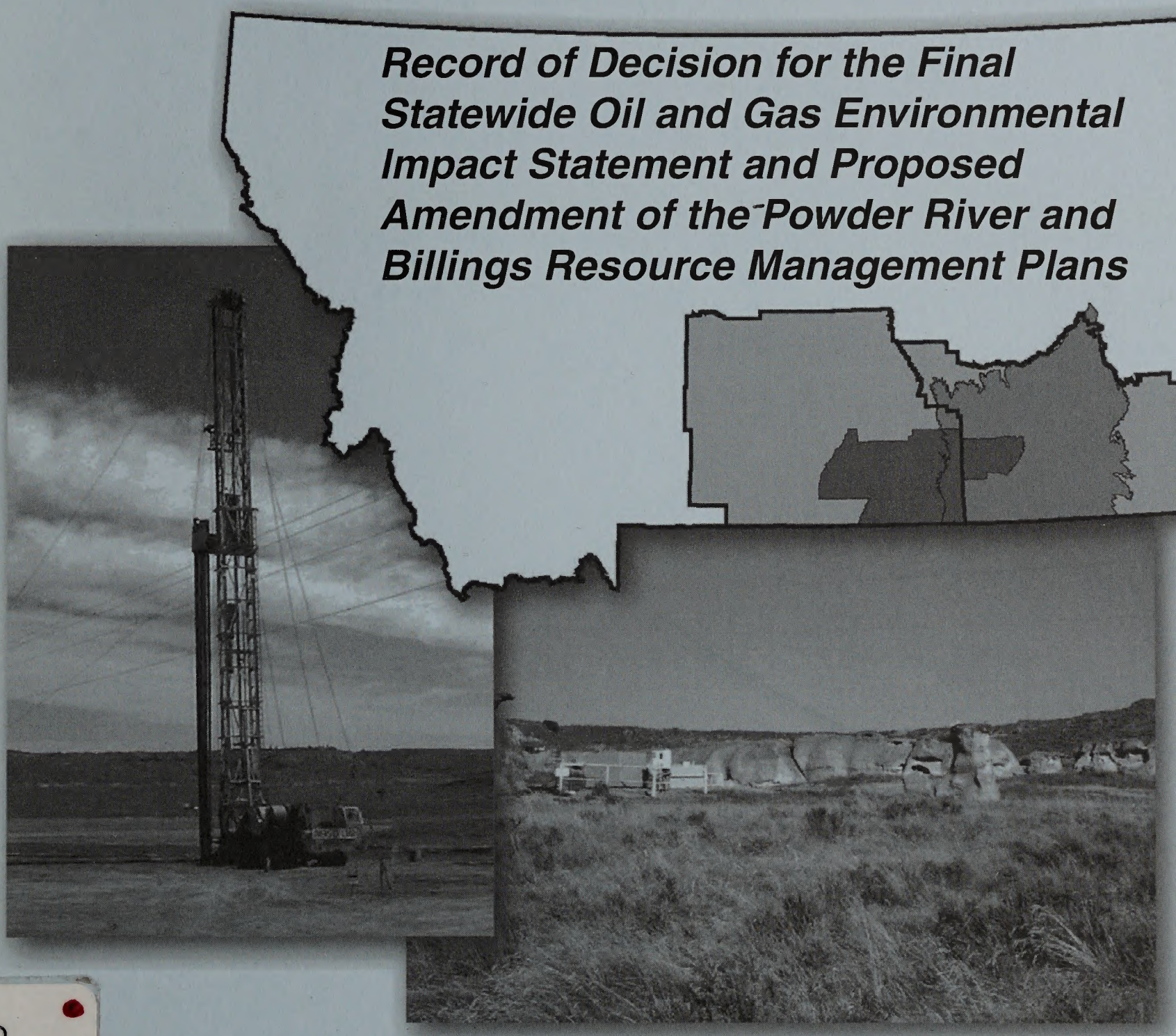
United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Miles City Field Office
Billings Field Office

April 2003

MONTANA

Record of Decision for the Final Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans



Record of Decision

MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/MT/PL-03/011

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301-0940
http://www.mt.blm.gov/mcfo/

In Reply To:

Dear Reader:

This is a copy of the Record of Decision and approved resource management plan amendments for the Powder River and Billings Resource Management Plans. The RMP amendments provide guidance for managing oil and gas activities on over three million BLM-administered oil and gas acres in the Powder River RMP area of the Miles City Field Office and the Billings RMP area of the Billings Field Office.

The Proposed RMP Amendments were analyzed in the *Montana Statewide Final Oil and Gas EIS and Proposed Amendment of the Powder River and Billings RMPs* published in January 2003. The EIS was prepared with the State of Montana (Department of Environmental Quality and the Board of Oil and Gas Conservation) as co-leads and with the following Cooperating Agencies: Environmental Protection Agency, Crow Tribe of Indians, Bureau of Indian Affairs and the Department of Energy. The Northern Cheyenne Tribe also helped prepare the EIS. Copies of the Final EIS are available at local libraries at the BLM offices in Miles City and Billings and on the Miles City Field Office website: http://www.mt.blm.gov/mcfo.

Each of the co-leads will issue its own Record of Decision. The Montana Board of Oil and Gas Conservation issued its Record of Decision on March 26, 2003.

The BLM Record of Decision approves the amendments for the Powder River and Billings RMPs and updates the goals, objectives, management actions and conditions of use in the applicable land use plans.

The proposed RMP Amendments were subject to a 30-day protest period that ended on February 18, 2003. The protests were reviewed by the BLM Assistant Director, Renewable Resources and Planning, in Washington DC. This Record of Decision includes information about the protests and BLM's findings. No significant changes to the proposed plan were made as a result of the protests.

The regulations in 43 CFR 1610.5-2 do not provide for any additional administrative review of this decision. However, implementation of this decision through future authorization of APDs, permits, and other actions, may be administratively reviewed at the time such authorizations are made. Such review will be conducted in accordance with regulations in 43 CFR 3165.3, 43 CFR 3165.4, and 43 CFR 4.

Thank you for your interest and participation in the development of the plan. If you have any questions about the Record of Decision, please contact BLM at (406)233-3649.

Sincerely,

David McIlnay

David McIlnay

Sandra S. Brooks

Sandra S. Brooks

RECORD OF DECISION
MONTANA STATEWIDE OIL AND GAS EIS
AND
AMENDMENT OF THE POWDER RIVER AND BILLINGS RMPS

Prepared by:
United States Department of the Interior
Miles City Field Office
Billings Field Office
April 2003

Deciding Official: _____ Date: April 30, 2003
Martin C. Ott, State Director, Montana BLM

Record of Decision
Montana Statewide Oil and Gas EIS
and
Amendment of the Powder River and Billings RMPs

Lead Agency: U.S. Department of the Interior, Bureau of Land Management (BLM), Miles City and Billings field offices

Type of Action: Administrative

Jurisdiction (Planning Area): Powder River RMP Area—Powder River, Carter, and Treasure counties and portions of Big Horn, Custer and Rosebud counties. Billings RMP Area—Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Wheatland, and Yellowstone counties and the remaining portion of Big Horn County. The BLM planning area comprises approximately 425,336 acres of BLM-administered surface and 662,066 acres of BLM-administered oil and gas estate in the Billings RMP area and approximately 1,080,675 acres of BLM-administered surface and 2,522,950 acres of BLM-administered oil and gas estate in the Powder River RMP area.

Abstract: The BLM with co-lead State of Montana analyzed alternative approaches for managing oil and gas, particularly coal bed methane (CBM) in the 2003 *Montana Statewide Final Oil and Gas EIS and Proposed Amendment of the Powder River and Billings RMPs.*

A 30-day protest period that ended February 18, 2003 resulted in 25 letters of protest from people with standing on the Plan. None of the protests resulted in a change to the preferred (now approved) alternative.

Alternative E is the Approved Alternative. The Approved Alternative provides a comprehensive framework for managing oil and gas resources on public lands in the planning area. This alternative amends the Resource Management Plans and allows coal bed methane exploration and development while minimizing impacts on environmental resources.

Further information regarding this Record of Decision is available from the contact below or at the BLM website (http://www.mt.blm.gov/mcfo).

Bureau of Land Management
Miles City Field Office
111 Garryowen Road
Miles City, MT 59301
Telephone: (406) 233-3649

TABLE OF CONTENTS

Appendices

Figures

ABBREVIATIONS AND ACRONYMS

ACEC	Area of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act
AO	Authorized Officer
APD	Applications for Permit to Drill
APLIC	Avian Power Line Interaction Committee
BACT	Best Available Control Technologies
BIA	Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
BMP	Best Management Practices
BO	Biological Opinion
CBM	coal bed methane
DEIS	Draft Environmental Impact Statement
DNRC	Department of Natural Resources and Conservation (Montana)
DOE	U.S. Department of Energy
EC	electrical conductivity
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FWS	Fish and Wildlife Service (USDI)
GIS	Geographic Information System
INC	Incidence of Compliance
LOP	Life-of-the-Project
MBOGC	Montana Board of Oil & Gas Conservation
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish, Wildlife, and Parks
MOU	Memorandum of Understanding
MPDES	Montana Pollutant Discharge Elimination System
MRWA	Montana Riparian Wetland Association
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOC	Notice of Completion
NOI	Notice of Intent
NOS	Notice of Staking
NSO	No Surface Occupancy
POD	Plan of Development
PSD	Prevention of Significant Deterioration
RFD	Reasonably Foreseeable Development
ROD	Record of Decision
ROW	right-of-way
RMP	Resource Management Plan
RMU	Regional Monitoring Units
SAR	Sodium Adsorption Ratio
SC	Species of Concern
SHPO	State Historic Preservation Office
SMA	Special Management Area
TAC	Technical Advisory Committee
THPO	Tribal Historic Preservation Office
TEC	Threatened, endangered, candidate
TMDL	Total Maximum Daily Load

UIC	Underground Injection Control
USGS	U.S. Geological Survey (USDI)
WMP	Water Management Plans
WMPP	Wildlife Monitoring and Protection Plan
WSA	Wilderness Study Area

RECORD OF DECISION
AND
RMP AMENDMENTS

INTRODUCTION

The purpose of this document is to approve the Proposed RMP Amendments and provide new management guidance for oil and gas exploration and development activities on over three million acres of Bureau of Land Management (BLM) administered oil and gas estate in the Powder River and Billings Resource Management Plan (RMP) areas.

The Record of Decision (ROD) approves the Proposed RMP Amendments described as "Alternative E" and analyzed in BLM's 2003 *Montana Statewide Final Oil and Gas EIS* (Final EIS) *and Proposed Amendment of the Powder River and Billings Resource Management Plans*.

The BLM and the State of Montana (Montana Department of Environmental Quality (MDEQ) and Montana Board of Oil and Gas Conservation (MBOGC)), as joint lead agencies, prepared the Final EIS. The Final EIS analyzes the effects of anticipated conventional oil and gas development and the potential impacts of CBM exploration and production in 16 counties of south-central and southeastern Montana. The Final EIS documents the direct, indirect, and cumulative effects which may result from predicted CBM development.

The issuance of oil and gas leases includes the right to develop oil and gas resources, including CBM, subject to restrictions derived from nondiscretionary statutes and regulations, lease terms including stipulations and other reasonable measures to avoid adverse impacts (43 CFR 3101.1-2). Specific mitigation measures directing oil and gas, including CBM, development are attached as conditions of approval to approved Applications for Permit to Drill (APDs) and Sundry Notices at the time of project implementation.

This ROD applies to the BLM planning area. The planning area consists of the Billings and Powder River RMP areas (see Map 1-1). The Billings RMP area comprises approximately 425,336 acres of BLM-administered surface and 662,066 acres of BLM-administered oil and gas estate. The Powder River RMP area comprises approximately 1,080,675 acres of BLM-administered surface and 2,522,950 acres of BLM-administered oil and gas estate.

In May 2001, the President's National Energy Policy Development Group issued recommendations for developing and implementing a comprehensive long-term strategy to promote dependable, affordable, and environmentally sound energy for the future. At the same time the President issued Executive Order 13212, "Actions to Expedite Energy-Related Projects", in which agencies are ordered to

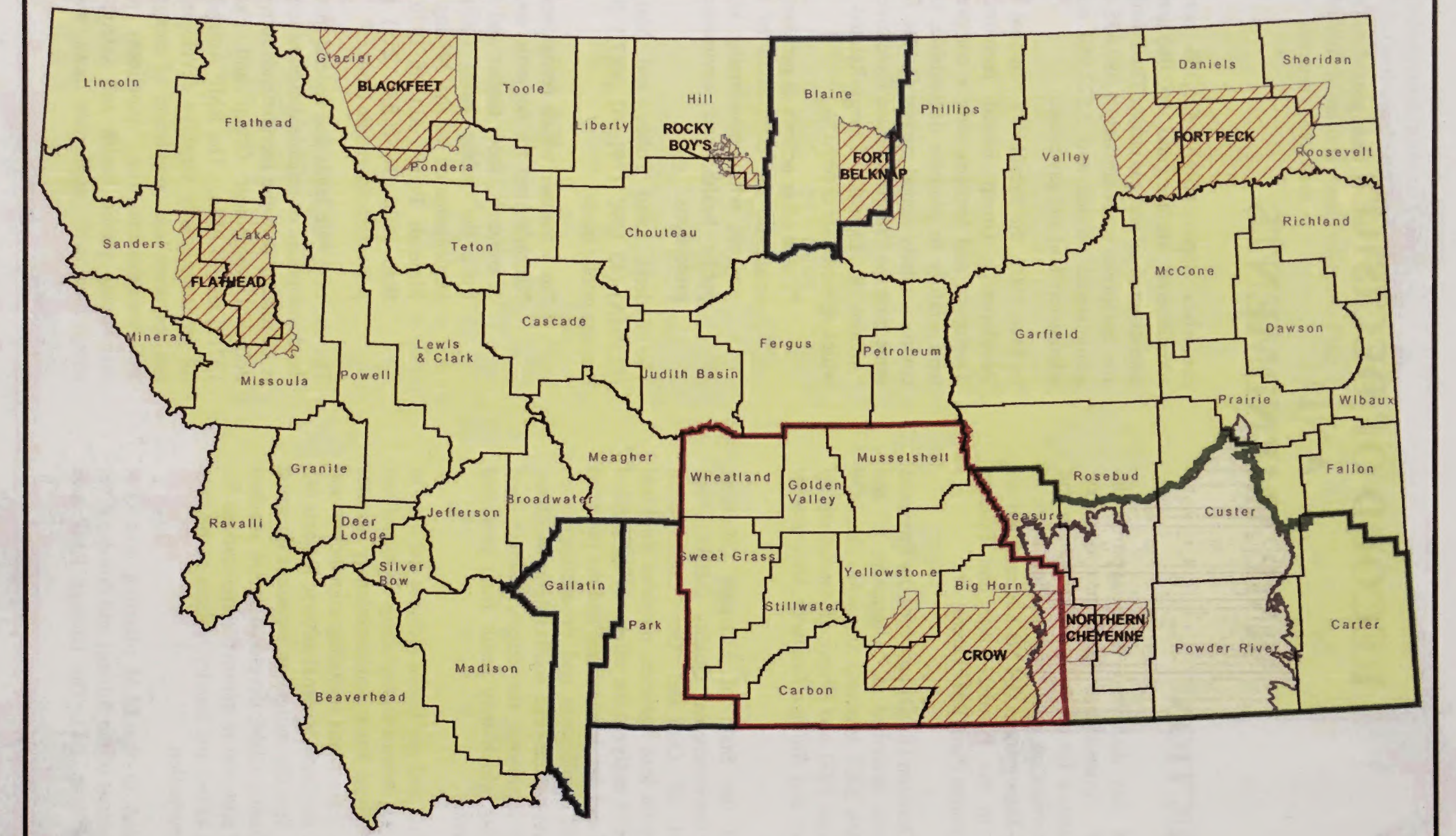
> "...take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections."

The Federal Land Policy and Management Act (FLPMA) (43 USC 1701.102 (a)(7)) directs BLM to manage public lands

> "in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber and fiber from the public lands including implementation of the Mining and Minerals Policy Act of 1970 (84 Stat. 1876, 30 U.S.C. 21a) as it pertains to the public lands..."

The use of public lands and federal mineral estate for the development of reliable domestic sources of energy is consistent with the recommendations of the Energy Policy Development Group and Executive Order 13212, and FLPMA. The RMP Amendments provide for environmentally sensitive development of oil and gas resources and completion of energy development and transmission (i.e., pipelines) projects while maintaining public health and safety, and ensuring compliance with applicable laws and regulations.

Map 1-1: Planning Area



DATA SOURCES:

Counties: 1:100,000 scale, counties, Montana State Library/NRIS, Helena, Montana.
Reservations: 1:100,000 scale, counties, Montana State Library/NRIS, Helena, Montana.
Powder River Geologic Basin: 1:250,000 scale, USGS Professional Paper 1625a.

EFFECT ON THE OIL AND GAS DECISIONS IN THE RMPs

Prior to these RMP Amendments, guidance for decisions related to management of oil and gas operations were found in the Billings RMP, dated September 28, 1984 and the Powder River RMP, dated March 15, 1985, as revised by BLM's 1994 *Oil and Gas Amendment of the Billings, Powder River and South Dakota Resource Management Plans and Environmental Impact Statement* (1994 Amendment) dated February 2, 1994. The RMPs provide for a certain level of conventional oil and gas development on federal leases and limited CBM exploration and development.

The RMP Amendments approved by this ROD do not change the leasing decisions and stipulations for leasing from the 1994 Amendment relative to the availability of lands for oil and gas development. Those decisions are still valid and will remain in effect. All other aspects of the 1994 Amendment concerning exploration and development of oil and gas and related activities are hereby replaced and amended on the date this ROD was approved.

ALTERNATIVES SUMMARY

The following five management alternatives were considered in the development of the plan amendment. Each alternative was described and analyzed in the Draft and Final EISs.

Alternative A - the "no action" alternative. BLM would continue to review and approve APDs for conventional oil and gas and for CBM wells in accordance with the 1994 Amendment. Approved APDs would include only CBM exploration wells, not production wells.

