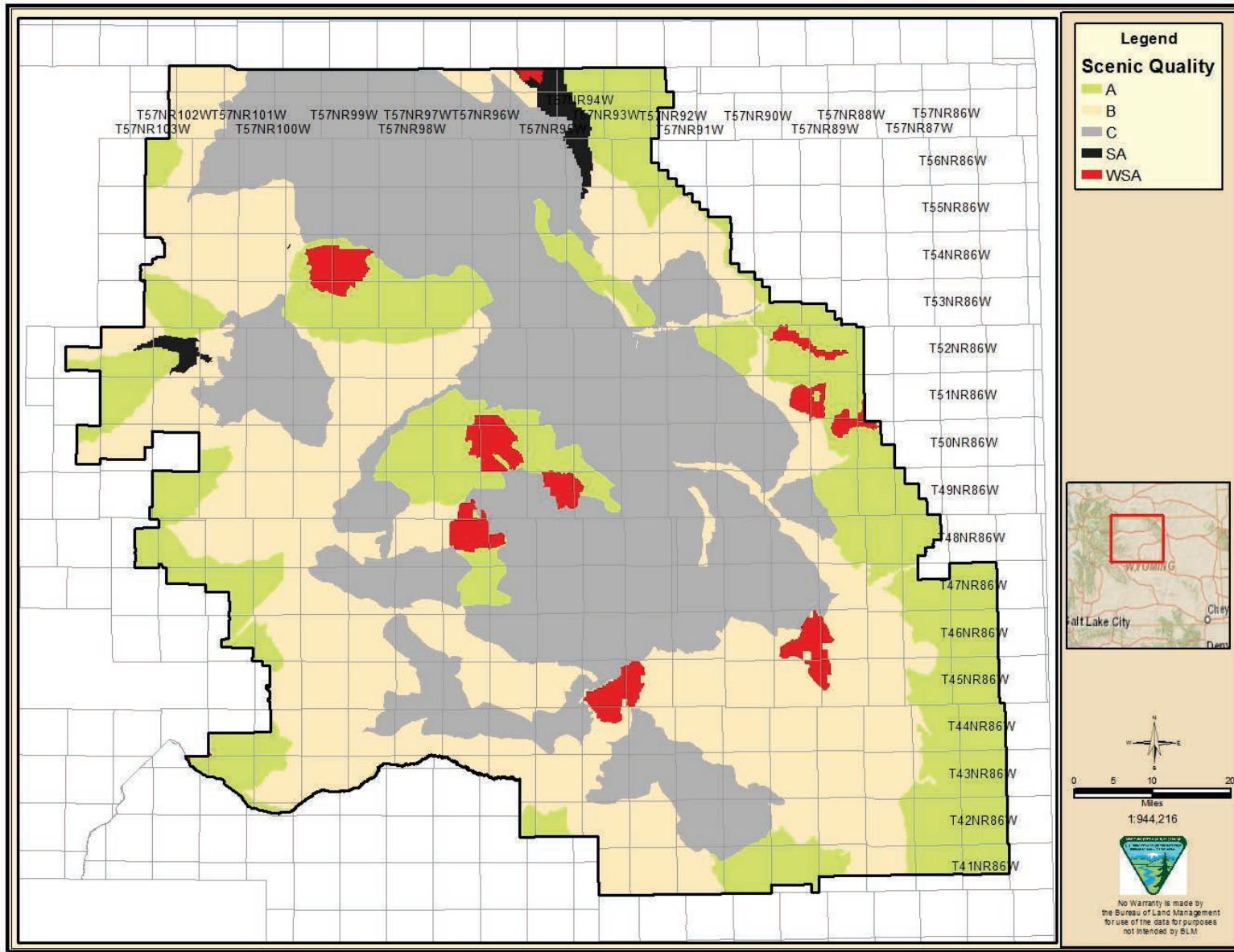
*If adjacent area is Class III or lower, assign Class III, if higher, assign Class IV

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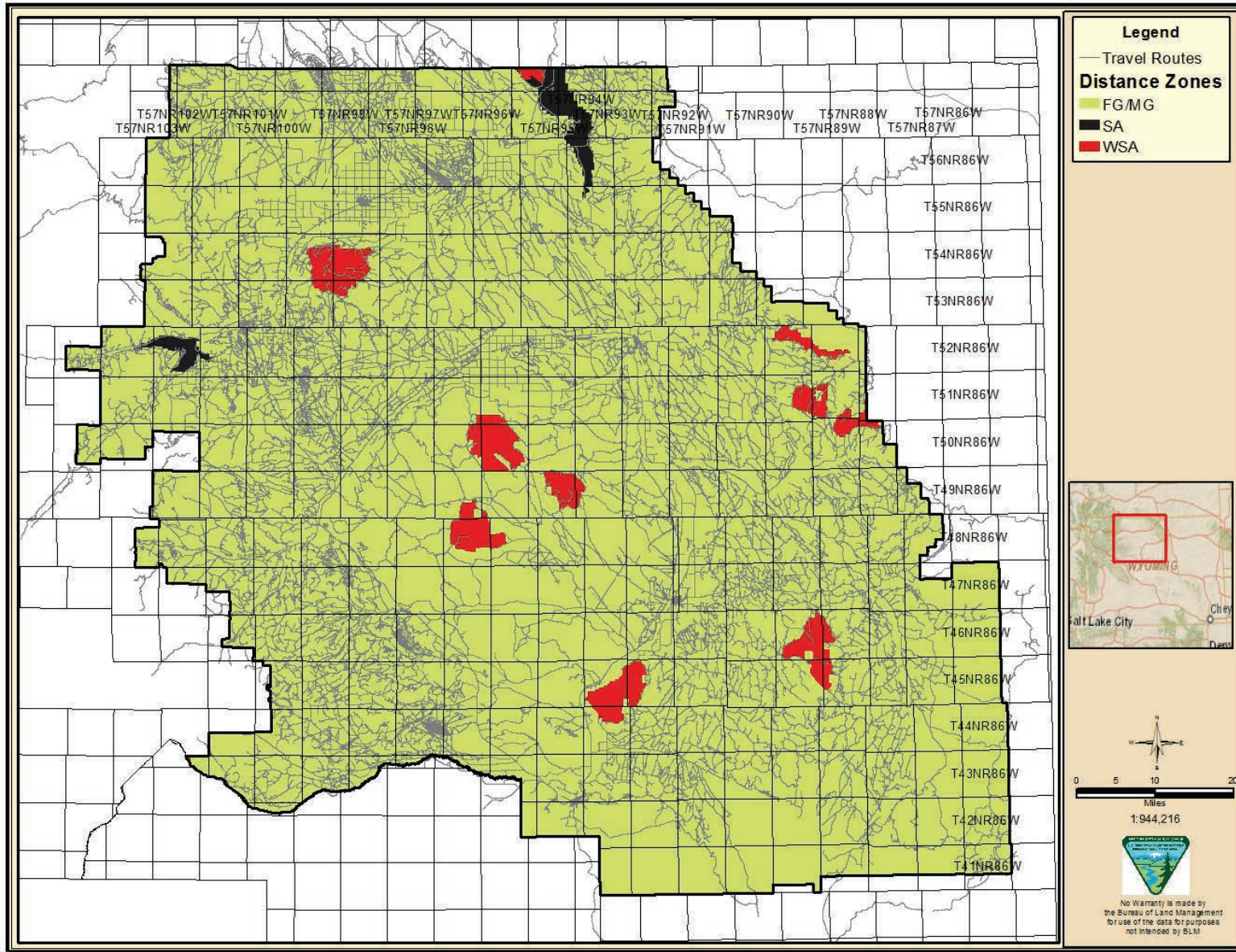
Map X-1. Scenic Quality Rating Units



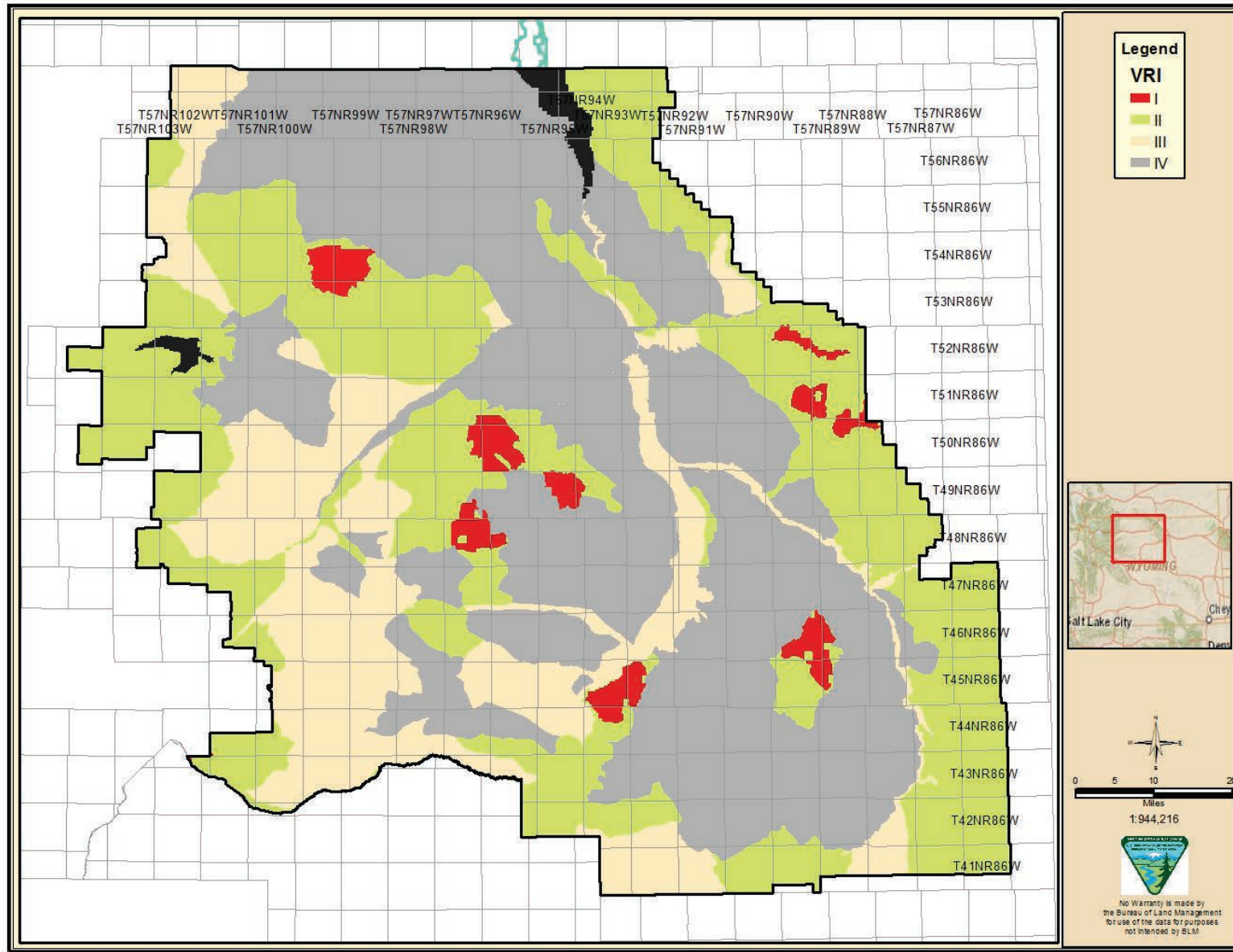
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Map X-4. Distance Zones



Map X-5. Bighorn Basin Visual Resource Inventory



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Appendix Y

Greater Sage-Grouse Implementation Strategy

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APPENDIX Y

GREATER SAGE-GROUSE IMPLEMENTATION STRATEGY

1.0 INTRODUCTION

The Bighorn Basin Resource Management Plan (RMP) and Final EIS provides specific goals, objectives, management actions, and required design features for the conservation of greater sage-grouse in Wyoming. These are the commitments made to meet the federal agencies' national policy and direction for the conservation of greater sage-grouse in light of the 2010 U.S. Fish and Wildlife Service (USFWS) listing decision as warranted but precluded from listing under the Endangered Species Act. Through the National Planning Strategy, BLM and U.S. Forest Service (USFS) in coordination with USFWS have identified conservation measures to be included in the respective agencies' land use plans as the principal regulatory mechanisms to assure adequate conservation of the greater sage-grouse and its habitat on public lands.

The measures identified in this RMP have been developed in coordination with not just the USFWS, but also the State of Wyoming, including the Wyoming Game and Fish Department (WGFD), and local cooperating agencies including conservation districts and counties.

Wyoming has established Core Population Areas to help delineate landscape planning units by distinguishing areas of high biological value. These areas are based on the locations of breeding areas and are intended to help balance greater sage-grouse habitat requirements with demand for energy development (Doherty et al. 2011). The Proposed RMP is consistent with the Core Area Strategy, but contains additional restrictions to protect other resources, which results in added protections to greater sage-grouse habitat and achieving conservation objectives identified in the Conservation Objectives Team (COT) Report on BLM-managed public lands. The COT Report indicates that the Core Area Strategy is a substantial regulatory mechanism that contributes to the conservation of greater sage-grouse and balances the priorities of retaining a healthy greater sage-grouse population on the landscape and energy development.

This appendix will introduce the framework for implementation of greater sage-grouse conservation measures within the Cody and Worland Field Offices. Implementation is a combination of permitting activities under the auspices of management direction provided in the Land Use Plan (LUP), undertaking specific activities in pursuit of the goals and objectives identified in the plan and monitoring of sage brush habitat and populations.

The implementation framework outlined here is focused specifically towards greater sage-grouse and is reflective of how the national strategy will be assimilated into the existing statewide implementation efforts currently in place in Wyoming. This framework has been developed mindful of the varying scales at which implementation will be evaluated: at the local level to define successful conservation measures, at the state level to assess success of the statewide strategy, and across the species' range.

In 2013, the Director of U.S. Fish and Wildlife Service tasked staff with the development of range-wide conservation objectives for the sage-grouse to define the degree to which threats need to be reduced or ameliorated to conserve sage-grouse so that it is no longer in danger of extinction or likely to become in danger of extinction in the foreseeable future. Recognizing that state wildlife agencies have management expertise and management authority for sage-grouse, the FWS created a COT of state and USFWS representatives to accomplish this task.

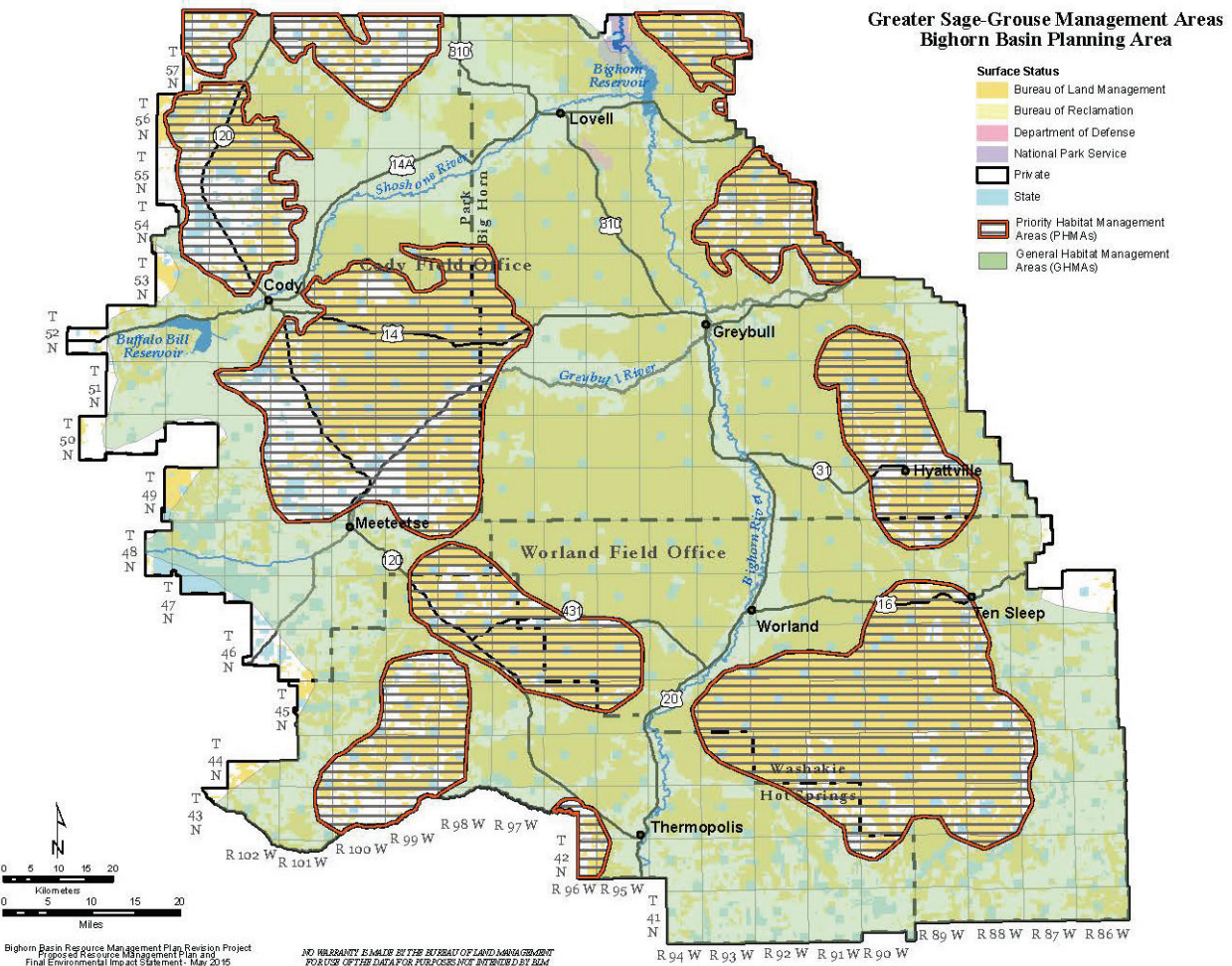
The COT conservation framework consisted of (1) identifying greater sage-grouse population and habitat status and threats, (2) defining a broad conservation goal, (3) identifying priority areas for conservation, and (4) developing specific conservation objectives and measures. The COT used three parameters—population and habitat representation, redundancy, and resilience (Shaffer and Stein 2010, Redford et al. 2011)—as guiding concepts in developing the conservation goal, priority areas for conservation, conservation objectives, and measures.

