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Final Environmental Impact Statement

Entrega Gas Pipeline Inc. Docket Nos. CP04-413-000, et al.

FERC/EIS-0175F

ENTREGA PIPELINE PROJECT

Federal Energy Regulatory Commission
Washington, DC

Cooperating Agency:
Bureau of Land Management

July 2005

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 1
Entrega Gas Pipeline Inc.
Docket Nos. CP04-413-000, et al.
BLM Reference No. WYW-158830

TO THE PARTY ADDRESSED:

The environmental staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this final Environmental Impact Statement (EIS) on the interstate natural gas pipeline transmission facilities proposed by Entrega Gas Pipeline Inc. (Entrega) in the above-referenced dockets.

This final EIS was prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). Its purpose is to inform the Commission, the public, and other permitting agencies about the potential adverse and beneficial environmental impacts associated with the proposed project and its alternatives, and to recommend practical, reasonable, and appropriate mitigation measures which would avoid or reduce any significant adverse impacts to the maximum extent practicable and, where feasible, to less than significant levels. The final EIS concluded that approval of the proposed project, with appropriate mitigating measures as recommended, would have limited adverse environmental impact.

The U.S. Department of Interior, Bureau of Land Management (BLM) is participating as a cooperating agency in the preparation of this final EIS because the project would cross federal lands under BLM administration in Wyoming and Colorado. The final EIS will be used by the BLM to consider the issuance of a right-of-way (ROW) grant for the portion of the project on federal lands. While the conclusions and recommendations presented in this final EIS were developed with input from the BLM as a cooperating agency, the BLM will present its own conclusions and recommendations in its Record of Decision for the project.

Proposed Project

The Entrega Pipeline Project involves the construction and operation of a new interstate natural gas pipeline system that would extend between a proposed Meeker Hub in Rio Blanco County, Colorado, Wamsutter, in Sweetwater County, Wyoming, and the Cheyenne Hub in Weld County, Colorado. The final EIS assesses the potential environmental effects of the construction and operation of the following facilities in Colorado and Wyoming:

- about 328.1 miles of new pipeline of 36- and 42-inch-diameter pipeline –
    - 136.3 miles of 36-inch-diameter pipeline, with 86.1 miles in Colorado (Rio Blanco and Moffat Counties) and 50.2 miles in Wyoming (Sweetwater County); and

  - 191.8 miles of 42-inch-diameter pipeline, with 183.1 miles in Wyoming (Sweetwater, Carbon, Albany, and Laramie Counties) and 8.7 miles in Colorado (Larimer and Weld Counties);

- three new compressor stations (the Meeker Hub and Bighole Compressor Stations in Colorado, the Wamsutter Compressor Station in Wyoming);

- seven meter stations at interconnections with other pipeline systems (three associated with the new compressor stations, one of which would be constructed by Wyoming Interstate Company), four at the new Cheyenne Hub Metering Station in Wyoming;

- four pig launchers and four pig receivers (six associated with compressor and metering stations, one launcher and one receiver at the new Arlington Pigging Station in Wyoming);

- 22 mainline valves (5 valves at compressor and metering stations, 17 valves along the pipeline ROW); and

- other associated facilities, such as access roads and powerlines.

The proposed project would be capable of transporting up to 1.5 billion cubic feet of natural gas per day (Bcfd) from the Meeker Hub Compressor Station to interconnections at:

- Wamsutter, Wyoming with the Colorado Interstate Gas Company (CIG) and Wyoming Interstate Company transmission systems that serve markets east and west of Wamsutter; and

- the Cheyenne Hub (Weld County, Colorado) with CIG, Cheyenne Plains Gas Pipeline Company, Trailblazer Pipeline Company, and Public Service Company of Colorado. These systems would transport gas to markets in the Midwest and Central U.S. and the Eastern Slope south of the Cheyenne Hub.

The purpose of the Entrega Pipeline Project is to transport natural gas from supply basins in the central Rocky Mountains to interstate pipelines at Wamsutter and the Cheyenne Hub. From these points, the gas could be transported to markets in the West, the Midwest, or the Central United States, depending on the delivery location specified by the shipper. The need for the project arises from the current and projected increase of natural gas production in the Rocky Mountain region, which is occurring without a concurrent increase in pipeline capacity to transport this gas out from the production basins and into the interstate pipeline network.

The final EIS will be used in the regulatory decision-making process at the FERC, and may be presented as evidentiary material in formal hearings at the FERC. While the period for filing interventions in this case has expired, motions to intervene out of time can be filed with the FERC in accordance with the Commission's Rules of Practice and Procedure, 18 Code of Federal Regulations (CFR) 385.214(d). Further, anyone desiring to file a protest with the FERC should do so in accordance with 18 CFR 385.211.

The final EIS has been placed in the public files of the FERC and is available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street, NE, Room 2A
Washington, D.C. 20426
(202) 502-8371

Copies also are available for reading at the following locations:

BLM Field Office	Address	City/State	Zip Code
Colorado State Office	2850 Youngfield Street	Lakewood, CO	80215
White River Field Office	73544 Hwy 64	Meeker, CO	81641
Little Snake Field Office	455 Emerson Street	Craig, CO	81625
Rawlins Field Office	1300 N. Third	Rawlins, WY	82301
Wyoming State Office	P.O. Box 1828	Cheyenne, WY	82003
Library	**Address**	**City/State**	**Zip Code**
Albany County Library	310 South 8th Street	Laramie, WY	82070
Bairoil Branch Library	P.O. Box 40	Bairoil, WY	82322
Burns Branch Library	P.O. Box 220	Burns, WY	82053
Carbon County Library	215 West Buffalo Street	Rawlins, WY	82301
Centennial Branch Library	P.O. Box 188	Centennial, WY	82055
Cheyenne Library	2800 Central Avenue	Cheyenne, WY	82001
Colorado State University Morgan Library	50 University Avenue	Fort Collins, CO	80526
Craig Library	570 Green Street	Craig, CO	81625
DeBeque Library	730 Minter Avenue	DeBeque, CO	81630
Elk Mountain Branch Library	P.O. Box 156	Elk Mountain, WY	82324
Encampment Branch Library	P.O. Box 495	Encampment, WY	82325
Glenwood Springs Branch	413 9th St.	Glenwood Springs, CO	81601
Greeley Library	1939 61st Avenue	Greeley, CO	80634
Hanna Library	P.O. Box 297	Hanna, WY	82327
Laramie Library	310 S. 8th Street	Laramie, WY	82070
Library	**Address**	**City/State**	**Zip Code**
Little Snake River Valley	105 2nd Street	Baggs, WY	82321
Medicine Bow Branch Library	P.O. Box 279	Medicine Bow, WY	82329
Meeker Library	200 Main Street	Meeker, CO	81641
Parachute Branch Library	244 Grand Valley Way	Parachute, CO	81635
Pine Bluffs Branch Library	P.O. Box 639	Pine Bluffs, WY	82082
Rangley Library	109 East Main Street	Rangley, CO	81641
Rifle Branch Library	107 East 2nd	Rifle, CO	81650
Rock River Branch Library	P.O. Box 213	Rock River, WY	82083
Rock Springs Library	400 C Street	Rock Springs, WY	82901
Saratoga Branch Library	P.O. Box 27	Saratoga, WY	82331
Sinclair Branch Library	P.O. Box 8	Sinclair, WY	82334
Sweetwater County Library	300 N. 1st East Street	Green River, WY	82935
University of Wyoming	1000 East University Avenue	Laramie, WY	82071
Utah State University Library	300 Old Main Hill	Logan, UT	84322
Wamsutter Library	230 Tierney	Wamsutter, WY	82336
Western Wyoming Community College Library	2500 College Drive	Rock Springs, WY	82902
White Mountain Library	2935 Sweetwater Drive	Rock Springs, WY	82901

A limited number of copies are available from the FERC's Public Reference Room identified above. In addition, copies of the final EIS have been mailed to federal, state, and local agencies; public interest groups; individuals and affected landowners who have requested the draft EIS; libraries and newspapers in the project area; and parties to this proceeding.

In accordance with Council on Environmental Quality (CEQ) regulations implementing NEPA, no agency decision on a proposed action may be made until 30 days after the U.S. Environmental Protection Agency (EPA) publishes a Notice of Availability of the final EIS in the Federal Register. However, the CEQ regulations provide an exception to this rule when an agency decision is subject to a formal internal appeal process which allows other agencies or the public to make their views known. In such cases, the agency decision may be made at the same time the notice of the final EIS is published by the EPA, allowing both periods to run concurrently. The Commission's decision for this proposed action is subject to a 30-day rehearing period.

Additional information about the proposed project is available from the Commission's Office of External Affairs, at **1-866-208-FERC** or on the FERC Internet website (www.ferc.gov) using the "eLibrary" link. Click on the eLibrary link, click on "General Search" and enter the docket number excluding the last three digits (CP04-413) in the Docket Number field. Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, contact (202) 502-8659. The eLibrary link on the FERC internet website also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

Information concerning the involvement of the BLM is available from Tom Hurshman, BLM Project Manager, at (970) 240-5345.

Magalie R. Salas,
Secretary

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ACRONYMS

°F	Degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
APE	Area of potential effects
APLIC	Avian Power Line Interaction Committee
AQCC	Air Quality Control Commission
AQRV	Air quality related values
ARPA	Archaeological Resources Protection Act
BA	Biological assessment
BACT	Best available control technology
Bcf	Billion cubic feet
Bcfd	Billion cubic feet per day
BLM	Bureau of Land Management
BMP	Best management practices
CAA	Clean Air Act
CDMG	Colorado Division of Minerals and Geology
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
Cheyenne Plains	Cheyenne Plains Gas Pipeline Company
CIG	Colorado Interstate Gas Company
CM&R Plan	Construction, Mitigation, and Reclamation Plan
CO	Carbon monoxide
CO_2	Carbon dioxide
COE	U.S. Corps of Engineers
Commission	Federal Energy Regulatory Commission
CR	County Road
CWA	Clean Water Act of 1972
dB	Decibels
dBA	Decibels on the A-weighted scale
Director of OEP	Director of the Office of Energy Projects
DOE	Department of Energy
DOT	U.S. Department of Transportation
EA	Environmental Assessment
ECMR	Environmental Compliance Monitoring and Reporting Program
EFH	Essential fish habitat
EI	Environmental Inspectors
EIS	Environmental Impact Statement
El Paso	El Paso Pipeline Group

ACRONYMS

EnCana	EnCana Oil and Gas (USA) Inc., including EnCana Marketing and EnCana Gathering Services
Entrega	Entrega Gas Pipeline Inc.
Entrega's Plan	Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan
Entrega's Procedures	Entrega's Wetland and Waterbody Construction and Mitigation Procedures
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPP	Entrega Pipeline Project
ERP	Emergency Response Plan
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FO	Field Office
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
gpm	gallons per minute
GSC	Geologic Survey of Colorado
H_2S	Hydrogen sulfide
H_2S_2	Hydrogen disulfide
HAP	Hazardous air pollutant
HCA	High consequence areas
HDD	Horizontal directional drill
HMA	Herd management area
I-80	Interstate 80
ISO	International Organization for Standardization
KOP	Key Observation Point
kV	Kilovolt
L_{dn}	Day-night equivalent sound level
L_{eq}	Equivalent sound level
MACT	Maximum Achievable Control Technology
MAOP	Maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act
MLA	Mineral Leasing Act of 1920
MMBtu/hr	Million British thermal units per hour
MMcfd	Million cubic feet per day
MMI	Modified Mercalli Intensity
MOU	Memorandum of Understanding
MP	Milepost
msl	mean sea level
MUID	Map Unit Identification
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGA	Natural Gas Act

NHPA	National Historic Preservation Act of 1966
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise-sensitive area
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
NWPL	Northwest Pipeline
PBEP	Piceance Basin Expansion Project
PF	Pre-filing
O_3	Ozone
OEP	Office of Energy Projects
OPS	Office of Pipeline Safety
PM_{10}	Particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of 2.5 microns or less
POD	Plan of Development
ppmw	Parts per million by weight
PSCo	Public Service Company of Colorado
PSD	Prevention of Significant Deterioration
psig	Pounds per square inch, gauge
Questar	Questar Pipeline Company
RMP	Resource management plan
ROD	Record of Decision
ROW	Right-of-way
RSPA	Research and Special Programs Administration's
RV	Recreational vehicle
SCADA	Supervisory Control and Data Acquisition
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
SPCC Plan	Spill Prevention, Control, and Countermeasures Plan
SRMA	Special Recreational Management Area
STATSGO	State Soil Geographic database
SWA	State Wildlife Area
SWPPP	Storm Water Pollution Prevention Plan
TBI	Tom Brown Inc.
Tcfy	Trillion cubic feet per year
Tpy	Tons per year
TransColorado	TransColorado Gas Transmission Company

ACRONYMS

Trailblazer	Trailblazer Pipeline Company
TTMP	Traffic and Transportation Management Plan
U.S.	United States
UBL	Uinta Basin Lateral
USDI	U.S. Department of Interior
USGS	U.S. Geological Survey
VOC	Volatile organic compound
VRM	Visual Resource Management
WAQS&R	Wyoming Air Quality Standards and Regulations
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WHMA	Wildlife Habitat Management Area
WIC	Wyoming Interstate Company

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Entrega Pipeline Project Environmental Impact Statement (EIS) has been prepared by the staff of the Federal Energy Regulatory Commission (FERC or Commission) with the cooperation and assistance of the Bureau of Land Management (BLM). The EIS was prepared to fulfill the requirements of the National Environmental Policy Act (NEPA); the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations, Parts 1500 -1508 [40 CFR 1500 -1508]); the FERC's implementing regulations (18 CFR 380); and the BLM's right-of-way (ROW) grant regulations (43 CFR 2800 and 2880).

Entrega Gas Pipeline, Inc. (Entrega) proposes to construct, own, and operate a new natural gas transmission system in Colorado and Wyoming. The proposed facilities would be capable of transporting 1.5 billion cubic feet per day (Bcfd) of natural gas from supply basins in the central Rocky Mountains to the Cheyenne Hub (Weld County, Colorado). From these points, other interstate transporters would be able to ship the gas to markets in the West, the Midwest, and Central United States (U.S.).

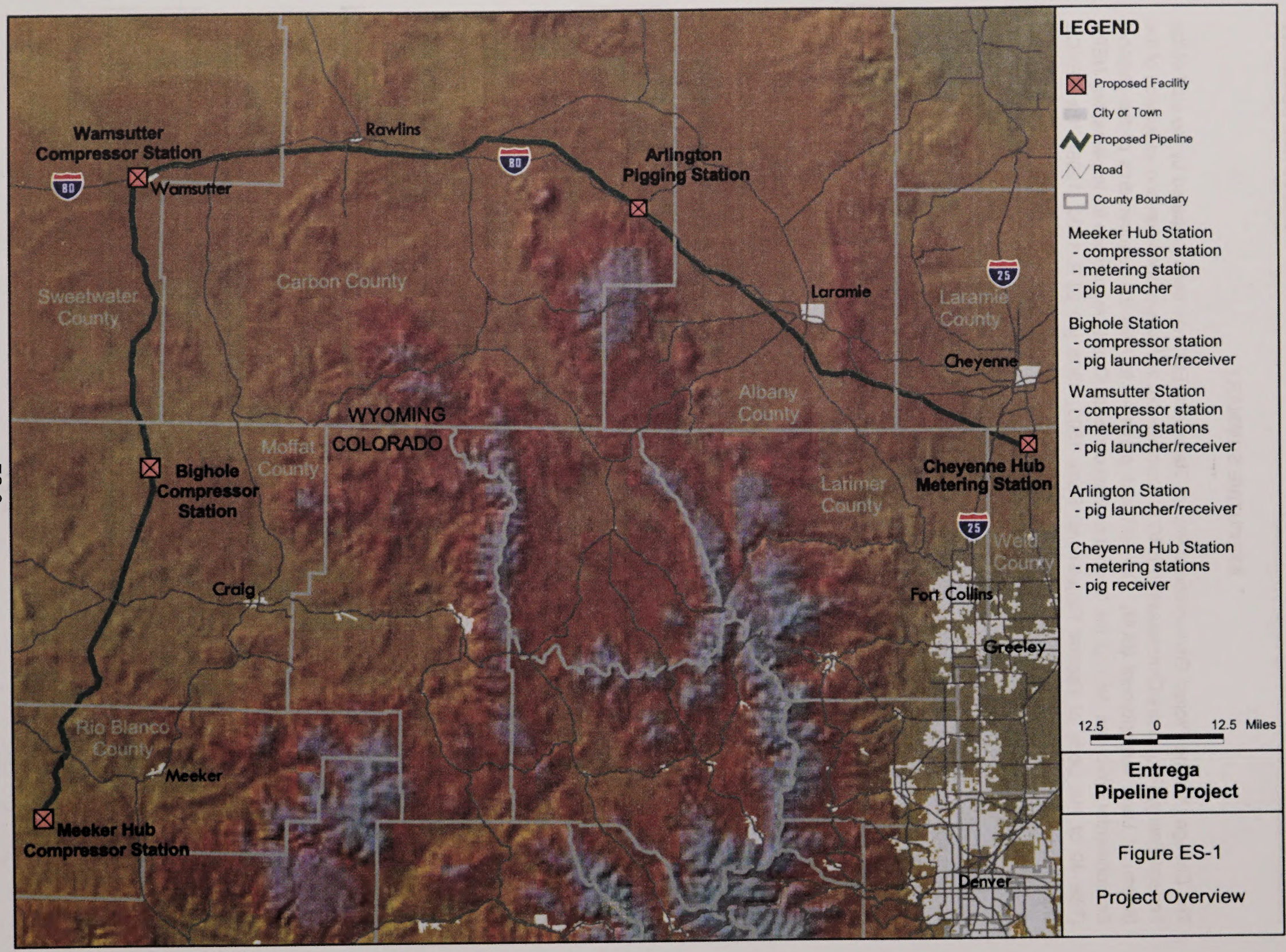
In accordance with NEPA, this document's purpose is to inform the FERC decision-makers, the public, and other permitting agencies about the potential adverse and beneficial environmental impacts associated with the proposed project and its alternatives, and to recommend practical, reasonable, and appropriate mitigation measures that would reduce adverse impacts to the extent possible. Most of the environmental impacts would occur during the construction period. We considered and/or evaluated a range of system and route alternatives, route variations, and compressor station site alternatives.

The vertical line in the margin identifies text that has been modified in this final EIS and differs from the corresponding text in the draft EIS.

PROPOSED ACTION

The purpose of the Entrega Pipeline Project (EPP) is to transport natural gas from supply basins in the Central Rocky Mountains to markets in the Midwestern and Central U.S. The need for the project is dictated by an increasing gas supply (production) in the Piceance and neighboring production basins that is not being matched by a concurrent increase in pipeline capacity to transport this gas to market.