This is the environmentally preferred alternative (40 CFR 1505.2 (b)). Only a limited number of wells could be approved resulting in fewer impacts than the other alternatives analyzed. Although Alternative A would result in fewer impacts, the alternative does not provide for the continued use of public minerals for oil and gas development consistent with the Energy Policy Development Group and Executive Order 13212 and FLPMA.

Alternative B – BLM would review and approve CBM activities with an emphasis on resource protection. BLM would use stringent mitigation measures to minimize or eliminate adverse impacts to other resources. Examples of such mitigation measures would include requiring the injection of water produced with CBM and requiring all compressors to be fueled by natural gas rather than by diesel or electricity.

Alternative C – BLM would review and approve CBM activities with an emphasis on facilitating production of CBM. BLM would use the least restrictive mitigation measures to minimize or eliminate adverse impacts to other resources. Examples of such measures would be to authorize the discharge of water produced with CBM onto the ground or into the water bodies when the discharge water meets applicable standards. Compressors could be fueled by gas, diesel, electricity, or other means as long as other permitting standards, such as air quality, are met.

Alternative D – BLM would review and approve CBM activities with an emphasis on maintaining or enhancing land uses in combination with CBM development. BLM would use mitigation measures, as much as possible, that compliment the needs of landowners and other lessees. Management of water produced with CBM would be greatly influenced by the surface owner. The water could be made available for beneficial uses or reinjected. Location of facilities, such as compressors, would be influenced by the needs of the land owner.

Alternative E – BLM's preferred alternative. BLM would review and approve CBM activities in a manner that facilitates efficient and orderly CBM development while providing the appropriate levels of resource protection on a site specific basis. Different management actions, such as discharge, impoundment, reinjection or beneficial use, would be used to manage CBM water. Likewise, different management actions affecting location, size, and muffler requirements would be applied to compressors.

Through the analysis process the following alternatives were eliminated from detailed consideration. The reasons for dropping these alternatives can be found in chapter 2 of the Final EIS.

-Revisit leasing decisions

-Establish bond amounts

-Analysis of the Omega Alternative

-Analysis of alternate sources of energy

-Reinject produced water into the same aquifer

-Phased development

DECISION TO AMEND THE PLAN

The decision is hereby made to approve the Proposed RMP Amendments described as Alternative E and analyzed in BLM's 2003 *Montana Statewide Final Oil and Gas EIS and Proposed Amendment of the Powder River and Billings Resource Management Plans.* The plan was prepared under federal regulations, including the FLPMA of 1976 and the National Environmental Policy Act (NEPA) of 1969, as amended. Alternative E describes the management goals and objectives, management actions and conditions of use that will guide future management of oil and gas exploration and development on public lands and federal mineral estate managed by the BLM within the Powder River and Billings RMP areas.

The decision is not the final approval of any specific oil and gas exploration, production, or development activities.

Although a joint EIS was prepared, the decision does not apply to minerals administered by the State of Montana (State) or other State activities. The MBOGC signed a ROD on March 26, 2003.

The decision does not apply to federal minerals under the surface of lands managed by the following federal agencies: Forest Service, National Park Service, Bureau of Indian Affairs, Fish and Wildlife Service, nor to federal minerals under private lands within the administrative boundaries of the National Forest System Lands. Additionally, this decision does not apply in any way to minerals administered by sovereign Native American Tribes.

GOALS, OBJECTIVES AND MANAGEMENT ACTIONS

The preferred alternative describes the management goals, objectives and management actions that will guide future management of oil and gas operations on BLM-administered lands within the Powder River and Billings RMP areas. The decisions relative to the primary issues are as follows.

Air Quality

The number of wells connected to each compressor will be maximized.

The operator must demonstrate in the Plan of Development (POD) how development could occur in accordance with air quality laws. APDs and PODs that may violate air quality standards will not be approved.

Monitoring data will only be used to determine if the NAAQS PM_{10} and NO_2 standards have been exceeded. For federal lands with Class I areas, the Clean Air Act sets a 60 year goal of clear vistas. Clear vistas are defined as reduction in visibility not to exceed 1.0 deciview per year for more than 1 day. Where this threshold is exceeded from a single project, this could be the basis for the federal land managers' designation of visibility impairment. Such a designation could necessitate mitigation. Where the threshold is exceeded based on cumulative actions (i.e. Reasonable Foreseeable Future Actions), this also could be the basis for the federal land managers' designation of visibility impairment. In this instance, Congress directed federal land managers to implement mitigation pursuant to the Regional Haze Rule, in a manner that results in a 25% reduction in impairment every 15 year period to meet the 60 year clear vistas goal.

Coal

There will be no buffer zone for prohibiting CBM production around active coal mines (IM-2000-053).

Hydrology

As part of the permit approval process, the water quality regulatory agencies would prepare additional analysis, conduct monitoring, and require mitigation as needed to ensure compliance with all applicable standards before permits could be approved.

The Interim Memorandum of Cooperation (refer to the Final EIS, Hydrology Appendix) documents Wyoming DEQ's commitment and intent to protect and maintain water quality conditions in the Powder River Basin within Montana.

Water Management Plan

The operator can use a variety of water management and mitigation options so there will be no degradation, as defined by the MDEQ, to water quality in any watershed. "Degradation", as defined in 75-5-103(5), Montana Code Annotated, means a change in water quality that lowers the quality of high-quality waters for a parameter.

The preferred management option for the disposition of CBM produced water is for beneficial use. Produced water management options include, but are not limited to, injection, treatment, impoundment, and discharge.

The operator must obtain 401 Certification from the MDEQ if the disposal action needs BLM approval. A Water Management Plan is required for exploratory wells and for each POD.

At a minimum, the Water Management Plan will be part of an APD and include a water well or spring mitigation agreement with the owner of any water well or spring within one mile; identify any proposed uses of the water (beneficial if possible); and a map showing all wells within one mile of the proposed exploratory CBM well.

Water Management Plans developed as part of a POD include the following additional requirements:

- A cover letter identifying the POD for which the Water Management Plan has been developed and the watershed(s) affected by the project
- A 7.5 minute topographical map indicating the location(s) of any proposed storage ponds and discharge points
- Water quality data for the produced water
- Anticipated rate of water production per well and the calculated amount of annual water production for the field
- Proposed beneficial uses of the produced water addressed in surface owner agreements
- Operator's approach to ensure no undue degradation of the surface water quality within the designated watershed(s)
- A copy of any MPDES discharge permit(s) or significance determination(s) issued by the MDEQ, if required; or UIC permit issued by the MBOGC or disposal permit issued by the EPA or MBOGC
- A water monitoring plan for the area that meets the requirements of MBOGC Rules and the Controlled Groundwater Area
- A statement indicating whether a 401 Certification is required, and if so, a copy of the certificate
- A copy of the most current soil map available for the project area
- Site-specific stratigraphy for any infiltration basin(s) location that is proposed

Produced water management plans and permits will be approved in consultation with affected surface owners. Impoundments proposed as part of the Water Management Plan will be designed and located to minimize or mitigate impacts on soil, water, vegetation, and channel stability and comply with pertinent state and federal regulations. Applications for unlined impoundments proposed as part of the Water Management Plan must also demonstrate that the water to be disposed will not degrade the quality of surface or subsurface waters in the area (Onshore Oil and Gas Order No. 7, Section III.D.2.)

Indian Trust Resources or Interests

The BLM will continue to meet its trust responsibilities with the tribes.

The BLM will require federal lease operators to protect the Crow and Northern Cheyenne Tribes groundwater and CBM from loss or degradation.

The tribes will be invited to participate in the "steering committee" that will evaluate information gathered during the inventory and monitoring phases of the Wildlife Monitoring and Protection Plan (WMPP) and in the Interagency Work Group(s) (see page 13).

Lands and Realty

Transportation corridors will not be required. However, proposed roads, flowline routes, and utility line routes will be located to follow existing routes or areas of previous surface disturbance when possible. The operator will also address in the POD how the surface owner was consulted for input into the location of roads, pipelines, and utility line routes and provide a certification of a surface owner agreement or required bonding.

The operator will demonstrate in the POD how the proposal for power distribution will mitigate or minimize impacts on affected wildlife. For example, on BLM-administered lands the operator may be required to bury a portion of the powerlines near sage grouse habitat to safely eliminate use by raptors and any aboveground lines must be designed following raptor-safe specifications.

When wells or facilities are abandoned, the associated oil and gas roads will either remain open or be closed and reclaimed at the direction of the surface owner. Reclamation requirements will be determined by the surface owner or surface management agency.

Noise

Natural gas-fired engines for compressors and generators will be required, except in areas with sensitive resources, including people, where noise is an issue. In those areas, the decibel level will be required to be no greater than 50 decibels measured at a distance of 1/4 mile from the compressor. This is required to achieve the average day-night level of 55 decibels. (Note: the 50 decibel number cited in the Final EIS was based on rounding-off the 48.6 decibels). This may require the installation of an electrical booster at these locations.

Oil and Gas

Exploration and development of CBM resources on BLM-administered oil and gas will be allowed after site specific analysis and approval, subject to restrictions derived from applicable nondiscretionary statutes and regulations, agency decisions, lease stipulations, permit requirements, conditions of approval and surface owner agreements. The POD will be developed in consultation with the affected Tribes, affected surface owner(s), and other involved permitting agencies.

Reclamation is required on areas of surface disturbance during the production and abandonment phases of development.

Operators must develop a Spill Prevention Control and Countermeasures plan to deal with accidental spills, the plan would include the strategic placement of berms and dikes.

Project Plan of Development

A step-by-step guideline for preparation of the POD is being developed by BLM. The POD will be submitted to BLM in draft form so that it can be reviewed and any changes made prior to allowing surface disturbing activities. At a minimum, the POD will contain the following:

- A cover letter naming the project area and requesting approval
- An APD (form 3160-3) for each federal well in the project area
- A list of all other permitting agencies involved in the project and the name for a point-of-contact for each office
- A list of all existing wells in the project area, including monitoring wells
- Maps submitted in paper or digital format (CD map with any digital GIS coverages used to create the map), showing proposed roads, compressor stations, pipelines, powerlines, CBM well locations, all existing wells, current and proposed monitoring wells, surface ownership, mineral ownership, surface features, and existing structures

- Master drilling and surface use plans with information as required by Onshore Oil and Gas Order No. 1
- A Reclamation Plan for surface disturbance
- A wildlife monitoring plan demonstrating how the project will meet the requirements of the BLM WMPP (see Appendix A).
- A Water Management Plan for the project area
- Certification of surface owner agreements, including water well agreements (or notice that the Surface Owner Damage and Disruption Compensation Act applies and surface owner agreements are pending settlement or court action)
- A list of all potentially affected surface owners within the project area
- A cultural resource plan addressing identification strategies commensurate with the level of the proposed development. This may include a cultural resource location and significance model for identifying areas of critical concern

BLM will also require compliance with Onshore Oil and Gas Order No. 7 which addresses disposal of produced water from federal wells. The operator must submit a plan describing the proposed method and facility to properly manage the produced water.

Vertical wells will be drilled to shallow coal seams while directional wells may be drilled to the deeper coal seams unless the operator can demonstrate why directional drilling is not needed or feasible. Directionally drilled wells will be drilled from the same well pad as the vertical wells.

Development of coal seams will be done either one coal seam at a time or multiple coal seams at the same time. Production of CBM will be from one coal seam per well or multiple coal seams per well. During production of CBM from multiple coal seams from multiple wells, the wells will be located on the same well pad within a spacing unit. Well spacing rules will set a limit of one well per coal seam per designated spacing unit.

Threatened, Endangered and Sensitive Species

The BLM will comply with the Endangered Species Act by implementing on BLM administered public lands and minerals, when applicable, the measures prescribed in the U. S. Fish and Wildlife Service (FWS) Biological Opinion for the Final EIS. These measures are included in the WMPP in Appendix A of the ROD. For example, pages W-10 through W-15 describe the nondiscretionary terms and conditions that implement the reasonable and prudent measures included with the FWS Biological Opinion.

The following actions will be taken to help ensure BLM's activities do not contribute to the listing of prairie dogs or sage grouse as threatened or endangered species. Refer to the WMPP, pages W-6 and W-7 and the Monitoring Table, pages M-14 and M-15 (Appendixes A and C, respectively) for more details.

- Black-tailed Prairie Dog – Active prairie dog towns on BLM lands within 0.5 miles of a specified project area will be identified, mapped and surveyed annually. Efforts will be made to compare the data from the reference colonies with that obtained from the project areas, in order to monitor the response of prairie dog populations to CBM development. If there are prairie dog fatalities from oil and gas development, BLM could establish a no surface zone or timing restriction within the prairie dog town.

- Sage Grouse – BLM and MFWP will conduct sage grouse lek inventories over the BLM planning area every 5 years to determine lek locations. Surveys of different areas may occur during different years with the intent that the entire area will be covered at least once every 5 years. If BLM notes a downward trend, mitigation, such as extension of timing restrictions, could occur.

MANAGEMENT CONSIDERATIONS

The Final EIS fully complies with BLM's multiple use mission while considering and providing for responsible development of important oil and gas resources as described in the FLPMA.

The Final EIS considers the use and protection of the resources managed by BLM, including important energy and natural resources available in the planning area. While the plan amendments support the development of oil and gas resources, they also include the application of mitigation measures to minimize or avoid impacts to resources or land uses from oil and gas activities and prevent unnecessary or undue degradation. In addition to the mitigation measures included in the plan amendments, existing lease stipulations may be applied to protect critical resource values. Other protective measures may be required at the APD stage to mitigate site-specific impacts.

The decision to approve the plan amendments for the Powder River and Billings RMPs takes into account statutory, legal and national policy considerations. The analyses in the Draft EIS and Final EIS were based on evaluation of the Powder River and Billings RMP areas for oil and gas development, identifying sensitive natural and cultural resources, evaluating the effects of surface disturbance in these resources and identifying successful protection measures. The constraints placed on oil and gas development were reviewed in light of resource protection and where possible, major conflicts were resolved to provide a balance between protection of sensitive resources and sound practices for development of oil and gas resources. The decision was also based on input provided by and received from the public, industry, as well as other federal and state agencies. Through the review process, many practicable methods to reduce environmental harm were incorporated into these plan amendments.

Impacts identified for the preferred alternative are acceptable for the following reasons: 1) as the nation's largest land manager, the Department of the Interior, through the BLM, plays a major role in implementing the National Energy Policy developed by President Bush; 2) the National Energy Policy promotes the production of reliable, affordable and environmentally clean energy; 3) among the Nation's most pressing concerns is to reduce our reliance on foreign oil and gas while protecting the environment; 4) BLM-administered lands contain world-class energy and mineral resources, vital to the National interest; 5) the vast energy and mineral resources under BLM's jurisdiction places the agency in the key role of ensuring that our country has an adequate supply of energy necessary for the safety and security of our families, our communities and our Nation; 6) CBM is available on public lands and BLM has a multiple use mission under FLPMA; 7) the preferred alternative is an environmentally sound alternative; and 8) the approved alternative complies with laws and regulations.

MITIGATION

The following mitigation measures from the Final EIS are being adopted. These represent practicable means to avoid or minimize environmental harm from the alternative selected.

Air Quality

Operators on federal leases will be required to post and enforce speed limits to reduce fugitive dust emissions.

Approval of exploration APDs and field development plans will include an analysis of the individual and cumulative impacts to air quality and be conditioned to prevent violations of applicable air quality laws, regulations, and standards.

Options to mitigate impacts include establishing plant cover, watering roads, applying soil stabilizer and graveling or paving unpaved roads.

Access roads, well pads and production facility sites constructed on soils susceptible to wind erosion will be appropriately surfaced to reduce fugitive dust emissions. Dust inhibitors will be used as necessary on unpaved collector, local and resource roads to reduce fugitive dust emissions to the air and resources adjacent to the road.

Cultural Resources

Cultural resource reviews or surveys will be conducted as required prior to the commencement of construction or other surface disturbing activities authorized by BLM.

Guidance for application of this requirement can be found in NTL-MSO-85-1.

Results of cultural resource surveys will be presented as part of the permit review or approval process. Decisions regarding relocation of proposed access roads or well pads, data recovery, and excavation will be made to protect the cultural or historical sites.

Fire

Operators are required to comply with BLM imposed conditions during times of high fire danger. Such conditions may include restrictions on types of activities allowed, hours of operation, and requirements for maintaining certain fire suppression equipment at the work site. Operators must maintain a current fire suppression plan.

Hydrology

Water well and spring mitigation agreements will be used to facilitate the replacement of groundwater that may be lost to drawdown. Replacement water may require supply from offsite sources.

Indian Trust and Other Interests

The tribes will be invited to participate in the Interagency Work Group(s) responsible for developing and recommending the monitoring and mitigation measures needed for each agency to ensure its actions achieve compliance with applicable air and water quality standards across jurisdictional boundaries. Mitigation measures for potential impacts to the Northern Cheyenne Tribe trust resources and other interests is included in Appendix B of the ROD.

Lands and Realty

Road placement is limited to track boundaries where practical to reduce impacts on residential and agricultural lands.

Livestock Grazing

Damaged gates and fences will be repaired or replaced according to landowner requirements at the operator's expense. When working on or near grazing lands, project-related construction equipment and vehicle movement will be minimized to avoid disturbance of grazing lands. Responsibilities for fence, gate, and cattle guard maintenance and noxious weed control will be defined in APDs, BLM approvals, or right-of-way (ROW) grants. Facilities will be placed to avoid or minimize impacts on livestock water.

Paleontology

The BLM APD contains guidance for notifying and mitigating damage to paleontological resources discovered during oil and gas construction activities. Limitations include restricted use of explosives for geophysical exploration, monitoring requirements, and work stoppages for discovered damaged resources.

Recreation

Exploration activities will be coordinated for timing to minimize conflicts during peak use periods.

Solid and Hazardous Waste

Site clearance surveys will be conducted prior to surface disturbance commencement. Solid and hazardous wastes generated as a result of oil and gas lease operations will be disposed of in a manner and at a site approved by the appropriate regulating agency.

Soils

Areas with steep topography will be developed in accordance with the BLM Gold Book (USDI and USDA 1989) requirements.