The COT report identified priority areas for greater sage-grouse population habitats as Priority Areas for Conservation or (PACs). PACs are recognized as key areas across the landscape that are necessary to maintain redundant, representative, and resilient populations” of the species. The COT Report describes maintaining the integrity of PACs as “the essential foundation for greater sage-grouse conservation.” PACs cover nearly 73 million acres across the west; within the Bighorn Basin Planning Area, more than 1.1 million acres of BLM-administered surface are considered priority habitat (Table Y-1). Thirty-five percent of the priority habitat in the Planning Area is BLM-administered surface and twenty-six percent is BLM-administered minerals. Based upon 2007 lek counts, and the population data contained in the COT Report, the Bighorn Basin Planning Area contains an estimated two percent of the range-wide population of greater sage-grouse. Priority Habitat Management Areas (PHMAs) and General Habitat Management Areas (GHMAs) within the Planning Area are depicted in Figure Y-1.

Table Y-1. Greater Sage-Grouse Habitat within the Bighorn Basin Planning Area

<i>Populations / Subpopulations: Wyoming Basin and Powder River Basin Populations WAFWA Management Zone I and II</i>		
Surface Estate	Priority Habitat Acres (%)	General Habitat Acres (%)
Private	505,850 (28)	1,327,877 (36)
State	151,591 (8)	244,045 (7)
BLM	1,115,076 (62)	2,034,027 (55)
Other	13,652 (1)	86,707 (2)
Total	1,786,169	3,692,656
Fluid Mineral Estate	Priority Habitat Acres (%)	General Habitat Acres (%)
Non-federal	360,032 (20)	1,099,993 (30)
BLM	1,426,137 (80)	2,592,663 (70)
Total	1,786,169	3,692,656

Figure Y-1. Priority Habitat Management Areas and General Habitat Management Areas within the Planning Area Bighorn Basin Planning Area



The conservation objectives identified in the COT Report, targeted at maintaining redundant, representative, and resilient greater sage-grouse habitats and populations, is the basis by which the greater sage-grouse elements of the Bighorn Basin Proposed RMP were developed. Due to the variability in ecological conditions and the nature of the threats across the range of the greater sage-grouse, developing detailed, prescriptive species or habitat actions was not attainable at the range-wide scale. Specific strategies and actions necessary to achieve the conservation objectives have been developed by BLM and USFS in cooperation with state and local governments to ensure implementation of activities to meet the objectives identified in the COT report.

2.0 COT OBJECTIVE 1: STOP POPULATION DECLINES AND HABITAT LOSS

“There is an urgent need to ‘stop the bleeding’ of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion. There are no populations within the range of sage-grouse that are immune to the threat of habitat loss and fragmentation.” (COT Report 2013)

The COT Report identified a series of threats to greater sage-grouse habitat and the extent of those threats at the population scale. The management actions identified in the RMP were specifically designed to reduce the threats, as they were identified. The Wyoming 9-Plan RMP encompasses lands within WAFWA Management Zones 1 and 2. To ensure that the threats are adequately addressed by the RMP, a strategy for reviewing activities and projects on public lands to determine the extent of their impact on greater sage-grouse habitat has also been developed. The following outlines the process by which all activities on public lands will be reviewed.

The BLM will ensure that any activities or projects in greater sage-grouse habitats would: 1) only occur in compliance with Bighorn Basin RMP greater sage-grouse goals and objectives for priority management areas; and 2) maintain neutral or positive greater sage-grouse population trends and habitat by avoiding, minimizing, and offsetting unavoidable impacts to assure a conservation gain at the scale of this land use plan and within greater sage-grouse population areas, state boundaries, and WAFWA Management Zones through the application of mitigation for implementation-level decisions. The mitigation process will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy, while also following Secretary of the Interior Order 3330 and consulting BLM, USFWS and other current and appropriate mitigation guidance. If it is determined that residual impacts to greater sage-grouse from implementation-level actions would remain after applying avoidance and minimization measures to the extent possible, then compensatory mitigation projects will be used to offset residual impacts, or the project may be deferred or denied if necessary to achieve the goals and objectives for priority and general management areas in the Bighorn Basin RMP.

To ensure that impacts from activities proposed in greater sage-grouse PHMAs are appropriately approved and mitigated as necessary, the BLM will apply mitigation measures and conservation actions and potentially modify the location, design, construction, and/or operation of proposed land uses or activities to comply with statutory requirements for environmental protection. The mitigation measures and conservation actions (Appendix L) for proposed projects or activities in these areas will be identified as part of the National Environmental Policy Act (NEPA) environmental review process, through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners or other Surface Management Agencies. Those measures selected for implementation will be identified in the Record of Decision (ROD) or Decision Record (DR) for those authorizations and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands and minerals to mitigate, per the mitigation hierarchy referenced above, impacts from the activity or project such that greater sage-grouse goals and objectives are met. Because these actions create a clear obligation for the BLM to ensure any proposed mitigation action adopted in the environmental review process is performed, there is assurance that mitigation will lead to a reduction of environmental impacts in the implementation stage and include binding mechanisms for enforcement (CEQ Memorandum for Heads of Federal Departments and Agencies 2011).

To achieve the goals and objectives for PHMAs in the Bighorn Basin Planning Area, the BLM will assess all proposed land uses or activities such as road, pipeline, communication tower, or powerline construction,

fluid and solid mineral development, range improvements, and recreational activities proposed for location in PHMAs in a step-wise manner. The following steps identify a screening process for review of proposed activities or projects in these areas (Table Y-2). This process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with the RMP goals and objectives for greater sage-grouse. The following steps provide for a sequential screening of proposals.

Table Y-2. Implementation of RMP Decisions to Address COT Threats

COT Threat	Threat Extent	Program Area	RMP Decision	Implementation Process	Tracking Mechanism
Sagebrush Elimination	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Vegetation Management Wildland Fire Management			
Weeds/ Annual Grasses	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Vegetation Management Range Management Wildland Fire Management Recreation			
Energy	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Lands and Realty Fluid Minerals			
Fire	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Wildland Fire Management			
Grazing Range Management Structures	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Range Management Wild Horse and Burro Management Special Status Species Vegetation Management			
Free-Roaming Equids	Not Present (MZ1) Present but Localized (Wyoming Basin Population)	Wild Horse and Burro Management			
Conifer Encroachment	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Wildland Fire Management Vegetation Management			
Agriculture and Urbanization	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Lands and Realty			

Table Y-2. Implementation of RMP Decisions to Address COT Threats (Continued)

COT Threat	Threat Extent	Program Area	RMP Decision	Implementation Process	Tracking Mechanism
Mining	Present and Widespread (MZ1) Present but Localized (Wyoming Basin Population)	Lands and Realty Locatable Minerals Salable Minerals Non-energy Leasable Minerals Management			
Recreation	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Recreation Trails and Travel Management			
Infrastructure	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Lands and Realty Trails and Travel Management			

Step 1 – Determine Proposal Adequacy

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM/USFS lands. The actual documentation of the proposal would include at a minimum a description of the location, scale of the project and timing of the disturbance. The acceptance of the proposal(s) for review would be consistent with existing protocol and procedures for each type of use. Evaluating consistency with (at a minimum) state greater sage-grouse regulations.

Step 2 – Evaluate Proposal Consistency with LUP

Step 2.1 – The proposal will be reviewed to determine whether it would be allowed as prescribed in the Land Use Plan. For example, some activities or types of development are prohibited in greater sage-grouse habitat, such as wind developments in Priority Habitat. Evaluation of projects will also include an assessment of the current state of the Adaptive Management hard and soft triggers. If the proposal is for an activity that is specifically prohibited, the applicant should be informed that the application is being rejected since it would not be allowed, regardless of the design of the project.

Step 2.2 – The proposal will be reviewed to determine whether it conforms with the Density and Disturbance Limitations. If the proposed activity occurs within a PHMA, evaluate whether the disturbance from the activity exceeds the limit on the amount of disturbance allowed within the activity or project area (Density/Disturbance Calculation Tool [DDCT] process). If current disturbance within the activity area or the anticipated disturbance from the proposed activity exceeds this threshold, the project would be deferred until such time as the amount of disturbance within the area has been reduced below the threshold, redesigned so as to not result in any additional surface disturbance (collocation) or redesigned to move it outside of PHMA. Should the project be a result of a valid existing right, BLM will work to minimize the disturbance and determine any residual impacts that may require appropriate mitigation.

The maximum density of disruptive activities and surface disturbance allowed will be analyzed via the DDCT, and will be conducted by the Federal Land Management Agency on federal land and the project proponent on non-federal (private, state) land per the RMP 9 revision.

State Agency Permit is needed, without a need for a federal permit:

The first point of contact for addressing greater sage-grouse issues for any state permit application should be the WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on greater sage-grouse prior to submitting an application to the permitting agency. Project proponents should contact WGFD at least 45-60 days prior to submitting their application. More complex projects will require more time. It is understood that WGFD has a role of consultation, recommendation, and facilitation, and has no authority to either approve or deny the project. The purpose of the initial consultation with the WGFD is to become familiar with the project proposal and ensure the project proponent understands the DDCT and recommended stipulations.

Federal Agency Permit is needed, with or without a State permit:

When a project requires federal action prior to approval, the proponent should contact the federal agency responsible for reviewing the action. The federal agency and the proponent will determine the best process for completing the DDCT and receiving recommendations from WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on greater sage-grouse prior to submitting an application to the permitting agency.

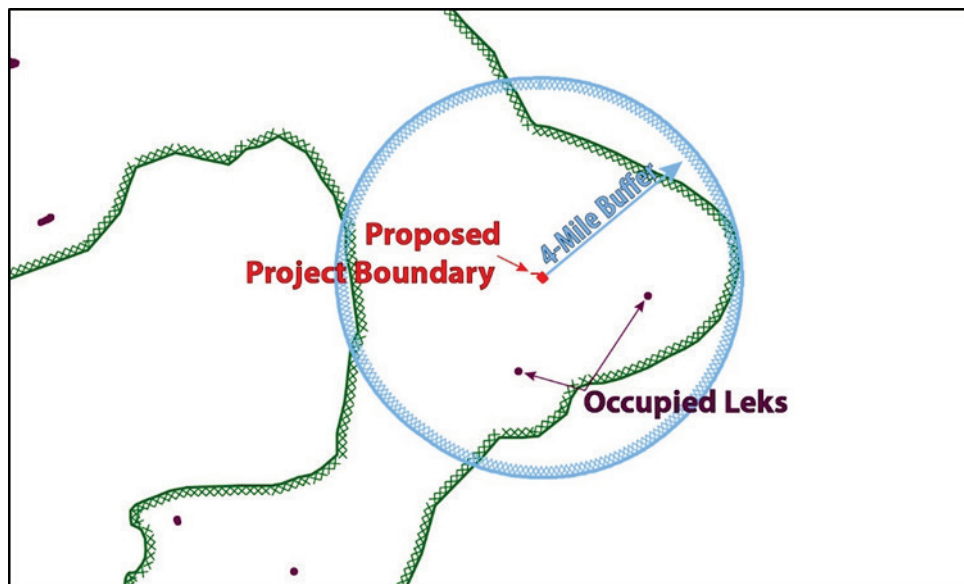
Maximum Density and Disturbance Process

Density and Disturbance Calculation: The DDCT is a spatially based tool that calculates both the average density of disruptive activities and total surface disturbance within the area affected by the project, or DDCT assessment area. The DDCT assessment area is created based on buffers around proposed projects (first buffer) in protected greater sage-grouse PHMAs, and subsequent buffers around any occupied, PHMA leks within the first buffer. A 4-mile buffer is used to identify 75% of the greater sage-grouse use around a lek. All activities will be evaluated within the context of maximum allowable disturbance (disturbance percentages, location and number of disturbances) of suitable greater sage-grouse habitat (see Appendix 1 for definition of suitable greater sage-grouse habitat and disturbance of suitable greater sage-grouse habitat) within the DDCT assessment area. This tool allows for better siting of projects rather than averaging the density/disturbance calculation per section.

All lands within PHMA boundaries are considered suitable habitat unless documented. Mapped unsuitable habitat is treated neither as suitable habitat, nor disturbance, which results in the area being removed from the DDCT assessment area altogether.

1. Density/Disturbance Calculation Tool: Determine all occupied leks within PHMAs that may be affected by the project by placing a 4 mile boundary around the project boundary (as defined by the proposed area of disturbance related to the project). All occupied leks located within the 4 mile boundary and within PHMAs will be considered in this assessment (Figure Y-2).

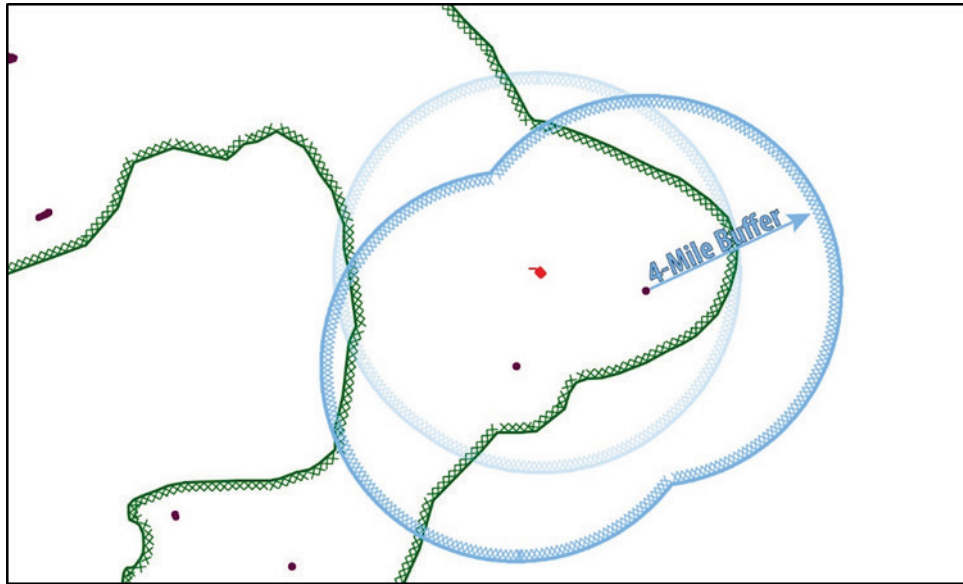
Figure Y-2. Proposed Project Boundary



A 4-mile boundary will then be placed around the perimeter of each of these lek(s) (Figure Y-2).

The PHMAs within the combined 4-mile buffer around both the leks and the project boundary creates the DDCT assessment area for each individual project (Figure Y-3).

Figure Y-3. DDCT Assessment Area



Disturbance will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area (Figures Y-4 through Y-7).

Figure Y-4. DDCT Assessment Area – Existing Disturbance



Figure Y-5. DDCT Assessment Area – Existing Disturbance (cont.)



Figure Y-6. DDCT Assessment Area – Existing Disturbance with Buffer

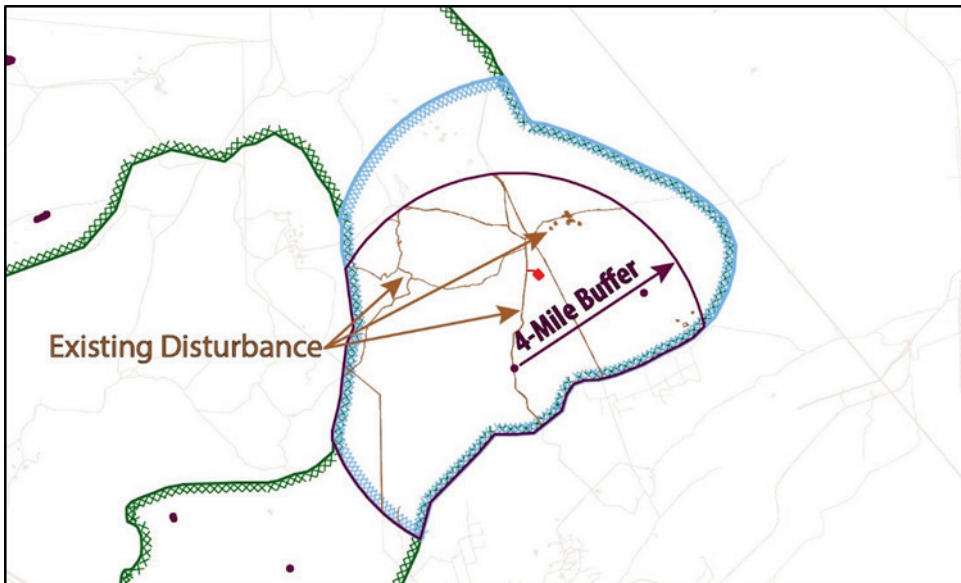
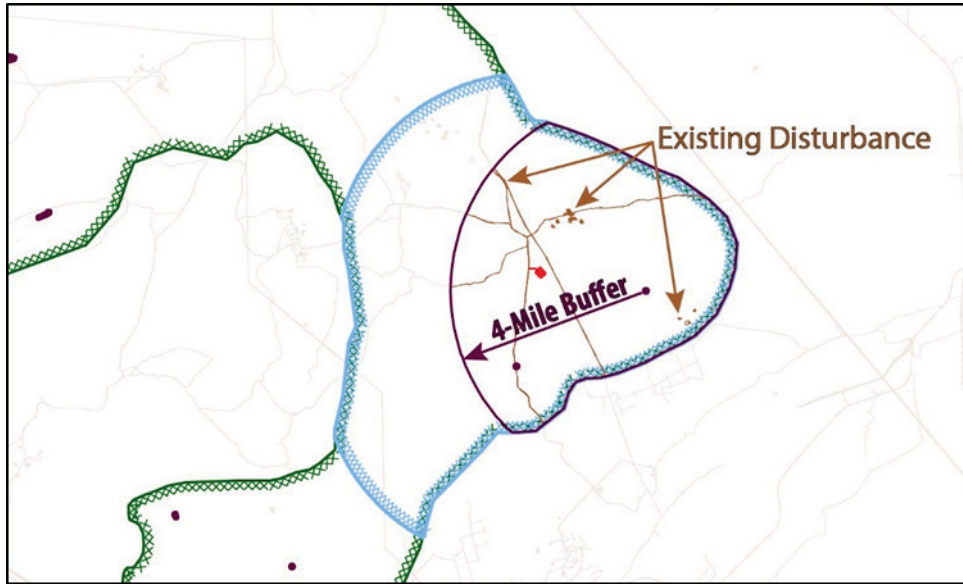


Figure Y-7. DDCT Assessment Area – Existing Disturbance with Buffer (cont.)