Entrega would construct and operate 328.1 miles of 36- and 42-inch-diameter interstate natural gas pipeline. The 36-inch-diameter portion would extend between a new Meeker Hub Compressor Station in Rio Blanco County, Colorado, to a new Wamsutter Compressor Station in Sweetwater County, Wyoming. Here, interconnections with two existing interstate shippers would be established. From Wamsutter, the 42-inch-diameter portion would extend eastward to the Cheyenne Hub in Weld County, Colorado, where interconnections with three interstate shippers and one local distribution company would be made (**figure ES-1**). With these interconnections, the EPP would deliver gas into the nationwide transmission network with access to large markets west of Wamsutter and east or south of the Cheyenne Hub. Overall, Entrega's new transportation system would involve 3 compressor stations, 7 metering stations, 22 mainline valves, and other associated facilities. Entrega proposes to begin construction in the late summer of 2005.



Entrega Pipeline Project

Figure ES-1

Project Overview

5/12/05

PUBLIC INVOLVEMENT

On May 3, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Entrega Gas Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (NOI). This document briefly described the project components, invited written comments from the public on the proposal, and listed the date and location of four public scoping meetings to be held in communities along the route. The NOI was sent to about 1,670 entities on a mailing list that included the landowners crossed and/or adjacent to the proposed ROW; federal and state agencies; Native American tribes; non-governmental and environmental organizations; libraries; the media; and other potentially interested citizens.

We[1] held public scoping meetings in Cheyenne, Wyoming (June 7, 2004), Rawlins, Wyoming (June 8, 2004), Craig, Colorado (June 9, 2004), and Meeker, Colorado (June 10, 2004). During the same time period, we organized and conducted separate "agency scoping" meetings with federal and state agency representatives, and local officials to solicit input and coordinate our review of the proposed project. These meetings were held in Rawlins (June 8, 2004), Craig (June 9, 2004), and Meeker (June 10, 2004).

In addition to oral and written comments received during agency and public scoping meetings, the Commission received written comments during and after the close of the public scoping period (June 15, 2004). In total, 38 written correspondences[2] containing project comments were received. Each letter was evaluated and comments were divided into issue groups. When written comments were combined with oral meeting comments, 166 individual comments were received.

The draft EIS[3] was filed with the U.S. Environmental Protection Agency (EPA) and mailed to 862 federal, state, and local agencies, elected officials, Native American tribes, newspapers, public libraries, intervenors to the FERC's proceeding, and other interested parties. Four public meetings were held in the project area to receive comments on the draft EIS. These meetings were conducted in Cheyenne, Wyoming (April 11, 2005); Rawlins, Wyoming (April 12, 2005); Craig, Colorado (April 13, 2005); and Meeker, Colorado (April 14, 2005). Oral comments were received from 12 local agency officials, 1 company representative, 3 representatives of private organizations, and 4 individuals. Written comments were received from 4 federal agencies, 1 state agency, 6 local agencies, 1 company, 1 organization, 2 individuals, and the project applicant. The final EIS[4] was mailed to approximately 808 federal, state, and local agencies; elected officials, Native American tribes; newspapers; public libraries; intervenors to the FERC's proceeding; and other interested parties who provided scoping comments, commented on the draft EIS, or wrote to the FERC asking to receive a copy of the document.

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[1] We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects. Unless specifically identified otherwise, the recommendations and conclusions presented in the EIS are those of the FERC staff.

[2] Written correspondences included letters, Return Mailers (attached to our NOI), and electronic mail. The Commission also received one Congressional correspondence.

[3] Includes the stand-alone Executive Summary, which was sent to some recipients rather than the full draft EIS.

[4] Like the draft EIS, the final EIS was distributed to recipients either as a stand-alone Executive Summary or as a full EIS.

AREAS OF CONCERN RAISED BY COMMENTORS

Issues raised during scoping and during the comment period on the draft EIS included project purpose and need; scope of the analysis; alternatives; permits and regulations; construction procedures; land use issues; effects on soils, water, vegetation, wildlife, threatened and endangered species, cultural resources, and air quality; weed management; socioeconomic effects; noise impacts; public safety; cumulative impacts; and compensation and easement agreements. These concerns and others have been addressed in this EIS.

PROJECT IMPACTS

Table ES-1 summarizes impacts associated with the EPP.

Table ES-1
Summary of Environmental Impacts Associated with the Construction of the Entrega Project

Resource Area/Impact	Facilities
Total Project length (miles)	328.1
Total acres of land temporarily disturbed	5,371
GEOLOGY	
Potential active faults crossed	0
Miles of landslide potential[1]	89
Miles of Condition 1 geologic units crossed	123
SOILS	
Miles of prime farmland crossed	0
Miles of soil with significant inherent limitations for restoration[2]	290
WATER SUPPLY	
Number of major near-surface aquifer systems underlying the EPP	2
Number of designated sole source aquifers underlying the EPP	1
Number of springs located within 150 feet	2
Number of private water supply wells within 150 feet	12
Number of public water supply wells or wellhead projection areas within 400 feet	0
Number of surface water intakes within 3 miles downstream of waterbody crossings	2
WATER QUALITY	
Number of perennial stream crossings	43
Number of intermittent stream crossings[3]	352
Number of major river crossings[4]	4
Acres of wetland/riparian habitat disturbed during construction[5]	46
LAND USE	
Miles of federal land crossed	105
Miles of state/local land crossed	42
Acres of agricultural land temporarily disturbed	185
Number of residential structures located within 50 feet of construction ROW	1
Number of Special Interest Areas crossed[6]	13
VEGETATION AND WILDLIFE	
Acres of grasslands and shrublands affected by construction	4,746
Acres of riparian woodland affected by construction	224
Miles of big game habitat crossed	104
Number of sage grouse leks within 2 miles	38
Number of federally listed or proposed threatened or endangered plant species potentially affected due to ROW construction	4

Table ES-1 (Continued)

Resource Area/Impact	Facilities
Number of federally listed or proposed threatened or endangered plant species potentially affected due to downstream effects of water withdrawals	1
Number of BLM sensitive plant species potentially affected by ROW construction	6
Number of federally listed or proposed threatened or endangered wildlife species potentially affected due to ROW construction	4
Number of federally listed or proposed threatened or endangered wildlife species potentially affected due to downstream effects of water withdrawals	5
Number of BLM sensitive wildlife species potentially affected by ROW construction	17
FISHERIES	
Number of warmwater fisheries crossed	8
Number of coldwater fisheries crossed	24
Number of federally listed or proposed threatened or endangered fish species potentially affected due to ROW construction	1
Number of federally listed or proposed threatened or endangered fish species potentially affected due to downstream affects of water withdrawals	5
Number of BLM sensitive fish species potentially affected by ROW construction	4
CULTURAL RESOURCES	
Number of known sites within Area of Potential Effect (APE)	220
Number of recommended or eligible sites in Colorado/Wyoming	40/45
SOCIOECONOMICS	
Peak workforce size	1,470
Number of temporary new jobs created	1,940
Number of permanent new jobs created	6 - 8
Initial aggregate valuation for Colorado/Wyoming	$55.9 M/$47.0 M
Long-term aggregate valuation for Colorado/Wyoming	$22.4 M/$18.8M
AIR QUALITY	
Number of new compressor stations	3
Number of compressor stations requiring Prevention of Significant Deterioration (PSD) review	0
Number of Title V Major Sources	1
NOISE QUALITY	
Number of compressor stations meeting 55 dBA at property line	1
TRANSPORTATION	
Number of access roads[7]	225
Number of road and railroad crossings[8]	62
PUBLIC SAFETY	
Number of potential High Consequence Areas (HCAs)[9]	2
VISUAL RESOURCES	
Miles of Class I or Class II visual impacts[10]	0

1 Landslide potential exists if slope is >15%.
2 Inherent limitations include soils defined as highly erodible (wind and/or water), prime farmland, hydric, compaction prone, stony-rocky, shallow bedrock, and/or droughty.
3 Includes ephemeral streams, canals, and irrigation ditches.
4 Defined as river crossings greater than 100 feet.
5 Construction impacts are based on a 75-foot-wide ROW centered over the pipeline. Some wetlands are not crossed by the centerline but are located within the construction ROW.
6 An additional Special Interest Area (Medicine Bow National Forest) is approached, but not crossed, by the project.
7 All proposed temporary access roads already exist. The only proposed permanent access roads are short roads to aboveground facilities that would be within the permanent ROW.
8 Enumerated road crossings include only county roads and larger.
9 HCAs are OPS-defined areas where a pipeline accident could do considerable harm to people and their property.
10 Visual impacts classified using the BLM Visual Resource Management (VRM) designations.

Construction of the proposed EPP would disturb approximately 5,371 acres of land, including the pipeline construction ROW, additional temporary workspace areas, aboveground facility sites, and pipe storage and contractor yards. Approximately 2,074 acres of the 5,371 acres used for construction would be required for operation of the project. The remaining 3,297 acres of land would be restored and allowed to revert to former use.

Approximately 44 percent of the land affected by construction and operation of the EPP would be public lands and 56 percent would be private lands. Of the total public lands, the BLM manages 72 percent, the State of Colorado manages 12 percent, the State of Wyoming manages 10 percent, and local governments manage 6 percent.

Geology (Minerals, Geologic Hazards, Paleontology)

Project construction and operation would not alter existing topography because the construction ROW would be recontoured to match the adjacent terrain. The EPP would not interfere with oil and gas drilling, or any current active mining operations. Because the proposed pipeline would be located adjacent to existing pipelines where they cross shallow coal beds, construction of the EPP would not further reduce access to underlying coal. Potential for earthquake damage from ground shaking and subsidence is very low. Based on the operating experience of existing pipelines, pipeline damage could occur in Rio Blanco and Moffat Counties, Colorado from flash flood debris flows, and sinkholes near stream channels. No permanent aboveground facilities would be located within 100-year floodplains. The EPP would cross approximately 123 miles of geologic formations that contain vertebrate fossils, and noteworthy occurrences of invertebrate and plant fossils. Entrega has conducted pre-construction surveys, and would monitor pipeline construction to protect or recover important fossils.

Soils and Invasive Plant Species

The majority of the EPP would cross arid to semi-arid native rangelands underlain by shallow, droughty soils that are susceptible to wind and water erosion. Other constraints include rocky soils, and alkaline soils. The EPP would not cross prime farmland soils. Entrega would restore the productivity and surface drainage across approximately 15 miles of irrigated hay lands. Entrega would preserve topsoil by limiting soil stripping to the area over the pipeline trench; implementing best available erosion control practices included in its project-specific *Erosion Control, Revegetation, and Maintenance Plan* (Entrega's Plan) and the BLM Plan of Development (POD); and applying revegetation seed mixtures appropriate for the climate and land uses. We have supplemented Entrega's proposed mitigation with additional recommendations to address the control and spread of weeds along the ROW, including pre-construction weed treatments and continuing weed control along the ROW for the life of the project.

Water Resources

Entrega would not use groundwater during construction or operation. We have recommended that Entrega monitor water supply wells and systems near areas where blasting would be conducted, and restore any water supply wells/systems damaged by construction. The EPP would involve 43 perennial waterbody

crossings. We have recommended that Entrega reroute its pipeline to reduce the number of crossings of Piceance Creek. A horizontal directionally drilled (HDD) crossing would be done at two rivers (White River, Yampa River) to avoid adverse effects on a federally listed fish species. The remaining rivers and streams would be open-cut in accordance with Entrega's project-specific Wetland and Waterbody Construction and Mitigation Procedures (Entrega's Procedures) or site-specific waterbody crossing plans. In order to hydrostatically test the proposed pipeline, Entrega would use approximately 61.6 million gallons of water from six different rivers; just over half of the water would be obtained from the North Platte River under a purchase agreement with Bureau of Reclamation. The pipeline would cross about 4 miles of delineated wetlands. To minimize wetland impacts, measures from Entrega's Procedures would be implemented which we believe would provide a satisfactory level of environmental protection.

Vegetation

The EPP would disturb approximately 1,554 acres of grassland, 3,192 acres of shrublands, 212 acres of agricultural land (includes irrigated hayfields), and 224 acres of woodlands with the remaining acres consisting of open areas (areas displaying no vegetation characteristics such as bare rock or open water). Entrega would implement its project-specific Construction, Mitigation, and Reclamation Plan to stabilize and re-seed disturbed areas to restore wildlife and livestock grazing uses. Entrega would be required to implement site-specific measures to avoid or reduce the loss of larger trees in riparian woodland areas at stream and river crossings. We have recommended that Entrega commit to additional protective measures while crossing riparian woodlands and restoring these areas. Additionally, we have recommended that Entrega reroute the pipeline or directionally drill the Medicine Bow River to reduce impacts to riparian woodlands. Revegetation success along the ROW would be monitored for several years by the FERC and BLM staffs. Because of limited rainfall and high evaporation rates, native vegetation community recovery would be long-term, ranging from a minimum of 5 to 7 years in grasslands, 20 to 30 years in shrublands, and more than 50 years in woodland communities.

Fish and Wildlife

Entrega would construct across 32 different waterbodies in Colorado and Wyoming that support fish species, including 8 that support warmwater species and 24 that support coldwater species. Entrega would avoid bank and channel disturbance to the White and Yampa Rivers by using the HDD crossing method. The remaining streams and rivers would be open-cut (trenched) in accordance with Entrega's Procedures or site-specific crossing plans. Entrega would avoid construction of crossings during state agency coldwater and warmwater fisheries spawning periods. Open-cut crossings would cause short-term (usually 3 days or less) suspended sediment increases in stream and river channels.

Entrega proposes to withdraw hydrostatic test water from six perennial water sources (White River, Yampa River, Little Snake River, North Platte River, Rock Creek, and the Little Laramie River). Hydrostatic test water discharges could result in a change in water temperature and dissolved oxygen levels, increased downstream flows, and contribute to streambank and substrate scour. In order to minimize impacts to aquatic resources, Entrega would use energy dissipating devices and/or filter bags to prevent erosion, streambed scour, suspension of sediments, and excessive streamflow during test water discharge. Entrega

would discharge test water directly into surface waters unless otherwise authorized or required by its NPDES permits.

The EPP would disturb wildlife habitat, displace individual animals, and contribute to habitat fragmentation by expanding existing pipeline corridors. The proposed route would cross approximately 29 miles of critical elk, mule deer, and pronghorn winter habitat in Colorado; and 33, 51, and 8 miles of mule deer, pronghorn, and elk crucial winter habitat in Wyoming, respectively. In addition, the pipeline would cross three State Wildlife Areas (SWAs) in Colorado, and two Wildlife Habitat Management Areas (WHMAs) in Wyoming. Entrega would avoid construction within designated big game wintering areas during seasonal closure periods, and would install ditch plugs with ramps that would allow animals to cross over open ditch sections and escape from the ditch. Disturbed winter habitat areas would be re-seeded with mixtures approved by state wildlife agencies and the BLM. Our recommendations for big game ranges and ditch plug spacing would further reduce impacts on wildlife.

Entrega's proposed construction schedule would overlap the breeding season for many migratory birds. Entrega would conduct pre-construction raptor nesting surveys and would abide by appropriate buffer zones and seasonal construction restrictions to prevent or minimize impacts on nesting raptors. For other migratory bird species (particularly ground nesting birds), nests (eggs and young) could be lost because of surface disturbance. We believe that these losses would not result in long-term or significant population level impacts.

Special Status Species

We are requesting that the U.S. Fish and Wildlife Service (FWS) consider this EIS as the Biological Assessment for the proposed project. Our recommended protection measures and effects determinations are discussed below.

Five federally listed plant species (Colorado butterfly plant, Dudley Bluffs bladderpod, blowout penstemon, Dudley Bluffs twinpod, and Ute ladies'-tresses) could potentially occur within the pipeline construction ROW. Entrega would conduct pre-construction surveys to determine the potential presence of these species prior to construction. If listed plant populations are found, we have recommended that Entrega notify the FWS and FERC to determine the most appropriate methods for avoiding or minimizing the loss of individual plants. Based on Entrega-committed and our recommended protection measures, we have determined that the EPP may affect, but is not likely to adversely affect these plant species.

The proposed facilities would require construction across four major perennial rivers (the White, Yampa, Little Snake, and North Platte). Of these, Entrega has proposed to directionally drill the White and Yampa Rivers to avoid potential impacts to four federally listed fish species. The Colorado pikeminnow and its designated critical habitat are present at the proposed White and Yampa River pipeline crossings. Based on Entrega's HDD crossing plan and a seasonal construction timing window, we have determined that the EPP may affect, but is not likely to adversely affect this fish species or its critical habitat.

Populations of three other fish species (bonytail chub, humpback chub, razorback sucker) were determined to be greater than 30 miles downstream in both rivers, and therefore it is unlikely they would be affected by

river crossing activities. We have concluded that the EPP may affect, but is not likely to adversely affect these species or their critical habitat.

Entrega proposes to withdraw hydrostatic test water from the North Platte River, Little Laramie River and Rock Creek located within the Platte River Basin. The FWS has expressed concern about the potential downstream impacts on seven federally listed species (bald eagle, whooping crane, piping plover, Eskimo curlew, interior least tern, pallid sturgeon, and western prairie-fringed orchid) resulting from water depletions. We are requesting that the FWS determine whether the proposed water withdrawals and the return of the water to the same water sources would represent a depletion. If this temporary use is considered a depletion, we request that the FWS consider the EIS our initiation of formal consultation under Section 7 of the Endangered Species Act (ESA).

Entrega also proposes to withdraw hydrostatic test water from the Yampa River, White River, and Little Snake River within the Colorado River drainage. Hydrostatic test water withdrawals would be subject to seasonal restrictions, and potentially would be subject to payment of Colorado River threatened and endangered fish recovery fees. We are requesting that the FWS determine whether the proposed water withdrawals from these rivers and the return of this water to the same water sources would represent a depletion. If this temporary use is considered a depletion, we request that the FWS consider the EIS our initiation of formal consultation under Section 7 of the ESA. We also have recommended that Entrega coordinate with the FWS on the timing of water withdrawal from these rivers to avoid or minimize potential impacts to Colorado River endangered fish species.

One federally listed amphibian (Wyoming toad), one bird (bald eagle), and two mammals (black-footed ferret, Preble's meadow jumping mouse) potentially occur in the project area. Based on known occurrence patterns, and Entrega-committed and our recommended habitat and population protection measures, we have determined that the EPP may affect, but is not likely to adversely affect the bald eagle, black-footed ferret, and Preble's meadow jumping mouse. We have determined that the EPP would not affect the Wyoming toad.

The EPP would cross within 2 miles of 38 historic sage grouse leks (strutting grounds). To prevent disruption of breeding activities, pre-construction surveys would be completed to determine active lek sites. Entrega would avoid construction between March 1 and June 30 where the pipeline would be located within 2 miles of an active lek site. In addition, we recommend that Entrega minimize habitat impacts to lek sites by reducing the width of the ROW to 75 feet within 0.25 mile of a lek. Entrega would not construct aboveground facilities within 0.25 mile of a lek. Appropriate seed mixtures would be applied to recover sage grouse habitat.