Lease roads and constructed facilities will be located in accordance with the approved APD. In areas of construction, topsoil will be stockpiled separately from other material, and be reused in reclamation of the disturbed areas. Unused portions of the producing well site will have topsoil spread over it and reseeded.

Construction activities will be restricted during wet or muddy conditions and will be designed following Best Management Practices (BMPs) to control erosion and sedimentation. If porous subsurface materials are encountered during pit construction all onsite fluid pits will be lined. During road and utility ROW construction, surface soils will be stockpiled adjacent to the sides of the cuts and fills.
Stream crossings will be designed to minimize impacts and not impede stream flow. Erosion control measures will be maintained and continued until adequate vegetation cover

(defined by BLM on a case-by-case basis) is re-established. Vegetation will be removed only when necessary. Water bars will be constructed on slopes of 3:1 or steeper.

Erosion control and site restoration measures will be initiated as soon as a particular area is no longer needed for exploration, production, staging, or access. Disturbed areas will be recontoured to provide proper drainage.

Topsoil piles may be required to be seeded following the BLM seeding policy.

Displaced farmland, whether in crop production or not, will be reclaimed to original soil productivity through adoption of standard reclamation procedures.

Vegetation

It is the responsibility of the operator to control noxious weeds on lands disturbed in association with oil and gas lease operations. Lease-associated weed control strategies are to be coordinated with any involved surface owners and local weed control boards. A pesticide-use proposal must be reviewed and approved by BLM prior to any herbicide application on lands disturbed by federal oil and gas lease operations. A pesticide application record must be made within 24 hours after completion of application of herbicides. Additional measures may be required to prevent the spread of noxious weeds.

Disturbed areas resulting from any construction will be seeded following the BLM seeding policy or surface owner's requirements. Depending on surface ownership seeding is usually required during the fall or late spring.

To the extent practicable, vegetation will be preserved and protected from construction operations and equipment except where clearing operations are required to conduct oil and gas operations, such as for roads, well pads, pipelines, power lines, utility lines, and structures. Clearing of vegetation will be restricted to the minimum area needed for construction and equipment.

To the maximum extent practicable, all maintenance yards, field offices, and staging areas will be arranged to minimize disturbance to trees, shrubs, and other native vegetation.

Cuts and fills for new roads will be sloped to prevent erosion and to facilitate revegetation.

Riparian zones will be protected by federal lease stipulations and permit mitigation measures. The BLM seeding policy will be followed for all reclamation and reseeding activities.

During reclamation activities, early succession plants will be used for revegetation to provide a quick cover before noxious weeds can take root.

The noxious weed prevention plans must include measures to prevent the spread of weed seeds from any vehicles and equipment from or prior to mobilizing it to the project area.

Operator reclamation plans will be developed in consultation with the surface owner. Reclaimed areas reseeded with native species will require a certified weed-free seed mix. The seed mix used on private surface will be determined by the surface owner. Successful revegetation will usually require at least two growing seasons to ensure a self-sustaining stand of seeded species.

Visual Resource Management

Camouflage of all wellheads on federal surface in Class II Visual Resource Management Areas will be required to preserve the viewshed. Camouflage will consist of paint chosen to blend in with the background and placement of wellheads to reduce visual intrusions.

Wilderness Study Areas

Laws and regulations established to protect Wilderness Study Areas (WSA) prohibit leasing of designated WSA lands for resource extraction. Existing oil and gas leases in WSAs will be developed in accordance with the BLM policy for interim management of WSAs.

Wildlife and Aquatics

Temporary and permanent access roads will be avoided on south-facing slopes within big game winter range, where practicable.

The planting of grasses, forbs, trees, or shrubs beneficial to wildlife will follow the BLM seeding policy. When needed, BLM will require installation of erosion and sedimentation control measures, such as riprap, erosion mats, mulch, bales, dikes or water bars. Riprap material and placement must be approved by the appropriate agency.

All above-ground electrical poles and lines will be raptor-proofed to avoid electrocution

following the criteria and outlined in the Avian Power Line Interaction Committee (APLIC) (1994) and APLIC (1996). (APLIC 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington D.C. 78 pp.; APLIC 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute. Washington, D.C. 128 pp.).

Activities such as stream crossings that could directly impact sensitive or protected fish species will be undertaken during non-spawning periods for these species. In the unlikely event that multiple, sensitive, or protected fish species with back-to-back spawning periods are present in the same stream reach, one of the following options will be exercised: selecting a nearby, alternative stream crossing site that does not provide suitable spawning habitat for the fish species of concern; using a nearby, existing stream crossing over the channel to avoid instream disturbances; or using shore-based equipment to position and extend the pipeline or other item (e.g., temporary bridge) across the stream, thereby avoiding in-channel activities.

MONITORING

This section describes the monitoring that will be conducted during implementation of the approved RMP amendments.

Land Use Plan Monitoring

Land use plan monitoring will be conducted by BLM. BLM will monitor the plan to 1)ensure compliance with decisions; 2)measure the effectiveness or success of decisions; and 3)evaluate the validity of decisions.

Project Monitoring

At the project level, inspections will consist of physical onsite examination of oil and gas operations, disturbance areas, verification sampling at water quality monitoring points, environmental sampling and analysis of produced water, evaluation of construction and reclamation techniques and results. Inspections will be conducted more frequently during periods of intense activity, in areas of critical or sensitive resources, or where problems have been noted and corrective measures are being implemented.

Resource Monitoring

Resource condition monitoring is conducted to evaluate the effectiveness of mitigation measures, determine the need of existing or additional mitigation measures, ensure desired results are achieved, and assess conditions and trends.

In the Monitoring Table in Appendix C is a series of items that will be monitored for each resource. Each item is evaluated by location, technique for data gathering, unit of measure, and frequency and duration of data gathering. When duration is not specified, the duration is for the next 20 years. The Monitoring Table states the event that will be evaluated and lists the key resources that will be monitored. If an impact can be corrected by a management action within the scope of the plan, the change will be implemented. If the impact or action can be corrected only by a management action that is outside the scope of the Billings or Powder River RMPs, the RMP will be amended and the appropriate action taken.

Some of the activities included for each resource, including management options, will be accomplished by the regulatory agency with jurisdiction, especially those items related to air, water quality and water quantity.

Monitoring will be implemented over a period of years and is tied directly to the BLM budgeting process. Although a high priority, funding levels can affect the timing and implementation of monitoring actions.

The Interagency Work Group(s) discussed on page 13, may also identify monitoring actions that could supplement or replace the specific monitoring actions included in the Monitoring Table in Appendix C.

PUBLIC INVOLVEMENT

Preparation of the *Montana Statewide Draft Oil and Gas Environmental Statement and Amendment of the Powder River and Billings Resource Management Plans* (Draft EIS) began with the publication of a Notice of Intent (NOI) in the *Federal Register* on December 19, 2000. The NOI informed the public of BLM's intention to plan and announced the notice of availability for the planning criteria. Brochures were mailed to over 1,000 individuals, groups, and agencies in December 2000 notifying the public of the

expected issues and upcoming public scoping meetings.

Public scoping meetings were conducted in five towns across the state with a total attendance of 329 people. These meetings were held in January 2001 at Ashland, Billings, Broadus, Miles City, and Helena.

A total of 311 written communications, with more than 2,100 comments, were received after the public scoping meetings. Most of these written comments reiterated oral comments from the public meetings. Oral and written comments covered a spectrum of issues, but the majority were concerned with resource management of water, lands, air, and wildlife resources. Records of public comments and concerns are on file in the BLM Miles City Field Office.

A *Public Comment Summary and Recommendations* report was prepared and made available electronically and in hardcopy in March 2001. The report summarizes the comments received from the public scoping meetings.

Based on public scoping and agency comments, the BLM and the State prepared the Draft EIS. On February 15, 2002, a *Federal Register* notice was published beginning the comment period for the Draft EIS. The Draft EIS presented five alternatives including the no action alternative, and the agencies' preferred alternative (Alternative E).

The agencies received more than 8,800 e-mails, faxes, letters, cards and oral statements on the Draft EIS during the public comment period which ran through May 15, 2002. In addition to the written comments six public hearings were held at communities across the state in April 2002, to receive oral comments on the Draft EIS. The communities were Billings, Bozeman, Broadus, Crow Agency, Lame Deer, and Helena. Over 700 citizens attended the hearings.

From the 8,800 communications, more than 25,000 comments were made on the Draft EIS. Many of the comments tended to be polarized with those supporting CBM development urging selection of Alternative E, and those opposed to CBM development requesting additional safeguards be put in place to protect surface owner rights and downstream resources from impacts. Comments that presented new data, questioned facts or analysis, or raised questions or issues bearing directly upon the alternatives or environmental analysis were responded to in Chapter 5 of the Final EIS. In some cases, comments resulted in changes to the Draft which were incorporated into the Final EIS; however they did not result in changes to the preferred alternative. Consistent with BLM policy, comments expressing personal opinions or statements were carefully considered in the preparation of the Final EIS and ROD but are not responded to directly.

The EPA Notice of Availability for the Final EIS was published in the *Federal Register* on January 17, 2003. The public was given the opportunity to protest the BLM's preferred plan to the BLM Director in Washington D.C.

Protest Period

Any person who participated in the planning process and had an interest which may be adversely affected may protest. A protest may only raise those issues which were submitted for the record during the planning process. The protest had to be filed within 30 days from the date the EPA published the notice of receipt of the Final Environmental Statement for the Final EIS in the *Federal Register*. The protest period began on January 17, 2003 and closed on February 18, 2003.

Main Issues Summary

The following is a summary of the protest issues raised in the protest letters received by the Assistant Director:

Impacts not properly assessed: The following impacts were stated as not being properly addressed; air and water quality, split estate owners, infiltration ponds, wildlife (sage grouse, prairie dogs), noxious weeds, noise, socio-economics, habitat fragmentation, cumula-tive effects, T&E species and irrigation uses.

Impact assessment methodology flawed: Protestors cited the following elements as assessment methodology flaws; faulty assumptions, impact analysis deferred to APD stage, did not consider phased development, new and innovative technologies and directional drilling, scope of analysis too broad.

Document inadequate: Protestors felt that the document was inadequate because: no "hard look" was taken, a DEIS supplement was not prepared, the range of alternatives and purpose and need were too narrow, changes to the

preferred alternative occurred, BLM failed to look at leasing and effects on other RMP decisions, there was insufficient time to comment, the document was misleading, agency and public comments were not considered.

Other: Other issues that were raised included: reclamation practices and bonding, mitigation inadequate, inadequate inventories and monitoring plans not described.

Protest Resolution

The resolution of protests is the responsibility of the Assistant Director of the BLM whose decision is the final decision of the Department of the Interior. The Assistant Director received 119 protest letters. Of these letters, 25 were determined to have standing by previously participating in the planning process. The Assistant Director also received approximately 400 facsimiles and 18,000 e-mails for both Montana and Wyoming EISs. The BLM did not consider a fax letter or an e-mail a valid protest.

Letters from protestors whom BLM determined to have standing were reviewed and protest issues and comments were identified. Each of the protest issues were responded to and those responses were included in return letters to each protestor. The Assistant Director also sent return letters to those who sent protest letters but were determined not to have standing. Letters that identified comments rather than protest issues will also be sent a letter of response after issuance of this ROD.

The Assistant Director has determined that approval of the proposed plan amendment is consistent with the BLM's policy guidance, is based upon valid and complete information and complies with applicable laws, regulations, policies, and planning procedures.

Tribal Consultation

The BLM has consulted with the Crow Tribe of Indians and the Northern Cheyenne's tribal governments from November 2000 through early January 2003 on the plan. A chronology of the consultation process with Native American Tribes is in Chapter 5 of the Final EIS.

U.S. Fish and Wildlife Service Consultation

As required by Section 7 of the Endangered Species Act (ESA) of 1973, the BLM prepared and submitted a biological assessment to the FWS. This document defined potential impacts on threatened and endangered species as a result of management actions proposed in this RMP EIS and Amendment. A letter received September 4, 2002, from the U.S. Fish and Wildlife Service states:

> "We concur with your determinations that the proposed action is likely to adversely affect the threatened bald eagle, and the proposed mountain plover. Although the BLM has determined that implementation of proposed changes in coal bed methane is likely to affect the black-tailed prairie dog *(Cynomys ludovicianus)*, we concur with your determination that the action is not likely to adversely affect the black-footed ferret (*Mustela nigripes*).
>
> "This concurrence is based upon the BLM's commitments to 1) locate project activity to avoid impacts on prairie dog colonies that meet FWS criteria as black-footed ferret habitat (FWS 1989), 2) conduct ferret surveys in suitable habitat, following current lease stipulations for oil and gas development, and 3) if a black-footed ferret or its sign is found during a survey, all development activity would be subject to recommendations from the *Montana Black-footed Ferret Survey Guidelines, Draft Managing Oil and Gas Activities in Prairie Dog Ecosystems with Potential for Black-footed ferret Reintroduction* and re-initiation of Section 7 Consultation with the Service.
>
> "The Service also concurs with your determination that the action is not likely to adversely affect the threatened Ute ladies'-tresses orchid (*Spiranthes diluvialis*), the pallid sturgeon *(Scaphirhynchus albus)*, and the Montana arctic grayling *(Thymallus arcticus)*. The Service gives its concurrence to BLM's determination of "no effect" for the Canada lynx *(Lynx canadensis)*, gray wolf *(Canis lupus)*, interior least tern *(Sterna antillarum athalassos)*, and the warm spring zaitzevian riffle beetle *(Zaitzevia thermae)* (FWS 2002)."

A copy of the letter is included in the Wildlife Appendix of the Final EIS.

Agency Coordination

To prepare the Final EISs, BLM Montana and Wyoming worked cooperatively with the EPA and the Wyoming and Montana DEQs to ensure consistency where appropriate and improve the air and surface water quality impact analysis methods. For example, the agencies agreed to use common analytical assumptions and prepared a joint cumulative impact assessment for surface water based on information provided by the US Geological Survey. Both documents included an expanded section on water and air quality monitoring and the roles and responsibilities of the agencies in regards to issuing permits for water discharges and air emissions. Both documents described in more detail some of the mitigation options available to the permitting agencies to ensure compliance of all activities with the Clean Air Act and Clean Water Act.

CONSISTENCY WITH APPLICABLE POLICIES, PLANS AND PROGRAMS

The BLM's planning regulations require Resource Management Plans to be

> "consistent with officially approved or adopted resource related plans, and the polices and programs contained therein, of other federal agencies, state and local governments, and Indian Tribes, so long as the guidance and resource management plans are also consistent with the purposes, polices, and programs of federal law, and regulations applicable to public lands..." (43 CFR 1610.3-2).

Federal, state, and local agencies and tribal councils were requested to review the amendment and to inform the BLM of any inconsistencies. The agencies did not identify any inconsistencies with other resource related plans. Based on this review, it is concluded that Alternative E is fully consistent with all applicable polices, plans and programs of other federal agencies, state and local governments and tribes. If it is determined through monitoring or other means that such policies, plans, or programs are not being met, this decision will be modified to bring it into compliance. Of special concern is how the Plan Amendment will meet the applicable Federal, State, and Tribal air and water quality requirements. The procedures for satisfying the air and water quality requirements are described in the following section.

ACHIEVING AIR AND WATER QUALITY PROGRAM REQUIREMENTS

Oil and gas, including CBM, exploration and development on BLM-managed lands must comply with the federal and state Clean Air and Clean Water acts. Responsibility for permitting and enforcement of the federal Clean Air Act and Clean Water Act has been delegated to the MDEQ. In addition, the State has its own air quality and water quality protective requirements.

Review and approval of CBM APDs, or PODs, by BLM will be coordinated with the MDEQ in order to ensure that operating requirements needed to comply with any air and water quality standards are implemented. BLM will also work with the MBOGC, EPA, tribes, and other surface management agencies to address concerns over impacts to air and water quality in their respective jurisdictions.

INTERAGENCY WORK GROUP(s)

The BLM and MDEQ will work with the EPA, National Park Service, Forest Service, and other federal, state, and tribal authorities to establish Interagency Work Group(s) for CBM development in the Powder River Basin. The working group(s) will be responsible for developing and recommending the monitoring and mitigation measures needed for each agency to ensure its actions achieve compliance with applicable air and water quality standards across jurisdictional boundaries. In order to ensure consistency, the interagency work group(s) will also coordinate with other work groups established to address CBM development in Wyoming.

The Interagency Work Group(s) will, of necessity, depend upon the regulatory and management policies of the MDEQ as the agency with air and water quality primacy. Each agency within the working group(s) will maintain their regulatory authorities throughout the process.

ROLES, RESPONSIBILITIES AND REGULATORY PROCESS

State of Montana

AIR QUALITY PROGRAM

State Roles and Responsibilities

The MDEQ has delegated responsibilities under the federal Clean Air Act that requires the State to operate an approved ambient air quality monitoring network for the purpose of evaluating compliance with the NAAQS, to report air quality monitoring information to EPA, and to prepare plans for controlling air pollution. Under the Clean Air Act of Montana, the State is required to provide a coordinated statewide program of air pollution prevention, abatement and control.

Regulatory Processes

For Prevention of Significant Deterioration (PSD) of air quality, modeled and monitored results for PM_{10} and NO_2 will be evaluated against the Class I and Class II increments to determine if additional mitigation will be required.
When specific locations and operation requirements for gas compression facilities associated with CBM development are determined, permit applications will be submitted to MDEQ. At that time, additional site-specific air quality analyses may be performed, such as the Best Available Control Technology (BACT) analyses and Prevention of Significant Deterioration (PSD) increment analysis.

The air quality permitting process will be used by MDEQ to analyze emission sources at the project level for CBM activities and develop necessary mitigating measures. The BLM will not approve activities under its jurisdiction that will violate standards.

BLM will impose conditions requiring operators to obtain all necessary state air quality permits for lease operations on BLM-administered lands and to meet state air quality requirements. BLM will take appropriate enforcement action against operators upon finding a violation of an approved federal APD or Sundry Notice.

State Agreements and Policies

The air quality monitoring and analysis will be conducted across the Powder River Basin. The interagency work group(s) will be the forum to determine the need for specific agreements between the states of Wyoming and Montana, EPA, and the tribes, to facilitate regional monitoring, analysis, and mitigation.