Density of disruptive features will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area (Figures Y-8 through Y-10).

Figure Y-8. DDCT Assessment Area – Existing Disruptive Features



Figure Y-9. DDCT Assessment Area – Existing Disruptive Features Buffer

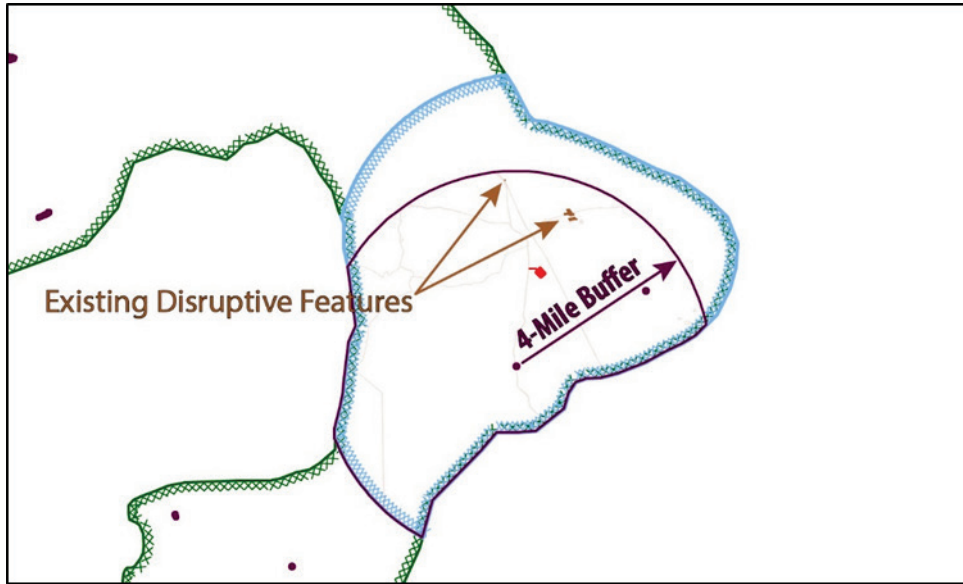


Figure Y-10. DDCT Assessment Area – Existing Disruptive Features Buffer (cont.)



If there are no leks identified for this assessment within the 4-mile boundary around the project boundary, the DDCT assessment area will be that portion of the 4-mile project boundary within the PHMAs.

2. Density and Disturbance analysis: The total number of discrete disruptive activity features, as well as the total disturbance acres within the DDCT assessment area will be determined through an evaluation of:
 - a. Existing disturbance (greater sage-grouse habitat that is disturbed due to existing anthropogenic activity and wildfire);
 - b. Approved permits (that have approval for on the ground activity) not yet implemented; and
 - c. Validating digitized disturbance through on the ground evaluation.

The complete analysis package (DDCT results, mapbook, and Worksheet), and recommendations developed by consultation and review outlined herein will be forwarded to the appropriate permitting agency(s). WGFD recommendations will be included, as will other recommendations from project proponents and other appropriate agencies. Project proponent shall have access to all information used in developing recommendations. Where possible and when requested by the project proponent, State agencies shall provide the project proponent with potential development alternatives other than those contained in the project proposal.

If the permit for which a proponent has applied expires, another DDCT analysis is required before issuing a new permit. An additional DDCT is not required for Permit extensions or renewals when no changes are being authorized. Any project will need to comply with the current Executive Order.

Step 2.3 – The BLM/USFS’s goal for any new activity or development proposal within PHMAs is to provide consistent implementation of project proposals which meet the BLM’s LUP goals and the population management objectives of the State. Activities would be consistent with the strategy where it can be sufficiently demonstrated that no declines to PHMA populations would be expected as a result of the proposed action. Published research suggests that impacts to greater sage-grouse leks associated primarily with infrastructure and energy development are discernible at a distance of at least 4 miles and that many leks within this radius have been extirpated as a direct result of development (Walker et al. 2007, Walker 2008). Research also suggests that an evaluation of habitats and greater sage-grouse populations that attend leks within an 11-mile radius from the project boundary in the context of “large” projects may be appropriate in order to consider all seasonal habitats that may be affected for birds that use the habitats associated with the proposal during some portion of the life-cycle of seasonally migratory greater sage-grouse (Connelly et al. 2000).

To determine the manner in which greater sage-grouse may be impacted by proposed undertakings, the following will be reviewed in the site specific NEPA analysis to quantify the effects:

- Greater Sage-Grouse Habitat delineation maps.
- Current science recommendations.
- The ‘Base Line Environment Report’ (USGS) which identifies areas of direct and indirect effect for various anthropogenic activities.
- Consultation with agency or State Wildlife Agency biologist.
- Other methods needed to provide an accurate assessment of impacts.

If the proposal will not have a direct or indirect impact on either the habitat or population, document the findings in the NEPA and proceed with the appropriate process for review, decision and implementation of the project.

Step 3 – Apply Avoidance and Minimization Measures to Comply with Sage-Grouse Goals and Objectives

If the project can be relocated so as to not have an impact on greater sage-grouse and still achieve objectives of the proposal and the disturbance limitations, relocate the proposed activity and proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record). This Step does not consider redesign of the project to reduce or eliminate direct and indirect impacts, but rather authorization of the project in a physical location that will not impact greater sage-grouse. If the preliminary review of the proposal concludes that there may be adverse impacts to greater sage-grouse habitat or populations in Step 2 and the project cannot be effectively relocated to avoid these impacts, proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record) with the inclusion of appropriate mitigation requirements to further reduce or eliminate impacts to greater sage-grouse habitat and populations and achieve compliance with greater sage-grouse objectives. Mitigation measures could include design modifications of the proposal, site disturbance restoration, post-project reclamation, etc. (see Appendix L). Compensatory or offsite mitigation may be required (Step 4) in situations where residual impacts remain after application of all avoidance and minimization measures.

Step 4 – Apply Compensatory Mitigation or Reject/Defer Proposal

If screening of the proposal has determined that direct and indirect impacts cannot be eliminated through avoidance or minimization, evaluate the proposal to determine if compensatory mitigation can be used to offset the remaining adverse impacts and achieve greater sage-grouse goals and objectives. If the impacts cannot be effectively mitigated, reject or defer the proposal. The criteria for determining this situation could include but are not limited to:

- The current trend within the Priority Habitat is down and additional impacts, whether mitigated or not, could lead to further decline of the species or habitat.
- The proposed mitigation is inadequate in scope or duration, has proven to be ineffective or is unproven in terms of science based approach.
- The project would impact habitat that has been determined to be a limiting factor for species sustainability.
- Other site specific information and analysis that determined the project would lead to a downward change of the current species population or habitat and not comply with greater sage-grouse goals and objectives.

If, following application of available impact avoidance and minimization measures, the project can be mitigated to fully offset impacts and assure conservation gain to the species and comply with greater sage-grouse goals and objectives, proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record).

Mitigation

General

In undertaking BLM/USFS management actions, and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM/USFS will require and assure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by

avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Mitigation will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM/USFS management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation (see Glossary).

The BLM/USFS, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the NEPA decision making process including the application of the mitigation hierarchy for BLM/USFS management actions and third party actions that result in habitat loss and degradation. A robust and transparent Regional Mitigation Strategy will contribute to greater sage-grouse habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts to greater sage-grouse and its habitat.

The BLM's Regional Mitigation Manual MS-1794 serves as a framework for developing and implementing a Regional Mitigation Strategy. The following sections provide additional guidance specific to the development and implementation of a WAFWA Management Zone Regional Mitigation Strategy.

Developing a WAFWA Management Zone Regional Mitigation Strategy

The BLM/USFS, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy to guide the application of the mitigation hierarchy for BLM/USFS management actions and third party actions that result in habitat loss and degradation. The Strategy should consider any State-level greater sage-grouse mitigation guidance that is consistent with the requirements identified in this Appendix. The Regional Mitigation Strategy should be developed in a transparent manner, based on the best science available and standardized metrics.

As described in Chapter 2, the BLM/USFS will establish a WAFWA Management Zone Greater Sage-Grouse Conservation Team (hereafter, Team) to help guide the conservation of greater sage-grouse, within 90 days of the issuance of the Record of Decision. The Strategy will be developed within one year of the issuance of the Record of Decision.

The Regional Mitigation Strategy should include mitigation guidance on avoidance, minimization, and compensation, as follows:

- **Avoidance**
 - Include avoidance areas (e.g., right-of-way avoidance/exclusion areas, no surface occupancy areas) already included in laws, regulations, policies, and/or land use plans (e.g., Resource Management Plans, Forest Plans, State Plans); and,
 - Include any potential, additional avoidance actions (e.g., additional avoidance best management practices) with regard to greater sage-grouse conservation.
- **Minimization**
 - Include minimization actions (e.g., required design features, best management practices) already included in laws, regulations, policies, land use plans, and/or land-use authorizations; and,
 - Include any potential, additional minimization actions (e.g., additional minimization best management practices) with regard to greater sage-grouse conservation.

- **Compensation**
 - Include discussion of impact/project valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and program administration. Each of these topics is discussed in more detail below.
 - Residual Impact and Compensatory Mitigation Project Valuation Guidance
 - A common standardized method should be identified for estimating the value of the residual impacts and value of the compensatory mitigation projects, including accounting for any uncertainty associated with the effectiveness of the projects.
 - This method should consider the quality of habitat, scarcity of the habitat, and the size of the impact/project.
 - For compensatory mitigation projects, consideration of durability (see glossary), timeliness (see glossary), and the potential for failure (e.g., uncertainty associated with effectiveness) may require an upward adjustment of the valuation.
 - The resultant compensatory mitigation project will, after application of the above guidance, result in proactive conservation measures for greater sage-grouse (consistent with BLM Manual 6840 – Special Status Species Management, section .02).
- **Compensatory Mitigation Options**
 - Options for implementing compensatory mitigation should be identified, such as:
 - Utilizing certified mitigation/conservation bank or credit exchanges.
 - Contributing to an existing mitigation/conservation fund.
- **Compensatory Mitigation Siting**
 - Sites should be in areas that have the potential to yield a net conservation gain to the greater sage-grouse, regardless of land ownership.
 - Sites should be durable (see glossary).
 - Sites identified by existing plans and strategies (e.g., fire restoration plans, invasive species strategies, healthy land focal areas) should be considered, if those sites have the potential to yield a net conservation gain to greater sage-grouse and are durable.
- **Compensatory Mitigation Project Types and Costs**
 - Project types should be identified that help reduce threats to greater sage-grouse (e.g., protection, conservation, and restoration projects).
 - Each project type should have a goal and measurable objectives.
 - Each project type should have associated monitoring and maintenance requirements, for the duration of the impact.
 - To inform contributions to a mitigation/conservation fund, expected costs for these project types (and their monitoring and maintenance), within the WAFWA Management Zone, should be identified.
- **Compensatory Mitigation Compliance and Monitoring**
 - Mitigation projects should be inspected to ensure they are implemented as designed, and if not, there should be methods to enforce compliance.
 - Mitigation projects should be monitored to ensure that the goals and objectives are met and that the benefits are effective for the duration of the impact.

- **Compensatory Mitigation Reporting**
 - Standardized, transparent, scalable, and scientifically-defensible reporting requirements should be identified for mitigation projects.
 - Reports should be compiled, summarized, and reviewed in the WAFWA Management Zone in order to determine if greater sage-grouse conservation has been achieved and/or to support adaptive management recommendations.
- **Compensatory Mitigation Program Implementation Guidelines**
 - Guidelines for implementing the State-level compensatory mitigation program should include holding and applying compensatory mitigation funds, operating a transparent and credible accounting system, certifying mitigation credits, and managing reporting requirements.

Incorporating the Regional Mitigation Strategy into NEPA Analyses

The BLM/USFS will include the avoidance, minimization, and compensatory recommendations from the Regional Mitigation Strategy in one or more of the NEPA analysis' alternatives for BLM/USFS management actions and third party actions that result in habitat loss and degradation and the appropriate mitigation actions will be carried forward into the decision.

Implementing a Compensatory Mitigation Program

The BLM/USFS need to ensure that compensatory mitigation is strategically implemented to provide a net conservation gain to the species, as identified in the Regional Mitigation Strategy. In order to align with existing compensatory mitigation efforts, this compensatory mitigation program will be managed at a State-level (as opposed to a WAFWA Management Zone, a Field Office, or a Forest), in collaboration with our partners (e.g., Federal, Tribal, and State agencies).

To ensure transparent and effective management of the compensatory mitigation funds, the BLM/USFS will enter into a contract or agreement with a third-party to help manage the State-level compensatory mitigation funds, within one year of the issuance of the Record of Decision. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM/USFS will remain responsible for making decisions that affect Federal lands.

3.0 COT OBJECTIVE 2: IMPLEMENT TARGETED HABITAT MANAGEMENT AND RESTORATION

“Some sage-grouse populations warrant more than the amelioration of the impacts from stressors to maintain sage-grouse on the landscape. In these instances, and particularly with impacts resulting from wildfire, it may be critical to not only remove or reduce anthropogenic threats to these populations but additionally to improve population health through active habitat management (e.g., habitat restoration). This is particularly important for those populations that are essential to maintaining range-wide redundancy and representation.” (COT Report, 2013)

In many areas of Wyoming, amelioration of threats isn't enough. Activities must be taken to enhance the habitat for continued success of greater sage-grouse. This objective identifies the areas where RMPs will put forth the commitments for habitat restoration and enhancement.

The Wyoming Game and Fish Department established local greater sage-grouse working groups over 10 years ago. Each of these local working groups developed conservation plans which have served to guide conservation of greater sage-grouse habitat at a local level. The management objectives for this federal

land use plan were developed in coordination with the State of Wyoming, recognizing the ongoing work which has been done over the last 10 years in Wyoming as a result of the conservation efforts identified by each of the local working groups.

Upon completion of the planning process, with issuance of an Approved Plan and Record of Decision, subsequent implementation decisions will be put into effect by developing implementation (activity-level or project-specific) plans. These implementation decisions will be based upon the objectives identified in the Approved Plan and Record of Decisions, and will be coordinated with local working groups.

4.0 COT OBJECTIVE 3: DEVELOP AND IMPLEMENT STATE AND FEDERAL CONSERVATION STRATEGIES AND ASSOCIATED INCENTIVE-BASED CONSERVATION ACTIONS AND REGULATORY MECHANISMS

“To conserve sage-grouse and habitat redundancy, representation, and resilience, state and federal agencies, along with interested stakeholders within range of the sage-grouse should work together to develop a plan, including any necessary regulatory or legal tools (or use an existing plan, if appropriate) that includes clear mechanisms for addressing the threats to sage-grouse within PACs. Where consistent with state conservation plans, sage grouse habitats outside of PACs should also be addressed. We recognize that threats can be ameliorated through a variety of tools within the purview of states and federal agencies, including incentive-based conservation actions or regulatory mechanisms. Federal land management agencies should work with states in developing adequate regulatory mechanisms. Federal land management agencies should also contribute to the incentive-based conservation and habitat restoration and rehabilitation efforts. In the development of conservation plans, entities (states, federal land management agencies, etc.) should coordinate with FWS. This will ensure that the plans address the threats contributing to the 2010 warranted but precluded determination, and that conservation strategies will meaningfully contribute to future listing analyses.” (COT Report, 2013)

4.1 Implementation Working Groups

National Level

In December 2011, Wyoming Governor Matt Mead and Secretary of the Interior Ken Salazar co-hosted a meeting to address coordinated conservation of the greater sage-grouse across its range. Ten states within the range of the greater sage-grouse were represented, as were the U.S. Forest Service (FS), the Natural Resources Conservation Service (NRCS), and the Department of the Interior (DOI) — including representatives from the DOI’s Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (FWS). The primary outcome of the meeting was the creation of a Sage-Grouse Task Force (Task Force) chaired by Governors Mead (WY) and Hickenlooper (CO) and the Director of the BLM. The Task Force was directed to develop recommendations on how to best advance a coordinated, multi-state, range-wide effort to conserve the greater sage-grouse, including the identification of conservation objectives to ensure the long-term viability of the species.