The EPP could potentially affect BLM sensitive species, including 6 plants, 6 mammals, 8 birds, 2 amphibians, 1 reptile, and 4 fish. Based on Entrega-committed protection measures and our analysis, we have concluded that while there may be effects on individuals, construction and operation of the EPP would not cause a trend toward federal listing or loss of species viability.

Land Use, Recreation, and Visual Resources

The primary land use crossed by the EPP would be rangeland that is used for livestock grazing. The proposed construction work area (i.e., the construction ROW and temporary additional workspaces) would not be located within 50 feet of any occupied residences. A total of 5,371 acres would be disturbed during construction, and 2,074 acres would be dedicated to pipeline utility uses for the project life. Of this area, 83 acres would underlie aboveground facilities (compressor stations, metering stations, and associated powerlines). The remainder of the land commitment would be for the operational pipeline ROW. The EPP would conform to existing federal land use plans, and would acquire required permits and approvals to construct across state lands. The proposed pipeline would cross approximately 1 mile of a planned development near Laramie, Wyoming. The pipeline would be located within an existing utility corridor where it crosses this proposed development.

The EPP would not cross or affect any developed recreation areas. In Colorado, the project would cross three Colorado Division of Wildlife (CDOW) management areas. In Wyoming, the proposed pipeline would cross six BLM special management areas and two Wyoming Game and Fish Department (WGFD) WHMAs. Pipeline construction could overlap with summer use of these special management areas, and may extend into the fall big game hunting seasons. Entrega would coordinate with the agency owners of these areas to minimize conflicts with recreational user access to these areas. We have recommended that Entrega develop and implement a plan to avoid conflicts with recreational boater use at the North Platte River crossing site.

The EPP would generally be located in remote rural areas of Wyoming and Colorado, and would be located in or immediately adjacent to existing pipeline utility corridors over nearly its entire route. The EPP would be consistent with BLM Class III and IV Visual Resource Management (VRM) criteria. Entrega has agreed to additional mitigation measures (including construction ROW width reduction) to decrease the visibility of the pipeline ROW to the public in two sensitive areas (the North Platte River crossing at milepost [MP] 192.8, and the SeaWest Windfarm at MP 236.2). Proposed aboveground facilities (compressor stations, metering and pigging facilities) would be located near other existing aboveground facilities. An exception is the Bighole Compressor Station, which would be located in a remote rural location next to a Moffat County, Colorado road on private land. Aboveground facilities would be painted with a color(s) that would conform to the applicable BLM VRM standards.

Cultural Resources

Cultural resource inventories have been conducted along the proposed route. The surveys identified 73 cultural resource sites in Colorado, and 147 sites in Wyoming within the surveyed area. Of these sites, 40 sites in Colorado and 45 sites in Wyoming have been recommended or have been officially determined eligible for listing on the National Register of Historic Places (NRHP). Entrega is currently conducting surveys to determine reroute options to avoid known or potentially NRHP-eligible sites. Additional investigations are recommended at a number of cultural resource sites to determine their NRHP eligibility. One access road in Colorado remains to be surveyed.

The process of fully complying with Section 106 of the National Historic Preservation Act has not yet been completed for the EPP. Surveys and evaluative testing have not been completed and reroutes to avoid eligible sites have not been finalized. Once evaluations are complete and it has been determined which sites can or cannot be avoided, the FERC, in consultation with the BLM and the State Historic Preservation Offices (SHPO), would make final determinations of NRHP eligibility and project effects. If historic properties would be adversely affected, a treatment plan to mitigate any adverse effects would be prepared in consultation with the appropriate parties. Once a treatment plan is approved, Entrega would implement the specified treatment measures before notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after certification of the proposed project. The FERC would ensure that treatment is carried out.

Socioeconomics and Transportation

Entrega proposes to employ between 1,000 and 1,100 workers in two workforces (spreads) to construct the Meeker Hub-to-Wamsutter pipeline segment in the summer and fall of 2005. The Wamsutter-to-Cheyenne Hub pipeline segment would be constructed in two spreads during the summer and fall of 2006, with a peak workforce of approximately 1,470 workers that includes construction of the 3 compressor stations scheduled for late 2006 and early 2007. The dispersed construction would reduce the number of workers requiring temporary housing in the vicinity of pipeline work areas. We anticipate that temporary housing would be very limited in Rio Blanco and Garfield Counties, Colorado, based on the quantity of temporary housing and ongoing energy development activities.

We anticipate increased short-term demand for public services, particularly for emergency medical response. Long-term demands for public services would not occur because of the small operational workforce. Local communities would receive short-term benefits from worker goods and services expenditures, and long-term benefits from property taxes. The aggregate assessed valuation for pipeline and aboveground facilities was estimated to be $102.9 million, of which 46 percent of the value would be in Wyoming, and 54 percent in Colorado. Total annual property tax on this aggregate valuation was estimated to be $6.0 million. These tax revenues would typically be used by local and state governments for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community.

Entrega would acquire land for its pipeline through easement agreements with private landowners. Potential impacts on land values from construction of a new pipeline are highly site-specific. Permanent structures could not be built over the pipeline, but existing land uses, such as livestock grazing, could continue as before. Our analysis concludes that there would be no disproportionate economic or public safety effects on minority or low-income communities because of EPP construction and operation.

Entrega would limit delays and damage to state and federal highways by boring beneath them. Smaller roads would be trenched, which would cause short-term delays. Construction of the EPP would utilize a variety of secondary roads. Use of these roads would be subject to weight restrictions. The roads acceptable for use, traffic management procedures, and the procedures for repairing BLM, county, and state roads are included in Entrega's Traffic and Transportation Management Plan.

Air Quality and Noise

Construction of the pipeline and aboveground facilities would generate short-term fugitive dust during clearing and grading activities, and along roadways. Entrega has committed to control fugitive dust using water and/or approved chemical dust suppressants. Entrega would install natural gas-fired compressors at three new compressor stations (two in Colorado, one in Wyoming). Entrega would acquire operating permits from Colorado and Wyoming from air quality permitting agencies, which may impose permit conditions to ensure that compressor station operations would meet air quality standards.

The three compressor stations would be located in rural locations. The nearest noise-sensitive area (NSA) to the Bighole and Wamsutter Compressor Stations would be over 1.5 miles away, while the Meeker Hub Compressor Station would be located about 2,000 feet from the nearest NSA. Entrega would be required to meet our 55 decibels on the A-weighted scale (dBA) standard and conduct noise measurements when operations begin to verify compliance. In order to minimize potential impacts to surrounding wildlife, Entrega has committed to limit noise levels attributable to compressor station operation to a day-night (average sound) level (L_{dn}) of 55 dBA at the property line of the Bighole Compressor Station.

Reliability and Safety

Entrega would comply with U.S. Department of Transportation pipeline materials and construction standards for natural gas pipelines. Where located in a utility corridor with other pipelines, the Entrega pipeline would be typically offset a minimum of 40 feet from adjacent pipelines, which greatly reduces the risk of pipeline damage from any repair activities on adjacent pipelines. After construction, Entrega must initiate a pipeline integrity management plan. As part of its plan, Entrega must identify high consequence areas (HCAs), which are typically residential areas, or areas where people congregate. Two potential HCAs were identified: the Rio Blanco Lake SWA on the White River (MP 15.5), and the Wyoming State Penitentiary at Rawlins (MP 179.0). The portions of the pipeline located in HCAs would be inspected every seven years. The rate of public fatalities for the nationwide mix of transmission and gathering lines in service is 0.01 per year per 1,000 miles of pipeline. Using this rate, an EPP accident might cause a public fatality every 305+ years.

Cumulative Impacts

We identified existing and foreseeable projects that overlap, or could overlap with the EPP in time and space throughout the length of the pipeline. The major existing projects are one or more existing pipelines that the EPP would parallel over nearly the entire length of the pipeline. The major foreseeable projects are:

- EnCana's Meeker Pipeline and Gas Plant Project, located in Rio Blanco and Garfield Counties, Colorado; and
- Wyoming Interstate Company, Ltd.'s (WIC) Piceance Basin Expansion Project (PBEP), a 24-inch-diameter natural gas pipeline that would be constructed in the same pipeline corridor as the EPP over a distance of about 94 miles. The following are the primary cumulative impacts identified:

1. Construction of the EPP would expand the width of existing pipeline corridors, particularly where the Entrega and WIC pipelines would be routed adjacent to one another or within the same existing pipeline corridor. There would be a corresponding expansion of wildlife habitat discontinuities in shrubland and woodlands, which may inhibit or limit wildlife movements, and increase predation rates on certain species, such as sage grouse.

2. Construction of the proposed pipeline would coincide with construction of up to four EnCana pipelines over a 2.5-mile-long segment along Piceance Creek, which would result in short-term cumulative surface disturbance impacts to stream channels, wetlands, and irrigated pasturelands.

3. The pipeline construction workforces for the EPP and PBEP could overlap between the Yampa River and Wamsutter during the summer and fall construction seasons of 2005, which could cause cumulative increases in short-term demand for temporary housing, and local congestion on secondary roads that would be used by both projects.

ALTERNATIVES CONSIDERED

We have considered the No Action or Postponed Action Alternative, which would deny or defer the proposed project. While these alternatives would eliminate the environmental impacts identified in this EIS, they also would deny U.S. markets access to the 1.5 Bcfd of natural gas which the EPP would transport.

We evaluated possible system alternatives including the use of other existing pipeline systems or the use of the WIC's proposed PBEP. Existing interstate natural gas pipelines that traverse the Piceance Basin are currently fully subscribed. No other existing pipeline system could be expanded without causing surface disturbance comparable to that resulting from construction of the EPP. Use of the PBEP as proposed would not meet Entrega's purpose and need because the pipeline would terminate at Wamsutter rather than continuing on to the Cheyenne Hub.

We also considered the option of combining the Entrega and WIC pipelines into a single pipeline. While attractive in concept, given the increased drilling activity over the past few years and the projections of increased gas production in the Uinta-Piceance Basin, construction of two pipelines would provide more flexibility for future expansion when compared to one pipeline.

Transportation of the volumes of gas associated with both projects would approach Entrega's maximum allowable operating pressure (MAOP). Additional gas could only be transported by adding more horsepower at intermediate compressor stations (midway between Meeker Hub and Bighole and between Bighole and Wamsutter). As the system approaches its MAOP, this scenario becomes uneconomic and a pipeline loop would be proposed. However, if both the Entrega and Piceance Basin Expansion Pipelines were constructed, both could be economically expanded when future production becomes available. We also note that the "one-pipe" alternative would present a number of other challenges and that melding the various factors and requirements (receipt points and pressures, delivery points and pressures, scheduling terms and conditions etc.) of each individual system into a common system would be extremely difficult.

We evaluated the differences in environmental impacts if the PBEP route were substituted for the initial 33.2 miles of Entrega's pipeline (PBEP Route Alternative). This alternative would require construction of a 7-mile-long linking pipeline between Piceance Creek and the Greasewood Hub. Entrega's proposed pipeline would then follow the PBEP route to Entrega MP 33.2. We determined that pipeline construction along the PBEP route as compared to Entrega's proposed route would result in more overall surface disturbance because of the greater length of the PBEP, more disturbance in shrublands and woodlands that recover slowly, and more disturbance to big game and sage grouse winter ranges. However, following the PBEP route would not require any crossings of Piceance Creek and associated irrigated pastures and wetlands. We conclude that, with the recommended route realignments to reduce the number of crossings of Piceance Creek, Entrega's proposed route would be the preferred route.

As an extension of the PBEP route alternative analysis, we examined two alternatives for collocating the proposed Entrega and WIC projects in the same 150-foot-wide construction ROW between the origin of each project and Entrega MP 33.2 (Collocation Alternative – Danforth Hills South). One alternative would collocate both projects along the EPP route; the second alternative would collocate both projects along the PBEP route. Both alternatives would require construction of a 7-mile-long linking pipeline between the proposed Greasewood and existing Meeker Hub. We determined that collocation would reduce overall surface disturbance relative to constructing the two projects separately along the respective proposed routes. As described for the PBEP route alternative, we found that resource effects differed when the two collocation alternatives were compared. Following the EPP route along the Piceance Creek valley would result in multiple crossings of Piceance Creek, and a larger disturbance in irrigated pasture and haylands, which are expected to recover quickly. Constructing along the PBEP route would avoid impacts on Piceance Creek and the associated floodplain, but would remove much larger areas of shrublands and woodlands, which recover slowly. Use of the PBEP route also would affect a larger area of winter big game and sage grouse ranges. The two separate routes that Entrega and WIC have proposed between MPs -0.5 and 33.2 are a direct result of each project having a different starting point. Each applicant proposed a route that largely circumvents Colorow Mountain. Based on terrain, safety, and ROW constraints, the simultaneous construction of these projects within a 150-wide ROW is not possible. Increasing the ROW width (not an option in all areas due to topography) would increase the impact on the resources used in our comparison, and reduce any advantages of the Danforth Hills South Collocation Alternative. We conclude that, with the recommended route realignments to reduce the number of crossings of Piceance Creek, Entrega's proposed route would be the preferred route.

We also examined a collocation alternative north of the Yampa River, where we evaluated the extent to which long-term disturbance of sage grouse habitat could be reduced by collocating the two projects in the same 150-foot-wide ROW (Collocation Alternative – Danforth Hills North). We estimated that 254 less acres of sage grouse habitat would be disturbed if the two projects were collocated across 31 miles of sage grouse breeding and brooding habitat north of the Yampa River. There are a number of construction constraints in this area. We determined that Entrega's proposed route would be the preferred route.

Four minor route variations (Pine Tree Gulch Variation, Park Meadows Variation, Cheyenne Hub and Piceance Creek Variations) from Entrega's originally-proposed route were reviewed. Use of the Pine Tree Gulch Variation would avoid livestock water developments and productive grazing land along a stream

drainage, which were issues raised by the affected landowner. Entrega has adopted this variation as its proposed route.

We determined that the Park Meadows Variation was not environmentally advantageous because the variation is longer (more surface disturbance), would be more difficult to revegetate, and, by deviating from the existing pipeline/utility corridor would create future land use constraints on an adjacent landowner.

Based on a landowner request, Entrega developed two Cheyenne Hub Variations (A and B). Variation A would terminate the EPP on the south side of the existing Cheyenne Compressor Station rather than the north side, as proposed. Variation B would parallel the proposed route and terminate on the north side of the existing compressor station, but at a slightly more southerly location compared to the proposed route. The primary considerations involve land ownership (private versus public); expansion of utility uses north of the Hub; new surface disturbance versus use of the existing pipeline corridor; and construction issues (the number of existing utilities that would be crossed by delivery laterals associated with the EPP). Since the draft EIS, Entrega has adopted Variation A as its new proposed route.

Following our examination of the first 14 miles of Entrega's route along the Piceance drainage, we recommended realignments, which would reduce the number of Piceance Creek crossings from 11 to 6.

The possibility of relocating the Bighole Compressor Station was evaluated; however, no alternative site offered a clear environmental advantage over the proposed site. Consequently, no alternative site is recommended.

SIGNIFICANT UNAVOIDABLE IMPACTS

The project would result in limited adverse environmental impact. Effects on all environmental resources were evaluated to determine any significant impact that would remain so after application of the mitigation proposed by Entrega. We then considered practical, appropriate, and reasonable measures which would further reduce potential project-related impacts. As a result, we developed additional mitigation which we are recommending be included as specific conditions to any Certificate issued by the Commission. Our analysis indicates that with the application of Entrega's mitigation and implementation of our recommendations below, the proposal would result in no significant impact that is unavoidable. Further, we believe that all environmental impacts would be reduced to less than significant levels if the proposed and recommended mitigation is fully implemented.

CONCLUSIONS

The conclusions and recommendations presented in this section are those of the FERC environmental staff. While our conclusions and recommendations were developed with input from the BLM as a cooperating agency, the BLM will present its own conclusions and recommendations in its ROD for the EPP.

Review of the information provided by Entrega and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies, and individual members of the public indicate that the proposed project would result in limited

adverse environmental impact during construction and operation. We conclude that if the project were constructed and operated in accordance with applicable laws and regulations, Entrega's proposed mitigation, and additional mitigation recommendations, it would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 94 percent of the proposed pipeline would be located within 300 feet of existing pipeline, utility, and road ROWs. Where Entrega's proposed pipeline would parallel existing pipelines, it would generally be installed at a 40-foot offset from the nearest pipeline centerline;
- the project would be consistent with or in conformance with federal resource management plans;
- Entrega would implement a number of resource- or activity-specific plans, procedures, and agreements to protect natural resources, avoid or limit environmental impact, and promote restoration of all disturbed areas during construction and operation of the project;
- the use of the HDD method would avoid disturbances to the beds and banks of the White and Yampa Rivers;
- the appropriate consultations with the FWS, the SHPOs, the BLM, other affected land management agencies, and any appropriate compliance actions resulting from these consultations, would be completed before Entrega would be allowed to begin construction in any given area; and
- an environmental inspection program would be implemented to ensure compliance with all mitigation measures, Certificate conditions, and requirements contained in the POD.

In addition, we have developed specific mitigation measures (including a compliance monitoring program) to further reduce the environmental impact that would otherwise result from construction of the project. The additional studies or field investigations which we recommend typically result in site-specific mitigation and further reduction of impact; therefore, we are recommending that these mitigation measures be attached as conditions to any Certificate issued by the Commission.

INTRODUCTION

CHAPTER 1

1.0 INTRODUCTION

1.1 Background

On September 17, 2004, Entrega Gas Pipeline Inc. (affiliate of EnCana Oil and Gas USA, Inc. [EnCana]) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) in Docket Nos. CP04-413-000, et al., to construct, own, and operate a new natural gas transmission system in Colorado and Wyoming.[1] In its filing, Entrega Gas Pipeline Inc. (Entrega) seeks a Certificate of Public Convenience and Necessity (Certificate) under Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. The Commission's environmental staff has prepared this final environmental impact statement (EIS) to assess the environmental impact resulting from construction and operation of the facilities proposed by Entrega in accordance with the requirements of the National Environmental Policy Act (NEPA).

The vertical line in the margin identifies text that has been modified in this final EIS and differs from the corresponding text in the draft EIS.

Entrega's proposal, referred to in this EIS as the Entrega Pipeline Project (EPP) would involve construction and operation of about 328.1 miles of 36- and 42-inch-diameter natural gas pipeline, 66,020 horsepower of compression at three new compressor stations, seven new meter stations, and related facilities. The pipeline would extend from the Piceance Basin (the "Meeker Hub") in Rio Blanco County, Colorado, northward to Wamsutter, Wyoming, and then proceed eastward roughly following Interstate 80 (I-80) past Rawlins, Laramie, and Cheyenne, Wyoming, to terminate at the Cheyenne Hub (near Rockport) in Weld County, Colorado (**figure 1.1-1**). Entrega proposes to transport up to 1.5 billion cubic feet per day (Bcfd) of Rocky Mountain region natural gas from the Meeker Hub Compressor Station to interconnections with two interstate transporters at Wamsutter and three interstate transporters at the Cheyenne Hub.[2] With these interconnections, the EPP would deliver gas into the nationwide transmission network with access to large markets west of Wamsutter and east or south of the Cheyenne Hub. By constructing a 42-inch-diameter segment between Wamsutter and the Cheyenne Hub, the EPP would provide additional capacity for volumes traveling either to mid-continent/eastern markets or westward.