The BLM will participate in the Interagency Work Group(s) to consider management options over time in response to new air information. This process will include development of monitoring plans to track regional cumulative impacts to air quality and the establishment of programmatic mitigation at predetermined action levels, as determined appropriate by the State and EPA.

WATER QUALITY PROGRAM

State Roles and Responsibilities

The MDEQ has responsibility under the federal Clean Water Act and the Montana Water Quality Act to monitor and assess the quality of Montana surface waters for pollutants, to prepare plans to control pollution, to assess water quality conditions and trends, to report them to EPA and Congress, and to identify impaired or threatened stream segments and lakes. Furthermore, the State administers a program for the prevention, abatement, and control of water pollution by issuing Montana Pollutant Discharge Elimination System (MPDES) permits.

Limits in MPDES permits or significance determinations will be set so that water quality standards of the receiving waters are not exceeded. Numerical water quality standards have been adopted by the Montana Board of Environmental Review for the Powder, Little Powder and Tongue rivers, Rosebud Creek and their tributaries. MPDES permit or significance

determination limits will be set so that compliance with the Montana water quality standards is achieved.

In accordance with Section 303(d) of the federal Clean Water Act the MDEQ has prepared a list of impaired or threatened waters. This "303(d)" list identifies lakes, rivers, and streams that are not meeting water quality standards and establishes priorities for Total Maximum Daily Load (TMDL) development. The surface waters likely to be affected by CBM development are located in the state's Tongue and Powder TMDL planning areas. The TMDL completion dates for these planning areas are 2005 and 2006, respectively. However, based upon concern due to CBM development the MDEQ and EPA are currently developing TMDLs for these streams for sodium adsorption ratio (SAR) and electrical conductivity (EC).

Regulatory Processes

When site-specific CBM development proposals are submitted to BLM, the operator must include a Water Management Plan that describes how produced water would be managed to meet State water quality requirements. Operators are responsible for obtaining any necessary permits from MDEQ for management, treatment, or discharge of produced water.

The MPDES permitting process would be used by MDEQ to analyze discharges at the project level for CBM activities and to develop necessary permit conditions. Operations that would violate State water quality requirements will not be permitted by BLM.

BLM will require operators to obtain all necessary state water quality permits or authorizations, reviews in lieu of a permit when one is not required, or certifications for federal lease operations. These State permits or authorizations, reviews and certifications will provide documentation of compliance with State water quality requirements.

State Agreements and Policies

The states of Wyoming and Montana entered into an interim Memorandum of Cooperation to protect the downstream water quality of the Powder and Little Powder watersheds that enter Montana from Wyoming. The agreement is based on monthly maximum values for EC, but recognized the need to collect more data on SAR. The memorandum says that at the conclusion of the 18-month interim period the parties shall negotiate a final agreement that will include recognition of protective water quality standards and the allocation of any assimilative capacity.

The Interagency Work Group(s) will be the forum to determine the need for specific agreements between the States, the tribes, EPA, and the surface management agencies to facilitate regional monitoring, analysis, and mitigation. The Interagency Work Group(s) will also review existing agreements and make recommendations regarding their continuation or revision. While BLM will participate in the Interagency Work Group(s), the development of a final agreement between Wyoming and Montana is primarily a State function.

The BLM will participate in the Interagency Work Group(s) to consider management options in response to new water quality information. This process will include development of monitoring plans to track regional cumulative impacts to water quality and the establishment of programmatic mitigation at predetermined action levels as determined appropriate by the State and EPA. BLM will also participate in the Interagency Work Group(s) to address development of TMDLs for the state's Tongue, Powder River, and Rosebud Creek TMDL planning areas.

BLM

BLM STEPS TO OBTAIN APPROVAL TO DRILL

The BLM has primary responsibility for managing the federally owned oil and gas estate. After lease issuance, operations may be conducted consistent with an approved permit. Proposed drilling and associated activities must be approved before beginning operations. The operator must file an APD or Sundry Notice that must be approved according to (1) lease stipulations; (2) onshore oil and gas orders; and (3) regulations and laws. All actions must also conform or be consistent with the Powder River and Billings RMPs. The steps required to obtain approval to drill and conduct surface operations are as follows.

Before drilling an oil or gas well on federal minerals, a Notice of Staking (NOS) or APD must be filed by the lessee or operator for approval with the appropriate BLM office. The NOS notifies BLM that a proposed well site has been staked and signals the need for a site inspection. Filing of the NOS starts the required 30 day public posting period.
An APD must be submitted following submission of the NOS. The APD includes the proposed drilling and surface use plans, maps, statement of bond coverage, operator statements of certification, and a water management plan. An APD can be submitted without filing an NOS, and posting of the APD begins the 30 day public posting period.

During the 30 day public posting period, BLM conducts a site inspection, reviews the APD for completeness and accuracy, and conducts an environmental analysis of the proposal including coordination with other applicable permitting agencies. When the proposed action is on privately owned surface, BLM invites the surface owner to attend the site inspection and provide information or requirements which can be used in the environmental analysis. BLM's review also includes coordination with the MBOGC to determine if the proposed well location conforms with state well spacing rules or if a spacing exception needs to be approved by MBOGC. BLM notifies the State Historic Preservation Office (SHPO) about the results of cultural and historic resource surveys conducted for the proposal. BLM also consults with other State agencies, such as MDEQ, if actions proposed in the APD would require permits issued by MDEQ. BLM approves the APD after completion of the environmental analysis and determining that the APD requirements have been fulfilled.

Before approving full-field development of CBM on federal minerals, a POD must be filed by the lessee or operator for approval with the appropriate BLM office. BLM will work with other agencies that have authority for permitting proposed activities in the review of the POD. BLM and MBOGC will develop procedures to coordinate the review and approval of PODs that involve federal, state and private minerals.

The POD depicts the proposed location of well sites, access roads and production facilities. The POD must include a water management plan, a wildlife monitoring and mitigation plan and cultural resource inventory plan along with an APD for each proposed federal well which will be posted for the 30 day public review period. The water management plan will be approved in consultation with the affected surface owner.
During the 30 day public posting period, BLM conducts site inspections, reviews the APD for completeness and accuracy, and conducts an environmental analysis of the proposal including coordination with other applicable permitting agencies. When the proposed actions are on privately owned surface or may affect private surface, BLM invites the surface owner(s) to attend the site inspections and provide information or requirements which can be used in the environmental analysis. The operator is required to demonstrate that a surface use agreement was offered to the surface owner to protect against losses or that an adequate bond has been secured.

If the proposed action may affect Tribal resources, BLM will consult with the Tribe. BLM will consult with MBOGC about well spacing rules during the POD review process. BLM will also consult with MBOGC if the operator proposes disposal of produced water into pits under the jurisdiction of MBOGC, needs an Underground Injection Control (UIC) permit issued by MBOGC and when an operator needs to offer a mitigation agreement in accordance with Powder River Basin Groundwater Area Order (No. 99-99) requirements and Montana Annotated Code 85-2-521. If the operator needs a UIC permit issued by EPA, BLM will consult with EPA during the POD review process.

BLM will consult and coordinate with MDEQ when air emissions and water discharge or land application permits issued by MDEQ are needed. BLM will also consult with Department of Natural Resources and Conservation (DNRC) when a permit is needed for beneficial use of groundwater and surface water. Coordination will also occur with County Weed Districts to ensure proposed weed control plans comply with laws and regulations. BLM will make decisions for the APDs after completion of the environmental analysis and determining that the APD requirements have been fulfilled, and will make decisions for the POD activities for which BLM has authority after completion of the environmental analysis process and ensuring that the POD requirements have been fulfilled.

APPENDIX A

WILDLIFE MONITORING AND PROTECTION PLAN

WILDLIFE MONITORING AND PROTECTION PLAN – APPENDIX A

INTRODUCTION

This Wildlife Monitoring and Protection Plan (WMPP) was prepared in conjunction with the *Statewide Oil and Gas Draft Environmental Impact Statement (DEIS) (BLM 2001 Montana DEIS) and Amendment of the Powder River and Billings Resource Management Plans (RMPs).* The DEIS and Amendment addresses future exploration for and development of Bureau of Land Management (BLM) and state of Montana (state) managed coalbed methane gas (CBM) resources and conventional oil and gas resources. The planning area excludes those lands administered by the Forest Service, the Crow, Northern Cheyenne, and other Indian lands. The WMPP will be implemented on federal lands, including split estate, in cooperation with state agencies, federal agencies, tribal representatives, Operators, and landowners. If owners and managers of state and private mineral development are willing to incorporate this guidance into management of their CBM activities, they may become a partner by entering into a Cooperative Agreement.

A variety of planning issues related to wildlife were identified during preparation of the DEIS. The goal of the WMPP is to avoid or minimize impacts to wildlife and serve as a communication tool to foster cooperative relationships among the CBM and conventional Oil and Gas industry (i.e., Operators), resource management agencies, landowners and adjacent Tribal Governments. Because this plan addresses a large geographic area composed of diverse wildlife habitats and unique situations, it must be programmatic in nature. However, the need to provide management recommendations and guidance to conserve species and habitats remains. Regional or site specific monitoring and protection plans which follow the guidance provided in this programmatic document will be required as part of each CBM Project Plan. Implementation of this plan during the course of project development and operations should promote wildlife conservation and allow land managers and project personnel to maintain wildlife populations and productivity levels simultaneously with the development of natural oil and gas resources.

PLAN PURPOSE

Oil and gas leasing decisions and lease stipulations were previously analyzed in the Bureau of Land Management (BLM) 1992 *Final Oil and Gas RMP/EIS Amendment* (BLM 1992). Wildlife stipulations attached to leases offer protective measures: 1) for certain species, 2) during a particular time period, or 3) within a specific area. These stipulations may not address other concerns related to special status species or water/habitat related issues caused by direct and indirect impacts from CBM exploration and development. Because it is purely speculative to predict how all wildlife will react or how development will proceed, it is difficult to develop prescriptive mitigation standards across the entire planning area. Even though BLM has some adaptive management strategies in place (e.g., conditions of approval and compliance inspections), these mechanisms do not give us the information necessary to understand cause and effect relationships across a landscape. Therefore, the purpose of this Plan is to acquire baseline wildlife information, monitor populations, and assess stipulations for effectiveness. The WMPP will facilitate our ability to pinpoint problems (including the evaluation of other contributing factors), design Project Plans which include conservation for declining species, monitor the effectiveness of decisions, and make recommendations to adjust management to address specific situations.

AREA AND OBJECTIVES

The WMPP document is the framework for wildlife monitoring and protection across the Powder River and Billings Resource Management Plan areas (approximately 6.5 million acres) and provides a template for regional and/or project specific WMPP development. The BLM, Montana Fish Wildlife and Parks (MFWP), and United States Fish and Wildlife Service (FWS) will enter into a Cooperative Agreement to work cooperatively to implement portions of the WMPP over the planning area. Specific geographic areas will be delineated as Regional Monitoring Units (RMU). As energy development begins, RMU specific WMPPs, following the same template as this document, will be written in cooperation with other agencies, Operators, landowners and other interests. The objectives of the program are to:

- Establish a framework for cooperation among agencies, Operators, landowners, Tribal Governments and interest groups;
- Provide a process for data collection, data management and reporting ;
- Determine needs for inventory, monitoring and protection measures;
- Provide guidance and recommendations for the conservation of wildlife species;
- Establish protocols for biological clearances of Special Status Species;
- Meet the terms and conditions of the Biological Opinion;
- Determine if management practices to conserve wildlife species and habitat in lease stipulations and conservation measures contained in the BLM Record of Decision, CBM Project Plans or Oil and Gas APDs are meeting specified objectives;
- Develop recommendations to adjust management actions based on field observations and monitoring.

Implementation of the WMPP will begin with the issuance of the *Record of Decision* and will remain in effect for the life of the project (approximately 25 years). Guidance for the conservation of special status species will be incorporated into the "Project Plan of Development Preparation Guide." Signatories on an Interagency Cooperative Agreement will serve as the "*Steering Committee.*" A "*Core Team*" (i.e., agency biologists) will oversee the implementation of the programmatic elements of the WMPP. As energy development is initiated in an identified RMU, Wildlife Monitoring Review Teams (i.e., RMU Team) consisting of resource specialists from the BLM, FWS, MFWP and applicable Operator funded biologists will write area-specific monitoring and protection plans. Resource specialists may serve as members on more than one RMU project area team. Individual RMU plans may be terminated at the end of any year when there is undeniable evidence illustrating that wildlife populations and productivity have been successfully maintained. The BLM Authorized Officer (AO) would base termination on recommendations from the *RMU Team.*

The programmatic template will undergo a major review for effectiveness every 5 years, or as determined by the *Core Team* and *RMU Team* members. A cooperative agreement among cooperators will be signed on an annual basis to include specific work components of the current year's work.

IMPLEMENTATION PROTOCOL

This section provides preliminary wildlife inventory, monitoring, and protection protocol. Required actions for inventory, monitoring and protection vary by species and development intensity. In areas of development with > 4 well locations per section, additional actions in Table 3 become applicable. Standard protocol for Application for Permit to Drill (APD) and right-of-way (ROW) application field reviews are provided in Table 2. Alternative measures and protocols will be developed as determined by *Core Team* and *RMU Team* members in response to specific needs identified in annual reports. This document provides methods for a number of wildlife species/categories. Additional species/categories may be added based on needs identified in annual wildlife reports. The wildlife species/categories for which specific inventory, monitoring, and protection procedures will be applied were developed based on input provided by the public, other agencies, and the BLM during preparation of the DEIS.

Considerable efforts will be required by agency and operator personnel for plan implementation. Many of the annually proposed agency data collection activities are consistent with current agency activities. Additionally, agency cost-sharing approaches will be considered such that public demands and statutory directives are achieved.

ANNUAL REPORTS AND MEETINGS

State and federal agencies will enter into a master Cooperative Agreement to implement the programmatic elements of inventory, monitoring and protection actions associated with CBM development in the Powder River and Billings Resource Management Plan areas. A *Core Team* will oversee implementation across the planning area and summarize information from work achieved in various RMUs. Additional cooperative agreements with cooperators will be established as activity is initiated in a RMU.

During project development (i.e., 25 years), Operators will provide an updated inventory and description of all existing project features (i.e., location, size, and associated level of human activity at each feature), as well as those tentatively proposed for development during the next 12 months. Operators should submit the inventory to BLM no later than October 15 of each calendar year. These data will be coupled with annual wildlife inventory, monitoring, and protection data obtained for the previous year and included in annual reports. Annual reports will be prepared by the BLM. Annual wildlife inventory, monitoring, and protection data gathered by parties other than the BLM, (e.g., Operators, MFWP) should provide the data to the BLM by October 15 of each calendar year. Upon receipt of these data, annual reports will be completed in draft form by the BLM and submitted to the Operators, USFWS, MFWP, and other interested parties no later than November 15 of each year. A 1-day meeting of the *RMU Teams* and *Core Team* will be organized by the BLM and held in early December of each year to discuss and modify, as necessary, proposed wildlife inventory, monitoring, and protection protocol for the subsequent year. Additional meetings specific to a RMU will be scheduled as necessary.

Discussions regarding annual Operator-specific financing and personnel requirements will be made at these meetings. A formula for determining these requirements will be developed at the first year's meeting (i.e., size of development, anticipated impacts, amount of public land, etc.). A protocol regarding how to accommodate previously unidentified development sites will also be determined during the annual meeting. Final decisions will be made by the BLM based on the input of all affected parties.

A final annual report will be issued by BLM to all potentially affected individuals and groups by early February of each year. Annual reports will summarize annual wildlife inventory and monitoring results, note any trends across years, identify and assess protection measures implemented during past years, specify monitoring and protection measures proposed for the upcoming year, and recommend modifications to the existing WMPP based on the effectiveness and/or ineffectiveness of past years (i.e., identification of additional species/categories to be monitored). Where possible, data presented in reports will be used to identify potential correlations between development and wildlife productivity and/or abundance. The BLM will be the custodian of the data and stored in BLM's Geographic Information System (GIS) for retrieval, and planning. Annual GIS data updates will be conducted. Raw data collected each year will be provided to other management agencies (e.g., USFWS, MFWP) at the request of these agencies. In addition, sources of potential disturbance to wildlife will be identified, where practical (e.g., development activities, weather conditions, etc.).

Additional reports may be prepared in any year, as necessary, to comply with other relevant wildlife laws, rules, and regulations (e.g., black-footed ferret survey reports, mountain plover and bald eagle habitat loss reports).

ANNUAL INVENTORY AND MONITORING

This document outlines the inventory and monitoring protocol for a number of selected wildlife species/categories. Protocol will be unchanged except as authorized by the BLM or specified in this plan. Additional wildlife species/categories and associated surveys may be added or wildlife species/categories and surveys may be omitted in future years, depending on the results presented in the coordinated review of annual wildlife reports. The MFWP will be contacted during the coordination of survey and other data acquisition phases. Opportunistic wildlife observations may be made throughout the year by agency and Operator personnel.

The frequency of inventory and monitoring will be dependent upon the level of development. In general, inventory and monitoring frequency will increase with increased levels of development. The level of effort should also be determined by species presence and development projection. Inventory and monitoring results may lead to further currently unidentifiable studies (i.e., cause and effect). The following sections identify the level of effort required by the WMPP. Site and species-specific surveys will continue to be conducted in association with APD and ROW application or CBM project field reviews.

Raptors (Including Bald Eagle and Burrowing Owl)

Raptor inventories will be conducted over the entire CBM project area every 5 years by BLM and MFWP. In potentially affected areas, baseline inventory should be conducted prior to the commencement of development to determine the

location of raptor nests/territories and their activity status by the BLM, with Operator financial assistance. These inventories should be repeated every 5 years (in areas with < 4 well locations/section) thereafter for the Life-of-the-Project (LOP) to monitor trends in habitat use. These surveys may be implemented aerially (e.g., via helicopter) or from the ground. Operators may provide financial assistance for some work. Data collected during the surveys will be recorded on BLM approved data sheets and entered into the BLM GIS database.

Nest productivity monitoring will be conducted by the BLM or a BLM approved biologist. Active nests located within 1 mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest). These surveys generally will be conducted from the ground. However, some nests may be difficult to observe from the ground due to steep and rugged topography and may require aerial surveys. Operators may provide financial assistance for aircraft rental as necessary. Attempts will be made to determine the cause of any documented nest failure (e.g., abandonment, predation).