Regional Level

Regional Level Teams (Sage Grouse Implementation Group)

State Level

The Sage Grouse Implementation Team (SGIT) has been established through Wyoming Legislature (Wyoming Statute 9-19-101(a)) to review data and make recommendations to the Governor of Wyoming regarding actions and funding to enhance and restore greater sage-grouse habitats in Wyoming. Additionally, the SGIT is responsible for making recommendations to the Governor regarding regulatory actions necessary to maintain greater sage-grouse populations and greater sage-grouse habitats.

Adaptive Management Working Group has been established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect greater sage-grouse populations and/or habitat through their permitting authority. The AMWG includes BLM, FS, FWS, and State of Wyoming.

Local Level

In 2000, a Local Working Group was established by the Wyoming Game and Fish Department to develop and facilitate implementation of local conservation plans for the benefit of greater sage-grouse, their habitats, and whenever feasible, other species that use sagebrush habitats. This group prepared the Wyoming Greater Sage-grouse Conservation Plan (Wyoming Sage-Grouse Working Group 2003) to provide coordinated management and direction across the state. In 2004, local greater sage-grouse working groups were formed to develop and implement local conservation plans. Eight local working groups around Wyoming have completed conservation plans, many of which prioritize addressing past, present, and reasonably foreseeable threats at the state and local levels, and prescribe management actions for private landowners to improve greater sage-grouse conservation at the local scale, consistent with Wyoming's Core Population Area Strategy.

4.2 Implementation Tracking

Because the State of Wyoming continues to retain management of the species, and through implementation of the Executive Order, BLM Wyoming will continue to coordinate tracking of populations, disturbance and conservation actions.

- DDCT GIS for tracking disturbance
- Population Counts
- Lek counts
- Conservation Actions

In addition to the tracking databases being maintained by the State of Wyoming, a national- Greater Sage-grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM and the USFS will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of greater sage-grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the ROD or approved plan. The BLM and the USFS will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

4.3 Public Involvement

A website where the public can quickly and easily access data concerning implementation will be developed and kept current on the Wyoming BLM database. Creating this website and maintaining it through the implementation cycle will be a vital part of implementation success. The public is welcome to provide implementation comments to the BLM any time during the cycle, but schedules for implementation planning decisions will be posted so the public can make timely comments. All Activity Plan Working Group meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any Activity Plan Working Group meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

The state sponsored LWG and SGIT meetings are advertised and open to the public.

5.0 COT OBJECTIVE 4: PROACTIVE CONSERVATION ACTIONS

“Proactive, incentive based, voluntary conservation actions (e.g., Candidate Conservation Agreements with Assurances, Natural Resources Conservation Service programs) should be developed and/or implemented by interested stakeholders and closely coordinated across the range of the species to ensure they are complimentary and address sage-grouse conservation needs and threats. These efforts need to receive full funding, including funding for necessary personnel.” (COT Report, 2013)

In addition to the conservation activities identified through implementation of the Resource Management Plan in coordination with the Local Working Group Conservation Plans, BLM and USFS will continue to partner with other agencies and stakeholders to identify conservation actions to benefit greater sage-grouse habitat. Actions which may occur could include Candidate Conservation Agreements with accompanying Candidate Conservation Agreements with Assurances and designation of conservation easements.

Candidate Conservation Agreements are entered into when a potential threat to habitat is identified. BLM enters into CCAs with USFWS to identify potential threats and plan for conservation measures to address potential threats. The purpose of CCAs and the accompanying CCAAs for private lands is to prevent listing of any sensitive species under ESA.

BLM Wyoming has already entered into a Statewide CCA for range management on BLM lands in Wyoming. This CCA promotes proper livestock grazing and management through implementation of voluntary conservation measures and management practices that are consistent with greater sage-grouse population management and habitat conservation objectives on BLM lands.

Conservation Easements are identified private lands with greater sage-grouse habitat where the private landowners enter into voluntary agreements with the government to give up developmental rights which may adversely affect habitat. The most common way these areas may be used in Wyoming is for mitigation banks. Allowing development within some areas of historic greater sage-grouse habitat or marginal habitat will require appropriate mitigation. In some cases the most appropriate mitigation may be for project proponents to buy credits at a conservation easement, thus creating a mitigation bank. Overall, the benefit is to the greater sage-grouse, as it reduces the overall potential for fragmented habitat by ensuring there are areas with no development potential which could adversely affect the viability of the species.

Sweetwater River Conservancy Habitat Conservation Bank

The Sweetwater River Conservancy Habitat Conservation Bank is the first conservation bank established for greater sage-grouse. Located in central Wyoming, the bank manages habitat for greater sage-grouse allowing energy development and other activities to proceed on other lands within Wyoming. A conservation bank is a site or suite of sites established under an agreement with the USFWS, intended to protect, and improve habitat for species. Credits may be purchased which result in perpetual conservation easements and conservation projects on the land to offset impacts occurring elsewhere. The Sweetwater River Conservancy Habitat Conservation Bank launched with 55,000 deeded acres of greater sage-grouse habitat, and could expand up to 700,000 acres on other lands owned by the Sweetwater River Conservancy contingent upon demand (USFWS 2015).

Wyoming Landscape Conservation Initiative

The Wyoming Landscape Conservation Initiative is a long-term science based effort to assess and enhance aquatic and terrestrial habitats at a landscape scale in southwest Wyoming, while facilitating responsible development through local collaboration and partnership. Collaborative efforts address multiple concerns at a scale that considers all activities on the landscape, and can leverage resources that might not be available for single agency projects. Greater sage-grouse initiatives from the Wyoming Landscape Conservation Initiative have included habitat enhancement efforts (e.g., invasive weed treatment, prescribed grazing strategies), and greater sage-grouse research studies (Wyoming Landscape Conservation Initiative 2013).

Powder River Basin Restoration Program

The Powder River Basin Restoration Program is a collaborative partnership to restore and enhance greater sage-grouse habitat on a landscape level in the Powder River Basin. The basin encompasses 13,493,840 acres in northeast Wyoming and southeast Montana. Surface ownership is composed of approximately 70 percent private lands, 14 percent BLM-administered lands (including 8 percent in Wyoming and 6 percent in Montana), 8 percent Forest Service lands, and 8 percent States of Wyoming and Montana lands. Subsurface mineral ownership is 50 to 60 percent federal (BLM 2014).

The Powder River Basin Restoration Program is focusing on areas affected by the federal oil and gas development that has occurred over the past decade in the Powder River Basin in northeastern Wyoming. Its objectives are restoring or enhancing disturbed previously suitable habitat to suitable habitat for sagebrush obligate species, primarily greater sage-grouse. This includes multiple sites affected by coal bed natural gas abandonment reclamation efforts, wildfires, and noxious and invasive plants. Priority will be given to those areas recognized as priority habitats (e.g., PHMAs).

Habitat objectives are meeting the needs for nesting, brood-rearing, and late brood-rearing. The program would contribute to efforts focused on the management and control of mosquitoes carrying West Nile virus and would include funding, labor, treatment locations, and other needs as determined.

Additionally, efforts would be coordinated to reduce fuels in and near greater sage-grouse habitat, to enhance sagebrush stands, support restoration efforts, and reduce the risk of high-severity wildfire. Pine stands and juniper woodlands would be managed for structural diversity and to reduce fuels, especially near PHMA, human developments, and recreation areas.

Natural Resource Conservation Service Sage Grouse Initiative

The US Department of Agriculture, Natural Resources Conservation Service’s Sage-Grouse Initiative (SGI) is working with private landowners in 11 western states to improve habitat for greater sage-grouse (Manier et al. 2013). With 13.5 million acres of greater sage-grouse habitat in private ownership within MZ II/VII (Manier et al. 2013, p. 118), a unique opportunity exists for the Natural Resources Conservation Service to benefit greater sage-grouse and to ensure the persistence of large and intact rangelands by implementing the SGI.

Participation in the SGI program is voluntary, but willing participants enter into binding contracts or easements to ensure that conservation practices that enhance greater sage-grouse habitat, such as fence marking, protecting riparian areas, and maintaining vegetation in nesting areas, are implemented. Participating landowners are bound by a contract (usually 3 to 5 years) to implement, in consultation with Natural Resources Conservation Service staff, conservation practices if they wish to receive the financial incentives offered by the SGI. These financial incentives generally take the form of payments to offset costs of implementing conservation practices and easements or rental payments for long-term conservation.

While potentially effective at conserving greater sage-grouse populations and habitat on private lands, incentive-based conservation programs that fund the SGI generally require reauthorization from Congress under subsequent farm bills, meaning future funding is not guaranteed.

6.0 COT OBJECTIVE 5: DEVELOPMENT OF MONITORING PLANS

“A robust range-wide monitoring program must be developed and implemented for sage-grouse conservation plans, which recognizes and incorporates individual state approaches. A monitoring program is necessary to track the success of conservation plans and proactive conservation activities. Without this information, the actual benefit of conservation activities cannot be measured and there is no capacity to adapt if current management actions are determined to be ineffective.” (COT Report, 2013)

6.1 Greater Sage-Grouse Monitoring Framework

Introduction

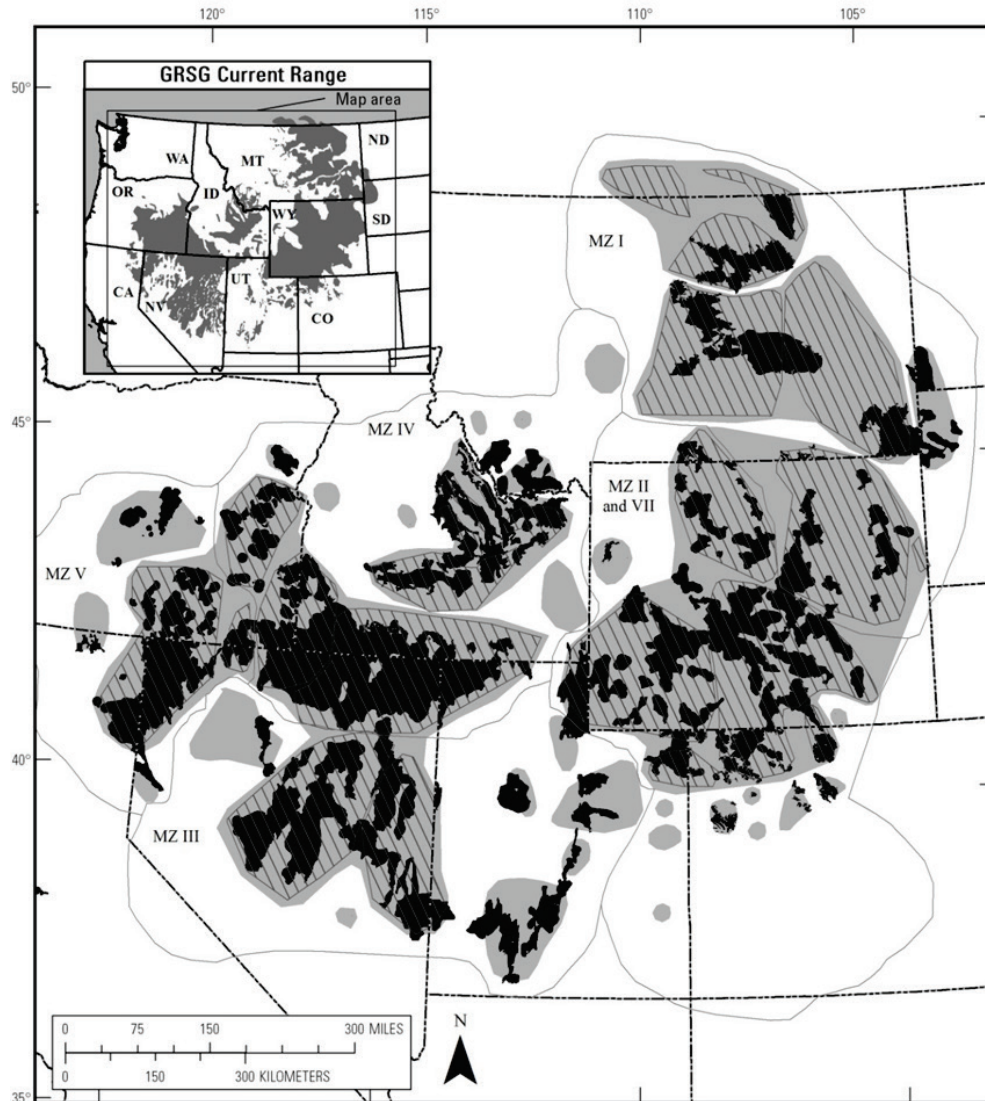
The purpose of this U.S. Bureau of Land Management (BLM) and U.S. Forest Service (USFS) Greater Sage-grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM IM 2012-044) and the USFS Land Use Plans to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) and the USFS (36 CFR part 209, published July 1, 2010) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. Therefore, BLM and USFS will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the greater sage-grouse (hereafter, greater sage-grouse) planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan which will be developed after the signing of the ROD. For a summary of the frequency of reporting see Attachment A. Adaptive management will be informed by data collected at any and all scales.

To ensure the BLM and USFS have the ability to make consistent assessments about greater sage-grouse habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM/USFS actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions. Implementation monitoring results will provide information to allow the BLM and USFS to evaluate the extent that decisions from the BLM RMP and USFS land management plans (LMP) to conserve greater sage-grouse and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

This multi-scale monitoring approach is necessary as greater sage-grouse are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2014) as first order (broad scale), second order (mid-scale), third order (fine scale), and fourth order (site scale) to apply them to greater sage-grouse habitat selection. The various scales may show differences because of the methods used. The broad and mid-scale may provide a generalized direction, however the suitability baseline (pre-euro) is not considered an accurate baseline. The current baseline will provide better information on trends provided the data used in the analysis is sound. Based upon the management actions related to the BLM and Wyoming SGE0, the broad and mid-scale may greatly underestimate the impacts of the threats outlined in the COT report. Habitat selection and habitat use by greater sage-grouse occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring greater sage-grouse habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to greater sage-grouse and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. in press).



Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these existing datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of greater sage-grouse as defined by Schroeder et al. (2004), and clipped by WAFWA Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; Figure Y-11). This broad and mid-scale monitoring data and analysis will provide context for RMP/LMP areas; states; greater sage-grouse Priority Habitat, General Habitat and other greater sage-grouse designated management areas; and Priority Areas for Conservation (PACs) as defined in the Greater Sage-grouse Conservation Objectives: Final Report (COT, U.S. Fish and Wildlife Service 2013). Throughout the remainder of the document, all of these areas will be referred to as “sage-grouse areas”.

Figure Y-11. Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013



GRSG PACs, Subpopulations and Populations

LEGEND

-  Subpopulations
-  COT PACs
-  Populations

Sources:

- Current Range: Schroeder et al., 2004
- Populations: Connelly et al., 2004
- Subpopulations: Connelly et al., 2004
- PACs: USFWS COT Report, 2013

This monitoring framework is divided into two sections. The broad- and mid-scale methods, described in Section 4.2, provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to determine the effectiveness of the planning strategy and management decisions. (See Table Y-3, Indicators for monitoring implementation of the national planning strategy, RMP/LMP decisions, greater sage-grouse habitat, and greater sage-grouse populations at the broad and

mid-scales.) For greater sage-grouse habitat at the fine and site scales, described in Section 4.3, this monitoring framework describes a consistent approach (e.g., indicators and methods) for monitoring greater sage-grouse seasonal habitats. Funding, support, and dedicated personnel for broad- and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of BLM and USFS multiscale monitoring commitments, see Attachment A.

Table Y-3. Indicators for Monitoring Implementation of the Strategy, Decisions, Greater Sage-Grouse Habitat, and Greater Sage- Grouse Populations at the Broad and Mid-scales

<i>Geographic Scales</i>	Implementation	Habitat		Population (State Wildlife Agencies)
		<i>Availability</i>	<i>Degradation</i>	<i>Demographics</i>
Broad Scale: From the range of greater sage-grouse to WAFWA Management Zones	BLM/USFS Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations	An analysis of RMP/LRMP decisions across the designated scale	Mid-scale habitat indicators (HAF 2014; Table 2, e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table 2)*	Individual population trend
Fine Scale: Pacs	A summary of DDCT actions related to BLM mineral and surface resources in conjunction with other ownerships	Areas that have greater than 5% sagebrush cover and non-habitat (unsuitable) that is less than 0.6miles from the suitable habitat.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs	PAC Trends
Site Scale: DDCT level	A summary of DDCT actions related to BLM mineral and surface resources	The available occupied habitat using the DDCT process	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs	Individual lek Trends
Broad Scale: From the range of greater sage-grouse to WAFWA Management Zones	BLM/USFS Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations; PACs	RMP/LRMP decisions	Mid-scale habitat indicators (HAF 2014; Table 2, e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table 2)*	Individual population trend

*HAF 2014; Table 2

Broad and Mid-Scales

First-order habitat selection, the broad scale, describes the physical or geographical range of a species. The first-order habitat of the greater sage-grouse is defined by populations of greater sage-grouse associated with sagebrush landscapes, based on Schroeder et al. 2004, and Connelly et al. 2004, and on population or habitat surveys since 2004. An intermediate scale between the broad and mid-scales was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation communities. This scale is referred to as the WAFWA Sage-Grouse Management Zones (MZs). Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second-order habitat selection, the mid-scale, includes greater sage-grouse populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 mi² and are nested within MZs. PACs range from 20 to 20,400 mi² and are nested within population areas.

Other mid-scale landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. in press) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011).

Midscale indicators using the HAF can grossly underestimate the occupation of anthropogenic activities because of the use of 30m pixels (page Table II – X). The HAF removes ‘non’habitat from the suitability availability. There are no parameters that are provided to protect adjacent suitable habitat from development on these nonhabitat parcels, thus making the adjacent nonhabitat a potential threat by indirect impacts.