Entrega proposes to begin project construction in the late summer of 2005, with desired in-service dates of January 1, 2006, for the segment between the proposed Meeker Hub and Wamsutter Compressor Station (about 136 miles). Construction of the pipeline segment between the Wamsutter Compressor Station and the Cheyenne Hub (about 191.5 miles) would be initiated in 2006 and be completed prior to the end of the year. Entrega proposes to initiate construction of the three compressor stations in September 2006 with an in-service date of April 2007.

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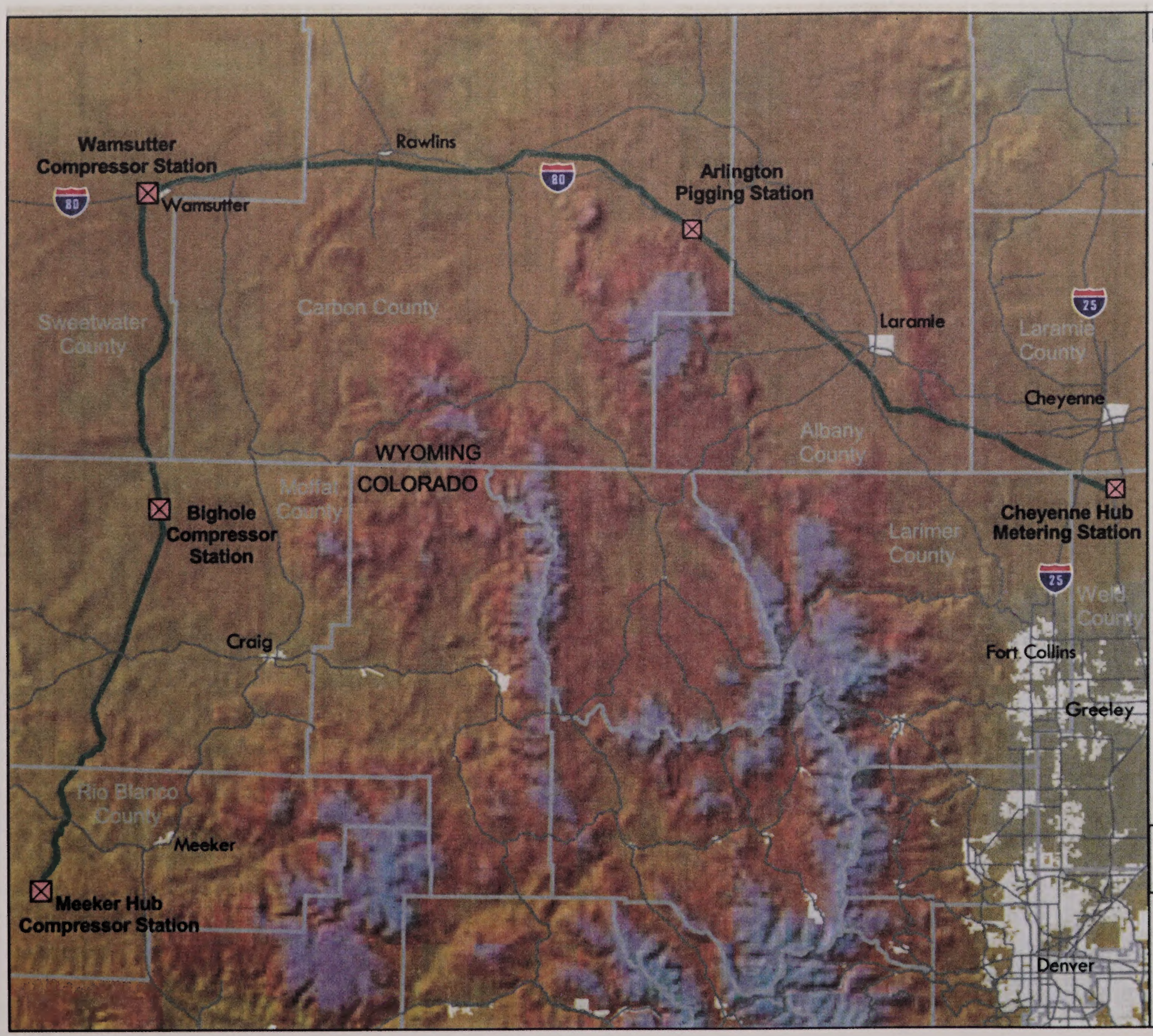
[1] Entrega Gas Pipeline Inc. also requested in Docket Nos. CP04-414-000 and CP04-415-000 that the FERC grant certificates for blanket-type transportation of natural gas, and construction and operation of certain facilities under Parts 284 and 157 of the FERC's regulations, respectively. Under the FERC's regulations, these dockets qualify for categorical exclusions with no environmental analysis required (see Title 18 of the Code of Federal Regulations, Part 380).

[2] Entrega also proposed to interconnect with Public Service of Colorado (PSCo) at the Cheyenne Hub. PSCo is a local distribution company, which provides natural gas to the Denver regional market.



LEGEND

- Proposed Facility
- City or Town
- Proposed Pipeline
- Road
- County Boundary

Meeker Hub Station
- compressor station
- metering station
- pig launcher

Bighole Station
- compressor station
- pig launcher/receiver

Wamsutter Station
- compressor station
- metering stations
- pig launcher/receiver

Arlington Station
- pig launcher/receiver

Cheyenne Hub Station
- metering stations
- pig receiver

12.5 0 12.5 Miles

Entrega Pipeline Project

Figure 1.1-1

Project Overview

5/12/05

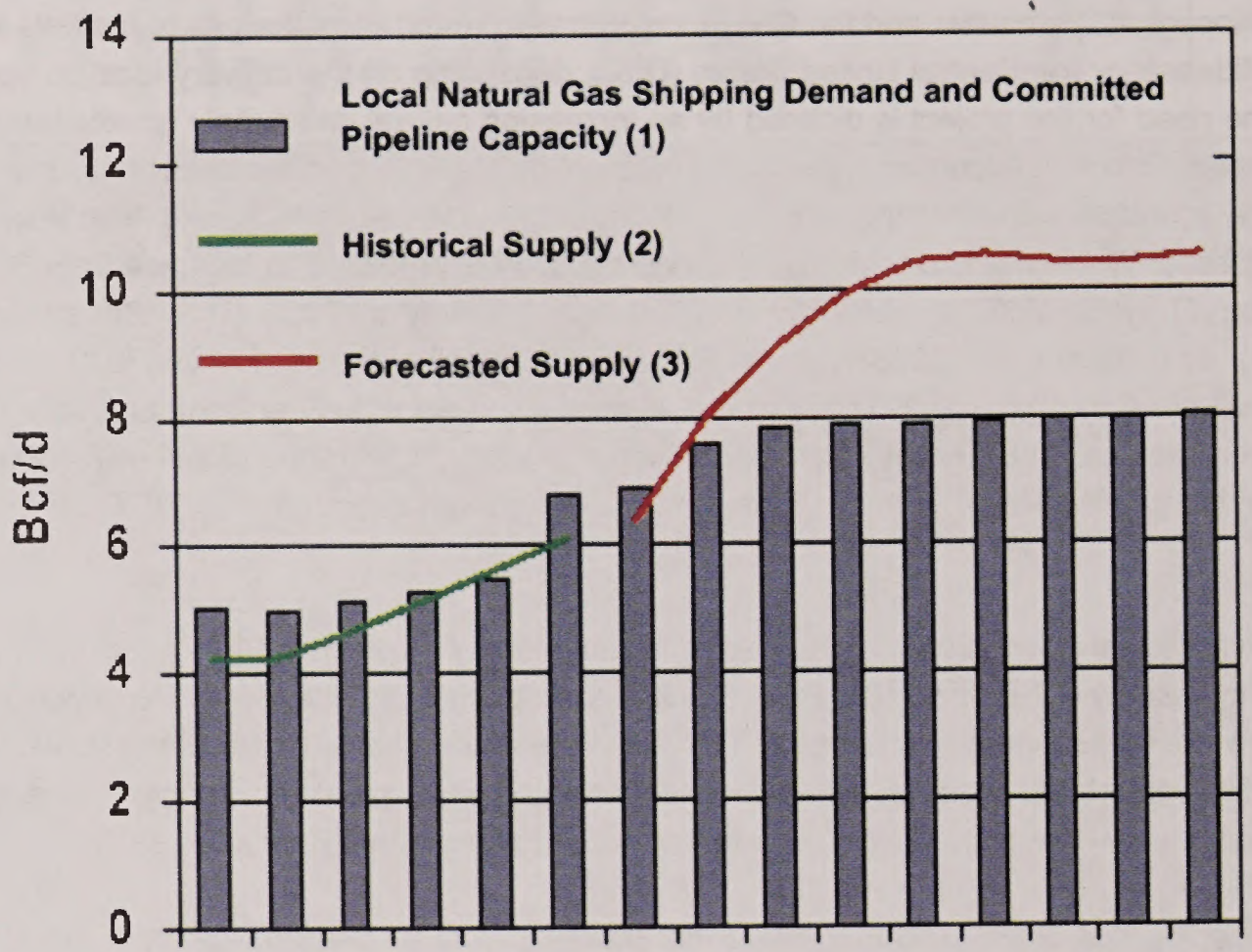
1.2 Project Purpose and Need

The purpose of the EPP is to transport natural gas from supply basins in the central Rocky Mountains to interstate shippers at Wamsutter and the Cheyenne Hub who would carry the gas to markets ~~in~~ either in the West, the Midwest, or the Central United States (U.S.), depending on the delivery location specified by the shipper.[3] The need for the project is dictated by an increasing natural gas supply (production) in the Rocky Mountain region, which is occurring without a concurrent increase in pipeline capacity to transport this gas out from the production basins and into the interstate pipeline network. Rocky Mountain region (New Mexico, Colorado, Wyoming, Utah, Montana) gas production is predicted to increase from 3.3 trillion cubic feet per year (Tcfy) in 2002 to 4.6 Tcfy in 2010 and 6.3 Tcfy in 2025 (U.S. Department of Energy [DOE] 2004). This mirrors the 2003 National Petroleum Council estimate that by 2020, Rocky Mountain production will grow by 50 percent. This increase in production will offset declining production in other U.S. gas producing regions. The Energy Information Administration (2005) estimates that the Rocky Mountain region will make up 38 percent of the nations lower-48 natural gas production by 2025, up from 27 percent today.

Entrega forecasts that from 2004 to 2010, Rocky Mountain region production (not including the San Juan Basin) will increase by 3.7 Bcfd to 10.3 Bcfd. Pipeline exit capacity is not expected to match the increase in gas production over this time period. **Figure 1.2-1** illustrates Entrega's estimate of the relationship between the Rocky Mountain region gas supply increase and committed pipeline capacity. As shown, Entrega estimates that there will be a shortfall of pipeline capacity of more than 2 Bcfd after 2007.

Entrega's shipping customer, EnCana, would be supplying gas to the pipeline from the Uinta-Piceance Basin region of Rio Blanco, Garfield, and Mesa Counties, Colorado. The U.S. Geological Survey (USGS) (2002) assessed undiscovered conventional oil and gas and continuous (unconventional) oil and gas, including coal-bed gas within the Uinta-Piceance Basin. This assessment estimated that 21 trillion cubic feet of gas remains undiscovered. During the same timeframe (2002), the Potential Gas Committee (Colorado School of Mines) estimated undiscovered natural gas reserves at 30.7 trillion cubic feet within the Uinta-Piceance Basin. **Figure 1.2-2** illustrates recent annual gas production trends in Rio Blanco, Mesa, and Garfield Counties, where EnCana conducts the majority of its gas production and gathering in Colorado (Colorado Oil and Gas Commission 2004). The graphs indicate relatively flat production over the past 5 years in Rio Blanco and Mesa Counties, and strongly increasing production in Garfield County. Assuming that Entrega's initial transportation volume is 750 million cubic feet per day (MMcfd), the annual transported volume would be almost 274 billion cubic feet (Bcf). This volume represents about 143 percent of the total annual volume (192 Bcf) produced by these three counties in 2003. **Figure 1.2-2** also indicates that the fraction of the three-county production contributed by EnCana in 2003 was about 73 Bcf per year, or almost 27 percent of a 750-MMcfd shipping rate. This comparison suggests that production must substantially increase within the existing shipper's fields, and additional gas would be needed from other shippers to

[3] As an interstate transporter, Entrega would accept gas at a location(s) designated by a shipper and deliver the gas at a downstream location(s) specified by the shipper. Entrega would not own the gas it transports, nor would it contract for the sales of the gas transported on its system. The shipper would contract with as many interstate transporters as necessary to reach the delivery location specified by the gas buyer.



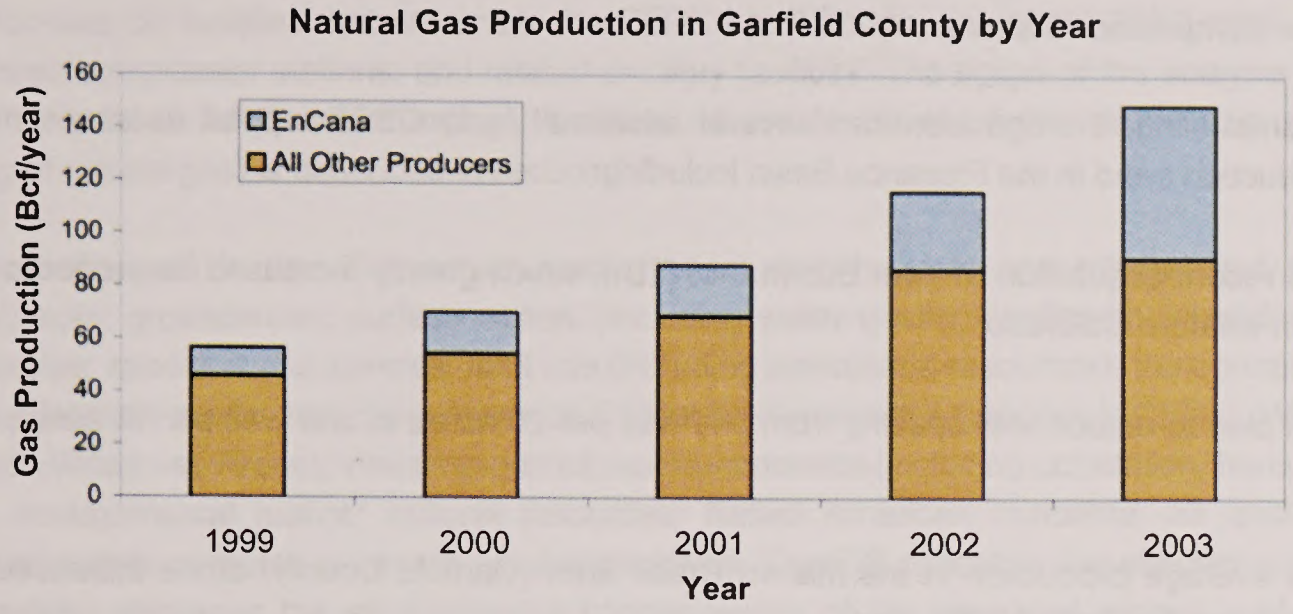
(1) Natural Gas Shipping Demand and Committed Pipeline Capacity – Historical demand from EIA; Committed pipeline capacity from EnCana Oil & Gas (USA) Inc.

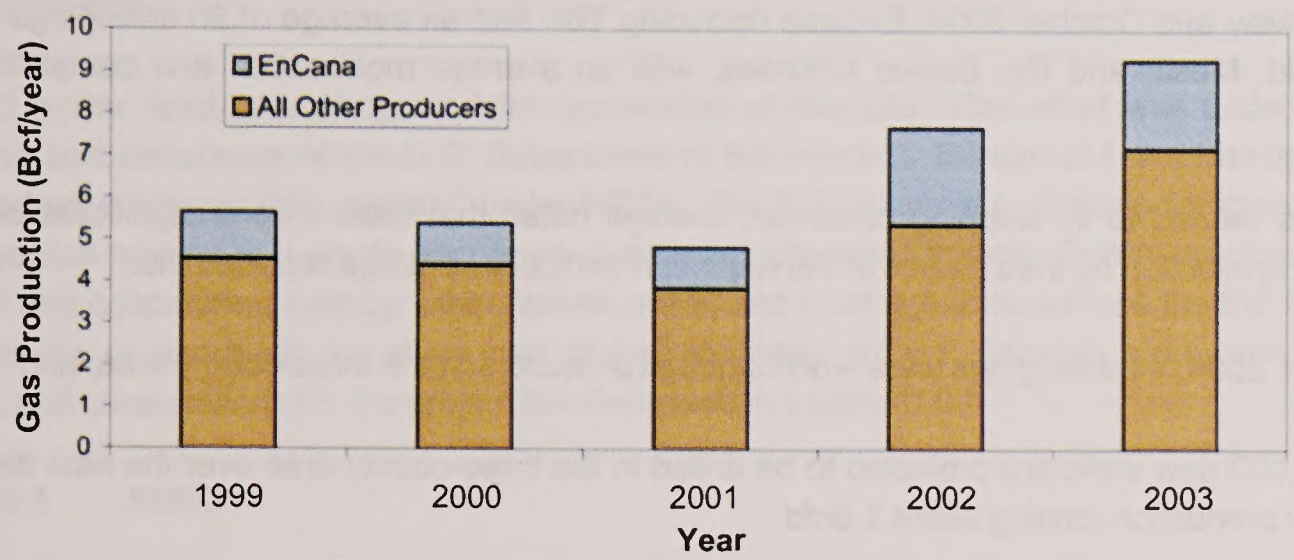
(2) Historical Supply – Wellhead Supply from Lippman Consulting Inc. (February 2004) and assumed 15.97% average gathering and processing fuel, loss and shrinkage.

(3) Forecasted Supply from PACE Global Energy Services – Wyoming Pipeline Study (February 2003).

Source: Entrega, FERC Application, Exhibit H.