Additional raptor nest activity and productivity monitoring measures will be applied in areas with high levels of development (i.e., areas with ≥ 4 well locations/section) on and within 1 mile of the project area. Inventory/monitoring efforts in these areas, as well as selected undeveloped reference areas will be conducted annually during April and May, followed by nest productivity monitoring. Site and species-specific nest inventories will also continue to be conducted as necessary in association with all APD and ROW application field reviews.

All raptor nest/productivity surveys will be conducted using procedures that minimize potential adverse effects to nesting raptors. Specific survey protocol for reducing detrimental effects are listed in Grier and Fyfe (1987) and Call (1978) and include the following:

- Nest visits will be delayed for as long as possible during the nesting season.
- Nests will be approached cautiously, and their status (i.e., number of nestling/fledglings) will be determined from a distance with binoculars or a spotting scope.
- Nests will be approached tangentially and in an obvious manner to avoid startling adults.
- Nests will not be visited during adverse weather conditions (e.g., extreme cold, precipitation events, windy periods, or during the hottest part of the day).
- Visits will be kept as brief as possible.
- All inventories will be coordinated by the BLM.
- The number of nest visits in any year will be kept to a minimum.

Ferruginous Hawk: Timing of surveys is very important in documenting the territory, occupancy, success and productivity of ferruginous hawk populations. The accepted survey and monitoring guidelines for ferruginous hawk are taken from the *Survey and Monitoring Guidelines for Ferruginous Hawks in Montana, 1995.*

Bald Eagle: Inventory and monitoring protocol for the bald eagle will be as described for raptors, with the following additions. Operators will indicate the presence of eagle habitat as previously defined, on their application. Prior to CBM development or construction, surveys of the wooded riparian corridors within 1.0 mile of a project area will be conducted in the winter and/or spring by biologists and/or BLM-approved biologists to determine the occurrence of winter bald eagle roosts. Surveys will be conducted from daybreak to 2 hours after sunrise and/or from 2 hours before sunset to 1 hour after sunset by fixed-wing aircraft. Follow-up ground surveys, if necessary, will be conducted during the same time frame. Surveys will be at least 7 days apart. The location, activity, number, and age class (immature, mature) of any bald eagles observed will be recorded. If a roost or suspected roost is identified, BLM, USFWS, and MFWP will be notified and a GPS record of the roost/suspected roost will be obtained and entered into the BLM GIS database. There will be No Surface Occupancy within 0.5 miles of any identified bald eagle roost sites.

Nest productivity will be conducted by the BLM or a BLM-approved biologist in areas with high levels of development (i.e., areas with greater than or equal to 4 well locations/section) on and within 1 mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

Burrowing owl: Operators should indicate the presence of prairie dog towns on their application. The presence of sensitive habitat does not indicate that a species may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. In association with APD and ROW application field reviews, prairie dog colonies within 0.5 miles of a proposed project area will be surveyed for western burrowing owls by BLM biologists or a BLM-approved Operator-financed biologist twice yearly from June through August to determine the presence/absence of nesting owls. Efforts will be made to determine reproductive success (no. of fledglings/nest).

Threatened, Endangered, Candidate, and Other Species of Concern

Operators should indicate the presence of cottonwood riparian, herbaceous riparian or wet meadows, permanent water or wetlands, prairie dog towns, or rock outcrops, ridges or knolls on their application. The presence of sensitive habitat may not indicate that a species may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. The level of effort associated with the inventory and monitoring required for threatened, endangered, candidate, and other species of concern (TEC&SC) will be commensurate with established protocol for the potentially affected species. Methodologies and results of these surveys will be included in annual reports or provided in separate supplemental reports. As TEC&SC species are added to or withdrawn from USFWS and/or BLM lists, appropriate modifications will be incorporated to this plan and specified in annual reports.

TEC&SC data collected during the surveys will be provided only as necessary to those requiring the data for specific management and/or project development needs. Site- and species-specific TEC&SC surveys will continue to be conducted as necessary in association with all APD and ROW application field reviews. Data will be collected on BLM approved data sheets and entered into the BLM GIS database.

Black-footed Ferret

Operators should indicate the presence of prairie dog towns on their application. The presence of sensitive habitat does not indicate that suitable black footed ferret habitat may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. BLM biologists and/or BLM-approved Operator-financed biologists will determine the presence/absence of prairie dog colonies within 0.5 miles of proposed activity during APD and ROW application field reviews. Prairie dog colonies on the area will be mapped to determine overall size following the approved methodology. Colony acreage will be determined using GIS applications. Colonies that meet USFWS size criteria as potential black-footed ferret habitat (USFWS 1989) will be surveyed to determine active burrow density using the methods described by Biggins et al. (1993) or other BLM- and USFWS-approved methodology.

Project activity will be located to avoid impacts to prairie dog colonies that meet USFWS criteria as black-footed ferret habitat (USFWS 1989). If avoidance is not possible, all colonies meeting the USFWS size criteria and any colonies for which density estimates are not obtained will be surveyed for black-footed ferrets by an operator-financed, USFWS-certified surveyor prior to but not more than 1 year in advance of disturbance to these colonies. Black-footed ferret surveys will be conducted in accordance with USFWS guidelines (USFWS 1989) and will be conducted on a site-specific basis, depending on the areas proposed for disturbance in a given year as specified in the annual report. If a black-footed ferret or its sign is found during a survey, all development activity would be subject to recommendations from the *Montana Black-footed Ferret Survey Guidelines*, *Draft Managing Oil and Gas Activities in Prairie Dog Ecosystems with Potential for Black-footed ferret Reintroduction* and re-initiation of Section 7 Consultation with USFWS.

Black-tailed Prairie Dog

The BLM will determine the acreage of occupied black-tailed prairie dog habitat within suitable mountain plover habitat on federally managed surface acres and federal mineral estate lands. Further, a reasonable effort should be made to estimate actual impacts, including habitat loss, CBM development will have on occupied black-tailed prairie dog acres within suitable mountain plover habitat over the entire project area.

Active prairie dog towns on BLM lands within 0.5 miles of a specific project area will be identified, mapped, and surveyed as described in the Black-footed ferret section. In addition, reference prairie dog colonies subject to development will be identified. On an annual basis, the BLM and/or a BLM-approved Operator-financed biologist will survey, at least a portion of, the prairie dog colonies, including the reference colonies. Prairie dog populations are subject to drastic population fluctuations primarily due to disease (plague). Therefore, efforts will be made to compare the data from the reference colonies with that obtained from the project areas, in order to monitor the response of prairie dog populations to CBM development.

Mountain Plover

Surface use is prohibited within 1/4 mile of active mountain plover nest sites. Disturbance to prairie dog towns will be avoided where possible. Any active prairie dog town occupied by mountain plover will have No Surface Use between April 1 and July 31which may be reduced to No Surface Use within 1/4 mile of an active nest, once nesting has been confirmed. An exception may be granted by the authorized officer after the BLM consults with the FWS on a case-by-case basis and the operator agrees to adhere to the new operational constraints.

On federally managed surface acres, active black-tailed prairie colonies within suitable mountain plover habitat will have a No Surface Occupancy.

Prior to permit approval, habitat suitability will be determined. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (USFWS 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted prior to ground disturbance activities by the BLM or a BLM-approved Operator biologist using the Service protocol at a specific project area plus a 0.5 mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

The BLM shall monitor all loss of mountain plover habitat associated with all portions of this action (operators will indicate the presence of prairie dog towns or other mountain plover habitat indicators on their application). Suitable mountain plover habitat has been defined under 'critical habitat' for the mountain plover in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM, their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion, or immediately if the anticipated impact area is exceeded.

Gray Wolf

According to the *Biological Assessment for Coalbed Methane Production in Montana*, state lands and counties (Gallatin and Park Counties) bordering Yellowstone National Park would be surveyed in the spring for wolves, occupied dens, or scat prior to development. These surveys could be conducted from the air or from the ground. Areas in which wolves are observed would continue to be surveyed annually until reintroduction objectives are met. Efforts will be made to compare production and/or occupancy trends in wolf populations in these areas to a reference population in order to gain more reliable information regarding the response of wolves to CBM development.

Sage Grouse

BLM and MFWP will conduct sage grouse lek inventories over the entire CBM project area every 5 years to determine lek locations. Surveys of different areas may occur during different years with the intent that the entire CBM project area will be covered at least once every 5 years. Existing MFWP

Region 7 trend blocks will be monitored annually. There are 4 trend blocks in FWP Region 7; one located in the Decker area and 3 others across the Region. Inventories and protocol will be consistent with the *Montana Sage Grouse Conservation Plan* coordinated by the BLM and MFWP. In areas with ≥ 4 well locations per section, aerial inventories will be conducted annually on affected sections, 2 mile buffers, and selected undeveloped reference areas. Surveys may be conducted aerially or on the ground, as deemed appropriate by the BLM and MFWP. Operator may provide financial assistance.

Aerial surveys will be used for determining lek locations. BLM, MFWP or BLM-approved Operator-financed biologist will monitor sage grouse lek attendance within 2 miles of areas having < 4 locations per section such that all leks on these areas are surveyed at least once every 3 years. Data collected during these surveys will be recorded on BLM and MFWP approved data sheets and entered into the BLM GIS database. An effort should also be made to compare trends of the number of males/lek to reference leks

Sage grouse winter use surveys of suitable winter habitat within 2 miles of a project area will be coordinated by the BLM and implemented by the BLM and/or MFWP during November through February as deemed appropriate by these management agencies, and results will be provided in interim and/or annual reports. These surveys will be conducted to identify sage grouse wintering concentration areas. Historical information of winter sage grouse locations will be useful in focusing efforts in areas suspected of providing winter habitat. Sage grouse winter habitat use surveys will be conducted subsequent to snowfall events to identify crucial winter habitat.

Big Game

Elk, mule deer, white-tailed deer, and pronghorn are the common big game species that occur within parts or all of the CBM planning area. BLM and MFWP will continue to collect annual big game seasonal habitat use data and make it available to Operators and landowners. Big game use of seasonal habitats is highly dependent upon a combination of environmental factors including forage quality and snow depth. Therefore, it is very difficult to attribute changes in habitat use to a single factor. Comparisons in trends between big game seasonal habitat reference areas and seasonal habitats associated with CBM development may provide some insight into the response of big game to CBM development.

General Wildlife

Any avian mortality observed in pits will be documented, reported to the BLM and USFWS, and measures will be taken to prevent future mortality at the pit(s). Well field access roads and other roads with project-related traffic increases will be monitored for wildlife mortality so that specific mitigation can be designed and implemented as deemed necessary by BLM, in consultation with MFWP, for areas with high traffic volume and/or increased wildlife/vehicle collisions and mortality.

Aquatic Species

Baseline aquatic inventories will be conducted in potentially affected areas by BLM and MFWP with Operator financial assistance, for 1-2 years prior to development commencing, to determine occurrence, abundance, and population diversity of the aquatic community. These inventories should be repeated every year in selected intermittent/perennial streams associated with produced water discharge as well as selected intermittent/perennial streams associated with no produced water discharge (control sample site) .

Natural fluctuations in species occurrence, abundance, and population diversity will be determined by comparing changes in control sample sites to baseline inventories. Changes in occurrence, abundance, and population diversity of the aquatic community in streams associated with produced water discharge may then be possible by comparing to the natural fluctuations.

Detection of a retraction in the range of a species, a downward trend in abundance, or reduced population diversity in systems with produced water discharge shall warrant a review of Project Plans and possible recommendations for adjustment of management to address the specific problems.

Aquatic groups to be inventoried and monitored will include:

-Benthic macroinvertebrates - Determine population diversity using Hess/kick net sampling protocol to measure species abundance and establish a diversity index.
-Amphibians and aquatic reptiles - Determine population diversity and abundance utilizing sampling methodologies being developed for prairie species.
-Non-game fish - Determine population diversity using electrofishing and seining.
-Algae (periphyton) – Determine population diversity.

PROTECTION MEASURES

Wildlife protection measures have been put in place through lease stipulations or terms and conditions from a Biological Opinion from FWS. The following sections describe stipulations or mitigation that restrict activities through lease agreements or terms and conditions to reduce the likelihood of "take" of a federally listed species.

Lease stipulation

The lease stipulations were approved in the 1994 BLM Oil and Gas EIS. These are mandatory measures or actions that have been developed as a result of wildlife research and input from agencies and Operators. Avoidance of important breeding, nesting, and seasonal habitats is the primary protection measure that will reduce the possibility of CBM and Oil and Gas development having an impact on wildlife populations, productivity, or habitat use. Additional conservation measures will be incorporated through the Project Plan design or as Conditions of Approval. Data collected during monitoring efforts and properly analyzed will be used to determine the appropriateness and the effectiveness of these measures throughout the CBM project area. Based on the results of the monitoring data, these measures will be reviewed by the *Core Team* and *RMU Teams*. As monitoring data are collected over time, it is likely that some protection measures will be added, while others will be modified or removed completely with approval from the BLM in cooperation with other agencies and the *Core Team*. All changes in these protection measures will be reported, with a justification for the change, in annual reports. A RMP amendment may be required depending on the recommended change.

"Waivers" A lease stipulation may be waived by the Authorized Officer (AO) if a determination is made by the BLM, in consultation with FWS, that the proposed action will not adversely affect the species in question.

"Exceptions" to protection measure may be granted by the AO, in coordination with USFWS for T&E species and MFWP, if the Operator submits a plan that demonstrates that impacts from the proposed action will not be significant, or can be adequately mitigated.

"Modifications" may be made by the AO if it is determined that portions of the area do not include habitat protected by the stipulation.

Raptors

From March 1 – August 1, all surface disturbing activities are prohibited within ½ mile of active raptor nest sites except ferruginous hawk, bald eagle and peregrine falcon nest sites. For ferruginous hawks and bald eagles, no surface occupancy or use will be allowed within ½ mile of known active nest sites. No surface occupancy or use is allowed within 1 mile of identified peregrine falcon nests. Active raptor nests are defined as those that have been used within the last two years.

Big Game

Surface use is prohibited to avoid disturbance of white-tailed deer, mule deer, elk, pronghorn antelope, moose, and bighorn sheep during the winter use season, December 1 - March 31. This stipulation does not apply to the operation and maintenance of production facilities.

Elk Parturition Range

In order to protect elk parturition range, surface use is prohibited from April 1 to June 15 within established spring calving range. This protection measure does not apply to the operation and maintenance of production facilities.

Bighorn Sheep – Powder River Breaks

No surface occupancy or use is allowed in the designated Powder River Bighorn Sheep Range. In crucial winter range outside of the designated area, surface use is prohibited from December 1 to March 31.

Sage Grouse

Lek sites

In order to minimize impacts to sharptail and sage grouse leks, surface occupancy within ¼ mile of known leks is prohibited. The measure may be waived if the AO, in coordination with MFWP, determines that the entire leasehold can be occupied without adversely affecting grouse lek sites, or if all lek sites within ¼ mile of the leasehold have not been attended for 5 consecutive years.

Nesting area

Surface use is prohibited between March 1 – June 15 in grouse nesting habitat within 2 miles of a known lek. This measure does not apply to the operation and maintenance of production facilities. This measure will be implemented to protect sharptail and sage grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to minimize disturbance to nesting activities adjacent to nesting sites for the long-term maintenance of grouse populations in the area.

Winter range

Surface use is prohibited from December 1 through March 31 within designated crucial winter range to protect sage grouse from disturbance during winter season use.

Prairie Dog Towns and Associated Black-footed Ferret Habitat

Prior to surface-disturbing activities, prairie dog colonies and complexes 80 acres or more in size and containing 5 burrows per acre will be examined to determine the presence or absence of black-footed ferrets. The findings of this examination may result in some restrictions to the operator's plans or may even preclude use and occupancy.

The lessee or operator may, at their own option, conduct an examination on the leased lands to determine if black-footed ferrets are present, or if the proposed activity would have an adverse effect, or if the area can be cleared. This examination must be done by, or under the supervision of, a qualified resource specialist approved by the BLM. An acceptable report must be provided to documenting the presence or absence of black-footed ferrets and identifying the

anticipated effects of the proposed action on the black-footed ferret and its habitat. This stipulation does not apply to the operation and maintenance of production facilities.

Interior Least Tern

The interior least tern is listed as an endangered species under the ESA. Birds occupy sandbars and beaches in eastern Montana and along the Yellowstone and Missouri Rivers. Surface occupancy and will be prohibited within 1/4 mile of wetlands identified as interior least tern habitat.

Terms and Conditions from Section 7 Consultation

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with the following terms and conditions, which implement the reasonable and prudent measures described and outlined in the Biological Opinion. **These terms and conditions are nondiscretionary.**

All Species

In the event that a bald eagle (dead or injured) or mountain plover (dead or injured) is located during construction and operation, the Service's Billings Sub-Office of the Montana Field Office (406-247-7366) and the Service's Law Enforcement Office (406-247-7355) will be notified within 24 hours. The action agency must provide for monitoring the actual number of individuals taken. Because of difficulty in identification, all small birds found dead should be stored in a freezer for the Service to identify.

- The Bureau shall monitor all loss of bald eagle (nesting, potential nesting and roost sites) and suitable mountain plover habitat associated with all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. Bald eagle nesting, potential nesting and roost sites, and suitable mountain plover habitat have been defined under 'habitat use' and 'critical habitat' respectively, for each species in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion. The tracking will include the location and acres of habitat loss, field survey reports, what stipulations were applied, and a record of any variance granted to timing and/or spatial buffers. The monitoring of habitat loss for these species will commence from the date the Record of Decision (ROD) is signed. The actual measurement of disturbed habitat can be the responsibility of the Bureau's agent (consultant, contractor, etc.) with a written summary provided to the Service's Montana Field Office semi-annually, or immediately if the Bureau determines that action (*i. e.* Application for Permit to Drill (APD), pipeline, compressor station) will adversely affect a listed species. However, it is the responsibility of the Bureau to ensure that the semi-annual reports are complete and filed with the Service in a timely manner. The semi-annual report will include field survey reports for endangered, threatened, proposed and candidate species for all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. The semi-annual reports will include all actions completed under this BO up to 30 days prior to the reporting date. The first report will be due 6 months from the signing of the ROD and on the anniversary date of the signing of the ROD. Reporting will continue for the life of the project.