The Wyoming BLM and USFS Offices will be actively participating in a fine and site scale monitoring that will more accurately reflect the impacts associated with direct and indirect effects of anthropogenic and wildfire impacts.

6.2 Implementation (Decision) Monitoring

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of RMP/LMP decisions. The BLM and the USFS will monitor implementation of project-level and/or site-specific actions and authorizations, with their associated conditions of approval/stipulations for greater sage-grouse, spatially (as appropriate) within Priority Habitat, General Habitat, and other greater sage-grouse designated management areas, at a minimum, for the Bighorn Basin Planning Area. These actions and authorizations, as well as progress toward completing and implementing activity-level plans, will be monitored consistently across all planning units and will be reported to BLM and USFS headquarters annually, as well as reported to the State of Wyoming with numerical and spatial data twice a year, and a HQ summary report every 5 years, for the Bighorn Basin Planning Area. A national-level Greater Sage-grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM and the USFS will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of greater sage-grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the Record of Decision or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

6.3 Habitat (Vegetation) Monitoring

The USFWS, in its 2010 listing decision for the sage-grouse, identified 18 threats contributing to the destruction, modification, or curtailment of greater sage-grouse habitat or range (75 FR 13910 2010). The BLM will, therefore, monitor the relative extent of these threats that remove sagebrush, both spatially and temporally, on all lands within an analysis area, and will report on amount, pattern, and condition at the appropriate and applicable geographic scales and boundaries. These 18 threats have been aggregated into three broad- and mid-scale measures to account for whether the threat predominantly removes sagebrush or degrades habitat. (See Table 4, Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring.) The three measures are:

1. Sagebrush Availability (percent of sagebrush per suitable unit area)
2. Habitat Degradation (percent of human activity per unit area)
3. Energy and Mining Density (facilities and locations per suitable unit area)

These three habitat disturbance measures will evaluate disturbance on all lands within priority habitat, regardless of land ownership. The direct area of influence will be assessed with the goal of accounting for actual removal of sagebrush on which greater sage-grouse depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 (sagebrush availability) examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape). Measure 1, therefore, monitors the change in sagebrush availability—or, specifically, where and how much of the sagebrush community is available on lands that can support sagebrush within the range of greater sage-grouse. The sagebrush community is defined as the ecological systems that have the capability of supporting sagebrush vegetation and seasonal greater sage-grouse habitats within the range of greater sage-grouse (see Section B.1., Sagebrush Availability). Measure 2 (see Section B.2., Habitat Degradation Monitoring) and Measure 3 (see Section B.3., Energy and Mining Density) focus on where habitat degradation is occurring within suitable sagebrush soils by using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic area of interest and in areas that have the capability of supporting sagebrush and seasonal greater sage-grouse use. Measure 2 (habitat degradation) not only quantifies footprint/area of direct disturbance but also establishes a surrogate for those threats most likely to have ongoing activity. Because energy development and mining activities are typically the most intensive activities in sagebrush habitat, Measure 3 (the density of active energy development, production, and mining sites) will help identify areas of particular concern for such factors as noise, dust, traffic, etc., that degrade greater sage-grouse habitat.

Table Y-4. Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring

FWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights of ways		X	

Note: Data availability may preclude specific analysis of individual layers. See the detailed methodology for more information.

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the greater sage-grouse and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

6.3.1 Sagebrush Availability (Measure 1)

Greater sage-grouse populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. Measure 1 has been divided into two sub measures to describe sagebrush availability on the landscape:

- Measure 1a: the current amount of sagebrush on the geographic area of interest, and
- Measure 1b: the amount of sagebrush on the geographic area of interest compared with the amount of sagebrush the landscape of interest could ecologically support.

Measure 1a (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic area of interest]. The appropriate geographic areas of interest for sagebrush availability include the species' range, WAFWA MZs, populations, and PACs. In some cases these greater sage-grouse areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

Measure 1b (the amount of sagebrush for context within the geographic area of interest) will be calculated using this formula: [existing sagebrush divided by [pre-EuroAmerican settlement geographic extent of lands that could have supported sagebrush]]. This measure will provide information to set the context for a given geographic area of interest during evaluations of monitoring data. The information could also be used to inform management options for restoration or mitigation and to inform effectiveness monitoring.

The sagebrush base layer for Measure 1 will be based on geospatial vegetation data adjusted for the threats listed in Table Y-4. The following subsections of this monitoring framework describe the methodology for determining both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid-scales.

6.3.1.1 Establishing the Sagebrush Base Layer

The current geographic extent of sagebrush vegetation within the rangewide distribution of greater sage-grouse populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2013). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the rangewide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability of supporting sagebrush vegetation pre-EuroAmerican settlement [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area of interest compared with how much sagebrush existed historically (Measure 1b). Therefore, the BLM and the USFS have determined that LANDFIRE provides the best available data at broad and mid-scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. The BLM and the USFS, in addition to aggregating the sagebrush types into the sagebrush base layer, will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. The BLM—through its Assessment, Inventory, and Monitoring

(AIM) program and, specifically, the BLM’s landscape monitoring framework (Taylor et al. 2014)—will provide field data to the LANDFIRE program to support continuous quality improvements of the LANDFIRE EVT layer. The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of the existing percent of sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will also be used to determine the trend in other landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. in press). In the future, changes in sagebrush availability, generated annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D., Effectiveness Monitoring).

Within the BLM, field office-wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than what is provided through LANDFIRE. Where available, these finer-scale products will be useful for additional and complementary mid-scale indicators and local-scale analyses (see Section 4.3, Fine and Site Scales). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale, where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, e.g., patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. in press). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D).

Data Sources for Establishing and Monitoring Sagebrush Availability

In much the same manner as how the LANDFIRE data was selected as the data source, described above, the criteria for selecting the datasets (Table Y-5) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

- Nationally consistent dataset available across the range
- Known level of confidence or accuracy in the dataset
- Continual maintenance of dataset and known update interval

Table Y-5. Datasets for Establishing and Monitoring Changes in Sagebrush Availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for sagebrush availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for sagebrush availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium (MRLC)	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

LANDFIRE Existing Vegetation Type (EVT) Version 1.2

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping there have been two update efforts: version 1.1 represents changes before 2008, and version 1.2 reflects changes on the landscape before 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer.

Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by greater sage-grouse subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the greater sage-grouse (Table Y-6). Two additional vegetation types that are not ecological systems were added to the EVT and are *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system were named *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance respectively.

Table Y-6. Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Mixed Low Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia bigelovii</i> <i>Artemisia nova</i> <i>Artemisia frigida</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Columbia Plateau Scabland Shrubland	<i>Artemisia rigida</i>
Great Basin Xeric Mixed Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longicaulis</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Big Sagebrush Shrubland	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Mixed Salt Desert Scrub	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia spinescens</i>
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>rupicola</i>
Columbia Plateau Low Sagebrush Steppe	<i>Artemisia arbuscula</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i>
Inter-Mountain Basins Big Sagebrush Steppe	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>tripartita</i> <i>Artemisia frigida</i>
Inter-Mountain Basins Montane Sagebrush Steppe	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia nova</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>spiciformis</i>
Northwestern Great Plains Mixed grass Prairie	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia frigida</i>
Northwestern Great Plains Shrubland	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Western Great Plains Sand Prairie	<i>Artemisia cana</i> ssp. <i>cana</i>
Western Great Plains Floodplain Systems	<i>Artemisia cana</i> ssp. <i>cana</i>
Columbia Plateau Steppe and Grassland	<i>Artemisia</i> spp.

Table Y-6. Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse (Continued)

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Inter-Mountain Basins Semi-Desert Shrub-Steppe	<i>Artemisia tridentata</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Rocky Mountain Lower Montane-Foothill Shrubland	<i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia frigida</i>
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	<i>Artemisia tridentata</i>
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i>
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
<i>Quercus gambelii</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i>

Accuracy and Appropriate Use of LANDFIRE Datasets

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in Table Y-6 will be merged into one value that represents the sagebrush base layer. With all ecological systems aggregated, the combined accuracy of the sagebrush base layer (EVT) will be much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of greater sage-grouse as defined by Schroeder (2004). Attachment C lists the user and producer accuracies for the aggregated ecological systems that make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7% to 100% and user accuracies ranging from 57.1% to 85.7%.

LANDFIRE EVT data are not designed to be used at a local level. In reports of the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the 30m pixel level (900m² resolution of raster data) for any reporting. The smallest geographic extent for using the data to determine percent sagebrush is at the PAC level; for the smallest PACs, the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

Agricultural Adjustments for the Sagebrush Base Layer

The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL) (<http://www.nass.usda.gov/research/Cropland/Release/index.htm>). CDL data are generated annually, with estimated producer accuracies for “large area row crops ranging from the mid 80% to mid-90%,” depending on the state (http://www.nass.usda.gov/research/Cropland/sarsfaqs2.htm#Section3_18.0). Specific information on accuracy may be found on the NASS metadata website (<http://www.nass.usda.gov/research/Cropland/metadata/meta.htm>). CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes and nonagricultural classes. For this effort, and in the baseline environmental report (Manier et al. 2013), nonagricultural classes were removed from the original dataset. The excluded classes are:

- Barren (65 & 131), Deciduous Forest (141), Developed/High Intensity (124), Developed/Low Intensity (122), Developed/Med Intensity (123), Developed/Open Space (121), Evergreen Forest (142), Grassland Herbaceous (171), Herbaceous Wetlands (195), Mixed Forest (143), Open Water (83 & 111), Other Hay/Non Alfalfa (37), Pasture/Hay (181), Pasture/Grass (62), Perennial Ice/Snow (112), Shrubland (64 & 152), Woody Wetlands (190).

The rule set for adjusting the sagebrush base layer for agricultural lands (and for updating the base layer for agricultural lands in the future) is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of the CDL classifies that pixel as one of the nonagricultural classes listed above. The assumption is that even though individual pixels may be classified as a nonagricultural class in any given year, the pixel has not necessarily been restored to a natural sagebrush community that would be included in Table Y-6. A further assumption is that once an area has moved into agricultural use, it is unlikely that the area would be restored to sagebrush. Should that occur, however, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the sagebrush restoration monitoring section of this monitoring framework.

Urban Adjustments for the Sagebrush Base Layer

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a five-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush base layer during the update process. Although the impervious surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

Fire Adjustments for the Sagebrush Base Layer

Two datasets were selected for performing fire adjustments and updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires that all fires of more than 10 acres are to be reported to GeoMac; therefore, there will be many small fires of less than 10 acres that will not be accounted for in the adjustment and monitoring attributable to fire. Using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1,000 acres will be used to adjust and monitor the sagebrush base layer.

For fires greater than 1,000 acres, MTBS was selected as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program (<http://www.mtbs.gov>) is an ongoing, multiyear project to map fire severity and fire perimeters consistently across the United States. One of the burn severity classes within MTBS is an unburned to low-severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter for the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. Not all wildfires, however, have the same impacts on the recovery of sagebrush habitat, depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed, restoration than does the warmer, dryer sagebrush habitat. These cooler, moister areas will likely be detected as sagebrush in future updates to LANDFIRE.

Conifer Encroachment Adjustment for the Sagebrush Base Layer

Conifer encroachment into sagebrush vegetation reduces the spatial extent of greater sage-grouse habitat (Davies et al. 2011, Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation resulting in greater sage-grouse habitat loss include various juniper species, such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species, including singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas-fir (*Pseudotsuga menziesii*) (Gruell et al. 1986, Grove et al. 2005, Davies et al. 2011).

A rule set for conifer encroachment was developed to be used for determination of the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and have the capability of supporting sagebrush vegetation. Those ecological systems (Table Y-7) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush vegetation was defined as including sagebrush species (Attachment B) that provide habitat for the greater sage-grouse and are included in the Sage-Grouse Habitat Assessment Framework. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems and these immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

Table Y-7. Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus osteosperma</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata ssp. tridentata</i> <i>Artemisia tridentata ssp. wyomingensis</i> <i>Artemisia tridentata ssp. vaseyana</i> <i>Artemisia bigelovii</i> <i>Artemisia pygmaea</i>
Columbia Plateau Western Juniper Woodland and Savanna	<i>Juniperus occidentalis</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia rigida</i> <i>Artemisia tridentata ssp. vaseyana</i>
East Cascades Oak-Ponderosa Pine Forest and Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Artemisia tridentata</i> <i>Artemisia nova</i>
Great Basin Pinyon-Juniper Woodland	<i>Pinus monophylla</i> <i>Juniperus osteosperma</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata ssp. vaseyana</i>
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	<i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata ssp. vaseyana</i>
Rocky Mountain Foothill Limber Pine-Juniper Woodland	<i>Juniperus osteosperma</i> <i>Juniperus scopulorum</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i>
Rocky Mountain Poor-Site Lodgepole Pine Forest	<i>Pinus contorta</i> <i>Pseudotsuga menziesii</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i>
Southern Rocky Mountain Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus monosperma</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata ssp. wyomingensis</i> <i>Artemisia tridentata ssp. vaseyana</i>

Table Y-7. Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation (Continued)

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Southern Rocky Mountain Ponderosa Pine Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Pinus edulis</i> <i>Pinus contorta</i> <i>Juniperus</i> spp. <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>Vaseyana</i>

Invasive Annual Grasses Adjustments for the Sagebrush Base Layer

There are no invasive species datasets from 2010 to the present (beyond the LANDFIRE data) that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see Section B.1.b., Monitoring Sagebrush Availability.

Sagebrush Restoration Adjustments for the Sagebrush Base Layer

There are no datasets from 2010 to the present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated); therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (version 1.2) attributable to restoration activities since 2010. Successful restoration treatments before 2010 are assumed to have been captured in the LANDFIRE refresh.

6.3.1.2 Monitoring Sagebrush Availability

Updating the Sagebrush Availability Sagebrush Base Layer

Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

- **2010 Existing Sagebrush Base Layer** = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]
- **2012 Existing Sagebrush Update** = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter]

- **2013 and beyond Existing Sagebrush Updates** = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field]

Sagebrush Restoration Updates

Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation back in. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest

Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro-American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units which are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal habitat for the greater sage-grouse. These ecological systems are listed in Table Y-6 with the exception of the *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse Habitat Assessment Framework and are found in Attachment B.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size

of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level (30m²) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

Tracking

BLM and USFS will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year and an updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will begin to be factored in as data allows. Attributable to data availability, there will be a two year lag (approximately) between when the estimate is generated and when the data used for the estimate becomes available (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

Future Plans

Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium (MRLC) are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the MRLC. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring "with-in" class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This "with-in" class variation can serve as one indicator of sagebrush quality that cannot be derived from LANDFIRE's EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

6.3.2 Habitat Degradation Monitoring (Measure 2)

The measure of habitat degradation will be calculated by combining the footprints of threats identified in Table Y-4. The footprint is defined as the direct area of influence of “active” energy and infrastructure; it is used as a surrogate for human activity. Although these analyses will try to summarize results at the aforementioned meaningful geographic areas of interest, some may be too small to report the metrics appropriately and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in Table Y-8, Geospatial data sources for habitat degradation. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be provided to the USFWS.

Habitat Degradation Datasets and Assumptions

Energy (oil and gas wells and development facilities): This dataset will compile information from three oil and gas databases: the proprietary IHS Enerdeq database, the BLM Automated Fluid Minerals Support System (AFMSS) database, and the proprietary Platts (a McGraw-Hill Financial Company) GIS Custom Data (hereafter, Platts) database of power plants. Point data from wells active within the last 10 years from IHS and producing wells from AFMSS will be considered as a 5-acre (2.0ha) direct area of influence centered on the well point, as recommended by the BLM WO-300 (Minerals and Realty Management). Plugged and abandoned wells will be removed if the date of well abandonment was before the first day of the reporting year (i.e., for the 2015 reporting year, a well must have been plugged and abandoned by 12/31/2014 to be removed). Platts oil and gas power plants data (subset to operational power plants) will also be included as a 5-acre (2.0ha) direct area of influence.

Additional Measure: Reclaimed Energy-related Degradation. This dataset will include those wells that have been plugged and abandoned. This measure thereby attempts to measure energy-related degradation that has been reclaimed but not necessarily fully restored to greater sage-grouse habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last 10 years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed 2–10 years from energy development activities (Harju et al. 2010). Reclamation actions may require 2 or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take 6 or more years from the point of seeding, depending on such variables as annual precipitation, annual temperature, and soil type and depth (Pyke 2011). This 10-year period is conservative and assumes some level of habitat improvement 10 years after plugging. Research by Hemstrom et al. (2002), however, proposes an even longer period—more than 100 years—for recovery of sagebrush habitats, even with active restoration approaches. Direct area of influence will be considered 3 acres (1.2ha) (J. Perry, personal communication, February 12, 2014). This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded. This layer/measure could also be used where further investigation at the fine or site scale would be warranted to: 1) quantify the level of reclamation already conducted, and 2) evaluate the amount of restoration still required for sagebrush habitat recovery. At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting restoration standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to wildfire and agriculture conversion (see

Monitoring Sagebrush Restoration in Section B.1.b., Monitoring Sagebrush Availability). This dataset will be updated annually from the IHS dataset.

Energy (coal mines): Currently, there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, U.S. Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement coal mining permit polygons (as available), and U.S. Geological Survey (USGS) Mineral Resources Data System mine occurrence points. These data will inform where active coal mining may be occurring. Additionally, coal power plant data from Platts power plants database (subset to operational power plants) will be included. Aerial imagery will then be used to digitize manually the active coal mining and coal power plants surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine and power plant direct area of influence. Coal mine location data source and imagery date will be documented for each digitized coal polygon at the time of creation. Subsurface facility locations (polygon or point location as available) will also be collected if available, included in density calculations, and added to the active surface activity layer as appropriate (if an actual direct area of influence can be located).