Figure 1.2-1 **Rockies Natural Gas Supply vs. Local Natural Gas Shipping Demand and Committed Pipeline Capacity**





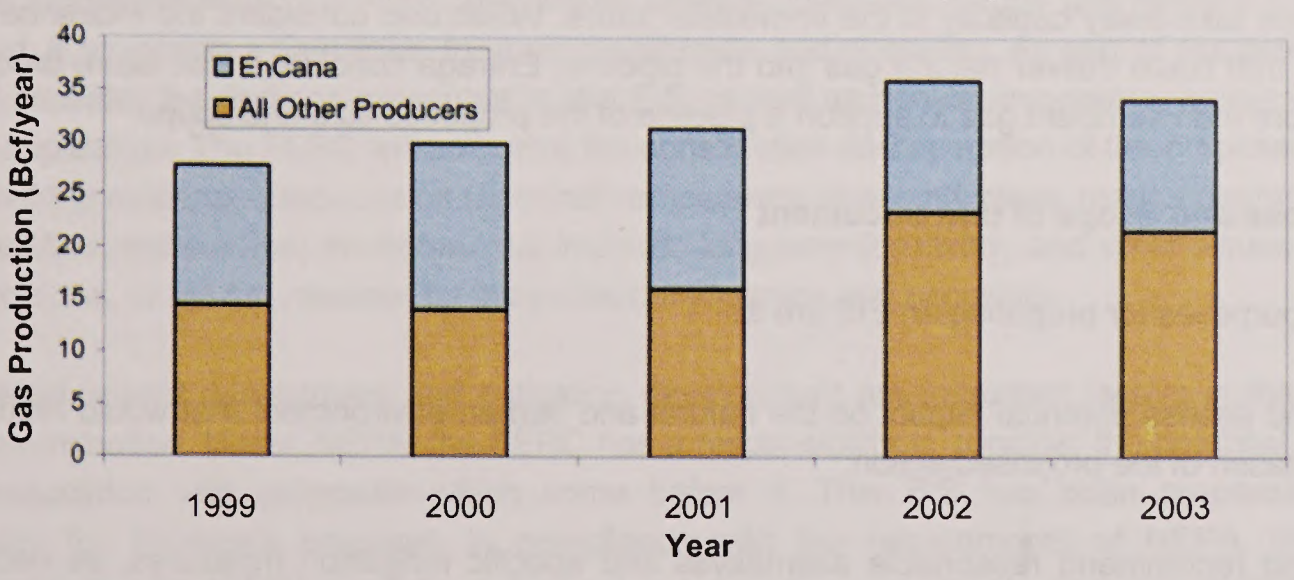


Figure 1.2-2 **Natural Gas Production in Garfield, Mesa, and Rio Blanco Counties, Colorado, from 1999 through 2003; and the Relative Contribution from EnCana Oil and Gas, USA**

reach Entrega's maximum design transportation capacity of 1.5 Bcfd between the proposed Meeker Hub and Wamsutter Compressor Stations.

In a supplemental filing, Entrega identified several additional factors that support its assessment of an increasing production trend in the Piceance Basin including:

- EnCana's recent acquisition of Tom Brown Inc. (TBI), which greatly increased its production property holdings in western Colorado;
- EnCana's plan to reduce well spacing from one well per 20 acres to one well per 10 acres, using infill drilling;
- EnCana's average production in the Mamm Creek area (Garfield County) alone increased by about 75 MMcfd in the first half of 2004; and
- between May and October 2004, EnCana (including TBI) had an average of 20 drilling rigs per month in Garfield, Mesa, and Rio Blanco Counties, with an average mobilization and completion time of 20 days.

Beyond factors related to its shipping customer, Entrega noted that there also is significant potential for increased gas production by third parties in the region. In particular, Entrega reported that:

- in October 2004, 44 drilling rigs were working for all producers in the three-county area; and
- about 10,000 new wells are projected to be drilled in the three-county area over the next decade, with additional production totaling about 3 Bcfd.

Overall, Entrega believes these factors demonstrate that production in the Piceance Basin will outstrip regional pipeline take-away capacity in the immediate future. When one considers the Piceance and other supply basins that could deliver natural gas into the pipeline, Entrega concludes that future production will easily yield more than sufficient gas to support a pipeline of the proposed size and scope.

1.3 Purpose and Scope of this Document

The principal purposes for preparing an EIS are to:

- identify and assess potential impact on the natural and human environment that would result from the implementation of the proposed action;
- identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize project-related environmental impact; and
- facilitate public involvement in the environmental review process.

This EIS focuses on facilities that are under the FERC's jurisdiction, i.e., about 328.1 miles of natural gas pipeline, three compressor stations, and related ancillary facilities. The scope of the analysis of facilities not under the jurisdiction of the FERC (e.g., facilities related to development, production, gathering, and processing of natural gas) is described in section 1.5.

The topics addressed in this EIS include geology (including hazards and mineral and paleontological resources); soils; groundwater; surface waters (including water quality); wetlands; vegetation; wildlife and aquatic species; special status species; land use (including agricultural resources); transportation; recreation and special interest areas (including Areas of Critical Environmental Concern [ACECs], Wild and Scenic Rivers, and Wilderness Areas); visual resources; socioeconomics (including population, housing, and public services); environmental justice; cultural resources; Native American concerns; air quality and noise; reliability and safety; cumulative impacts; and alternatives. The EIS describes the affected environment as it currently exists, discusses the environmental consequences of the proposed project, and compares the project's potential impact to that of alternatives. The EIS also presents recommended mitigation measures and our[4] conclusions.

The FERC is the "lead federal agency" for preparation of this EIS. This effort was undertaken with the participation and assistance of the U.S. Department of the Interior's Bureau of Land Management (BLM), which acted as a "cooperating agency" under NEPA. The EIS will provide a basis for coordinated federal agency decision-making in a single document, avoiding duplication between federal processes. In addition to the lead and cooperating agency, other federal, state, and local agencies will use the EIS in approving or issuing permits or approvals for all or part of the proposed project. Federal, state, and local permits, approvals, and consultations for the project are discussed in section 2.8.

1.3.1 FERC

The FERC is the federal agency responsible for regulating the transportation of natural gas in interstate commerce. Under the NGA, the FERC determines whether interstate natural gas facilities are in the public interest and, if so, grants a Certificate for their construction and operation. As part of this determination, the FERC will consider the findings presented in this EIS as well as non-environmental issues in its review of Entrega's application. The FERC will authorize the construction and operation of the proposed facilities only if it finds that the evidence produced on technical competence, financing, rates, market demand, gas supply, existing facilities and service, environmental impacts, long-term feasibility, and other issues demonstrates that the project is, or will be, required by the public convenience and necessity.

Environmental impact assessment and mitigation development are important factors in the overall public interest determination. Under NEPA, the FERC has a responsibility to consider the potential environmental impacts associated with proposals which come before it. This EIS has been prepared to fulfill that responsibility for Entrega's proposal, in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (Title 40 of

[4] "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects (OEP). Unless specifically identified otherwise, the recommendations and conclusions presented in this EIS are those of the FERC Staff.

the Code of Federal Regulations, Parts 1500-1508 [40 CFR 1500-1508]), and the FERC's regulations for implementing NEPA (18 CFR 380).

1.3.2 BLM

Entrega's proposed pipeline would cross federal lands managed by the BLM. Because the BLM must comply with the requirements of NEPA before granting rights-of-way (ROWs) across lands under its management, the BLM has elected to cooperate with the FERC in preparing this EIS.

As a cooperating agency, the BLM proposes to adopt this EIS per 40 CFR 1506.3 to meet its responsibilities under NEPA in considering Entrega's application for a ROW grant, which was submitted to the BLM's Rawlins, Wyoming, Field Office (FO) on October 28, 2003. Under section 185(f) of the Mineral Leasing Act of 1920 (MLA), the BLM has the authority to issue ROW grants for all affected federal lands. This action would be in accordance with 43 CFR 2800 and 2880, subsequent 2800 and 2880 Manuals, and Handbook 2801-1. For the EPP, the BLM would consider the issuance of a new ROW grant and issuance of associated temporary use permits that would apply to BLM-managed lands crossed by the project. The BLM also would consider conformance with land use plans and impacts on resources and programs in determining whether to issue a ROW grant. The BLM's decision will be documented in a project Record of Decision (ROD) prepared by the BLM. The BLM will consider FERC approval or denial of Entrega's proposal before issuing or denying a ROW grant for the proposed project.

The primary decisions to be addressed and made by the BLM include:

- Shall a ROW grant that includes mitigation and monitoring requirements be issued for a permanent pipeline ROW that will support pipeline construction and operation on federal lands?

- Shall Temporary Use Permits be granted for roads and temporary work areas needed for project construction on federal lands?

Should the BLM decide to approve the EPP, it will issue a ROW grant that would allow construction. ROW grants typically include standard agency stipulations, conditions imposed on the project as the result of the NEPA review, and a complete Plan of Development (POD). The BLM also would require that Entrega furnish a surety bond or other acceptable security to cover losses, damages, or injury to human health, the environment, and property in connection with the use and occupancy of the ROW. A separate BLM bond would be required to cover liability from releases or discharges of hazardous materials.

1.4 Public Review and Comment

On March 19, 2004, the FERC approved Entrega's request to use the NEPA Pre-Filing (PF) Process for the proposed EPP and established Docket No. PF04-7-000 to place information filed by Entrega and documents issued by the Commission into the public record.[5] The intent of the PF process is to initiate

[5] Entrega's PF Docket was closed on September 17, 2004, when Entrega filed its application with the Commission. On that date, a new docket number (CP04-413-000, et al.) was assigned to the EPP.

environmental review activities early in the project planning process. Starting our environmental review before an application is formally filed with the Commission enables early involvement by the public, governmental agencies, and other interested parties while the project is still being designed. In this manner, we can identify environmental issues early in the process and facilitate resolution among the stakeholders.

As part of the PF process, Entrega mailed letters to landowners, government officials, and the general public informing them about the project and inviting them to attend open houses to learn about the project and ask questions. The open houses were held in Greeley, Colorado (March 29, 2004); Cheyenne, Wyoming (March 30, 2004); Laramie, Wyoming (March 31, 2004); Rawlins, Wyoming (April 1, 2004); Wamsutter, Wyoming (April 6, 2004); Craig, Colorado (April 7, 2004), and Meeker, Colorado (April 7, 2004). Representatives of the FERC and the BLM attended these meetings.

On May 3, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Entrega Gas Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (NOI). This document briefly described the project components, invited written comments from the public on the proposal, and listed the date and location of four public scoping meetings to be held in communities along the route. The NOI was sent to about 1,670 entities on a mailing list that included the landowners crossed and/or adjacent to the proposed ROW; federal and state agencies; Native American tribes; non-governmental and environmental organizations; libraries; the media; and other potentially interested parties.

We invited other federal agencies with jurisdiction and special expertise to be cooperating agencies during the project review. The BLM requested and received cooperating agency status. As part of this effort, we invited the U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers (COE) to cooperate because of their responsibilities under the Endangered Species Act (ESA) and the Clean Water Act (CWA), respectively.

We held public scoping meetings in Cheyenne (June 7, 2004), Rawlins (June 8, 2004), Craig (June 9, 2004), and Meeker (June 10, 2004). These meetings were announced in the NOI and in local area newspapers. Transcripts of the public scoping meetings are part of the public record and are available for viewing at the FERC website for the Entrega docket.[6]

During the same time period, we organized and conducted separate "agency scoping" meetings with federal and state agency representatives, and local officials to solicit input and coordinate our review of the proposed project. These meetings were held in Rawlins (June 8, 2004), Craig (June 9, 2004), and Meeker (June 10, 2004). A summary of the issues discussed was made part of the public record and posted on the FERC website.

[6] Public meeting transcripts and a summary of the issues discussed during agency scoping meetings are available for viewing on the FERC Internet website (http://www.ferc.gov). Using the "eLibrary" link, select "General Search" from the eLibrary menu, enter the selected date range and "Docket No." (CP04-413-000), and follow the instructions. (For assistance, call 1-866-208-3676 or e-mail FercOnlineSupport@ferc.gov.) Because scoping was conducted during the PF review (before Entrega formally filed its application with the FERC on September 17, 2004), PF04-7 must be used in the "Docket No." field to view the public scoping transcripts.

In addition to oral and written comments received during agency and public scoping meetings, the Commission received written comments during and after the close of the public scoping period (June 15, 2004). In total, 38 written correspondences[7] containing project comments were received from 31 parties, including items from federal, state, and local government agencies; landowners; and environmental groups. Each letter was evaluated and comments were divided into issue groups. When written comments were combined with oral meeting comments, 166 individual comments were received. Many of these comments addressed the same environmental issues. Of the comments received, about one-third were non-environmental in nature (project need, easement acquisition, compensation, and general statements of support or opposition). **Table 1.4-1** lists the environmental issues and concerns identified by commentors during the scoping process.

The draft EIS[8] was filed with the U.S. Environmental Protection Agency (EPA) and mailed to 862 federal, state, and local agencies, elected officials, Native American tribes, newspapers, public libraries, intervenors to the FERC's proceeding, and other interested parties (i.e., landowners, miscellaneous individuals, and environmental groups who provided scoping comments or asked to remain on the mailing list). A formal notice indicating that the draft EIS was available for review and comment was published in the Federal Register (FR). The public was given 45 days from the date the EPA published a Notice of Availability in the FR (70 FR 10,615) to review and comment on the draft EIS both in the form of written comments and at public meetings held in communities along the pipeline route.

Four public meetings were held in the project area to receive comments on the draft EIS. These meetings were conducted in Cheyenne, Wyoming (April 11, 2005); Rawlins, Wyoming (April 12, 2005); Craig, Colorado (April 13, 2005); and Meeker, Colorado (April 14, 2005). These meetings were announced in the draft EIS and in the notice issued by the FERC indicating that the draft EIS was available. Each meeting was recorded and the transcripts are part of the public record for the EPP. Oral comments were received from 12 local agency officials, 1 company representative, 3 representatives of private organizations, and 4 individuals. The comments of speakers at the meetings were summarized and are presented in chapter 6.0 of this final EIS.

The comment period for receiving comments on the draft EIS closed on April 18, 2005. Written comments were received from 4 federal agencies, 1 state agency, 6 local agencies, 2 organizations, 2 individuals, and the project applicant. The written comments and our responses to them are included as chapter 6.0 of this final EIS.

This final EIS[9] was filed with the EPA and mailed to approximately 808 federal, state, and local agencies; elected officials, Native American tribes; newspapers; public libraries; intervenors to the FERC's proceeding; and other interested parties who provided scoping comments, commented on the draft EIS, or wrote to the FERC asking to receive a copy of the document. The distribution list for the final EIS is presented in appendix A. A formal notice indicating that the final EIS is available was published in the FR.

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[7] Written correspondences included letters, Return Mailers (attached to our NOI), and electronic mail. The Commission also received one Congressional correspondence (included in the total).

[8] Includes the stand-alone Executive Summary, which was sent to some recipients rather than the full draft EIS.

[9] Like the draft EIS, the final EIS was distributed to recipients either as a stand-alone Executive Summary or as a full EIS.

Table 1.4-1
Issues Identified in Comments Received
During the Public Scoping Process for
the Entrega Pipeline Project

Purpose and Need
- Sources and suppliers of natural gas for the project.
- Existing regional pipeline transportation capacities.

NEPA Process
- Pipeline and ancillary facilities to be included in the EIS analysis.
- Consideration of a single EIS for Entrega and Wyoming Interstate Company, Ltd. (WIC) Pipeline projects.
- Completion of the BLM Rawlins FO Resource Management Plan (RMP) prior to making ROW decisions for the EPP.
- Jurisdiction for gathering pipelines that provide gas for the EPP.

Geology
- Potential landslide risk on steep slopes.
- Potential pipe exposure at incised channel crossings.

Soils and Noxious Weeds
- Soil loss from wind and water erosion.
- Long-term loss of grazing resources caused by inappropriate revegetation species selection, weed invasion, and difficult reclamation conditions (e.g., alkaline soils).
- Spread of noxious and invasive weeds in excavated soils.
- Loss of vegetation productivity from soil mixing and compaction.
- Restoration and monitoring of the ROW to original contour.

Water
- Potential loss of water yield from shallow groundwater resources (springs).
- Increased sedimentation at river and stream crossings and irrigation ditches.
- Depletion of surface water sources used for dust control and hydrostatic testing (Platte River and Colorado River systems).
- Potential reduction in water quality at hydrostatic test water discharge locations.
- Identification and protection of municipal water supplies and aquifers.
- Storage of hazardous materials at refueling sites.

Vegetation
- Long-term loss of native species and structural diversity in areas with high wildlife habitat values (sagebrush communities, mountain shrublands, riparian areas, hay meadows along Piceance Creek).

Fish and Wildlife
- Potential loss of wildlife individuals and reproductive success because of human activity, construction surface disturbance, and compressor station operational noise during critical periods of the year. Primary species of concern: big game, migratory birds (including raptors).
- Potential loss of fish individuals and reproductive success because of construction disturbance in waterways during critical periods of the year. Primary species of concern: trout in the Platte River, Medicine Bow River, and Rock Creek.
- Increased habitat fragmentation from expansion of surface disturbance caused by existing and new pipeline ROWs, and indirect effects (increased human activity, noise).

Special Status Species
- Potential loss of wildlife species individuals and reproductive success because of human activity, construction surface disturbance, and compressor station operational noise during critical periods of the year. Primary species of concern: Preble's meadow jumping mouse, Wyoming toad, bald eagle,

Table 1.4-1 (Continued)

and other special status raptors, sage grouse, prairie dog colonies and associated species, other BLM special status species.

- Potential loss of fish individuals and reproductive success because of construction disturbance in waterways during critical periods of the year. Primary species of concern: native Colorado River system fish.
- Depletion effects on surface water regimes and habitats for downstream listed species (Platte River system).
- Potential loss of plant species individuals and reproductive success because of construction surface disturbance. Primary species of concern: Dudley Bluffs twinpod, Dudley Bluffs bladderpod, Ute ladies'-tresses orchid, Colorado butterfly plant, BLM special status plants.
- Potential natural gas or condensate leaks and impacts on fish.

Land Use, Recreation, and Visual Resources

- Loss or delay of agricultural production and potential interference with livestock management, including fence and irrigation system repairs.
- Construction noise, human activity, and surface disturbance near residential areas and farms.
- Effects of heavy loads on county and private roads, and plans for repair.
- Visual impacts from new pipeline surface disturbance and aboveground ancillary facilities on nearby residential areas and Key Observation Points (KOPs).
- Increased public access to public and private lands from new road construction.
- Potential conflicts between big game hunting and pipeline construction.
- Potential conflicts between recreational boating on the North Platte River and pipeline construction.
- Potential for precluded future land uses.
- Decommisioning plans for temporary access roads.
- Protection measures for unique or sensitive areas.

Cultural Resources

- Consultation with potentially affected Native American tribes.
- Identification and protection of cultural resources in and near construction areas.
- Identification and protection of traditional cultural properties in the area.
- Identification and protection of the Overland and other National Historic Trails.

Socioeconomics

- Potential reductions in property value and changes in future use because of a new pipeline.
- Adequacy of temporary housing and camp sites during construction.
- Short- and long-term fiscal benefits and costs to local communities and counties.
- Carpooling or busing crews to work sites.
- Limited emergency medical and fire fighting capabilities in Rio Blanco County, Colorado.

Air and Noise

- Increased fugitive dust generation and need for control on access roads.
- Compressor station combustion emissions compliance with air quality standards.
- Compressor station noise impacts on nearby residences, and potential mitigation.

Public Safety

- Proximity of adjacent pipelines.
- Construction practices around electrical transmission lines.
- Ensure pipe strength sufficient for heavy vehicles.
- Properly mark the location and ownership of underground utilities.
- Electrical grounding of the pipeline.