- As outlined in the guidance and conservation measures in the *CBM Programmatic Wildlife Monitoring and Protection Plan for the Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* that "All new roads required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions... Appropriate speed limits will be adhered to on all project area roads, and Operators will advise employees and contractors regarding these speed limits."

Bald Eagle

- The Bureau shall require implementation of all conservation measures/mitigation measures identified in the Biological Assessment prepared for the project and dated April 10, 2002, and wildlife inventory, monitoring, and protection protocol provided by the WMPP. The Bureau shall monitor for compliance with the measures and protocol. These are as follows:

- The appropriate standard seasonal or year-long stipulations for raptors or no surface occupancy for bald eagles as identified in the Billings Resource Management Plan (U.S. Bureau of Land Management 1983), Powder River Resource Management Plan (BLM 1984), and Oil and Gas Resource Management Plan/ EIS Amendment (BLM 1992) will be applied. This includes No Surface Occupancy within ½ mile of nests active in the last 7 years and ½ mile of roost sites.

- Inventory and monitoring protocol for the bald eagle will be as described for raptors, with the following additions. Operators will indicate the presence of eagle habitat as previously defined, on their application. Prior to CBM development or construction, surveys of the wooded riparian corridors within 1.0 mile of a project area will be conducted in the winter and/or spring by biologists and/or BLM-approved biologists to determine the occurrence of winter bald eagle roosts. Surveys will be conducted from daybreak to 2 hours after sunrise and/or from 2 hours before sunset to 1 hour after sunset by fixed-wing aircraft. Follow-up ground surveys, if necessary, will be conducted during the same time frame. Surveys will be at least 7 days apart. The location, activity, number, and age class (immature, mature) of any bald eagles observed will be recorded and if a roost or suspected roost is identified, BLM, USFWS, and MFWP will be notified and a GPS record of the roost/suspected roost will be obtained and entered into the BLM GIS database. There will be No Surface Occupancy within 0.5 miles of any identified bald eagle roost sites.

- Nest productivity will be conducted by the BLM or a BLM approved biologist in areas with high levels of development (i.e., areas with greater than or equal to 4 well locations/section) on and within 1 mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

- No new above-ground power line should be constructed within the Primary Use Area or ½ mile from an active eagle nest or nest that has been occupied within the recent past. No surface occupancy or use is allowed within 0.5 miles of known bald eagle nest sites which have been active within the past 7 years. All other actions will be consistent with the *Montana Bald Eagle Management Plan - July 1994*.

- Power lines will be built to standards identified by the Avian Power Line Interaction Committee (1996) to minimize electrocution potential. The Service has more specific recommendations that reaffirm and compliment those presented in *Suggested Practices*. It should be noted that these measures vary in their effectiveness to minimize mortality, and may be modified as they are tested in the field and laboratory. Local habitat conditions should be considered in their use. The Service does not endorse any specific product that can be used to prevent and/or minimize mortality, however, we are providing a list of *Major Manufacturers of Products to Reduce Animal Interactions on Electrical Utility Facilities.*

New Distribution Lines and Facilities

The following represents areas where the raptor protection measures will be applied when designing new distribution line construction:

1.1 Bury distribution lines where feasible.

1.2 Raptor-safe structures (e.g., with increased conductor-conductor spacing) are to be used that address adequate spacing for each problematic species (i.e., minimum 60" for bald eagles would cover all species).

1.3 Equipment installations (overhead service transformers, capacitors, reclosers, etc.) are to be made raptor safe (e.g., by insulating the bushing conductor terminations and by using covered jumper conductors).

1.4 Jumper conductor installations (e.g., corner, tap structures, etc) are to be made raptor safe by using covered jumpers or providing adequate separation.

1.5 Employ covers for arrestors and cutouts.

1.6 Lines should avoid high avian use areas such as wetlands, prairie dog towns, and grouse leks. If not avoidable, use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation and decrease loss of avian predators to electrocution.

Modification of Existing Facilities

Raptor protection measures to be applied when retrofitting existing distribution lines. Problem structures may include dead ends, tap or junction poles, transformers, reclosers and capacitor banks or other structures with less than 60" between conductors or a conductor and ground. The following modifications will be made:

2.1 Cover exposed jumpers.

2.3 Gap any pole top ground wires.

2.4 Isolate grounded guy wires by installing insulating link.

2.5 On transformers, install insulated bushing covers, covered jumpers, cutout covers and arrestor covers.

2.6 When mortalities occur on existing lines and structures, raptor protection measures are to be applied (e.g., modify for raptor-safe construction, install perches, perching deterrents, nesting platforms, nest deterrent devices, etc).

2.7 Use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation, and decrease loss of avian predators to electrocution.

2.8 In areas where midspan collisions are a problem, install line-marking devices that have been proven effective. All transmission lines that span streams and rivers, should maintain proper spacing and have markers installed.

These additional standards to minimize migratory bird mortalities associated with utility transmission lines, will be incorporated into the Terms and Conditions for all APD's and stipulations for Right-Of-Way applications.

Mountain Plover

- The Bureau shall require implementation of the conservation measures for mountain plover as identified in the Biological Assessment prepared for the project and dated April 10, 2002, and wildlife inventory, monitoring, and protection protocol provided by the *WMPP*. The Bureau shall monitor for compliance with the measures and protocol. These are as follows:

- Surface use is prohibited within 1/4 mile of active mountain plover nest sites. Disturbance to prairie dog towns will be avoided where possible. Any active prairie dog town occupied by mountain plover will have No Surface Use between April 1 and July 31. This area may be reduced to No Surface Use within 1/4 mile of an active nest, once nesting has been confirmed. An exception may be granted by the authorized officer after the

BLM consults with the FWS on a case by case basis and the operator agrees to adhere to the new operational constraints.

- Due to the declining status of mountain plover in the analysis area and the need to retain this most important and limited nesting habitat, all active prairie dog colonies within suitable mountain plover habitat will have No Surface Occupancy (NSO). This NSO will be applied only to federally managed surface acres. This NSO may be modified in an amendment to this biological opinion after analysis of impacts to this preferred nesting habitat is completed.

- The BLM will determine the acreage of occupied black-tailed prairie dog habitat within the suitable mountain plover habitat of federally managed surface acres and on federal mineral estate lands. Further, a reasonable effort should be made to estimate the actual impacts, including habitat loss, CBM development will have on occupied black-tailed prairie dog acres within suitable mountain plover habitat over the entire project area. The project area is large and certain areas will likely be developed for coal bed methane before others. The BLM, Service, and cooperators will develop a survey protocol that may include prioritization of subsets of the project area to be analyzed. Based on the results of such analysis, the NSO on active prairie dog within suitable mountain plover habitat may be modified in an amendment to the biological opinion.

- Prior to permit approval, habitat suitability will be determined. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (USFWS 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted prior to ground disturbance activities by the BLM or a BLM-approved Operator biologist using the Service protocol at a specific project area plus a 0.5 mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

- The BLM shall monitor all loss of mountain plover habitat associated with all portions of this action (operators will indicate the presence of prairie dog towns or other mountain plover habitat indicators on their application) . Suitable mountain plover habitat has been defined under 'critical habitat' for the mountain plover in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM, their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion, or immediately if the anticipated impact area is exceeded.

- If suitable mountain plover habitat is present, surveys for nesting mountain plovers will be conducted prior to ground disturbance activities, if ground disturbing activities are anticipated to occur between April 10 and July 10. Disturbance occurring outside this period is permitted, but any loss of mountain plover suitable habitat must be documented. Sites must be surveyed 3 times between the April 10 and July 10 period, with each survey separated by at least 14 days. The earlier date will facilitate detection of early-breeding plovers. A disturbance-free buffer zone of 1/4 mile will be established around all mountain plover nesting locations between April 1 and July 31. If an active nest is found in the survey area, the planned activity should be delayed 37 days, or seven days post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days (USFWS 2002). Exceptions and/or waiver to stipulations can be made through consultation with FWS on a case by case basis.

- Roads will be located outside of nesting plover habitat wherever possible. Apply mitigation measures to reduce mountain plover mortality caused by increased vehicle traffic. Construct speed bumps, use signing or post speed limits as necessary to reduce vehicle speeds near mountain plover.

- Creation of hunting perches will be minimized within ½ mile of occupied nesting areas. Utilize perch inhibitors (perch guards) to deter predator use.

- Native seed mixes will be used to re-establish short grass prairie vegetation during reclamation.

- There will be No Surface Occupancy of ancillary facilities (e.g., compressor stations, processing plants) within ½ mile of known nesting areas. Variance may be granted after consultation with the Service.

- In habitat known to be occupied by mountain plover, no dogs will be permitted at work sites to reduce the potential for harassment of plovers.

- Operators and the Bureau shall be provided by the Service with educational material illustrating and describing the mountain plover, its habitat needs, life history, threats, and gas development activities that may lead to incidental take of eggs, chicks, or adults with requirements that these material be posted in common areas and circulated in a memorandum among all employees and service providers.

Programmatic Guidance for the Development of Project Plans

Guidance for developing Project Plans and/or conservation measures applied as Conditions of Approval provide a full range of practicable means to avoid or minimize harm to wildlife species or their habitats. Operators will minimize impacts to wildlife by incorporating applicable WMPP programmatic guidance into Project Plans. Not all measures may apply to each site-specific development area and means to reduce harm are not limited to those identified in the WMPP. This guidance may change over time if new Conservation Strategies become available for Special Status Species or monitoring indicates the measure is not effective or unnecessary.

BLM and MFWP will work together through a Cooperative Agreement to collect baseline information about wildlife and sensitive habitats possibly containing special status species. During the project development phase, Operators will identify potentially sensitive habitats and coordinate with BLM to determine which species or habitats are of concern within or adjacent to the project area. In areas where required site-specific wildlife inventory has not been completed, Operators and BLM will work cooperatively to achieve it. BLM's responsibilities under NEPA, ESA, and NHPA essentially are the same on split estate (i.e., federal minerals/private surface) as they are with federal surface. BLM and Operators will seek input from the private surface owner to include conservation measures in split estate situations.

The following guidance and conservation measures are considered "features" or project "design criteria" to be used during Project Plan preparation. The design of projects can incorporate conservation needs for wildlife species or measures can be added as "Conditions of Approval." These types of conservation actions offer flexibility for local situations and help minimize or eliminate impacts to the species of interest.

1. Use the best available information for siting structures (e.g., storage facilities, generators and holding tanks) outside of the applicable zone of impact in important wildlife breeding, brood-rearing and winter habitat based on the following considerations.
    a. size of the structure(s),
    b. level/type of anticipated disturbance
    c. life of the operation, and
    d. extent to which impacts would be minimized by topography.

2. Concentrate energy-related facilities when practicable.

3. Develop a comprehensive Project Plan prior to POD or full field development activities to minimize road densities.

4. To reduce additional surface disturbance, existing roads and two-tracks on and adjacent to the CBM project area will be used to the extent possible and will be upgraded as necessary.

5. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove

stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

6. Design stream-crossings for adequate passage of fish (if present), minimum impact on water quality, and at a minimum, the 25-year frequency runoff. Consider oversized pipe when debris loading may pose problems. Ensure sizing provides adequate length to allow for depth of road fill.

7. Use corridors to the maximum extent possible: roads, power, gas and water lines should use the same corridor whenever possible.

8. Avoid, where possible, locating roads in crucial sage grouse breeding, nesting and wintering areas and mountain plover habitats. Develop a route utilizing topography, vegetative cover, site distance, etc. to effectively protect identified wildlife habitats in a cost efficient manner.

9. Conduct all road and stream crossing construction and maintenance activities in accordance with Agency approved mitigation measures and BMPs.

10. Utilize remote monitoring technologies whenever possible to reduce site visits thereby reducing wildlife disturbance and mortalities.

11. All new roads required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions and facilitate wildlife movement through the project area. Appropriate speed limits will be adhered to on all project area roads, and Operators will advise employees and contractors regarding these speed limits.

12. Apply mitigation measures to reduce mountain plover, swift fox or sage grouse mortality caused by increased vehicle traffic. Construct speed bumps, use signing or post speed limits as necessary to reduce vehicle speeds near sage grouse leks, mountain plover habitat, or other important wildlife habitats

13. Road closures may be implemented during crucial periods (e.g., extreme winter conditions, and calving/fawning seasons). Personnel will be advised to minimize stopping and exiting their vehicles in big game winter range while there is snow on the ground.

14. Roads no longer required for operations or other uses will be reclaimed if required by the surface owner or surface management agency. Reclamation will be conducted as soon as practical.

15. Operator personnel and contractors will use existing state and county roads and approved access routes, unless an exception is authorized by the surface management agency.

16. Use minimal surface disturbance to install roads and pipelines and reclaim sites of abandoned wells to restore natural plant communities.

17. Reclamation of disturbed areas will be initiated as soon as practical. Native species will be used in the reclamation of important wildlife habitat. Livestock palatibility and wildlife habitat needs will be considered during seed mix formulation.

18. Site new power lines and pipelines in existing disturbed areas wherever possible.

19. Minimize the number of new power lines in sage grouse or mountain plover habitat. Bury lines near sage grouse leks and mountain plover nesting habitat when feasible.

20. Encourage monitoring of avian mortalities by entering into a Memorandum of Understanding (MOU) with FWS and the state agencies. The purpose of the MOU is to establish procedures and policies to be employed by the parties to lessen industry's liability concerns about the "take" of migratory birds.

21. Remove unneeded structures and associated infrastructure when project is completed.

22. If possible, minimize maintenance and related activities in sage grouse breeding/nesting complexes; 15 March - 15 June, between the hours of 4:00-8:00 am and 7:00-10:00 pm.

23. Protect, to the extent possible, natural springs from disturbance or degradation.

24. Design and manage produced water storage impoundments so as not to degrade or inundate sage grouse leks, nesting sites and wintering sites, prairie dog towns or other Special Status Species habitats.

25. CBM produced water should not be stored in shallow, closed impoundments or playas. Impoundments designed as flow through systems will lessen the likelihood that selenium will bioaccumulate to levels that will adversely affect other wildlife.

26. Develop offsite mitigation strategies in situations where fragmentation or degradation of Special Status Species habitat is unavoidable.

27. Protected reserve, workover, and production pits potentially hazardous to wildlife by netting and/or fencing as directed by the BLM to prevent wildlife access and minimize the potential for migratory bird mortality.

28. Reduce potential increases in poaching through employee and contractor education regarding wildlife laws. Operator should report violations to BLM and MFWP.

29. Operator employees and their contractors will be discouraged from possessing firearms during working hours.

Table 1. Summary of General Wildlife Reporting, Inventory, and Monitoring, CBM Development; Powder River and Billings Resource Management Plans, CBM Amendment (2002)

Action	Dates	Responsible Entity[a]
Plans of development for outcoming years, showing general location of proposed development	Annually	Team (BLM, USFWS, MFWP, Operators)
Annual reports summarizing findings and presenting necessary protection actions	Annually	BLM with reviews MFWP, USFWS, Operators, and other interested parties
Meeting to finalize future year's inventory, monitoring, and protection measures	Annually	BLM with participation by USFWS, MFWP, Operators, and other interested parties
Inventory and Monitoring		
Big game crucial winter range use monitoring (crucial winter range on the RMU plus 1-mile buffer)	When Applicable	MFWP with BLM assistance
Determine mountain plover habitat suitability	Prior to permit approval	BLM & operator assistance
In areas of suitable mountain plover habitat, conduct nest surveys in project area plus a .5 mile buffer	Prior to ground disturbing activities	BLM & operator assistance
In areas of suitable mountain plover habitat, map active black-tailed prairie dog colonies on federal surface and federal mineral estate.	Over the next couple years to provide data for an analysis required in the biological opinion.	BLM & operator assistance
Active prairie dog colonies within .5 mile of a specific project area will be identified, mapped and surveyed	Prior to permit approval	BLM with MFWP & operator assistance
Raptor nest inventories (RMU plus 1 mile buffer; burrowing owls excluded)	Every 5 years during April and May	BLM with MFWP & operator assistance
In areas with potential bald eagle winter roost sites, conduct surveys within 1 mile buffer	Prior to ground disturbing activities	BLM & operator assistance

Conduct bald eagle nest inventories within .5 miles buffer of project area	Between March 1 and mid July	BLM & operator assistance
Monitor productivity at active bald eagle nests within 1 mile of project-related disturbance	Between March 1 and mid July	BLM & operator assistance
Raptor nest productivity monitoring at active nests within 1 mile of project disturbance area	Every 5 years during March to mid-July	BLM with MFWP & operator assistance
Aerial sage grouse lek inventories (RMU plus 2 mile buffer)	Every 5 years	BLM with MFWP & operator assistance
Sage grouse lek attendance monitoring on and within 2 miles of the RMU	Annually	BLM with MFWP & operator assistance will visit selected leks each year so that all leks will be visited at least once over a 3 year period
Threatened, Endangered & Sensitive species inventory/monitoring within selected CBM development areas and selected undeveloped comparison areas	When Applicable	BLM with MFWP & operator assistance
Native American culturally significant species	When Applicable	BLM, MFWP, Tribal Representatives & Operator Assistance
Other wildlife species inventory/monitoring within selected CBM development areas and selected undeveloped comparison areas	When Applicable	BLM with MFWP & operator assistance

Table 2. Summary of APD/ROW Survey and Protection Measures, CBM Development within the Powder River and Billings Resource Management Plans