Energy (wind energy facilities): This dataset will be a subset of the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where “Type_” = “WINDMILL” will be included. Direct area of influence of these point features will be measured by converting to a polygon dataset as a direct area of influence of 3 acres (1.2ha) centered on each tower point. See the BLM’s “Wind Energy Development Programmatic Environmental Impact Statement” (BLM 2005). Additionally, Platts power plants database will be used for transformer stations associated with wind energy sites (subset to operational power plants), also with a 3-acre (1.2ha) direct area of influence.

Energy (solar energy facilities): This dataset will include solar plants as compiled with the Platts power plants database (subset to operational power plants). This database includes an attribute that indicates the operational capacity of each solar power plant. Total capacity at the power plant was based on ratings of the in-service unit(s), in megawatts. Direct area of influence polygons will be centered over each point feature representing 7.3ac (3.0ha) per megawatt of the stated operational capacity, per the report of the National Renewable Energy Laboratory (NREL), “Land-Use Requirements for Solar Power Plants in the United States” (Ong et al. 2013).

Energy (geothermal energy facilities): This dataset will include geothermal wells in existence or under construction as compiled with the IHS wells database and power plants as compiled with the Platts database (subset to operational power plants). Direct area of influence of these point features will be measured by converting to a polygon dataset of 3 acres (1.2ha) centered on each well or power plant point.

Mining (active developments; locatable, leasable, salable): This dataset will include active locatable mining locations as compiled with the proprietary InfoMine database. Aerial imagery will then be used to digitize manually the active mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active mine direct area of influence. Mine location data source and imagery date will be documented for each digitized polygon at the time of creation. Currently, there are no known compressive databases available for leasable or salable mining sites beyond coal mines. Other data sources will be evaluated

and used as they are identified or as they become available. Point data may be converted to polygons to represent direct area of influence unless actual surface disturbance is available.

Infrastructure (roads): This dataset will be compiled from the proprietary Esri StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstate Highways, Major Roads, and Surface Streets to capture most paved and “crowned and ditched” roads while not including “two-track” and 4-wheel-drive routes. These minor roads, while not included in the broad- and mid-scale monitoring, may support a volume of traffic that can have deleterious effects on greater sage-grouse leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine- and site-scale analysis will require more site-specific data than is identified in this monitoring framework. The direct area of influence for roads will be represented by 240.2ft, 84.0ft, and 40.7ft (73.2m, 25.6m, and 12.4m) total widths centered on the line feature for Interstate Highways, Major Roads, and Surface Streets, respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. Note: This is a related but different dataset than what was used in BER (Manier et al. 2013). Individual BLM/USFS planning units may use different road layers for fine- and site-scale monitoring.

Infrastructure (railroads): This dataset will be a compilation from the Federal Railroad Administration Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct are of influence for railroads will be represented by a 30.8ft (9.4m) total width (Knick et al. 2011) centered on the non-abandoned railroad line feature.

Infrastructure (power lines): This line dataset will be derived from the proprietary Platts transmission lines database. Linear features in the dataset attributed as “buried” will be removed from the disturbance calculation. Only “In Service” lines will be used; “Proposed” lines will not be used. Direct area of influence will be determined by the kV designation: 1–199 kV (100ft/30.5m), 200–399 kV (150ft/45.7m), 400–699 kV (200ft/61.0m), and 700-or greater kV (250ft/76.2m) based on average right-of-way and structure widths, according to BLM WO-300 (Minerals and Realty Management).

Infrastructure (communication towers): This point dataset will be compiled from the Federal Communications Commission (FCC) communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.5 acres (1.0ha) centered on each communication tower point (Knick et al. 2011).

Infrastructure (other vertical structures): This point dataset will be compiled from the FAA’s Digital Obstacles point file. Points where “Type_” = “WINDMILL” will be removed. Duplicate points from the FCC communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.5 acres (1.0ha) centered on each vertical structure point (Knick et al. 2011).

Other Developed Rights-of-Way: Currently, no additional data sources for other rights-of-way have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in the categories described above. The newly purchased IHS data do contain pipeline information; however, this database does not currently distinguish between above-ground and underground pipelines. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to those used with the threats described above.

6.3.2.1 Habitat Degradation Threat Combination and Calculation

The threats targeted for measuring human activity (Table Y-4) will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of greater sage-grouse. Individual datasets, however, will be preserved to indicate which types of threats may be contributing to overall habitat degradation. This measure has been divided into three sub measures to describe habitat degradation on the landscape. Percentages will be calculated as follows:

- **Measure 2a.** Footprint by geographic area of interest: Divide area of the active/direct footprint by the total area of the geographic area of interest (% disturbance in geographic area of interest).
- **Measure 2b.** Active/direct footprint by historical sagebrush potential: Divide area of the active footprint that coincides with areas with historical sagebrush potential (BpS calculation from habitat availability) within a given geographic area of interest by the total area with sagebrush potential within the geographic area of interest (% disturbance on potential historical sagebrush in geographic area of interest).
- **Measure 2c.** Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given geographic area of interest by the total area that is current sagebrush within the geographic area of interest (% disturbance on current sagebrush in geographic area of interest).

Table Y-8. Geospatial Data Sources for Habitat Degradation (Measure 2)

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM - WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM - WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Envofrement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM - WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM - WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac - (3.0 ha)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM - WO-300
	Power Plants	Platts (power plants)	Polygon area (digistized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7 ft (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0 ft (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2 ft (73.2m)	USGS
Infrastructure (railroads)	ActiveLines	Federal Railroad Administration	30.8ft (9.4m)	USGS
Infrastructure (powerlines)	1-199 kV Lines	Platts (transmission lines)	100 ft (30.5 m)	BLM - WO-300
	200-399 kV Lines	Platts (transmission lines)	150 ft (45.7m)	BLM - WO-300
	400-699 kV Lines	Platts (transmission lines)	200 ft (61.0m)	BLM - WO-300
	700+ kV Lines	Platts (transmission lines)	250 ft (76.2m)	BLM - WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5 ac (1.0 ha)	BLM - WO-300

6.3.3 Energy and Mining Density (Measure 3)

The measure of density of energy and mining will be calculated by combining the locations of energy and mining threats identified in Table Y-4. This measure will provide an estimate of the intensity of human activity or the intensity of habitat degradation. The number of energy facilities and mining locations will be summed and divided by the area of meaningful geographic areas of interest to calculate density of these activities. Data sources for each threat are found in Table Y-8. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and 5-year (or longer) trends in habitat degradation.

Energy and Mining Density Datasets and Assumptions

- **Energy (oil and gas wells and development facilities)** (See Section B.2., Habitat Degradation Monitoring.)
- **Energy (coal mines)** (See Section B.2., Habitat Degradation Monitoring.)
- **Energy (wind energy facilities)** (See Section B.2., Habitat Degradation Monitoring.)
- **Energy (solar energy facilities)** (See Section B.2., Habitat Degradation Monitoring.)
- **Energy (geothermal energy facilities)** (See Section B.2., Habitat Degradation Monitoring.)
- **Mining (active developments; locatable, leasable, salable)** (See Section B.2., Habitat Degradation Monitoring.)

Energy and Mining Density Threat Combination and Calculation

Datasets for energy and mining will be collected in two primary forms: point locations (e.g., wells) and polygon areas (e.g., surface coal mining). The following rule set will be used to calculate density for meaningful geographic areas of interest including standard grids and per polygon:

1. Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2. Polygons will not be merged, or features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3. The analysis unit (polygon or 640-acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit, all point features will be summed, and any individual polygons will be counted as one (e.g., a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g., a polygon crossing multiple 640-acre sections would be counted as one in each 640-acre section for a density per 640-acre-section calculation).
4. In methodologies with different-sized units (e.g., MZs, populations, etc.) raw facility counts will be converted to densities by dividing the raw facility counts by the total area of the unit. Typically this will be measured as facilities per 640 acres.
5. For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6. Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help display and convey information about areas within meaningful geographic areas of interest that have high levels of energy and/or mining activity.
7. Additional statistics for each defined unit may also include adjusting the area to include only the area with the historical potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Individual datasets and threat combination datasets for habitat degradation will be available through the BLM's EGIS web portal and geospatial gateway. Legacy datasets will be preserved so that trends may be calculated.

6.4 Population (Demographics) Monitoring

State wildlife management agencies are responsible for monitoring greater sage-grouse populations within their respective states. WAFWA will coordinate this collection of annual population data by state agencies. These data will be made available to the BLM according to the terms of the forthcoming Greater Sage-Grouse Population Monitoring Memorandum of Understanding (MOU) (2014) between WAFWA and the BLM. The MOU outlines a process, timeline, and responsibilities for regular data sharing of greater sage-grouse population and/or habitat information for the purposes of implementing greater sage-grouse LUPs/amendments and subsequent effectiveness monitoring. Population areas were refined from the “*Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report*” (COT 2013) by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and to inform the adaptive management responses.

6.5 Effectiveness Monitoring

Effectiveness monitoring will provide the data needed to evaluate BLM and USFS actions toward reaching the objective of the national planning strategy (BLM IM 2012-044) – to conserve greater sage-grouse populations and their habitat– and the objectives for the land use planning area. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of the Bighorn Basin LUP. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface ownership/management, and will help inform where finer-scale evaluations are needed, such as population areas smaller than an LUP or PACs within an LUP (described in Section 4.2, Fine and Site Scales). Data will also include the trend of disturbance within these areas of interest to inform the need to initiate adaptive management responses as described in the Bighorn Basin land use plan.

The BLM and the USFS will coordinate with the State of Wyoming in evaluating the compliance of all actions within greater sage-grouse PHMAs. Evaluation of current disturbance, disruptions and conservation actions within a greater sage-grouse PHMA will be conducted to determine if all entities are in compliance with their specific standards and whether or not it indeed has not caused declines of greater sage-grouse populations. This approach also helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines, without excluding the possibility of concurrent, finer-scale evaluations as needed where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the greater sage-grouse national planning strategy, the BLM and the USFS will evaluate the answers to the following questions and prepare a broad- and mid-scale effectiveness report:

1. Sagebrush Availability and Condition:
 - a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
 - b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre-EuroAmerican historical distribution of sagebrush (BpS)?
 - c. What is the trend and condition of the indicators describing sagebrush characteristics important to greater sage-grouse?

2. Habitat Degradation and Intensity of Activities:
 - a. What is the amount of habitat degradation and the change in that amount?
 - b. What is the intensity of activities and the change in the intensity?
 - c. What is the amount of reclaimed energy-related degradation and the change in the amount?
 - d. What is the population estimation of greater sage-grouse and the change in the population estimation?
3. How are the BLM and the USFS contributing to changes in the amount of sagebrush?
4. How are the BLM and the USFS contributing to disturbance?

The compilation of broad- and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule (see Attachment A), which may be accelerated to respond to critical emerging issues (in consultation with the USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and inform the BLM and the USFS adaptive management strategy (see the adaptive management section of this Environmental Impact Statement).

To determine the effectiveness of the greater sage-grouse objectives of the land use plan, the BLM and the USFS will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the greater sage-grouse habitat objectives?
2. Are greater sage-grouse areas within the LUP meeting, or making progress toward meeting, land health standards, including the Special Status Species/wildlife habitat standard?
3. Is the plan meeting the disturbance objective(s) within greater sage-grouse areas?
4. Are the greater sage-grouse populations within this plan boundary and within the greater sage-grouse areas increasing, stable, or declining?

The effectiveness monitoring report for this LUP will occur on a 5-year reporting schedule (see Attachment A) or more often if habitat or population anomalies indicate the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS web portal and the geospatial gateway.

Methods

At the broad and mid-scales (PACs and above) the BLM and the USFS will summarize the vegetation, disturbance, and (when available) population data. Although the analysis will try to summarize results for PACs within each greater sage-grouse population, some populations may be too small to report the metrics appropriately and may need to be combined to provide an estimate with an acceptable level of accuracy. Otherwise, they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM and the USFS will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the greater sage-grouse areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas owing to successful restoration; and the amount of new disturbance the BLM and/or the USFS has permitted. These data could be supplemented with population data (when available) to inform an understanding of the correlation between habitat and PACs within a population. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, National Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will use the information from Measure 1a (I.B.1., Sagebrush Availability) and calculate the change from the 2012 baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (I.B.1., Sagebrush Availability) will be used. To calculate the trend in the condition of sagebrush at the mid-scale, three sources of data will be used: the BLM's Grass/Shrub mapping effort (Future Plans in Section B.1., Sagebrush Availability); the results from the calculation of the landscape indicators, such as patch size (described below); and the BLM's Landscape Monitoring Framework (LMF) and greater sage-grouse intensification effort (also described below). The LMF and greater sage-grouse intensification effort data are collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to greater sage-grouse, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for greater sage-grouse dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid-scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal, and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid-scales will be used, along with the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with the Natural Resources Conservation Service (NRCS). The objective of the LMF effort is to provide unbiased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. Recognizing that greater sage-grouse populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of greater sage-grouse (Knick and Connelly 2011, Stiver et al. in press), a group of greater sage-grouse habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform greater sage-grouse habitat needs. The experts represented the Agricultural Research Service, BLM, NRCS, USFWS, WAFWA, state wildlife agencies, and academia. The common indicators identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of greater sage-grouse, additional plot locations in occupied greater sage-grouse habitat (Sage-Grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS National Resources Inventory Rangeland Resource Assessment (<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?&cid=stelprdb1041620>).

The greater sage-grouse intensification baseline data will be collected over a 5-year period, and an annual greater sage-grouse intensification report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report, which will be available on an annual basis thereafter, contingent on continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the National Planning Strategy Effectiveness Report.

Calculating Question 2, National Planning Strategy Effectiveness: Evaluations of the amount of habitat degradation and the intensity of the activities in the area of interest will use the information from Measure 2 (Section B.2., Habitat Degradation Monitoring) and Measure 3 (Section B.3., Energy and

Mining Density). The field office will collect data on the amount of reclaimed energy-related degradation on plugged and abandoned and oil/gas well sites. The data are expected to demonstrate that the reclaimed sites have yet to meet the habitat restoration objectives for greater sage-grouse habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the National Planning Strategy Effectiveness Report.

Calculating Question 3, National Planning Strategy Effectiveness: The change in greater sage-grouse estimated populations will be calculated from data provided by the state wildlife agencies, when available. This population data (Section C., Population [Demographics] Monitoring) will be used to answer Question 3 of the National Planning Strategy Effectiveness Report.

Calculating Question 4, National Planning Strategy Effectiveness: The estimated contribution by the BLM or the USFS to the change in the amount of sagebrush in the area of interest will use the information from Measure 1a (Section B.1., Sagebrush Availability). This measure is derived from the national datasets that remove sagebrush (Table Y-5). To determine the relative contribution of BLM and USFS management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in the geographic areas of interest. This information will be used to answer Question 4 of the National Planning Strategy Effectiveness Report.

Calculating Question 5, National Planning Strategy Effectiveness: The estimated contribution by the BLM or the USFS to the change in the amount of disturbance in the area of interest will use the information from Measure 2a (Section B.2., Monitoring Habitat Degradation) and Measure 3 (Section B.3., Energy and Mining Density). These measures are all derived from the national disturbance datasets that degrade habitat (Table Y-8). To determine the relative contribution of BLM and USFS management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in the geographic areas of interest. This information will be used to answer Question 5 of the National Planning Strategy Effectiveness Report.

Answers to the five questions for determining the effectiveness of the national planning strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad-scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence that the objectives of the national planning strategy to maintain populations and their habitats have been met. Conversely, where information indicates that sagebrush is decreasing and vegetation conditions are degrading, disturbance in greater sage-grouse areas is increasing, and/or populations are declining relative to the baseline, there is evidence that the objectives of the national planning strategy are not being achieved. Such a determination would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

With respect to the land use plan area, the BLM and the USFS will summarize the vegetation, disturbance, and population data to determine if the LUP is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM/USFS surface management areas and will help inform where finer-scale evaluations are needed, such as seasonal habitats, corridors, or linkage areas. Data will also include the trend of disturbance within the greater sage-grouse areas, which will inform the need to initiate adaptive management responses as described in the Bighorn Basin land use plan.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting land health standards (as articulated in “BLM Handbook 4180-1, Rangeland Health Standards”) in greater sage-grouse areas will be used to determine the LUP’s effectiveness in meeting the vegetation

objectives for greater sage-grouse habitat set forth in the plan. The field office/ranger district will be responsible for collecting this data. In order for this data to be consistent and comparable, common indicators, consistent methods, and an unbiased sampling framework will be implemented following the principles in the BLM’s AIM strategy (Taylor et al. 2014; Toevs et al. 2011; MacKinnon et al. 2011), in the BLM’s Technical Reference “Interpreting Indicators of Rangeland Health” (Pellant et al. 2005), and in the HAF (Stiver et al. in press) or other approved WAFWA MZ-consistent guidance to measure and monitor greater sage-grouse habitats. This information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: Sage-grouse areas within the LUP that are achieving land health stands (or, if trend data are available, that are making progress toward achieving them)—particularly the Special Status Species/wildlife habitat land health standard—will be used to determine the LUP’s effectiveness in achieving the habitat objectives set forth in the plan. Field offices will follow directions in “BLM Handbook 4180-1, Rangeland Health Standards,” to ascertain if greater sage-grouse areas are achieving or making progress toward achieving land health standards. One of the recommended criteria for evaluating this land health standard is the HAF indicators.