Cumulative Impacts

- Growth induced by increase in local pipeline capacity.
- Relationship to other oil and gas development activities.

Table 1.4-1 (Continued)

- Inclusion of WIC's proposed Piceance Basin Expansion Pipeline (PBEP) and its associated facilities.
- Disruption and loss of agricultural production from two pipelines (Entrega, WIC) constructed sequentially.
- Cumulative impacts from multiple pipelines in nearby, but not abutting, ROWs.
- Cumulative pipeline impacts (surface disturbance, restoration, and precluded land use) on nearby landowners.
- Cumulative impacts on wildlife and their habitats.
- Conversion plans for the existing soda ash pipelines.

Alternatives

- Single pipeline for WIC and Entrega where the two projects overlap.
- Construction of WIC and Entrega pipelines within a single, common ROW.
- Simultaneous construction and restoration of WIC and Entrega pipelines.
- Construction of Entrega pipeline in an alternative pipeline corridor between the Meeker Hub Compressor Station and EPP MP 33.2.

In accordance with CEQ regulations implementing NEPA, no agency decision on the proposed action may be made until 30 days after the EPA publishes a Notice of Availability of the final EIS in the FR. However, the CEQ regulations provide an exception to this rule when an agency decision is subject to a formal internal appeal process that allows other agencies or the public to make their views known. This is the case at the FERC, where any Commission decision on Entrega's proposal would be subject to a 30-day rehearing period. Therefore, the agency decision may be made at the same time that notice of the final EIS is published by the EPA, allowing the appeal periods to run concurrently.

For the BLM, the date the EPA's Notice of Availability appears in the FR initiates a 30-day period before the decision to issue or amend a ROW grant is made. Comments received on the final EIS during the 30-day period will be reviewed to determine if they have merit (e.g., identify significant issues not previously addressed or introduce significant new information). If no changes are warranted, a ROD is prepared that documents the selected alternative as well as mitigation measures. No action concerning a proposal may be taken on federal land until the ROD for the ROW grant has been issued.

1.5 Changes Since Issuance of the Draft EIS

Since publication of the draft EIS in late February 2005, Entrega has made numerous refinements to its proposed action and provided supplemental information in a number of areas. These refinements are reflected in our analysis as presented in this EIS. Where additional areas would be disturbed, we have accounted for these areas in the EIS text and tables. Notable changes include:

- **Proposed Schedule**: Entrega has revised its proposed construction schedule (see chapter 2.0, **table 2.4-1**).

- **Pipeline Realignments**: Entrega has realigned portions of its proposed route to accommodate landowner concerns, additional engineering, and to avoid or minimize environmental impact on sensitive resources. Engineering modifications largely involved crossing existing pipelines at sharper angles. However, by making adjustments to the proposed route, Entrega would be able to avoid impact on 27 cultural resource sites, 2 paleontological sites, and a spring in the Piceance Creek drainage. As a result of the realignments, the proposed route is now about 328.1 miles long (a 0.6-mile-long increase).

- **Pipe Storage and Contractor Yards**: Entrega identified 13 additional pipe storage and contractor yards and eliminated 4 previously-identified yards. These new areas are identified in chapter 2.0, **tables 2.2-1** and **2.2-4**, and discussed in **section 2.2.3**.

- **Metering Stations**: While the overall number of meter stations has not changed, five of the total seven meters would now be located outside of Entrega's compressor station sites (two at Wamsutter, three at the Cheyenne Hub). Four of the five relocated meters would be constructed by either El Paso Corporation or Kinder Morgan, while the fifth meter would be constructed by Entrega on land associated with Public Service of Colorado's (PSCo's) facility at the Cheyenne Hub. Pipeline laterals associated with the relocated meters have also changed in length, diameter, and location. See chapter 2.0, **table 2.1-2** and **figures 2.3-5** and **2.3-7**.

- **Access Roads**: Entrega has identified additional access roads that would be used during construction. The discussion in section 2.2.4 has been revised and access roads near the pipeline centerline are illustrated in appendix C.

- **Revised Plans**: As a result of comments received on the draft EIS and further review, Entrega has revised many of its plans associated with the BLM's POD. We have included additional plans associated with the POD as appendices to this EIS.

- **Temporary Workspaces**: Entrega has modified its initial list of temporary workspaces. These changes are reflected in chapter 2.0, **table 2.2-1**.

All of the changes proposed since issuance of the draft EIS have been incorporated into the EIS. Overall, the changes have been minor or have been adopted by Entrega as its proposed action for the purpose of avoiding or reducing potential impacts.

1.6 Nonjurisdictional Facilities

1.6.1 Background

Under Section 7 of the NGA, the FERC is required to consider, as part of its decision to authorize interstate natural gas facilities, all factors bearing on the public convenience and necessity. The facilities for the EPP that would be under the FERC's jurisdiction include approximately 328.1 miles of natural gas pipeline, 3 compressor stations, 7 metering stations, 9 lateral lines interconnecting with existing pipelines, 22 mainline valves, and 4 pig launcher/receivers.[10] These facilities are discussed in detail in section 2.1. In the future, Entrega may identify additional metering facilities or receipt/delivery laterals under the FERC's jurisdiction to connect its system to new supply sources or shipper delivery points.[11]

Occasionally, proposed natural gas pipeline projects have associated facilities that do not come under FERC jurisdiction. These "nonjurisdictional" facilities may be integral to the need for the proposed project (e.g., a new or expanded power plant at the end of a FERC-jurisdictional pipeline) or they may be merely associated as a minor, non-integral component of the jurisdictional facilities that would be constructed and operated as a result of the proposed facilities.

Nonjurisdictional facilities associated with the EPP are existing and proposed natural gas development, production, gathering, and processing facilities that have been or would be constructed and operated by EnCana or other producers in the basin. These facilities are located upstream (i.e., prior to the origin) of the proposed Entrega Pipeline, which begins at a proposed "Meeker Hub" along Piceance Creek in Rio Blanco County, Colorado. **Table 1.5-1** lists currently identified nonjurisdictional facilities that are associated with the EPP and the status of their environmental review.

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[10] A pipeline "pig" is a device used to clean or inspect the pipeline. A pig launcher/receiver is an aboveground facility where pigs are inserted or retrieved from the pipeline.

[11] These facilities could be added using the Blanket Certificate which Entrega has requested in Docket No. CP04-415-000.

Table 1.5-1
Nonjurisdictional Facilities Related to the Entrega Pipeline Project

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
South Shale Ridge Lease Area	Proposed	Mesa County, Colorado	Gas gathering and produced water pipelines to existing gathering pipelines near DeBeque.	Natural gas wells (20) to be drilled over a 20-year period.	Evaluated in a BLM Grand Junction FO environmental assessment (EA) (2004); final approvals pending.
EnCana Natural Gas Fields: Mamm Creek, Rulison, South Parachute, Plateau Creek, Orchard, Grand Valley, South Douglas, Dragon Trail, Canary Left Fork, Gasaway, White River Dome	Existing	Mesa, Garfield, Rio Blanco Counties, Colorado	Multiple small diameter interconnecting pipelines with larger diameter (24-inch) gathering trunklines that feed gas to existing gas plants.	Natural gas wells on variable spacing (20, 40, 80 acres) that are connected to gathering pipelines.	Wells individually approved on a site-specific basis by the BLM on federal, state, and private lands with federal ownership of oil and gas rights. Wells individually approved on State and private lands under Colorado Oil and Gas Commission requirements where oil and gas rights are state or privately held.
EnCana Eureka (Figure Four) Natural Gas Field	Proposed	Garfield, Rio Blanco Counties, Colorado	Gas gathering and produced water pipelines from field to Meeker Gas Plant.	Natural gas wells on variable spacing (40, 80 acres) that are connected to gathering pipelines.	Evaluated in a BLM White River FO EA (2004); final approvals pending.
EnCana Meeker Pipeline and Gas Plant	Proposed	Garfield and Rio Blanco Counties, Colorado	Logan Wash Delivery (near DeBeque) to Meeker Gas Plant. Multiple interconnections with gathering pipelines; one natural gas export pipeline (Entrega); and one natural gas liquids pipeline (interconnection with the Enterprise natural gas liquids pipeline system).	Multiple pipelines: • 44.5-mile-long 30-inch-diameter unprocessed natural gas pipeline; • 44.5-mile-long 10-inch-diameter natural gas liquids pipeline; • 11.1-mile-long 16-inch-diameter unprocessed natural gas pipeline; • 20.2-mile-long 12-inch-diameter water or natural gas	Evaluated in a BLM White River FO EA (2005); final EA under preparation.

Table 1.5-1 (Continued)

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
				pipeline; • 0.9-mile-long corridor to interconnect 12-inch-diameter gas/water pipeline; and 16-inch-diameter gas pipeline to Hunter Creek Compressor Station. • Compressor Station (20.2 miles south of Meeker Gas Plant): • Compression for unprocessed gas pipelines. The plant would be located on a 40 to 80 acre site (former American Soda mine). This facility would receive unprocessed gas from the gathering system, separate the associated natural gas liquids and water, and deliver sales quality gas and natural gas liquids to interstate pipeline systems. Separated water would be injected into an approved deep geologic formation, or evaporated in ponds.	

Table 1.5-1 (Continued)

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
EnCana Natural Gas Gathering and Produced Water Pipelines (Former American Soda Pipelines)	Existing	Garfield and Rio Blanco Counties, Colorado	Former American Soda plant site to former American Soda mine site (recently purchased by EnCana).	Two 12-inch-diameter 35-mile-long water pipelines that would be converted to natural gas and produced water delivery service.	Pipeline construction effects analyzed in conjunction with the soda ash project.
EnCana Colorado River Valley Natural Gas Gathering Pipeline	Existing	Garfield County, Colorado	Connects gas fields south of Rifle (e.g. Mamm Creek) with Logan Wash Delivery near DeBeque.	Approximately 16 miles of recently completed 24-inch-diameter pipeline that interconnects with multiple fields in the Colorado River and Plateau Creek valleys.	All federal, state, and local approvals received, and project constructed in 2004.
EnCana Unprocessed/ Processed Natural Gas Pipeline	Proposed	Rio Blanco County, Colorado	Dragon Trail Gas Plant to Meeker Gas Plant	31.2-mile-long 16-inch-diameter pipeline would deliver unprocessed gas to the Meeker Gas Plant from Dragon Trail. The proposed pipeline would also interconnect with Northwest Pipeline (NWPL) near Dragon Trail to alternatively flow processed gas from the proposed Meeker Gas Plant to NWPL, depending on market conditions and as a contingency.	ROW application filed with the BLM White River FO as part of the EnCana Meeker Gas Plant referenced above.
EnCana Natural Gas Liquids Pipeline	Proposed	Uintah County, Utah, and Rio Blanco County, Colorado	Meeker Gas Plant to Enterprise Pipeline System	47.8-mile-long 12-inch-diameter pipeline to transport natural gas liquids from Meeker Gas Plant to interstate Enterprise pipeline. To be built in same ROW as Dragon Trail to Meeker Gas Plant facilities.	ROW application filed with the BLM White River FO as part of the EnCana Meeker Gas Plant referenced above.

Table 1.5-1 (Continued)

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
Entrega electrical power supply line	Proposed	Meeker Compressor Station, Rio Blanco County, Colorado	Existing White River Electric Association distribution line to compressor station site.	0.2 mile of 3-phase 25-kilovolt (kV) line and single-phase transformation. Future system expansion would require conversion of single-phase transformer to three-phase transformer.	Included in this EIS.
Entrega electrical power supply line	Proposed	Wamsutter Compressor Station, Sweetwater County, Wyoming	Existing Pacific Power distribution line to compressor station site.	One mile of 3-phase 34.5-kV line and single-phase transformation. Future system expansion would require conversion of single-phase transformer to three-phase transformer.	Included in this EIS.
Entrega electrical power supply line	Proposed	Cheyenne Hub Metering Station, Weld County, Colorado	Existing Poudre Valley Electric Association distribution line to site.	0.25 mile of single-phase 7.2-kV line and single-phase transformer.	Included in this EIS.

1.0 INTRODUCTION

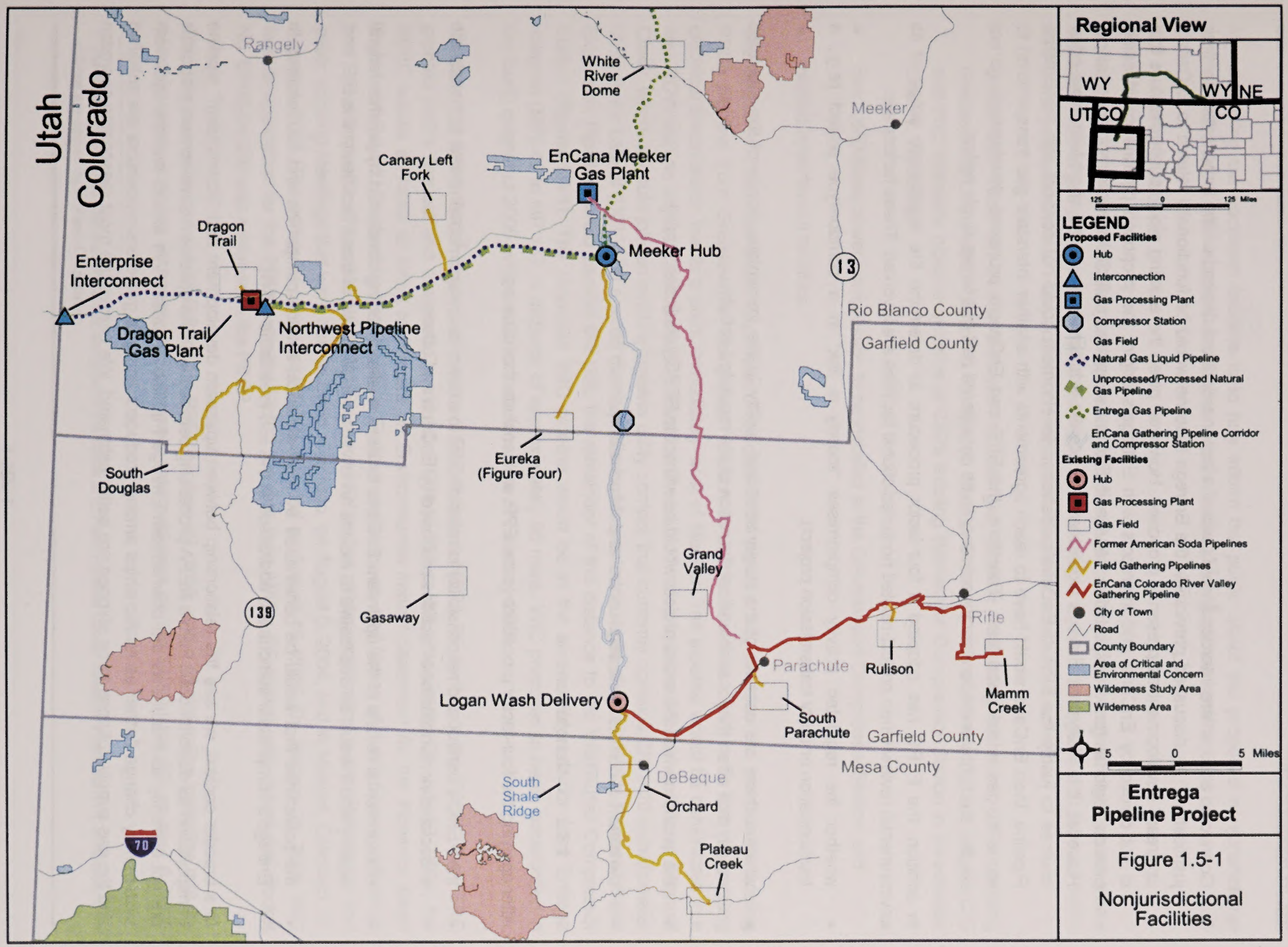
On July 22, 2004, EnCana filed an Application for Transportation and Utility Systems and Facilities on Federal Lands (#COC67979) with the BLM's White River FO to construct and operate the majority of the nonjurisdictional facilities listed in **table 1.5-1**. This application underwent numerous revisions, and a final application was presented to the BLM in January 2005. On March 21, 2005, the BLM's White River FO issued a *Preliminary Environmental Assessment for EnCana's Meeker Pipeline and Gas Plant Project (CO-110-2004-18-EA*, which analyzes the potential impacts associated with EnCana's proposal. A 30-day comment period on the environmental assessment (EA) closed on May 2, 2005, and a final EA is under preparation.

All the proposed gathering, treated gas, and natural gas liquids pipelines included in EnCana's BLM application would be connected at a proposed gas plant to be constructed at the existing American Soda plant site, about 4 miles north-northwest of the proposed Meeker Hub. **Figure 1.5-1** illustrates EnCana's currently proposed project.

We carefully considered the relationship between these upstream nonjurisdictional facilities and the EPP. Although most of these facilities would be functionally attached to the Entrega Pipeline, we have concluded that these facilities do not represent actions that must be addressed at the same level of detail as the EPP in this EIS. Part of our decision on the appropriate scope of analysis is based on the CEQ's "connected action" criteria (40 CFR 1508.25, Scope).

1. Connected actions "automatically trigger other actions which may require environmental impact statements." As indicated in the Project Purpose and Need section, there has been a substantial increase in natural gas drilling activity in the Uinta-Piceance Basin. These drilling activities are authorized by BLM approvals of Applications for Permits to Drill with the required EAs and RODs. We anticipate that this same permitting process will be used by the BLM to approve future expansions of natural gas supplies in this geologic basin. We do not see that the BLM's regulatory actions have, or will, automatically trigger FERC actions, or vice versa. Each agency's action is taken pursuant to its own underlying authority, and those authorities are independent.

2. Connected actions "cannot or will not proceed unless other actions are taken previously or simultaneously." EnCana has proposed establishing a "Meeker Hub" on the Piceance Creek precisely because there are existing interstate natural gas pipelines available at that location (e.g., Questar Pipeline Company [Questar], TransColorado Gas Transmission Company [TransColorado], and Colorado Interstate Gas Company [CIG]), which could accept its processed gas. Because there are other interstate pipeline options available, EnCana's proposal could go forward without construction of the EPP. We interpret Entrega's proposal as a response to an ongoing increase in the natural gas development and supply by its affiliate and other gas developers that must be conveyed to market. The EPP is timed to address projected shortfalls in pipeline capacity. Entrega has clearly stated that it does not expect its system capacity to be fully utilized upon completion of pipeline construction, and that other sources of gas beyond that from the Uinta-Piceance Basin may be transported through its proposed facilities. Thus, EnCana will proceed with its production, gathering, and treatment facilities whether or not the FERC takes action to approve the EPP.