Protection Measure	Dates
Bald eagle nest surveys within 0.5 mile of project area	Yearlong
Bald eagle nest avoidance within 0.5 mile of active nests	No Surface Use or Occupancy
Bald Eagle Winter Roost surveys within 1 mile of project area	December 1 to April 1
Bald Eagle Winter Roost avoidance within 0.5 miles of roost site	No surface Use or Occupancy
Black-footed ferret surveys	Prairie dog colonies > 80 acres
Mountain plover surveys within 0.5 miles of project area	May 1 to June 15
Active prairie dog colonies on federal surface in mountain plover habitat	BLM & operator assistance
Mountain plover nest/brood avoidance within .25 miles of project area	April 1 to July 31
Peregrine falcon nest avoidance within 1 mile of active nest	BLM & operator assistance
Ferruginous nest avoidance within .5 miles of an active nest	No surface use or occupancy
Threatened, Endangered &Sensitive species surveys	As necessary
Threatened, Endangered &Sensitive species avoidance	As necessary
Big game crucial winter range avoidance	December 1 - March 31
Elk Parturition Range avoidance	April 1 - June 15
Big Horn Sheep – Powder River Breaks	No surface use or occupancy
Prairie dog colony mapping and burrow density determinations	Yearlong

Protection Measure	Dates
Raptor nest survey/inventory within 0.5 miles of project area	Yearlong
Raptor nest avoidance within 0.5 miles of active nests	March 1 – August 1
Sage grouse nesting habitat avoidance on areas within 2.0 miles of a lek	March 1 - June 15
Sage grouse and sharptail lek avoidance within 0.25 miles of a lek	No Surface Use or Occupancy
Sharp-tailed grouse nesting habitat avoidance on areas within 0.5 mi. of a lek	March 1 – June 15
Western burrowing owl surveys (prairie dog colonies within 0.5 miles of disturbance)	June – August
General wildlife avoidance/protection	As necessary

Table 3. Additional Wildlife Inventory and Monitoring Measures On and Adjacent to Areas with High Levels of Development (4 Locations/Section), Powder River and Billings Resource Management Plans, CBM Amendment (2001)

Action	Dates	Responsible Entity[b]
Raptor nest inventory/monitoring on areas with >.4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during April and May	BLM surveyor with Operator-provided financial assistance
Raptor productivity monitoring on areas with >.4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during March-July	BLM surveyor with Operator-provided financial assistance for BLM volunteer support
Selected TEC&SC inventory/monitoring on suitable habitats in areas with >.4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during spring and summer	BLM or Operator-financed BLM-approved biologist

Action	Dates	Responsible Entity[b]
Collect baseline information for benthic macroinvertebrates, amphibians and aquatic reptiles, algae and non-game fish. Monitor changes on selected streams	Baseline 1 – 2 years prior and annually over the life of the project	BLM surveyor with Operator-provided financial assistance
Aerial sage grouse lek inventory on areas with 4 locations/section plus a 2-mile buffer and selected undeveloped comparison areas	Annually during March to mid-May	BLM surveyor with Operator-provided financial assistance
Sage grouse lek attendance monitoring on areas with 4 locations/section plus a 2-mile buffer and selected undeveloped comparison areas	Year-long and in any year as deemed necessary by BLM and/or USFWS	Each known lek will be visited at least once annually by the BLM and/or an Operator-financed BLM-approved biologist; subsequent visits will occur at BLM-selected leks by the BLM, and/or Operator-financed BLM-approved biologist
Others studies on areas with 4 locations/section and selected undeveloped comparison areas		USFWS and/or BLM with Operator- and other party-provided financial assistance

REFERENCES:

Atkinson, E. C. 1995. Survey and monitoring guidelines for ferruginous hawks in Montana. USDI, Bureau of land Management and Montana Fish Wildlife and Parks. 42pp.

Avian Power Line Interaction Committee. 1994. Mitigating bird collisions with power lines" The state of the art in 1994. Edison Electric Institute, Washington, D.C. 78pp. +append

Avian Power Line Interaction Committee. 1996 Suggested practices for raptor protection on power lines: The state of the art in 1996. . Edison Electric Institute, Washington, D.C. 125pp. +append

Biggins, D.E., B.J. Miller, L.R. Hanebury, B. Oakleaf, A.H. Farmer. 1993. A technique for evaluating black-footed ferret habitat. Pp 73-87 *In* Proceedings of the Symposium on the Management of Prairie Dog Complexes for the Reintroduction of the Black-footed Ferret. U.S. Department of the Interior, Fish and Wildlife Service.

Call, M. W. 1978. Nesting habitats and surveying techniques for common western raptors. U.S. Department of the Interior, Bureau of Land Management, Technical Note No. 316. 115pp.

Grier, J.W., and R.W. Fyfe. 1987. Preventing research and management disturbance. Pages 173-182 *In* B.A.G. Pendleton, B.A. Milsap, K.W. Kline, and D.M. Bird editors. Raptor management techniques. Institute of Wildlife Research, National Wildlife Federation, Scientific and Technical Series No. 10 420 pp.

U.S. Fish and Wildlife Service. 1989. Black-footed ferret survey guidelines for compliance with the *Endangered Species Act.* U.S. Fish and Wildlife Service, Denver Colorado, and Albuquerque, New Mexico (April 1989). 10pp. +append

U.S. Fish and Wildlife Service. 2002c. Mountain Plover survey guideline. U.S. Fish and Wildlife Service, Denver, Colorado. 7pp.

APPENDIX B

NORTHERN CHEYENNE TRIBE MITIGATION

NORTHERN CHEYENNE TRIBE MITIGATION – APPENDIX B

BLM will use the following mitigation actions to protect Northern Cheyenne Tribal trust resources, or to protect other area resource values of importance to the Tribe. These mitigating measures will be imposed on operators at the APD approval stage of development as needed on a case-by-case basis The mitigation measures will only be applied on those lands or minerals where BLM has authority.

Air - Operators will be required to provide the information necessary for BLM to conduct an analysis of air quality impacts for all relevant parameters when submitting their exploration APDs or field development project plans. BLM will use the information to determine the individual and cumulative impact on the Reservation's air quality; disclose the analysis results in the appropriate NEPA document; and consult with the Tribe when the analysis shows impacts from a specific drilling or development proposal.

Approval of exploration APDs and field development plans will include an analysis of the individual and cumulative impacts to air quality and be conditioned to prevent violations of applicable air quality laws, regulations, and standards. Mitigating measures may include surfacing roads and well locations; applying dust suppressants; requiring operators to develop and enforce speed limits on project roads; minimizing construction of roads; requiring use of natural gas-fired and electric compressors; and optimizing the number of wells connected to one compressor.

Operators in the vicinity of the Reservation may be required to restrict the timing or location of CBM development if monitoring or modeling by the air quality regulatory authority finds their CBM development is causing or threatening to cause non-compliance with applicable local, state, tribal, and federal air quality laws, regulations, standards, and implementation plans.

Cultural - Operators will be required to include review of Northern Cheyenne homestead records and evaluation for homesteads in the cultural resource surveys where land records indicate Northern Cheyenne homesteading activity. Specific measures to mitigate impacts to these homesteads will be developed at the APD approval phase.

A review of land and mineral ownership maps indicate that one homestead location listed in Appendix C of BLM's 2002 Ethnographic Report may be located on an area open to fluid mineral leasing. The location is on private surface and federal minerals. Prior to any land disturbing activity permitted by the BLM in this location, and with landowner permission, BLM will work with the Northern Cheyenne Tribe and the operator to develop the requirements for inventorying, recording, and evaluating the homestead site.

Operators will be required to consult with the Northern Cheyenne Cultural Commission to determine the location of any important hunting, fishing, and plant gathering sites. APD approvals would include measures to avoid impacts to these resources using standard terms and conditions.

Operators will be required to inventory BLM-administered lands for traditional plant gathering sites around the proposed drilling locations. APD approvals may include avoidance or timing restrictions to prevent impacts to identified important hunting, fishing and plant gathering sites.

Operators will be required to conduct a plant inventory on BLM-administered lands proposed for disturbance near Poker Jim Butte. Impacts on medicinal and ceremonial plant gathering areas could then be mitigated using standard terms and conditions.

Operators will be required to inventory all springs supplied by the coal seam producing CBM within the anticipated drawdown radius of their proposed operation.

The Northern Cheyenne Cultural Commission will be consulted about the appropriate mitigation if culturally significant springs were located within the anticipated drawdown radius of the operator's proposed development.

Operators may be required to avoid impacting culturally significant springs as part of the mitigation plan developed under Section 106 of the National Historic Preservation Act.

Operators could be required to monitor the condition of culturally significant springs where there is the potential for production activities to impact the springs. This requirement will be triggered by the results of the site specific hydrologic evaluation associated with the APD approval.

Operators must modify federal CBM production if monitoring data shows production is affecting culturally important springs. Operators must implement mitigating measures that will maintain the spring flow prior to resuming full production.

Operators will be required to have a discovery plan as part of their POD. The discovery plan would include suspension of operations and notification requirements for state, private, and federal lands in the event human remains are discovered during project construction.

Should human remains be discovered during construction, BLM will consult with the Northern Cheyenne on the appropriate distance between the project and gravesite.

BLM will share data with the Northern Cheyenne's THPO from cultural resource investigations associated with CBM development. This information could then be used for tribal educational and outreach efforts.

When tribally affiliated properties would be affected by CBM developments, BLM may require monitoring to be conducted by a tribal monitor. Under most normal circumstances, cultural resource work does not require a monitor.

Avoidance is BLM's standard policy for not adversely affecting historic properties. All cultural properties recorded as a result of CBM or conventional oil and gas related activities will be evaluated for listing on the National Register of Historic Places. BLM will consult with the Northern Cheyenne Tribe when properties are evaluated as Traditional Cultural Properties.

BLM's report standards are found in the BLM's 8100 Manual and Handbooks and are augmented by current professional standards. When reports contain data that would be of interest to the Tribe or the public, BLM may require the operator's consulting archaeologist to prepare a public narrative of their work.

BLM will provide the Tribe a copy of BLM's annual cultural resources report, which will summarize CBM related cultural resource activities.

BLM will participate in the Cultural Resources Work group(s).

Additional Operator Requirements - Site-specific analysis of proposals will determine the timing of CBM production adjacent to the Reservation.

BLM will require operators to modify federal CBM production if monitoring shows production is resulting in an effect on groundwater on the Reservation. BLM requirements could include reducing production rates, shutting in the well, or requiring the operator to provide compensation to the Tribe. The operator must mitigate the impact of groundwater withdrawal prior to resuming full production.

The interests of the Tribe will be considered prior to authorization of federal production that may potentially drain Reservation CBM resources. In establishing well spacing on federal lands, protection against drainage of Reservation CBM resources will be a priority. If monitoring or reservoir modeling indicates drainage of CBM resources is occurring, the BLM will enter negotiations with the operator and the Tribe to protect the rights of the Tribe. BLM requirements could include reducing production rates, shutting in the well, establishment of communitization agreements, or requiring the operator to pay compensatory royalty.

BLM will use its existing regulations (43 CFR 3160) to require operators to provide the production data and analysis needed for BLM to determine if drainage of Reservation CBM is occurring.

Operators will be required to provide an analysis prior to field development in areas of potential drainage of Reservation CBM resources. In this analysis, operators must demonstrate that CBM production is not likely to drain Reservation CBM resources.

Specific evaluations will be required for CBM wells drilled in areas that could potentially drain Reservation CBM. Such evaluations would include modeling of CBM reservoirs to calculate the potential for drainage of Reservation CBM. All evaluations would be made available to the Tribe.

Operators may be required to provide updated information for reservoir modeling during production in order to monitor the potential for drainage of CBM resources from the Reservation.

The BLM will work with the MBOGC under its existing Memorandum of Understanding to protect Tribal resources that may be affected by state or private permits or establishment of CBM spacing units adjacent to Tribal resources. In order to protect the rights of the Tribe, the BLM will represent the Tribe at MBOGC hearings that set spacing units for the production of CBM resources, including state and private lands. In addition, the BLM, as a member of the technical advisory committee administered by the DNRC Water Management Division, would make recommendations to the MBOGC on the Tribe's behalf regarding monitoring requirements and mitigation of impacts.

BLM will not approve produced water management applications until any necessary State, EPA, or Tribal permits required for water management actions are obtained.

Vegetation - The Operator will be responsible for the training of employees in noxious weed awareness and prevention. Training would be one required component of the operator's noxious weed prevention plans.

Water - The 14-mile buffer zone proposed by the Northern Cheyenne Tribe would not be applied. This buffer zone is based on a theoretical maximum drawdown radius assuming uniform geologic and hydrologic conditions in a 2D model. Groundwater modeling that accounts for geologic faults, irregularities, and vertical leakage was prepared for the Final EIS. The modeling predicts a drawdown radius of 4 to 5 miles (in the Hanging Woman Creek drainage). These results more accurately represent anticipated site conditions and are consistent with the DNRC, Water

Resources Division, Technical Advisory Committee (TAC) recommended minimum of 3-miles.

To protect Reservation groundwater the operator will be required to conduct geologic and hydrologic evaluations for CBM production wells to be located in areas that may have hydrologic connectivity with Reservation groundwater. Groundwater modeling that accounts for geologic faults, irregularities, and vertical leakage was prepared for the Final EIS. The modeling predicts a drawdown radius of 4 to 5 miles. When the site-specific studies determine there will be an effect to Reservation groundwater, the operator must develop and apply measures to prevent the impact of groundwater withdrawal and monitor the effectiveness of such measures.

For CBM wells located in aquifers with hydrologic connectivity to Reservation groundwater, the operator will be required to conduct a geologic and hydrologic evaluation prior to field development that identifies the potential for CBM production to affect Reservation groundwater resources.

CBM PODs must include measures to prevent the impact of CBM production on Reservation groundwater. Where there is a potential for affecting Reservation groundwater, monitoring plans would be developed by the operator and approved by BLM in consultation with the Tribe. When determined necessary by BLM, operators will be required to install monitoring wells to verify the effect of CBM production on Reservation groundwater resources. Monitoring wells placed on the Reservation would be subject to approval by the Tribal government. All results of groundwater monitoring would become public information.

Specific operator monitoring plans must include a hydrologic evaluation; describe the well location(s), aquifer(s) monitored, parameters monitored, baseline data acquisition, and response actions to adverse monitoring results.

Operators will be required to monitor the impact of CBM production on groundwater throughout the well life and after closure, if necessary.

BLM may approve CBM production upon completion of the geologic and hydrologic evaluation, and installation and equipping of any required monitoring wells.

Operators may be required to expand their monitoring plans as production continues if a decline in Reservation groundwater levels occurs that is attributable to their operations.

The Powder River Basin Controlled Groundwater Area standards will be enforced by BLM on federal leases.

Wildlife - The results of the WMPP will be used to adjust conditions of approval at the APD stage. This includes measures needed to protect Reservation wildlife from the impacts of CBM development.

APPENDIX C

RESOURCE MONITORING TABLE

RESOURCE MONITORING TABLE – APPENDIX C

The following table was in the FEIS in the Monitoring Appendix.

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
AIR QUALITY	Gaseous and particulate critical air pollutants	area-wide	air quality modeling and ambient air samples	$\mu g/m^3$ and parts per million concentrations as ($\mu g/m^3$)	hourly to 24 hr samples as per standards	predicted or measured exceedances of NAAQS and/or PSD increments by MDEQ	implement additional emission controls or operating limits
	Gaseous and particulate critical air pollutants	Birney/Ashland area	ambient air samples	$\mu g/m^3$ and parts per million concentrations as ($\mu g/m^3$)	hourly to 24 hr samples as per standards	before expanded development activity	implement additional emission controls or operating limits
	Gaseous and particulate critical air pollutants	area-wide	emission inventory	lbs/hr and tons/yr	annually	continuous	require submittal of annual reports
CLIMATE		areas affected by land disturbance	RAWS or COOP Stations	bulk precipitation	daily during the growing season	extremes affecting revegetation operations	
CULTURAL RESOURCES	Area of Critical Environmental Concern (ACECs)	area-wide	site inspection	site, surrounding area	annually	any noticeable trend indicating increased disturbance—natural or human-caused	increase frequency of monitoring to ensure ACEC values are not being impaired
	20% of National Register eligible sites	CBM emphasis area	site inspection	site, surrounding area	annually	impacts to sites from unauthorized uses affecting qualities that make sites eligible for listing on National Register of Historic Places	halt activity affecting eligible sites. Increase monitoring of nearby eligible sites. Evaluate damage to sites.
	random sample of 50 sites	CBM emphasis area	site inspection	site, surrounding area	annually	any noticeable trend indicating increased disturbance—natural or human-caused	increase frequency and number of sites monitored, if sites are being impacted by CBM-related activities. Evaluate damage to sites.

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
HYDROLOGY	surface water quality and quantity	area-wide on major rivers or streams where management activities are occurring or expected to occur	standard USGS quantitative measurements of water quality, including but not limited to pH, electric conductivity (EC), water temperature, common ions (Na, Mg, Ca, K, HCO_3, CI, So_4), and discharge	standard quantitative measurements of water quality and quantity (i.e., mg/l, °C, µS/cm, cfs)	discharge measurements to be taken daily at designated U.S. Geological Survey locations, including but not limited to the Tongue River at the state line (Decker), Tongue River at Brandenburg bridge (Ashland), Powder River at the state line (Moorhead), and Powder River above Locate. Stream water quality samples will be taken monthly at these stations. This sampling frequency will continue until CBM production ceases.	exceedance of any parameter above the state of MT surface water quality standards, including sodium adsorption ratio (SAR), EC, or suspended sediments	report exceedance to MDEQ, who will determine if exceedance is because of natural (low flow) or human causes. If caused by CBM discharge, enforcement action will be taken and/or Montana Pollutant Discharge Elimination System permits modified.

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
	groundwater quality and quantity	regional coal seam monitoring wells will be installed on sites 3 to 5 miles from outerop lines. Monitoring wells also will be required on sites where activities are occurring or expected to occur. Abandoned exploration and CBM wells will be converted to monitoring wells as needed.	coal seam monitoring wells would be finished in coal seams expected to be developed for CBM. Standard USGS quantitative measurements of water quality and quantity would be used, including but not limited to pH, EC, water temperature, common ions (Na, Mg, Ca, K, HCO_3, Cl, SO_4), and depth to water.	standard quantitative measurements of water quality and static water level (mg/l, °C, µS/cm, and feet to water, reported in hundredths of feet)	depth to water measurements will be made monthly for the first 3 years to establish baseline. Measurements will be made quarterly thereafter, unless a greater frequency is determined to be necessary. Water quality samples will be taken quarterly for the first 3 years to establish baseline and annually thereafter, unless a greater frequency is determined to be necessary. Monitoring will continue until at least 95% recovery of static water level has been achieved, or the end of CBM development, whichever is longer.;	a 5-foot decrease in static water level from seasonally adjusted mean static water level (determined during the first 3 years), or a significant shift in water quality from baseline conditions (determined from first 3 years of data) that impacts its beneficial use	if falling water levels are determined to be caused by CBM activity, operators must offer water well mitigation agreements to all landowners with wells in defined drawdown area (5 feet or greater drawdown) of their development. Hydrologic barriers, such as injection wells, may be an option in some cases to prevent drainage of Native American gas and water resources.