Calculating Question 3, Land Use Plan Effectiveness: The amount of habitat disturbance in greater sage-grouse areas identified in this LUP will be used to determine the LUP’s effectiveness in meeting the plan’s disturbance objectives. National datasets can be used to calculate the amount of disturbance, but field office data will likely increase the accuracy of this estimate. This information will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Calculating Question 4, Land Use Plan Effectiveness: The change in estimated greater sage-grouse populations will be calculated from data provided by the state wildlife agencies, when available, and will be used to determine LUP effectiveness. This population data (Section C., Population [Demographics] Monitoring) will be used to answer Question 4 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the LUP will be used to inform the need for finer-scale investigations, initiate adaptive management actions as described in the Bighorn Basin land use plan, initiate causation determination, and/or determine if changes to management decisions are warranted. The measures used at the broad and mid-scales will provide a suite of characteristics for evaluating the effectiveness of the adaptive management strategy.

6.5.1 Fine and Site Scales

Fine-scale (third-order) habitat selected by greater sage-grouse is described as the physical and geographic area within home ranges during breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect greater sage-grouse use of, and movements between, seasonal use areas. The habitat monitoring at the fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for greater sage-grouse associated with a lek or lek group within a population or subpopulation area. Fine- and site-scale monitoring will inform LUP effectiveness monitoring (see Section D., Effectiveness Monitoring) and the hard and soft triggers identified in the LUP’s adaptive management section.

The BLM and USFS will coordinate with the State of Wyoming to share conservation, disturbance and vegetation analysis data to provide a core by core evaluation to make necessary adjustments in activity, priorities and other actions.

Site-scale habitat selected by greater sage-grouse is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of

sagebrush and the associated understory vegetation. They also include vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support greater sage-grouse habitat needs during different stages in their annual cycle.

As described in the Conclusion (Section 3.4), details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan for the Bighorn Basin land use plan. The need for fine- and site-scale-specific habitat monitoring will vary by area, depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine- and site-scale monitoring include: habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluation of the success of projects targeting greater sage-grouse habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM’s AIM strategy (Toevs et al. 2011) and in “AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy” (Taylor et al. 2014). Approved monitoring methods are:

- “BLM Core Terrestrial Indicators and Methods” (MacKinnon et al. 2011);
- The BLM’s Technical Reference “Interpreting Indicators of Rangeland Health” (Pellant et al. 2005); and,
- “Sage-Grouse Habitat Assessment Framework: Multiscale Assessment Tool” (Stiver et al. in press).

Other state-specific disturbance tracking models include: the BLM’s Wyoming Density and Disturbance Calculation Tool (<http://ddct.wygisc.org/>) and the BLM’s White River Data Management System in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine- and site-scale greater sage-grouse habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) greater sage-grouse guidelines as well as many of the core indicators in the AIM strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF; any such adjustments should be ecologically defensible. To foster consistency, however, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for making those adjustments. That justification should be provided. WAFWA MZ adjustments must be supported by regional plant productivity and habitat data for the floristic province. If adjustments are made to the site-scale indicators, they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from greater sage-grouse studies found in the relevant area and peer-reviewed by the appropriate wildlife management agency(ies) and researchers.

When conducting land health assessments, the BLM should follow, at a minimum, “Interpreting Indicators of Rangeland Health” (Pellant et al. 2005) and the “BLM Core Terrestrial Indicators and Methods” (MacKinnon et al. 2011). For assessments being conducted in greater sage-grouse designated management areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and rollup analysis among management units; help provide consistent data to inform the classification and interpretation of imagery; and provide condition and trend of the indicators describing sagebrush characteristics important to greater sage-grouse habitat (see Section D., Effectiveness Monitoring).

6.5.2 Conclusion

This Greater Sage-Grouse Monitoring Framework was developed for all of the Final Environmental Impact Statements involved in the greater sage-grouse planning effort. As such, it describes the monitoring activities at the broad and mid-scales and provides a guide for the BLM to collaborate with partners/other agencies to develop the Bighorn Basin land use plan-specific monitoring plan.

6.5.3 The BLM Greater Sage-Grouse Disturbance and Monitoring Sub Team Membership

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Appendix Y – Greater Sage-Grouse Implementation Strategy

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ATTACHMENT A: AN OVERVIEW OF MONITORING COMMITMENTS

	Broad and Mid-scales					Fine & Site Scales
	Implement- ation	Sagebrush Availability	Habitat Degradation	Population	Effectiveness	
How will the data be used?	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to sage-grouse habitat and inform adaptive management	Tracking trends in sage-grouse populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
Who is collecting the data?	BLM FO and FS Forest	NOC and NIFC	National data sets (NOC), BLM FOs and FS Forests as applicable	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, FS Forests and RO (with partners) including disturbance
How often are the data collected, reported and made available to FWS?	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with LUP evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
What is the spatial scale?	Summarized by LUP with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ, and LUP with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
What are the potential personnel and budget impacts?	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data mgmt cost are TBD	At a minimum, current skills and capacity must be maintained; data mgmt and data layer purchase cost are TBD	No additional personnel or budget impacts for BLM or USFS	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment
Who has primary and secondary responsibilities for reporting?	1) BLM FO & SO; FS Forest & RO 2) BLM & FS Planning	1) NOC 2) WO	1) NOC 2) BLM SO, FS RO & appropriate programs	1) WAFWA & state wildlife agencies 2) BLM SO, FS RO, NOC	1) Broad and mid-scale at the NOC, LUP at BLM SO, USFS RO	1) BLM FO & FS Forests 2) BLM SO & FS RO
What new processes/tools are needed?	National implementation data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

ATTACHMENT B: LIST OF ALL SAGEBRUSH SPECIES AND SUBSPECIES INCLUDED IN THE SELECTION CRITERIA FOR BUILDING THE EVT AND BPS LAYERS

- *Artemisia arbuscula* subspecies *longicaulis*
- *Artemisia arbuscula* subspecies *longiloba*
- *Artemisia bigelovii*
- *Artemisia nova*
- *Artemisia papposa*
- *Artemisia pygmaea*
- *Artemisia rigida*
- *Artemisia spinescens*
- *Artemisia tripartita* subspecies *rupicola*
- *Artemisia tripartita* subspecies *tripartita*
- *Tanacetum nuttallii*
- *Artemisia cana* subspecies *bolanderi*
- *Artemisia cana* subspecies *cana*
- *Artemisia cana* subspecies *viscidula*
- *Artemisia tridentata* subspecies *wyomingensis*
- *Artemisia tridentata* subspecies *tridentata*
- *Artemisia tridentata* subspecies *vaseyana*
- *Artemisia tridentata* subspecies *spiciformis*
- *Artemisia tridentata* subspecies *xericensis*
- *Artemisia tridentata* variety *pauciflora*
- *Artemisia frigida*
- *Artemisia pedatifida*

ATTACHMENT C: USER AND PRODUCER ACCURACIES FOR AGGREGATED ECOLOGICAL SYSTEMS WITHIN LANDFIRE MAP ZONES

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
Snake River Plain	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0% user and producer accuracies, attributable to no available reference data for the ecological systems of interest.

User accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? Commission Error equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 – user's accuracy).

Producer accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? Omission Error equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 – producer's accuracy).

8.0 COT OBJECTIVE 6: PRIORITIZE, FUND, AND IMPLEMENT RESEARCH TO ADDRESS EXISTING UNCERTAINTIES

“Increased funding and support for key research projects that will address uncertainties associated with sage-grouse and sagebrush habitat management is essential. Effective amelioration of threats can only be accomplished if the mechanisms by which those threats are imposed on the redundancy, representation, and resilience of the species and its habitats are understood.” (COT Report, 2013)

In accordance with BLM policy, the Record of Decision and Approved Plan will establish intervals and standards for evaluations as part of the implementation strategy. Priorities will be established based on the identified threats in the Planning Area, the conservation objectives included as part of the Approved Plan, and any potential uncertainties associated with sage-grouse and associated habitat management. A part of this strategy will include development of a budget to accomplish each of the identified tasks and fund potential research topics to address any uncertainties.

As new science pertaining to sage-grouse and habitat is continuously evolving, refined management strategies may be necessary to ensure that BLM and USFS are utilizing the most current science, information, and data regarding sage-grouse. It is for this reason that BLM and USFS have collaborated with the State of Wyoming and USFWS to develop an adaptive management strategy as a part of the planning process.

8.1 Wyoming Greater Sage-Grouse Adaptive Management Plan

The greater sage-grouse adaptive management plan provides regulatory assurance that unintended negative impacts to greater sage-grouse habitat will be addressed before consequences become severe or irreversible. This adaptive management plan:

- utilizes science based soft and hard adaptive management triggers,
- addresses multiple scales of data, and
- utilizes an adaptive management working group.

Adaptive Management Triggers

Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting greater sage-grouse conservation objectives. With respect to sage-grouse, all regulatory entities in Wyoming, including the BLM and FS, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.

Soft Triggers:

Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM and/or FS field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local sage-grouse working groups will evaluate the metrics with the

Adaptive Management Working Group (AMWG) on an annual basis. The purpose of these strategies is to address localized greater sage-grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.

Hard Triggers:

Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect.

Within the range of normal population variables, hard triggers shall be determined to take effect when two of the three metrics exceeds 60% of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40% of normal variability for a three year time period within a five-year range of analysis. A minimum of three consecutive years in a five-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).

Adaptive Management Response

Soft Trigger Response:

Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short- or long-term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM and/or FS) and the AMWG will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or state-wide level.

Hard Trigger Response:

Upon determination that a hard trigger has been tripped, the BLM and/or FS will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).

Interim Strategy

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team (see Implementation Groups below) will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM and/or FS will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric which has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, NTT reports, and NPT guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM and/or FS will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM and/or FS's planning regulations and policies.

The interim strategy will be implemented for the biologically significant unit (BSU), which, in Wyoming, is PHMAs, regardless of whether PHMAs cross multiple planning boundaries. If it has been identified that more than one PHMA has the same hard triggers being tripped, or is trending towards triggers being tripped, the interim strategy will be implemented at the appropriate scale.

Causal Factor Assessment

The causal factor assessment will be completed within 180 days of determination that a hard trigger threshold has been crossed. Once the causal factor assessment is completed by the AMWG, the interim response strategy will be modified to adequately address the causal factors in consultation with the technical team. If a causal factor or factors cannot be identified, the interim response strategy shall stay in place until the cause can be determined and any new planning decision can be implemented.

EIS Level Projects

Each major project (EIS level) will include adaptive management strategies in support of the population management objectives for greater sage-grouse set by the State of Wyoming, and will be consistent with the Wyoming Greater Sage-Grouse Adaptive Management Plan. These adaptive management strategies will be developed in partnership with the AMWG, WGFD, project proponents, partners, and stakeholders, incorporating the best available science.

Implementation Groups

Sage-Grouse Implementation Team

The State of Wyoming's strategy is implemented by the Sage-Grouse Implementation Team (SGIT), established by Executive Order in 2008 and codified in 2014 by the Wyoming Legislature (W.S. § 9-19-101). The SGIT is a Governor appointed body with representation by federal agencies (BLM, USFS, FWS, Natural Resources Conservation Service), state agencies (Wyoming Game and Fish Commission, Department of Agriculture, Department of Environmental Quality, Wildlife and Natural Resource Trust Fund, Oil and Gas Conservation Commission, and Office of State Lands and Investments), the Wyoming Legislature, county governments, energy developers, mining companies, landowners, and non-governmental organizations. The BLM, US Fish and Wildlife Service NRCS and the US Forest Service all have an equal role in the SGIT.

Land and Resource Management Plan – Implementation Teams

Land and Resource Management Plans are implemented through implementation teams. These implementation teams include cooperating agencies who participated in the development of this land use plan representing local, state, and federal agencies. These implementation teams will coordinate with the AMWG and others to evaluate metrics and management responses necessary to meet greater sage-grouse conservation objectives within their Planning Area.

Adaptive Management Working Group and Technical Team

An Adaptive Management Working Group (AMWG) will be established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect sage-grouse populations and/or habitat through their permitting authority. The AMWG will include BLM, USFS, USFWS, and State of Wyoming. The purpose of this group will be to initiate a response strategy should it be determined that a hard trigger has been tripped or if soft triggers are showing a trend across a region. A hard trigger may be tripped at any time, thus, upon identification of such event, current available population and habitat data will be reviewed by the AMWG with the assistance of a technical team comprised of agency

biologists, scientists familiar with the Management Zone in question, and other individuals as appropriate (e.g., habitat managers, respective landowners, other appropriate representatives) to confirm that a hard trigger has been tripped. Upon verification of data showing that a hard trigger has been tripped, the AMWG will convene within 14 days.

The AMWG will review monitoring data which has been collected by the appropriate local sage-grouse working groups in conformance with data collection standards. This group will meet annually to review all data collected in the prior year regarding sage grouse populations and habitats. Monitoring data will have been analyzed (by WGFD for population based metrics (leks, wing counts, etc., and by land managers [BLM, FS, State of Wyoming] for habitat based metrics [DDCT, etc.]) Should the monitoring data suggest a trend toward a soft or hard trigger being tripped, they will 1. Identify what metric is indicating that trend (population or habitat); and 2. Identify a technical team to review the data and compile a range of activities which may be causing the trend. Should review of the monitoring data identify that multiple soft triggers have been tripped in one PHMA, or the same triggers have been tripped across multiple PHMAs, the technical team will be tasked with verifying the scope and intensity of the trends.

Once the analysis of the trends has been completed by the technical team and reported back to the AMWG, the AMWG will make recommendations to the appropriate land managing agency regarding an interim adaptive management strategy to be implemented. Implementation will occur via the appropriate regulations and policy applicable for that agency. At that time, the State of Wyoming will conduct a review of the regulatory authority implementing the Sage Grouse Core Area Strategy to determine if a State of Wyoming adaptive management strategy is warranted.

Upon review of the annual data by the AMWG and technical team, the State of Wyoming, as part of the AMWG, will contact neighboring states within the respective Management Zone to inform them of any findings. Should a hard trigger be tripped, the trigger which has been tripped and any recommended adaptive management strategy being implemented will be shared with the appropriate neighboring state(s). Should the need arise for implementation of a multi-state adaptive management strategy; the AMWG will coordinate to develop an effective response.

Small Leks

Small leks will be given special consideration. Due to geographic variations a definition of “small” is not provided, rather determination of “small” will be made by the AMWG based upon recommendations of the scientific community. Generally, “small” is considered 10 or fewer males for a three year time period within a five-year range of analysis. If a trigger is hit based upon such a lek, then the adaptive management working group will evaluate the site-specific circumstances and determine appropriate remedial action.

9.0 GLOSSARY TERMS

Additionality: The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (BLM Manual Section 1794).

Avoidance mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20(a)) (e.g., may also include avoiding the impact by moving the proposed action to a different time or location.)

Compensatory mitigation: Compensating for the (residual) impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Compensatory mitigation projects: Specific, on-the-ground actions to improve and/or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements).

Compensatory mitigation sites: The durable areas where compensatory mitigation projects will occur.

Durability (protective and ecological): The administrative, legal, and financial assurances that secure and protect the conservation status of a compensatory mitigation site, and the ecological benefits of a compensatory mitigation project, for at least as long as the associated impacts persist. (BLM Manual Section 1794).

Minimization mitigation: Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR 1508.20 (b))

Residual impacts: Impacts from an authorized land use that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Timeliness: The conservation benefits from compensatory mitigation accruing as early as possible or before impacts have begun. (BLM Manual Section 1794)

***Proposed Resource Management Plan and
Final Environmental Impact Statement***

Bighorn Basin Resource Management Plan Revision Project

Appendix Z

Federal Oil and Gas Operations on Split-Estate Lands

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APPENDIX Z

FEDERAL OIL AND GAS OPERATIONS ON SPLIT-ESTATE LANDS

1.0 PURPOSE

The purpose of this appendix is to summarize the Bureau of Land Management’s (BLM) procedures for considering proposals to conduct exploration and production operations on split-estate federal oil and gas leases. This appendix is provided for information purposes only, and is not necessarily a complete statement of rights, obligations, or processes. This appendix is not a part of the BLM’s land use plan decision for the Resource Management Plan (RMP). Any conflict with any statute or regulation is unintentional. In the event of a conflict, the statute or regulation controls. Federal oil and gas lessees and operators, and private surface owners, are advised to confer with the BLM at the time an action is proposed for BLM’s consideration, in order to obtain information about the current regulations and policies that may apply to the proposal. Nothing in this appendix affects the authority of any tribe or of the Bureau of Indian Affairs in any way. This RMP applies to federal lands as defined by Federal Land Policy and Management Act, and does not apply to lands held in trust for any Tribe or for any individual Indian or Indians.

2.0 DEFINITIONS

Casual use (operations): “Casual use means activities involving practices that do not ordinarily lead to any appreciable disturbance or damage to lands, resources, or improvements. This term does not apply to private surface. Casual use includes surveying activities.” (Onshore Oil and Gas Order No. 1, part II).

Lease: “means any contract, profit share arrangement, joint venture or other agreement issued or approved by the United States under a mineral leasing law that authorizes exploration for, extraction of or removal of oil or gas.” (Onshore Oil and Gas Order No. 1, part II).

Lease facility or production facility: “Production facilities means a lessee's or lease operator's pipes and equipment used on the leasehold to aid in extracting, processing, and storing oil and gas...” (64 FR 32140). See also BLM Manual Section 2880 (“Mineral Leasing Act Rights-of-Way”) at Page 9.

Lease site: “means any lands, including the surface of a severed mineral estate, on which exploration for, or extraction and removal of, oil or gas is authorized under a lease.” (43 CFR 3160.0-5).

Lessee: “means any person holding record title or owning operating rights in a lease issued or approved by the United States.” (43 CFR 3160.0-5).