Entrega Pipeline Project

Figure 1.5-1

Nonjurisdictional Facilities

5/12/05

3. Connected actions "are interdependent parts of a larger action and depend on the larger action for their justification." As discussed previously, the Entrega Pipeline would be functionally related to EnCana's upstream development as presently proposed. However, given the existing pipeline infrastructure that is not owned by EnCana and intersects with Entrega's origin, the proposed pipeline could easily provide regional gas transportation service if EnCana's upstream facilities were not constructed. However, it is likely that Entrega would have to acquire additional gas in the short term from other sources to justify the EPP. If EnCana's upstream development could not connect with the Entrega Pipeline, then EnCana would have to reach agreements with another interstate gas transporter(s) to move its gas in the short term. Therefore, the EPP and EnCana's proposed development do not display the tight interdependency necessary to be considered part of a larger single action.

In addition, the FERC has adopted a four-factor procedure to determine the appropriate scope of its environmental review when project-related nonjurisdictional facilities are involved. These factors are:

- whether the regulated activity compromises "merely a link" in a corridor-type project (e.g., a transportation or utility transmission project);

- whether there are aspects of the nonjurisdictional facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity;

- the extent to which the entire project would be within the FERC jurisdiction; and

- the extent of cumulative federal control and responsibility.

1.6.2 Conclusions

After applying the four-factor procedure to the EPP, we conclude the following:

- the FERC's control and responsibility is not sufficient to extend its environmental review to include the associated nonjurisdictional facilities proposed by EnCana and others;

- environmental review of the upstream EnCana facilities is already being conducted by another federal agency and it would be duplicative to include an environmental review of those facilities in this EIS; and

- the powerlines that would be constructed by local electrical service companies and cooperatives to Entrega's compressor stations are addressed in this EIS (see **table 1.5-1**).

In a broader context, we see the relationship between upstream development and "downstream" pipeline transportation as discontinuous from a NEPA processing perspective. The upstream development proposals are not currently as mature as the downstream Entrega Pipeline proposal. We expect that the upstream system may change further as relationships among producers and gas gatherers/processors are solidified and the gas supply volumes to be shipped are better estimated. We believe the most reasonable approach

for addressing the upstream facilities is to fully inform the public about the proposed nonjurisdictional facilities and discuss their locations and functions to the extent these facts are known.

1.7 Related Actions

On March 26, 2004, the WIC filed an application with the BLM Rawlins FO to construct and operate a new interstate natural gas pipeline and related facilities that would begin at the Greasewood Hub (about 7 miles east of the proposed Meeker Hub) and extend northward. These facilities would include:

- about 142 miles of 24-inch-diameter natural gas pipeline, extending between CIG's existing Greasewood Compressor Station in Rio Blanco County, Colorado, and an interconnection with the CIG and WIC interstate pipeline systems at CIG's existing Wamsutter Compressor Station in Sweetwater County, Wyoming;

- one 1,650-horsepower compressor, to be installed at the Greasewood Compressor Station; and

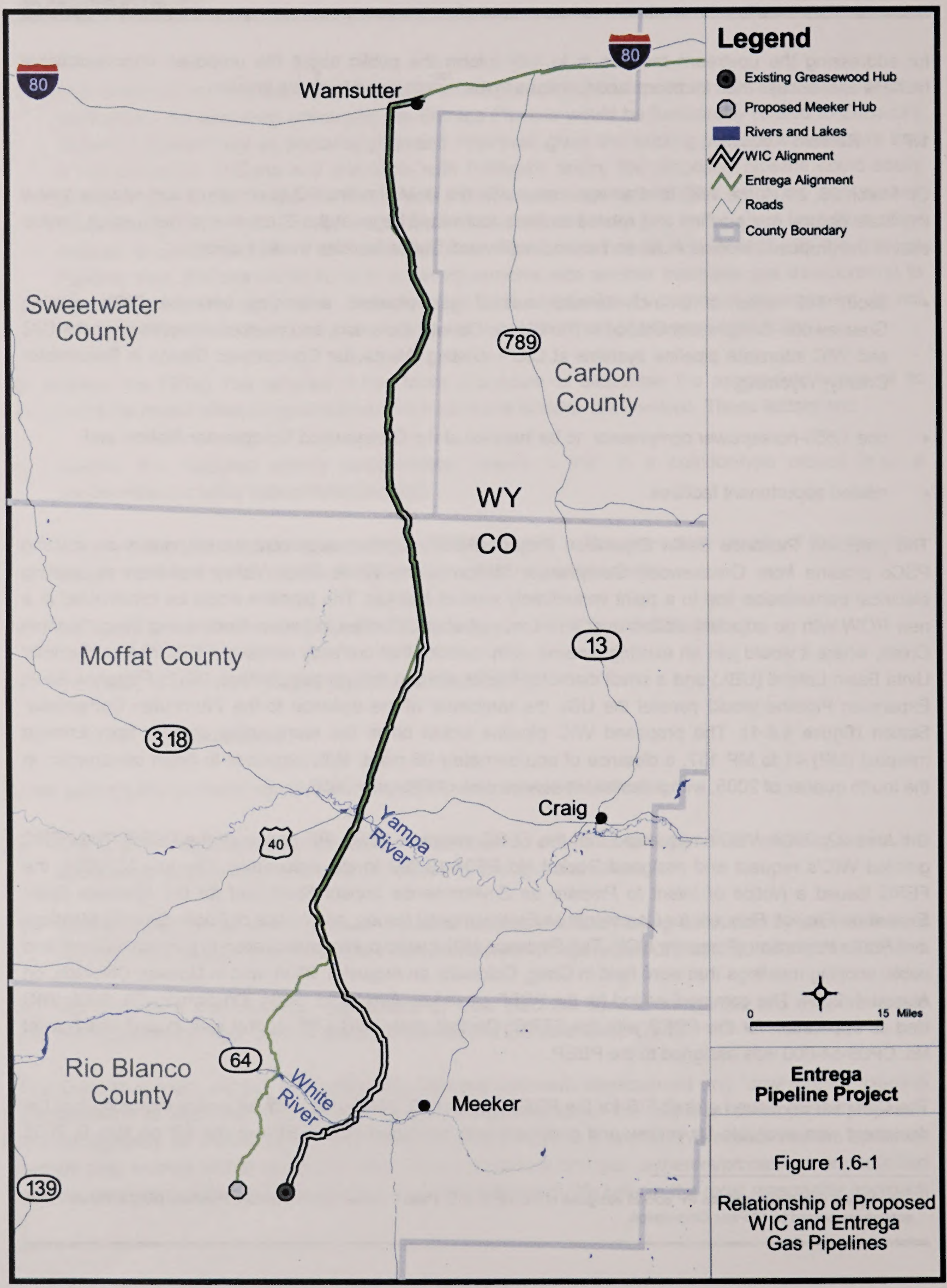
- related appurtenant facilities.

The proposed Piceance Basin Expansion Project (PBEP) pipeline alignment would parallel an existing PSCo pipeline from Greasewood Compressor Station to the White River Valley and then an existing electrical transmission line to a point immediately west of Meeker. The pipeline would be constructed in a new ROW with no adjacent utilities over a distance of about 17 miles between Meeker and Deep Channel Creek, where it would join an existing pipeline utility corridor that currently contains CIG's 20-inch-diameter Uinta Basin Lateral (UBL) and a small diameter Kinder Morgan natural gas pipeline. WIC's Piceance Basin Expansion Pipeline would parallel the UBL the remainder of the distance to the Wamsutter Compressor Station (**figure 1.6-1**). The proposed WIC pipeline would be in the same utility corridor from Entrega milepost (MP) 41 to MP 137, a distance of approximately 96 miles. WIC proposes to begin construction in the fourth quarter of 2005, with a desired in-service date of February 2006.

On June 22, 2004, WIC[12] requested that the FERC initiate a NEPA PF review of the PBEP. The FERC granted WIC's request and assigned Docket No. PF04-13-000 to the proceeding. On July 13, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Piceance Basin Expansion Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (Piceance NOI). The Piceance NOI invited public participation in joint stakeholder and public scoping meetings that were held in Craig, Colorado, on August 3, 2004, and in Meeker, Colorado, on August 4, 2004. The comment period for the PBEP closed on August 15, 2004. On January 24, 2005, WIC filed its application for the PBEP with the FERC. On that date, WIC's PF docket was closed and Docket No. CP05-54-000 was assigned to the PBEP.

The Commission issued a draft EIS for the PBEP on April 29, 2005, and a formal notice indicating that the document was available for review and comment was published by the EPA in the FR on May 6, 2005

[12] The request was made and the PF docket assigned in the name of El Paso Pipeline Group, Western Pipelines (WIC's affiliate). Both entities are owned by El Paso Corporation.


Legend
Existing Greasewood Hub
Proposed Meeker Hub
Rivers and Lakes
WIC Alignment
Entrega Alignment
Roads
County Boundary
80
80
Wamsutter
Sweetwater County
789
Carbon County
WY
CO
Moffat County
13
318
Craig
40
Yampa River
Rio Blanco County
64
White River
Meeker
139
0
15 Miles
Entrega Pipeline Project
Figure 1.6-1
Relationship of Proposed WIC and Entrega Gas Pipelines

(70 FR 24,038). The 45-day public comment period closed on June 20, 2005. During this period, meetings were conducted to receive public comments on the PBEP draft EIS in Craig, Colorado (June 7, 2005); Wamsutter, Wyoming (June 8, 2005); and Meeker, Colorado (June 9, 2005).

Because the PBEP would be located in the same utility corridor as the EPP over a distance of approximately 96 miles, and both projects are proposed to be constructed in nearly the same timeframe between the Piceance Basin and Wamsutter, the FERC and BLM considered whether to analyze both projects together in the same EIS. This approach was ultimately rejected because the planning for the PBEP was several months behind that of the EPP. We determined that if either project were delayed, development of a single EIS would potentially penalize the other project by imposing unnecessary NEPA processing delays. Had WIC's project development caught up with the EPP prior to release of a draft EIS, the issue of a single EIS covering both projects would have been revisited.

Consequently, each project is being analyzed in a separate EIS; however, the combined environmental effects of both projects are being considered together where the two projects overlap. In some instances, the decisions to be made for the EPP could affect the location and construction procedures for the PBEP. To account for the joint environmental and construction issues for both projects, route alternatives were developed in which both projects would be located together for all or part of the pipeline segment between the Piceance Basin and Wamsutter. The purpose of these alternatives is to examine options to reduce the overall surface disturbance for both projects and a consequent reduction in resource effects. Another purpose is to determine whether one applicant's proposal would yield greater environmental protection benefits than the other proposal where the two project proposed routes are geographically separate (between the Piceance Basin and Entrega MP 33.2). The rationale and scope of the route alternatives are presented in chapter 4.0. The FERC and the BLM have encouraged the two companies to work together to closely collocate their facilities wherever possible, and to conduct joint construction planning with the goal of minimizing environmental impact to the maximum extent practicable.

PROPOSED ACTION

CHAPTER 2

2.0 PROPOSED ACTION

Entrega proposes to construct and operate a new 328.1-mile-long interstate natural gas transmission system from the proposed Meeker Hub in Rio Blanco County, Colorado, to new interconnections in Sweetwater County, Wyoming, and continuing on to the existing Cheyenne natural gas market hub in Weld County, Colorado. In addition to the pipeline, Entrega would construct 3 compressor stations, 2 meter stations, 22 mainline valves, and other associated facilities. Five additional metering stations would be constructed by other parties in the immediate vicinity of Entrega's proposed facilities to receive natural gas from the EPP. An overview map of the project location and facilities is provided in **figure 2.1-1**. Detailed maps showing the pipeline route and aboveground facilities are in appendix B.

Entrega proposes to construct the project in two phases. Phase 1 (the pipeline phase) would involve construction of the pipeline, meter stations, mainline valves, and pipeline pigging facilities, and would be constructed in two segments. Segment 1 would consist of the 36-inch-diameter portion of the pipeline system between the proposed Meeker Hub and Wamsutter, while Segment 2 would consist of the 42-inch-diameter portion between Wamsutter and the Cheyenne Hub. The three compressor stations would be constructed during Phase 2.

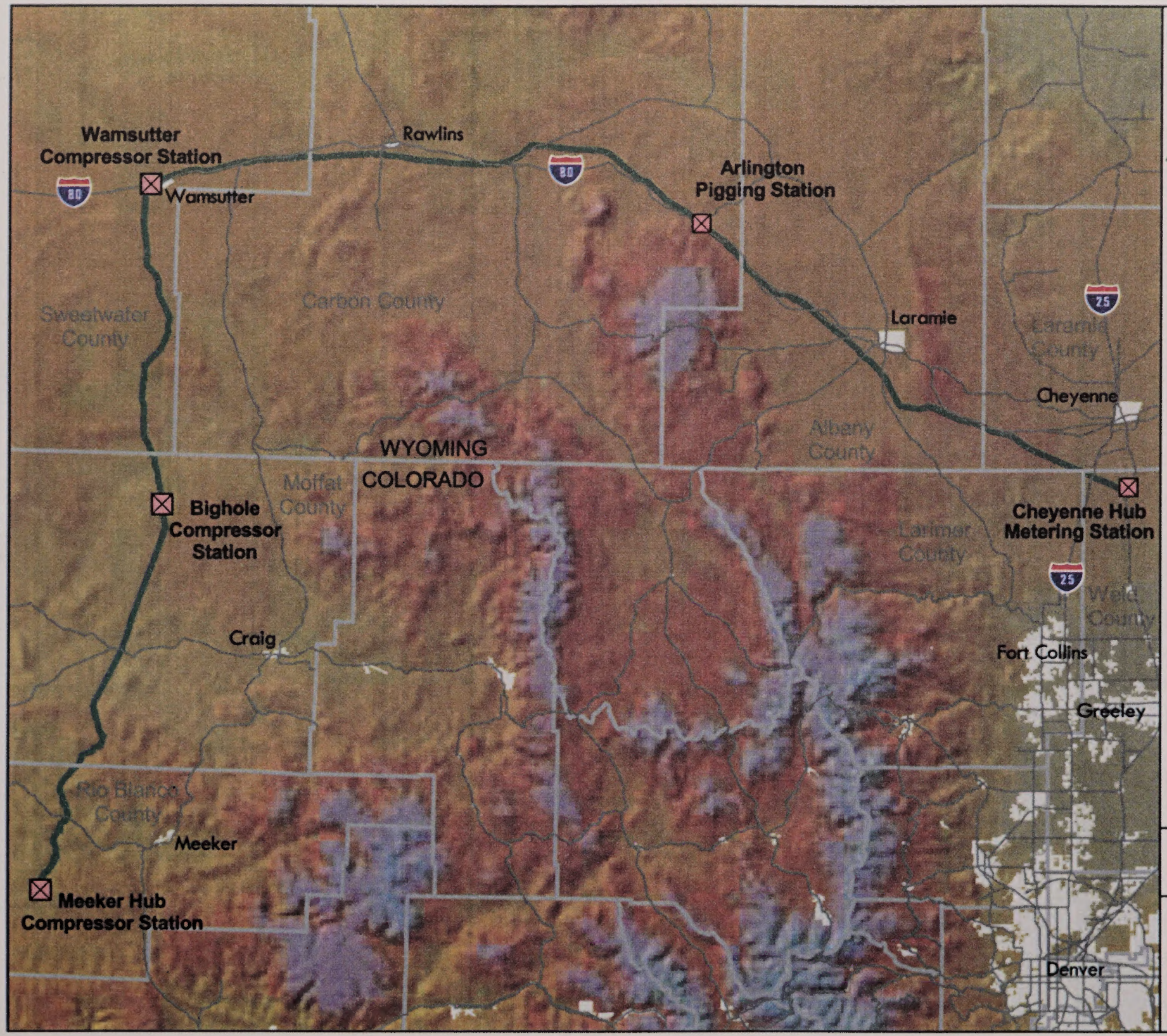
For the pipeline phase, Entrega is proposing an initial Segment 1 in-service date of no later than January 1, 2006. Assuming Segment 1 is completed between the Meeker Hub Compressor Station and Wamsutter prior to January 1, 2006, then Entrega would offer service on that segment on an interim basis. Entrega anticipates that this interim service would commence no earlier than December 2005. Pipeline Segment 2 would be constructed during the 2006 (June to mid-December) construction season. The three compressor stations would be constructed between September 2006 and April 2007.

2.1 Proposed Facilities

2.1.1 Pipeline Facilities

Between the proposed Meeker Hub and Wamsutter, the EPP would consist of 136.3 miles of 36-inch-diameter pipeline, with 86.1 miles in Colorado (Rio Blanco and Moffat Counties) and 50.2 miles in Wyoming (Sweetwater County). The remaining 191.8 miles of pipeline between Wamsutter and the existing Cheyenne Hub would consist of 42-inch-diameter pipeline, with 183.1 miles in Wyoming (Sweetwater, Carbon, Albany, and Laramie Counties) and 8.7 miles in Colorado (Larimer and Weld Counties). The maximum allowable operating pressure (MAOP) of the system would be 1,480 pounds per square inch gauge (psig).

The pipeline would be constructed in primarily Class 1 and Class 2 locations as defined by U.S. Department of Transportation (DOT) regulations at 49 CFR 192. The pipeline would be constructed of high-strength steel pipe (grade X70) with a wall thickness of 0.529 inch for the 36-inch-diameter portion of the pipeline and 0.617 inch for the 42-inch-diameter portion. Entrega is considering the use of a higher grade of pipe (X80), which would allow a reduction of the pipe wall thickness while still meeting federal safety standards. All pipe would be manufactured, constructed, and operated in accordance with applicable local, state, and federal regulations.



LEGEND

- Proposed Facility
- City or Town
- Proposed Pipeline
- Road
- County Boundary

Meeker Hub Station
- compressor station
- metering station
- pig launcher

Bighole Station
- compressor station
- pig launcher/receiver

Wamsutter Station
- compressor station
- metering stations
- pig launcher/receiver

Arlington Station
- pig launcher/receiver

Cheyenne Hub Station
- metering stations
- pig receiver

12.5 0 12.5 Miles

Entrega Pipeline Project

Figure 2.1-1

Project Overview

5/12/05

2.1.2 Compressor Stations and Appurtenant Facilities

Aboveground facilities associated with the EPP would include 7 meter stations (2 meters constructed by Entrega, 5 meters constructed by others), 22 mainline valves, 4 pig launchers, and 4 pig receivers (**table 2.1-1**). Three natural gas-powered turbine compressor stations (Meeker Hub, Bighole, and Wamsutter) would be constructed to enable Entrega to maintain the required pressure for firm gas deliveries and to restore the drop in pressure that would otherwise occur as the gas flows through the pipeline. Between Wamsutter and the Cheyenne Hub the pipeline would be capable of future expansion to 2.0 Bcfd or more, depending on need for east-west capacity or to accommodate the receipt of natural gas produced in nearby areas of Wyoming.

Seven delivery/receipt meter stations and associated laterals would be constructed to interconnect the EPP with other pipeline systems.[1] The proposed laterals are intended to transfer gas to Entrega's pipeline from the delivering company's system and from Entrega's pipeline to the receiving company's system.

At the proposed Meeker Hub Compressor Station, Entrega would construct a receipt lateral to interconnect with EnCana (see section 2.3.3, **figure 2.3-3**) at the proposed Meeker Hub. Entrega would construct and operate the lateral.