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
	groundwater quality and quantity	alluvial groundwater would be monitored in stream valleys topographically down gradient from CBM surface discharge points	monitoring wells would be finished in the alluvium. Depth to water measurements and water quality parameters, including but not limited to pH, EC, water temperature, common ions (Na, Mg, Ca, K, HCO_3, CI, SO_4), and would be obtained.	standard quantitative measurements of water quality and static water level (mg/l, °C, µS/cm, and feet to water, reported in hundredths of feet)	depth to water measurements will be made monthly. Water quality samples will be taken quarterly. Monitoring will continue until at least 95% recovery of static water level has been achieved, or the end of CBM development in that drainage, whichever is longer.	if static groundwater levels are naturally greater than 10 feet below ground surface, a rise in static groundwater levels to 10 feet below ground surface will be the trigger. If natural static groundwater levels are between 10 and 5 feet of the surface, a 2-foot rise in water levels from seasonal baseline levels (determined from the first year of data) will be the trigger. If static groundwater levels are naturally within 5 feet of the surface, a 1-foot rise in water levels from seasonal baseline levels (determined from the first year of data) will be the trigger. A change in groundwater chemistry such that beneficial use of groundwater would be impacted, also will serve as a trigger.	if rises in groundwater levels are determined to result from CBM development, direct discharge of CBM water into waterways in watershed would cease until modified Water Management Plans (WMPs) are submitted and approved

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
	groundwater quality and quantity	monitoring wells will be installed approximately 300 feet topographically downgradient from infiltration and evaporation impoundments	a nest of monitory wells will be installed with completions just above each aquatard, up to 100 feet total depth, to determine effectiveness of infiltration or if evaporation basins are leaking	depth to water (feet to water reported in hundredths of feet). Water quality samples may be collected as needed.	wells will be gauged monthly. Monitoring will continue at least 95% recovery of static water level has been achieved, or the end of CBM water discharge into the associated basins, whichever is longer.	a rise of 1-foot or more in static water levels above seasonally adjusted mean water levels (determined from the first year of data)	if the rise in water levels is determined to result from CBM activities, operators may be required to install additional monitoring wells further downgradient, or discharge into impoundments may be required to cease until a revised WMP is submitted and approved
	springs	a network of springs will be identified along coal outcrops in the CBM development area	spring discharge and water quality parameters, including but not limited to pH, EC, water temperature, common ions (Na, Mg, Ca, K, HCO_3, Cl, SO_4), will be determined from existing springs	discharge (cfs), pH, EC (µS/cm), and water temperature (°C) will be determined in the field. Standard quantitative measurements of water quality also will be used (mg/l)	discharge, pH, EC, and water temperature will be determined quarterly. Water samples will be collected for analysis annually.	a 50% decrease in spring discharge below seasonally adjusted mean (determined in the first 3 years), or a significant change in water quality that affects its beneficial use, or a change in the spring ecosystem from functional to nonfunctional	if decreased spring discharges or water quality are determined to result from CBM activity, operators must offer spring mitigation agreements to landowners who use the spring. If impacted spring is identified as important wildlife habitat, adaptive management practices will be used at the landscape level to improve spring ecosystems. Hydrologic barriers, such as injection wells, may be an option in some cases to prevent drainage of Native American gas and water resources.

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
INDIAN TRUST	groundwater	adjacent to the Northern Cheyenne and Crow reservations	sampling of dedicated monitoring wells in the zones of extraction and zones above and below the expected activity—wells are to be placed in the affected areas to areas unaffected by management activities	standard quantitative measurements of water quality—measurement of depth in feet	field measurements 6 times yearly prior to production activities, continue throughout the activity period and for the duration of 95% of the recovery of pre-development conditions	where site-specific studies show a potential to affect Reservation groundwater, the Tribe would be consulted as to appropriate protection measures and if continuous monitoring shows a drawdown of groundwater that is attributed to CBM production	BLM would require the operators to modify federal CBM production. Mitigation options may inelude reducing production rates, shutting in the well or wells, establishing a hydrologic barrier, or providing compensation to the affected Tribe.
			monitoring wells will be established near the mouth of streams that contain alluvium	measurements of depth in feet	water level measurements will be taken monthly prior to production activity and during the development - water quality measurements will be taken 4 times per year	a 20% rise in the water table above its seasonally adjusted elevation, or a 2 unit increase in the SAR value	Discontinuance of CBM evaporative ponds in that watershed, or require ponds to be lined
	natural gas	area-wide	drainage evaluation	radius of drainage	as needed	gas drainage	a communitization agreement, requiring operators to reduce production rates, shut-in wells, change spacing, or establish a hydrologic barrier to protect the Indian minerals from drainage

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
LANDS AND REALTY	rights-of-way	area-wide	site inspection	right-of-way	minimum of once during or for construction within 2 years of issuance for MLA reviews and within 5 years of issuance for FLMPA reviews; then in the 20th year after issuance and every 10 years thereafter	nonuse of right-of-way or violation of right-of-way grant stipulations	require compliance with right-of-way grant stipulations with possible suspension and/or termination for noncompliance or nonuse
MINERALS **Oil and Gas**	Geophysical Notice of Intent (NOI)	area-wide	line or area inspection	operations conducted in compliance with NOI	minimum of once during operations	violation of regulations, change from approved Notice of Intent, unnecessary or undue degradation	require operator to follow NOI
	Geophysical Notice of Completion (NOC)	area-wide	line or area inspection	operations conducted in compliance with NOC	minimum of once during plugging, once after reclamation	violation of regulations, change from approved NOC unnecessary or undue degradation	require operator to correct violation
	Application for Permit to Drill (APD)	area-wide	site inspection	operations conducted in compliance with Application for Permit to Drill	minimum of once and as necessary	violation of regulations, change from approved Application for Permit to Drill	issue an incidence of noncompliance (INC) with timeframe to correct or shut-in drilling operations
	Sundry Notice	area-wide	site inspection	operations conducted in compliance with Sundry Notice	as necessary	violation of regulations, change from approved Sundry Notice unnecessary or undue degradation	issue an INC with timeframe to correct

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
	natural gas	area-wide	drainage evaluation	radius of drainage	as needed	if gas drainage is oeeurring, there would be a communitization agreement, drilling of proteetive wells on federal lands, or different spacing, to proteet the federal minerals from drainage	eertified letter to lessee requiring protection, compensation royalty, relinquishment
	produced water disposal	area-wide	site inspection	operations conducted in complianee with permit	minimum of onee annually or as neeessary	violation of regulations, change from approved permit, unneeessary or undue degradation	issue an INC with timeframe to correet or shut-in operations
	spill	area-wide	site inspection	area cleaned up, reclaimed	minimum of onee after event and as neeessary	violation of regulations, change from approved permit, unnecessary or undue degradation	issue an INC and operator eleanup required
	plugged, abandoned wells	area-wide	site inspeetion	operations conduеted in complianee with permit	minimum of once during operations	violation of regulations, ehange from approved permit, unneeessary or undue degradation	issue an INC eorreetion required
	abandoned well reelamation	area-wide	site inspection	operations conduеted in complianee with permit	minimum of once and as necessary until reelamation complete	violation of regulations, change from approved permit, unnecessary or undue degradation	issue an INC/eertified letter requiring proper operator rehabilitation

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
PALEONTOLOGY	significant paleontological localities, ACECs	area-wide	inspection of area disturbed	degradation caused by human or natural activities that lead to loss of significant fossil resources	once yearly	loss or damage to significant fossil resources	closure of areas surrounding site to prevent further disturbance to significant fossil resources
RECREATION	general recreation use	area-wide with emphasis on dispersed use of undeveloped recreation sites	area inspections to look for vandalism, resource abuse, and install photo points	site condition	biannual (June and October); photograph annually	user conflicts, resource degradation, or safety hazards	avoid location of oil and gas facilities in undeveloped recreation sites having concentrated use, and coordinate timing of exploration activities to minimize conflicts during peak periods of use
	concentrated recreation use	special recreation management areas, sites with recreation facilities	visitor registration, traffic counters estimates, photo points	visitor days, site condition	visitor registration boxes, counters checked once monthly at the minimum, weekly or biweekly during heavy use periods, photograph annually	increased visitor use per year or sustained use that requires additional or improved facilities	avoid location of oil and gas facilities in developed recreation sites having concentrated use, and coordinate timing of exploration activities to minimize conflicts during periods of use
	area-wide commercial, competitive activities	administrative review, site inspection for complexes with permit stipulations	permit stipulations, resource condition success of reclamation	on site during competitive events, periodic site inspection for commercial operations, administrative review annually	irreparable resource damage, compromise of visitor safety, recreation experience	avoid location of oil and gas facilities in areas where know commercially permitted recreation activities are occurring and coordinate timing of exploration activities to minimize conflicts during peak periods of use

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
SOILS	soil erosion, uplands	area-wide where management activities are occurring or expected to occur	visual observation and surveyed erosion pins	soil loss in tons per acre	site will be visually examined quarterly. Where erosion is deemed excessive, measurements of site characteristics will be taken to determine rate of soil loss.	visual evidence of rill, gully, or sheet erosion. Loss of soil exceeding 10 tons per acre	report exceedance to BLM, MDEQ, or EPA. If caused by CBM discharge or activities, enforcement action will be taken.
	soil erosion, streambank, and floodplain	area-wide along rivers and tributaries where management activities are occurring or expected to occur	visual observation and surveyed erosion pins	area effected in square feet or acres	site will be visually examined quarterly. Where streambank erosion is deemed excessive, measurements of site characteristics will be taken to determine soil loss.	a 10% increase in streambank loss	report exceedance to BLM, MDEQ, or EPA. If caused by CBM discharge or activities, enforcement action will be taken.
	soil salinization	area-wide where management activities are occurring or expected to occur	visual observation, measurement of soil characteristics such as pH, EC, SAR	area effected in square feet or acres	site will be visually examined quarterly. Where salinity levels show an increase because of vegetation or soil effects, measurements of site characteristics will be taken to determine salinity levels.	a 20% increase in conductivity levels	report exceedance to BLM, MDEQ, or EPA. If caused by CBM discharge or activities, enforcement action will be taken.
	compaction	areas effected by extraction activities	penetrometer or visual inspection	pounds per square inch	1 to 2 times yearly	10% increase in density	limit or block access to compacted sites

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
VEGETATION							
	ecological status	areas affected by disturbance through the pre-production, production, post-production processes	ecological site method in key areas	composition, production compared to potential natural community for each site	pre-development ecological status baseline data	status is reduced by 15% or a drop in class	ecological site integrity will be altered to increase status of ecological site index by 15% or an increase in ecological class
	trend	areas affected by disturbance through the pre-production, production, post-production processes	any suitable methods as described in TR 4400-4 or the National Range Handbook	apply to the technique selected, may include number of individuals per unit area, percent cover, percent frequency, or percent species composition	every 3 to 5 years after the collection of ecological status baseline data	a change in the direction of trend away from management	measure implementation of action put forth to mitigate reduction of ecological status using techniques listed in monitoring appendix for vegetative trend
Noxious Weeds	trend	areas affected by disturbance through the pre-production, production, post-production processes	Montana Noxious Weed Standards	acres, plants per square feet, species	yearly (through post production reclamation)	10% increase beyond objectives for the area/new species occurrence or infestation	operators will be required to contain and suppress noxious weeds. Conservation measures will be required in noxious weed sites to decrease population of noxious weeds and increase population of native plant community

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
Riparian/ Wetlands	condition, trend, age class structure, streambank alteration	any federal action (including split estate)	photo plot, estimate key areas by sight inspection, Cole Browse Method, Key Forage Method, other methods found in Technical References (TR4400-3, TR4400-4, TR4400-7, TR1737-3, TR1737-8, TR1737-9) including MRWA (Montana Riparian Wetland Association) Riparian Inventory for areas not previously inventoried MRWA PFC on inventory areas	percent species composition, percent in each age class, percent utilization, height, percent of the streambank	based on activity plan schedule- a minimum of once every 5 years	trend away from objective or when no improvement occurs, in unsatisfactory habitat condition/functioning at risk with downward trend	oil and gas operators will be required to alter activities in order to provide environmental factors for increasing functionality or habitat conditions of the streams/wetlands. Oil and gas operators may be required to develop replacement wetlands in order to compensate for overall loss of wetlands according to Section 404 of Clean Water Act.
Special Status and Threatened and Endangered (T&E) Plant Species	condition	areas affected by disturbance through the pre-production, production, post-production processes	Montana Natural Heritage Program and visual inspection	presence and condition	once during the growing season, at a minimum	downward trend in plant condition caused by oil and gas activities	oil and gas operators will be required to alter their activities in order to benefit special status or T&E plant species
WILDLIFE (see also "Wildlife Monitoring and Protection Plan)							
Aquatic Biological Diversity (flora/fauna)	population diversity	intermittent/perennial streams associated with produced water discharge	stream sampling	diversity index	every 3 years	downward trend overall stream biological diversity	reduction or elimination of untreated produced water into drainage or watershed
Big Game	seasonal habitat use	project area plus 1-mile buffer	air/ground field inspection	occupancy	annually	downward trend in habitat occupancy	extension of timing stipulations or conditions of approval, off-site habitat management or enhancement

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
Black-footed Ferret	occupancy	prairie dog towns larger than 80 acres located within 0.5 mile of proposed activity	ground inspection	occupancy	determined on a site-specific basis in coordination with U.S. Fish and Wildlife Service (FWS)	habitat decline or prairie dog fatalities caused by oil and gas activities - occupancy of black-footed ferrets would be managed in a Black-Footed Ferret Management Plan	no incidental take; reinitiate consultation if new information shows it may be effected
Burrowing Owl	active nest locations	specific project area plus 0.5-mile buffer (within active prairie dog town)	ground inspection	occupancy	twice yearly (June to August)	human-caused disturbance to owls related to oil and gas activities such as vandalism and harassment	extension of timing and/or increase of distance from nest; stipulations or conditions of approval
Grey Wolf	occupancy	Billings RMP area	air/ground field surveys	number of sitings	annually until reintroduction objectives are met	1- to 3-year downward trend in production or occupancy	no incidental take; reinitiate consultation if new information shows it may be effected
Migratory Non-game Birds	occupancy	project area plus 0.25-mile buffer	ground observations	occupancy	periodically	documented fatalities caused by oil and gas activities	refinements in infrastructure planning (project plans), implementation of travel corridors, enhanced reclamation standards, and off-site habitat management or enhancement

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
Mountain Plover	active nest locations	specific project area plus 0.5-mile buffer (within areas less than 4-inch average vegetation height and prairie dog towns)	ground inspection	occupancy	twice yearly (April 15 to June 30)	human-caused disturbance to mountain plovers related to oil and gas activities such as vandalism and harassment	BLM received an exemption from the prohibitions of Section 9 of ESA regarding take by agreeing to terms and conditions in biological opinion (BO). Incidental take of habitat and individuals allowed up to level stated in BO. Take must be monitored. Reinitiation of Section 7 will occur before allowable take is exceeded.
Prairie Dog	aetive prairie dog colony	speeifie project area plus 0.5-mile buffer	air/ground inspection	occupancy	annually	documented prairie dog fatalities caused by oil and gas activities	establishment of no surface occupancy zones and/or establishment of timing restrictions within prairie dog towns
Raptors	active nest locations (excluding burrowing owls)	projeet area plus 1-mile buffer	air/ground field inspection	number of nests	every 3 years	downward trend in occupancy	extension of timing and/or increase in distance from nest; stipulations or conditions of approval
	raptor productivity (including Burrowing owl)	active nests within 1-mile of project disturbance plus 1-mile buffer	air/ground field inspection	nest success/failure speeies productivity	annually	downward trend in nest success, overall productivity	extension of timing and/or increase in distance from nest; stipulations or conditions of approval
	raptor productivity-seleeted undeveloped comparison area	projeet area	air/ground field inspection	nest success/failure speeies productivity	every 5 years	information used as support to determine downward trend	extension of timing and/or increase in distance from nest; stipulations or conditions of approval

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Trigger	Management Options
Sage Grouse	sage grouse lek location	CBM overall project area	aerial field inspection	number, location of leks	every 5 years	downward trend in habitat occupancy	extension of timing and/or increase in distance from lek; stipulations or conditions of approval; off-site habitat management/mitigation
	sage grouse lek attendance	specific project development areas plus 2-mile buffer	air/ground field inspection	number of males/lek	annually	downward trend in lek attendance	extension of timing and/or increase in distance from lek; stipulations or conditions of approval; off-site habitat management/mitigation
	sage grouse winter habitat	project area plus 2 mi. buffer	air/ground field inspection	occupancy	annually	downward trend in habitat occupancy or quality caused by oil and gas activities	extension of timing and/or increase in distance from lek; stipulations or conditions of approval; off-site habitat management/mitigation
Special Status Species (BLM and Montana Natural Heritage Program lists)	occupancy	specific project area plus 1-mile buffer	ground field inspection	occupancy	annually at a minimum via species habitat requirements	downward trend in habitat occupancy or quality caused by oil and gas activities	establishment of timing and/or distance from breeding area through stipulations or conditions or approval
Threatened, Endangered and Proposed Species other than previously described	occupancy, productivity	CBM overall project area	air/ground field inspection	occupancy	determined on a site-specific basis in coordination with FWS	habitat decline or fatalities caused by oil and gas activities; occupancy of species would be managed in a site-specific Management Plan	reinitiate section 7 consultation with FWS

☆ U.S. GOVERNMENT PRINTING OFFICE: 2003 — 573-102 / 68008 Region No. 8

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
111 GARRYOWEN ROAD
MILES CITY, MT 59301

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

FIRST CLASS
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
PERMIT NO. G-76