Operator: “means any person or entity including but not limited to the lessee or operating rights owner, who has stated in writing to the authorized officer that it is responsible under the terms and conditions of the lease for the operations conducted on the leased lands or a portion thereof.” (43 CFR 3160.0-5).

Public lands: “means any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management...” (Federal Land Policy Management Act of 1976, Sec. 103(e)).

Private surface owner: “Private Surface Owner means a non-Federal or non-state owner of the surface estate and includes any Indian owner of surface estate not held in trust by the United States.” (Onshore Oil and Gas Order No. 1, part II).

Split-estate: “Split-estate means lands where the surface is owned by an entity or person other than the owner of the Federal or Indian oil and gas.” (Onshore Oil and Gas Order No. 1, part II). “When tribal lands are held in trust or are subject to Federal restrictions against alienation the BIA is the Surface Managing Agency, but if lands are held in unrestricted fee, those lands are treated the same as private surface.” (Preamble to Onshore Oil and Gas Order No. 1 revisions, 72 FR 10322-10323, March 7, 2007).

Surface Managing Agency: “Surface Managing Agency means any Federal or state agency having jurisdiction over the surface overlying Federal or Indian oil and gas.” (Onshore Oil and Gas Order No. 1, part II).

3.0 GENERAL

In considering and authorizing exploration and development of split-estate federal oil and gas leases, the BLM prefers that the operator and split-estate surface owner reach a Surface Access Agreement for proposed oil and gas operations. The BLM coordinates with both the operator and surface owner, in accordance with the requirements of Onshore Oil and Gas Order No. 1, and generally provides the surface owner’s lands the same level of resource (soil, water, vegetation, air, visual, cultural, etc.) protection as would be required on BLM-administered public lands.

“The BLM will offer the surface owner the same level of surface protection that the BLM provides on Federal surface. The BLM will not apply standards or conditions that exceed those that would normally be applied to Federal surface, even when requested by the surface owner.” (The Gold Book, page 12).

Federal mineral lessees may enter onto a privately-owned surface to the extent necessary to explore and produce the federal minerals in compliance with the relevant statutes and BLM regulations and land use designations. The BLM does not have the authority to regulate a surface owner’s use of the surface estate, but does have the authority to regulate the activities of federal mineral lessees and mining claimants. The BLM adds lease stipulations to split-estate federal oil and gas leases, in order to ensure that leasing decisions conform to the approved RMP for the area.

4.0 OPERATIONS

4.1 Geophysical

The BLM’s authority to permit geophysical operations is described under 43 CFR §3150.0-1:

Geophysical exploration on public lands, the surface of which is administered by the Bureau, requires Bureau approval. The procedures in this part also apply to geophysical exploration conducted under the rights granted by any Federal oil and gas lease unless the surface is administered by the U.S. Forest Service. However, a lessee may elect to conduct exploration operations outside the rights granted by the lease, in which case authorization from the surface managing agency or surface owner may be required... The procedures of this part do not apply to... operations conducted on private surface overlying public lands unless such operations are conducted by a lessee under the rights granted by the Federal oil and gas lease...

As BLM Handbook H-3150-1¹ at pages 1–2 explains:

In those situations where Federal minerals are underlying private surface and the private surface owner's consent is obtained, the BLM is not to become involved. However, when landowner consent for access to the surface cannot be obtained for geophysical exploration operations on a Federal lease by the lease operator, the geophysical operation is to be authorized using the Sundry Notice process...²

When the geophysical exploration operator is the Federal lessee or designated operator of the lessee, it is to file a Sundry Notice... with the BLM and provide notification to the surface owner by certified mail that it intends to enter onto the lands and conduct lease operations. The lessee/operator must then submit proof to the BLM authorized officer that the surface owner has been notified. The lessee or operator must also submit proof to the BLM authorized officer that it has a current and adequate bond payable to the United States for use by the surface owner for damages caused during exploration operations. The authorized officer must give the surface owner 30 days to comment on the proposed action before approving the Sundry Notice.

When a surface access agreement is reached to conduct geophysical operations on split-estate lands with leased or unleased federal oil and gas, the BLM does not become involved. The BLM will not accept a Notice of Intent to Conduct Geophysical Operations (NOI), BLM Form 3150-4 or bond to permit entry to split-estate lands with unleased federal oil and gas, since the BLM has not issued an oil and gas lease to allow for operations under 43 CFR Part 3160 (see 43 CFR 3150.0-1).

In order to conduct geophysical operations on split-estate lands where a federal oil and gas lease has been issued and where an agreement with the surface owner has not been reached, the lessee or the operator must first obtain BLM authorization through an NOI that proposes entry to those lands in order to conduct geophysical operations. The lessee or designated operator must provide to the BLM a certification (see Attachment 1) that a good-faith effort was made to: (a) notify the landowner prior to entry; (b) obtain a Surface Access Agreement; and (c) deliver a copy of the proposed NOI to the surface owner.³ The NOI must also identify the surface owner and include the owner's name, address, and telephone number, if known. A good and sufficient bond to secure payment of applicable damages for the use and benefit of the surface owner must be provided to the BLM on BLM Form 3160-19. The lessee or designated operator must also submit to the BLM evidence of service of a copy of the bond upon the surface owner. Prior to authorizing the NOI proposing entry to the lands for which the bond has been submitted, the BLM notifies the surface owner and provides a 30-day period during which the surface owner may protest the sufficiency of the bond. If the sufficiency of the bond is protested, the BLM reviews the bond amount and determines if it is adequate. That decision by the BLM is subject to State Director Review upon a request by any adversely affected party and the State Director's decision is subject to appeal to the Interior Board of Land Appeals (IBLA).⁴

¹ *Onshore Oil and Gas Geophysical Exploration Surface Management Requirements. January 9, 2007.*

² *In BLM Washington Office Instruction Memorandum (IM) 2009-121, "Approval of Notice of Intent to Conduct Geophysical Exploration to Federal Oil and Gas Lessee on Split Estate", dated May 8, 2009, the BLM recognized that the Sundry Notice form (BLM Form 3160-5) is an imperfect form to use for permitting of geophysical operations. This policy clarified that the BLM will "no longer require the lessee or its operator to file a Sundry Notice" for the purpose of proposing entry to federal leases where a surface owner denies access to the lessee or its operator. In its place the BLM would use the NOI form (BLM Form 3150-4).*

³ *See Onshore Oil and Gas Order No. 1, Part VI.*

⁴ *See 43 CFR §3165.3(b). See, e.g., William P. Maycock, 176 IBLA 206 (2008).*

4.2 Notice of Staking/Application for Permit to Drill

4.2.1 Surveying and Staking Activities

The lessee or operator is encouraged to contact the surface owner of split-estate lands early in the process of planning for exploration and development of a federal lease. This facilitates early discussion about the goals and objectives of both the surface owner and operator. Communication between the lessee or operator and surface owner can reduce potential conflicts, thereby reducing misunderstandings and permit processing times.

For surveying and staking activities, “[t]he operator is responsible for making access arrangements with the appropriate Surface Managing Agency (other than the BLM and the FS) or private surface owner.” (Onshore Oil and Gas Order No. 1, part III.D.2.a).

“No entry on split-estate lands for surveying and staking should occur without the operator first making a good faith effort to notify the surface owner. Also, operators are encouraged to notify the BLM or the Forest Service, as appropriate, before entering private lands to stake for federal mineral estate locations.” (Onshore Oil and Gas Order No. 1, part III.D.2.b).

Aside from surveying and staking the proposed well location, road, pipeline, and/or other lease facilities, the operator may also be required to conduct resource condition surveys of the leased lands.

“As provided in the oil and gas lease, the BLM may request that the applicant conduct surveys or otherwise provide information needed for the BLM’s National Historic Preservation Act consultation with the State Historic Preservation Officer or Indian tribe or its Endangered Species Act consultation with the relevant fisheries agency. The federal mineral lessee has the right to enter the property for this purpose, since it is a necessary prerequisite to development of the dominant mineral estate. Nevertheless, the lessee or operator should seek to reach agreement with the surface owner about the time and method by which any survey would be conducted.” (Onshore Oil and Gas Order No. 1, part VI).

4.2.2 Onsite Inspection(s)

On split-estate lands, the onsite inspection provides the opportunity for the BLM, operator, and surface owner to evaluate and discuss the proposed well location or lease facility in the field.

“Within 10 days of receiving the application, the BLM, in coordination with the operator and Surface Managing Agency, including the private surface owner in the case of split-estate minerals, will schedule a date for the onsite inspection (unless the onsite inspection has already been conducted as part of a Notice of Staking).” (Onshore Oil and Gas Order No. 1, part III.E.2.a).

“On non-NFS lands, the BLM will invite the Surface Managing Agency and private surface owner, if applicable, to participate in the onsite inspection. If the surface is privately owned, the operator must furnish to the BLM the name, address, and telephone number of the surface owner if known.” (Onshore Oil and Gas Order No. 1, part III.C).

At the onsite inspection, the BLM will consider applicable Best Management Practices (BMPs) that would avoid or mitigate environmental impacts to natural resources. The onsite inspection provides the surface owner with the opportunity to review the proposed well location and/or lease facilities; provide information to the BLM and operator about resources, improvements, and land uses; and express preferences for BMPs to be used for lease operations.

“All parties who attend the onsite inspection will jointly develop a list of resource concerns that the operator must address in the Application for Permit to Drill (APD). The operator will be provided a list of these concerns either during the onsite inspection or within 7 days of the onsite inspection. Surface owner concerns will be considered to the extent practical within the law.” (Onshore Oil and Gas Order No. 1, part III.C).

“The BLM will invite the surface owner to the onsite inspection to assure that their concerns are considered.” (Onshore Oil and Gas Order No. 1, part VI).

4.2.3 Required Components of a Complete Application for Permit to Drill for Split-estate Operations

4.2.3.1 Description of Surface Ownership

A description of the surface ownership (with name, address, and telephone number, if known) along with a certification must be included in the APD submitted by the operator to the BLM.

“The operator must indicate (in a narrative) the surface ownership at the well location, and of all lands crossed by roads that the operator plans to construct or upgrade, including, if known, the name of the agency or owner, phone number, and address. The operator must certify that they have provided a copy of the Surface Use Plan of Operations required in this section to the private surface owner of the well site location, if applicable, or that they made a good faith effort if unable to provide the document to the surface owner.” (Onshore Oil and Gas Order No. 1, part III.D.4.k).

4.2.3.2 Surface Access Agreement or Waiver

For operations on leased split-estate lands, the operator must undertake a good faith effort to reach a Surface Access Agreement.

“[I]n the case of actual oil and gas operations, the operator must make a good faith effort to notify the private surface owner before entry and make a good faith effort to obtain a Surface Access Agreement from the surface owner... The Surface Access Agreement may include terms or conditions of use, be a waiver, or an agreement for compensation. The operator must certify to the BLM that: (1) It made a good faith effort to notify the surface owner before entry; and (2) That an agreement with the surface owner has been reached or that a good faith effort to reach an agreement failed.” (Onshore Oil and Gas Order No. 1, part VI).

“The operator must make a good faith effort to provide a copy of their Surface Use Plan of Operations to the surface owner.” (Onshore Oil and Gas Order No. 1, part VI). The operator must also provide a copy of any revisions to the SUPO to the surface owner. If required under Onshore Oil and Gas Order No. 6 (“Hydrogen Sulfide Operations”), the BLM requires the operator to provide a copy of the Public Protection Plan to the surface owner.

“The surface use agreement between the surface owner and the operator is confidential. However, the APD Surface Use Plan of Operations must contain sufficient detail about any aspects of the agreement necessary for NEPA documentation and to determine that the operations will be in compliance with laws, regulations, Onshore Orders, and agency policies.” (The Gold Book, page 12).

“If the BLM’s requirements conflict with provisions in the Surface [Access] Agreement, the operator or surface owner should disclose that conflict at the onsite or to the BLM in writing, and the BLM should

consider those conflicts in making its final decision.” (BLM’s Split Estate Report to Congress at page 15). Thus, to the extent terms of the agreement may conflict with Conditions of Approval, or COAs, to the APD, the BLM should be made aware of those terms, so that they can be considered in the BLM’s final decision.

“The BLM does not review the Surface Use Agreement and does not enforce portions of the Surface Use Agreement that are not contained within the approved APD.” (BLM’s Split Estate Report to Congress at page 17).

4.2.3.3 Bonding In Lieu of a Surface Access Agreement or Waiver

It is the preference of the BLM that the operator and surface owner reach a Surface Access Agreement. However, in those cases where an agreement is not reached, the BLM follows the procedural requirements in the BLM’s regulations and policies. A good and sufficient bond to secure payment of applicable damages for the use and benefit of the surface owner must be provided to the BLM on BLM Form 3160-19. The lessee or designated operator must also submit to the BLM evidence of service of a copy of the bond upon the surface owner. Prior to authorizing the APD proposing entry to the lands for which the bond has been submitted, the BLM notifies the surface owner and provides a 30-day period during which the surface owner may protest the sufficiency of the bond. If the sufficiency of the bond is protested, the BLM reviews the bond amount and determine if it is adequate. That decision by the BLM is subject to State Director Review upon a request by any adversely affected party and the State Director’s decision is subject to appeal to the IBLA.⁵

“If no agreement was reached with the surface owner, the operator must submit an adequate bond (minimum of \$1,000) to the BLM for the benefit of the surface owner sufficient to: (1) Pay for loss or damages; or (2) As otherwise required by the specific statutory authority under which the surface was patented and the terms of the lease. Surface owners have the right to appeal the sufficiency of the bond. Before the approval of the APD, the BLM will make a good faith effort to contact the surface owner to assure that they understand their rights to appeal.” (Onshore Oil and Gas Order No. 1, part VI).

“The bond amount will be reviewed by the BLM to assure that it is sufficient based on the appropriate law.” (Preamble to Onshore Oil and Gas Order No. 1 revisions, 72 FR 10323, March 7, 2007).

If operations under an approved APD result in loss or damages that are compensable under the statutes by which the lands were patented, the surface owner may obtain judgment from a court of competent jurisdiction. The BLM will then release from the bond the amount ordered by the court to the surface owner.

4.2.4 Approval of the Application for Permit to Drill

The BLM considers the views of the surface owner before approving the APD. The BLM must prepare an environmental record of review (43 CFR 3162.5-1(a)) to document its evaluation of potential resource impacts, including documentation of NEPA compliance.

“The BLM must comply with NEPA, the National Historic Preservation Act, the Endangered Species Act, and related Federal statutes when authorizing lease operations on split-estate lands where the surface is not federally owned and the oil and gas is Federal. For split-estate lands within FS administrative

⁵ See 43 CFR §3165.3(b). See, e.g., *William P. Maycock*, 176 IBLA 206 (2008).

boundaries, the BLM has the lead responsibility, unless there is a local BLM/FS agreement that gives the FS this responsibility.” (Onshore Oil and Gas Order No. 1, part VI).

“After the APD is approved the operator must make a good faith effort to provide a copy of the Conditions of Approval to the surface owner. The APD approval is not contingent upon delivery of a copy of the Conditions of Approval to the surface owner.” (Onshore Oil and Gas Order No. 1, part VI).

4.3 Sundry Notices

Operations proposed by Sundry Notice that will result in additional surface disturbance or re-disturbance of previously reclaimed areas require a Surface Use Plan of Operations.

“Prior to commencing any operation on the leasehold which will result in additional surface disturbance, other than those authorized under § 3162.3–1 or § 3162.3–2 of this title, the operator shall submit a proposal on Form 3160–5 to the authorized officer for approval. The proposal shall include a surface use plan of operations.” (43 CFR 3162.3-3).

“The operator must certify on Form 3160–5 that they have made a good faith effort to provide a copy of any proposal involving new surface disturbance to the private surface owner in the case of split-estate.” (Onshore Oil and Gas Order No. 1, part VIII.A).

For review of Final Abandonment Notices (FANs) submitted by an operator on split-estate lands, the BLM will consider the views of the surface owner.

“If applicable, the private surface owner will be notified and their views will be carefully considered.” (Onshore Oil and Gas Order No. 1, part XII).

“In cases where the Surface Managing Agency or private surface owner desires to acquire an oil and gas well and convert it to a water supply well or acquire a water supply well that was drilled by the operator to support lease operations, the Surface Managing Agency or private surface owner must inform the appropriate BLM office of its intent before the approval of the APD in the case of a dry hole and no later than the time a Notice of Intent to Abandon is submitted for a depleted production well... The Surface Managing Agency or private surface owner must reach agreement with the operator as to the satisfactory completion of reclamation operations before the BLM will approve any abandonment or reclamation. The BLM approval of the partial abandonment under this section, completion of any required reclamation operations, and the signed release agreement will relieve the operator of further obligation for the well. If the Surface Managing Agency or private surface owner acquires the well for water use purposes, the party acquiring the well assumes liability for the well.” (Onshore Oil and Gas Order No. 1, part IX.B).

“Completion of a well as plugged and abandoned may also include conditioning the well as water supply source for lease operations or for use by the surface owner or appropriate Government Agency, when authorized by the authorized officer. All costs over and above the normal plugging and abandonment expense will be paid by the party accepting the water well.” (43 CFR 3162.3-4(b)).

4.3.1 Emergency Operations

“In the event of an emergency, the operator may take immediate action without prior Surface Managing Agency approval to safeguard life or to prevent significant environmental degradation. The BLM or the FS must receive notification of the emergency situation and the remedial action taken by the operator as soon as possible, but not later than 24 hours after the emergency occurred. If the emergency only

affected drilling operations and had no surface impacts, only the BLM must be notified. If the emergency involved surface resources on other Surface Managing Agency lands, the operator should also notify the Surface Managing Agency and private surface owner within 24 hours.” (Onshore Oil and Gas Order No. 1, part IV.d).

5.0 REFERENCES

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