At the proposed Wamsutter Compressor Station (MP 135.5), two laterals would connect Entrega's pipeline system with existing interstate natural gas pipeline systems owned by CIG and WIC. About midway along the laterals, the new CIG Frewen Lake and WIC Bitter Creek Meter Stations would be located (see section 2.3.3, **figure 2.3-5**). Entrega proposes to build its laterals up to the metering facilities, while CIG would construct and operate the meters and extend the laterals to interconnections with the CIG and WIC systems. Each meter would be bidirectional and sized to accommodate either receipt or delivery of up to 0.5 Bcfd of natural gas.

At the proposed Cheyenne Hub Metering Station (MP 328.1), four delivery laterals would be constructed to interconnect with three existing interstate pipeline systems (CIG, Cheyenne Plains Gas Pipeline Company [Cheyenne Plains], and Trailblazer Pipeline Company [Trailblazer]) and one existing local distribution company (PSCo) (see section 2.3.3, **figure 2.3-7**). The systems to which Entrega would interconnect via associated metering facilities and the proposed lateral lengths and diameters are summarized in **table 2.1-2**.

2.2 Land Requirements

Table 2.2-1 summarizes the land requirements for the proposed EPP. Entrega proposes to use a 100-foot-wide construction ROW for the majority of the pipeline route and for all receipt and delivery laterals. **Figure 2.2-1** illustrates the typical construction ROW and equipment work locations where the proposed pipeline would not be located near an existing pipeline; **figure 2.2-2** illustrates the proposed construction

[1] A lateral is a short pipeline segment that serves to interconnect one pipeline system with another.

Table 2.1-1
Proposed Facilities Associated with the Entrega Pipeline Project

Facility Name	Milepost[1]	County, State	Map No.[2]
PIPELINE			
Meeker Hub to Wamsutter (36 inches in diameter)	-0.5 – 135.5	Rio Blanco & Moffat Counties, Colorado; Sweetwater County, Wyoming	1 through 7
Wamsutter to Cheyenne Hub (42 inches in diameter)	135.5 – 327.0	Sweetwater, Carbon, Albany, and Laramie Counties, Wyoming; Weld County, Colorado	8 through 17
COMPRESSOR STATIONS			
Meeker Hub Compressor Station (15,400 International Organization of Standardization [ISO] horsepower)	0.0	Rio Blanco County, Colorado	1
Bighole Compressor Station (30,000 ISO horsepower)	76.3	Moffat County, Colorado	4
Wamsutter Compressor Station (20,620 ISO horsepower)	135.5	Sweetwater County, Wyoming	7, 8
DELIVERY AND RECEIPT STATIONS (METER STATIONS)			
Meeker Hub Receipt Station -- EnCana Gathering Services Inc. (interconnect facility sized for receipt of 0.725 to 1.5 Bcfd of natural gas at 1,280 psig)	0.0	Rio Blanco County, Colorado	1
Wamsutter Delivery & Receipt Station – WIC Bitter Creek (interconnect sized for delivery of up to 0.5 Bcfd of natural gas)	135.5	Sweetwater County, Wyoming	7, 8
Wamsutter Delivery & Receipt Station – CIG Frewen Lake (interconnect sized for delivery of up to 0.5 Bcfd of natural gas)	135.5	Sweetwater County, Wyoming	7, 8
Cheyenne Hub -- CIG Delivery Station (interconnect sized for delivery of up to 0.6 Bcfd of natural gas)	327.0	Weld County, Colorado	17
Cheyenne Hub -- Trailblazer Delivery Station (interconnect sized for delivery of up to 0.725 Bcfd of natural gas)	327.0	Weld County, Colorado	17
Cheyenne Hub site -- Cheyenne Plains Delivery Station (interconnect sized for delivery of up to 0.730 Bcfd of natural gas)	327.0	Weld County, Colorado	17
Cheyenne Hub -- Public Service Company of Colorado Delivery Station (interconnect sized for delivery of up to 0.350 Bcfd of natural gas)	327.0	Weld County, Colorado	17
MAINLINE VALVES (MLV)			
MLV #1	0.0	Rio Blanco County, Colorado	1
MLV #2	18.0	Rio Blanco County, Colorado	1
MLV #3	33.2	Moffat County, Colorado	2
MLV #4	50.1	Moffat County, Colorado	3
MLV #5	65.1	Moffat County, Colorado	4
MLV #6	76.3	Moffat County, Colorado	4
MLV #7	83.7	Moffat County, Colorado	5
MLV #8	102.5	Sweetwater County, Wyoming	6
MLV #9	117.8	Sweetwater County, Wyoming	7
MLV #10	135.5	Sweetwater County, Wyoming	7, 8
MLV #11	151.7	Sweetwater County, Wyoming	8
MLV #12	169.6	Carbon County, Wyoming	9
MLV #13	187.2	Carbon County, Wyoming	10
MLV #14	205.1	Carbon County, Wyoming	11
MLV #15	219.8	Carbon County, Wyoming	12
MLV #16	236.9	Carbon County, Wyoming	13
MLV #17	255.4	Albany County, Wyoming	14
MLV #18	273.5	Albany County, Wyoming	15
MLV #19	292.4	Albany County, Wyoming	16
MLV #20	306.2	Laramie County, Wyoming	16
MLV #21	320.5	Weld County, Colorado	17
MLV #22	327.0	Weld County, Colorado	17
PIG LAUNCHERS AND RECEIVERS			
Meeker Hub Launcher	0.0	Rio Blanco County, Colorado	1
Bighole Launcher/Receiver	76.3	Moffat County, Colorado	4
Wamsutter Launcher/Receiver	135.5	Sweetwater County, Wyoming	7, 8
Arlington Launcher/Receiver	236.9	Carbon County, Wyoming	13
Cheyenne Hub Receiver	327.0	Weld County, Colorado	17

[1] All mileposts are based on Entrega's milepost system and are approximate. Note that the proposed EPP begins at MP -0.5 and that the entire project is actually 328.1 miles in length.

[2] All project facilities are presented on the maps located in appendix B.

Table 2.1-2
Proposed Receipt/Delivery Laterals and Meter Stations
Associated with the Entrega Pipeline Project

Station/ Interconnection With	Lateral Length[1] (feet)	Lateral Diameter (inches)	Meter Station Area (feet)	Third-Party Laterals[2] (length/diameter)
Meeker Hub Compressor Station				
EnCana	2,640	36	(within Entrega station site)	--
Wamsutter Compressor Station[3]				
CIG	300	30	300 x 300	375 feet/30-inch-diameter
WIC	300	30		275 feet/30-inch-diameter
Cheyenne Hub Metering Station				
Trailblazer	--	30	(within Entrega station site)	2,100 feet/30-inch-diameter
Cheyenne Plains	1,900	36	300 x 150	1,800 feet/36-inch-diameter
CIG	1,700	30		1,300 feet/24-inch-diameter and 200 feet/30-inch-diameter
PSCo	800	24	100 x 100	600 feet/24-inch-diameter

[1] Laterals constructed between Entrega mainline and delivery metering facilities at Wamsutter and Cheyenne Hub. At the Meeker Hub Compressor Station, a receipt lateral would be constructed between an interconnection with EnCana at the proposed Meeker Hub and a meter within the Entrega station.
[2] Laterals constructed downstream of metering facilities by others.
[3] CIG to construct and operate both CIG and WIC meter stations on same site.

ROW where the pipeline would be located parallel to an existing pipeline. Entrega also has requested that the BLM authorize 50 feet of the construction ROW (centered on the proposed pipeline) to be retained as part of Entrega's permanent easement, which would be permanently maintained (e.g., by periodic clearing) during operation of the new facilities. Entrega has agreed to reduce the construction ROW width to 75 feet in wetlands.

Construction of the EPP would disturb approximately 5,371 acres of land, including the pipeline construction ROW, additional temporary workspace areas, aboveground facility sites, and pipe storage and contractor yards. Of this total, about 4,182 acres would be disturbed by the pipeline construction ROW, 422 acres would be disturbed by additional temporary workspace areas, and 666 acres would be disturbed by pipe storage and contractor yards. Construction of the aboveground facilities would affect an additional 97 acres. Disturbance due to construction of powerlines (5 acres) is considered separately.

Table 2.2-1
Summary of Land Requirements Associated with the Entrega Pipeline Project

Facility	Milepost(s)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
COLORADO			
Pipeline Facilities			
Pipeline ROW[1]	-0.5 to 85.7 318.5 to 327.0	1,224	575
Additional Temporary Workspace Areas	N/A	107	0
Pipe and Contractor Yards	N/A	149	0
Pipeline Facilities Total		*1,480*	*575*
Aboveground Facilities			
Compressor Stations	0.0, and 76.3	52	51
Metering Stations	0.0 (1) 327.0 (4)	0[2]	0[2]
Mainline Valves	Various (see **table 2.1-1**)	0[3]	0[3]
Pig Launchers & Receivers	0.0[4], 76.3[5], and 327.0[6]	0[7]	0[7]
Permanent access roads to aboveground facilities		0	0
Lateral lines		18	9
Aboveground Facilities Total		*69*	*60*
Powerlines		1	1
Colorado Subtotal[8]		*1,549*	*636*
WYOMING			
Pipeline Facilities			
Pipeline ROW[1]	85.7 to 318.5	2,958	1,414
Additional Temporary Workspace Areas	N/A	315	0
Pipe and Contractor Yards	N/A	517	0
Pipeline Facilities Total		*3,790*	*1,414*
Aboveground Facilities			
Compressor Stations	135.5	17	17
Metering Stations	135.5 (2)	4[2]	2[2]
Mainline Valves	Various (see **table 2.1-1**)	0[3]	0[3]
Pig Launchers & Receivers	135.5 and 236.9[9]	3[9]	3
Permanent access roads to aboveground facilities		0	0
Lateral lines		4	2
Aboveground Facilities Total		*28*	*24*
Powerlines		4	<1
Wyoming Subtotal[8]		*3,822*	*1,438*
PROJECT TOTAL[8]		**5,371**	**2,074**

1 Based on a 100-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used, or in areas requiring extra width for workspace necessitated by site conditions. Operation acreage was estimated based on a 50-foot-wide permanently maintained ROW in all areas.

2 With the exception of the Cheyenne Hub Metering Station and the CIG-constructed Wamsutter Metering Station, each metering station would be constructed and operated within the area associated with a compressor station.

3 Each mainline valve would be constructed within the 100-foot-wide construction ROW and operated within the permanently maintained 50-foot-wide ROW, or within the area associated with a meter station or compressor station.

4 One pig launcher would be constructed at the Meeker Hub Compressor Station at MP 0.0.

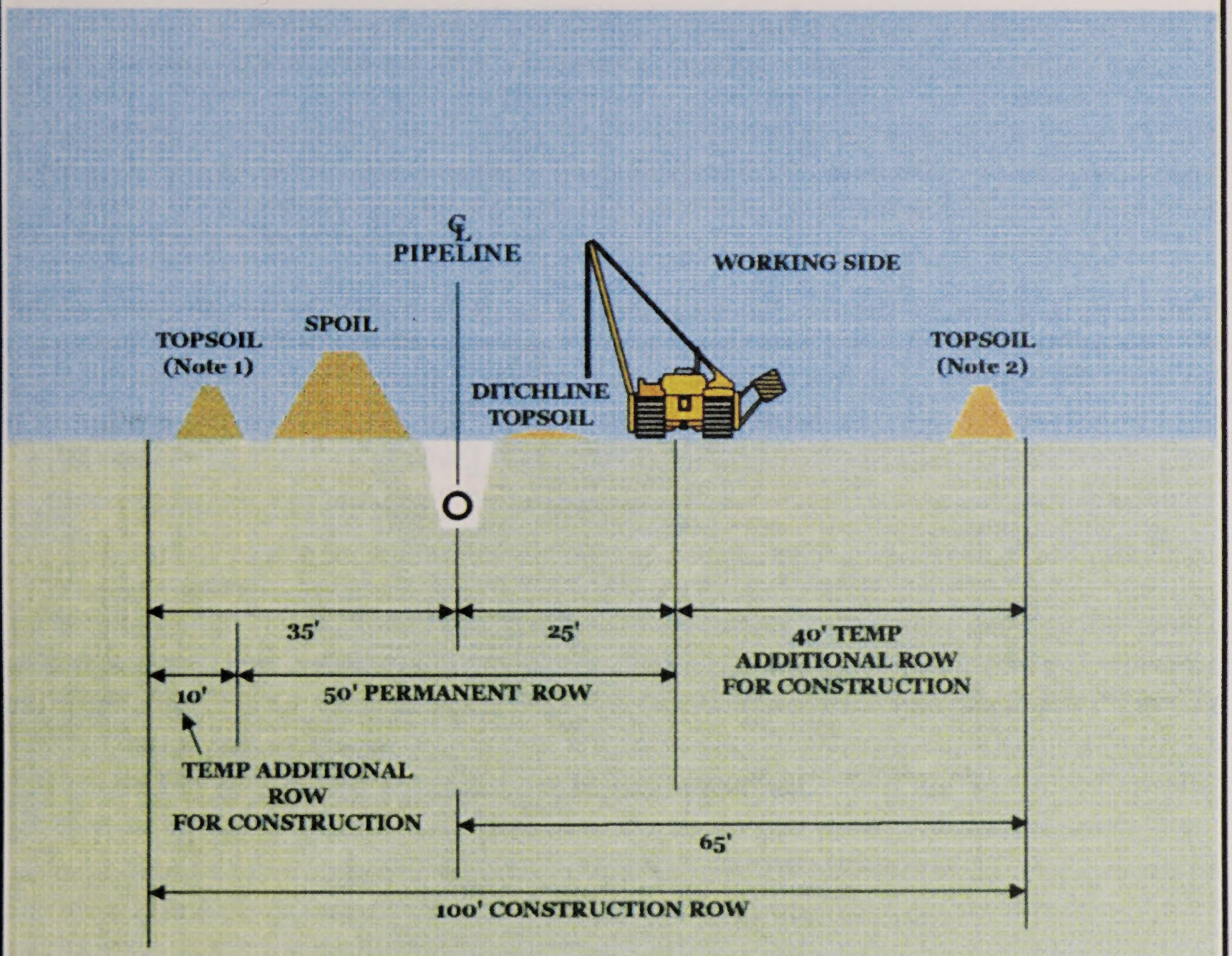
5 One pig launcher and pig receiver would be constructed at the Bighole Compressor Station at MP 76.3.

6 One pig receiver would be constructed within the Cheyenne Hub Metering Station at MP 327.5.

7 Each pig launcher and/or pig receiver would be constructed and operated within the compressor or meter station site.

8 Discrepancies in total acreages are due to rounding.

9 One pig launcher and one pig receiver would be constructed at each of the following: Wamsutter Compressor Station (MP 135.5) and the Arlington Pigging Station (MP 236.9).



Notes:

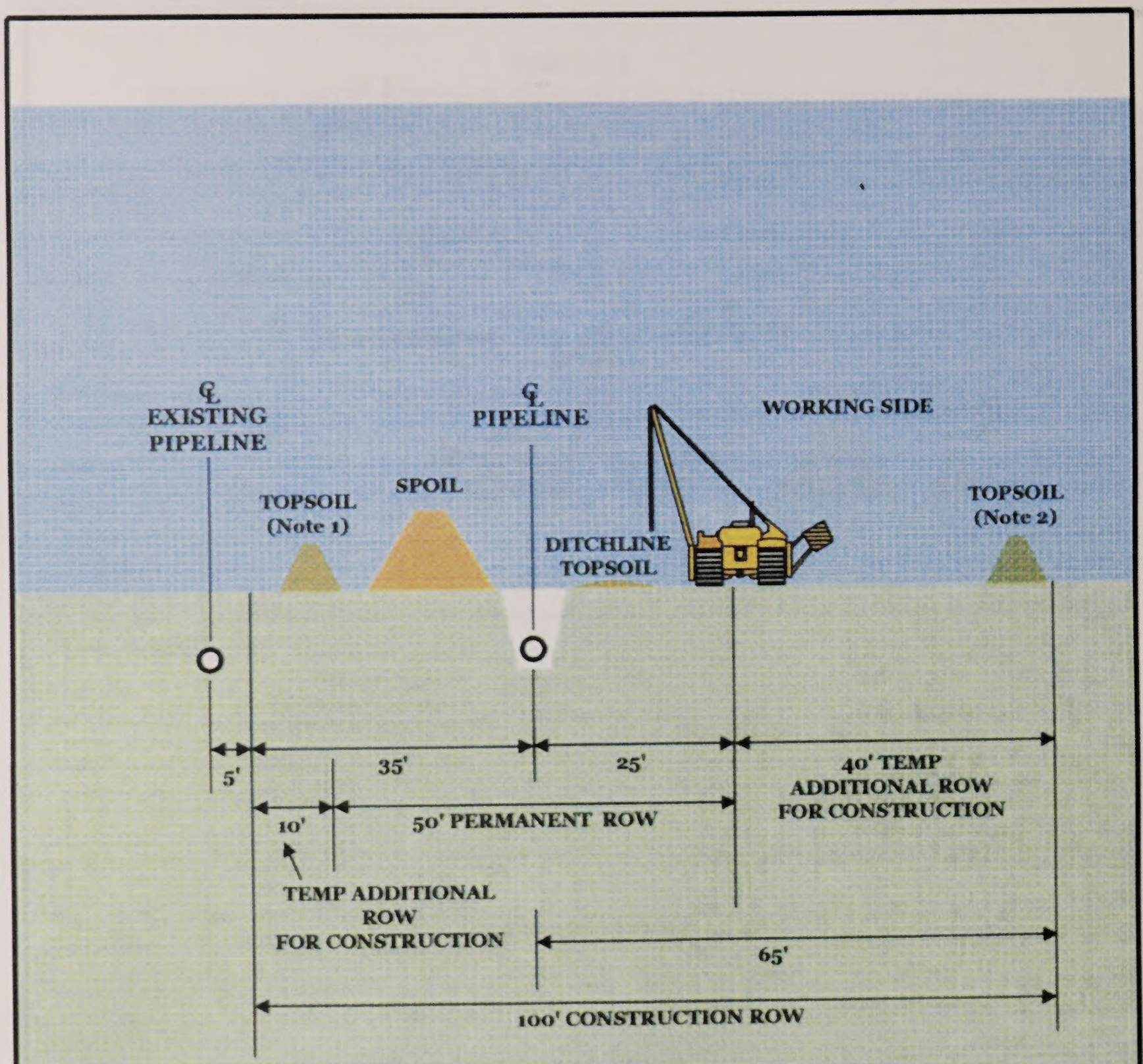
1. This is an alternate topsoil location for the ditch line topsoil depending upon the conditions encountered in the field during construction.

2. This location for topsoil will be required if full width topsoil stripping is required.

Entrega Pipeline Project

Figure 2.2-1

Typical Construction ROW



Notes:
1. This is an alternate topsoil location for the ditch line topsoil depending upon the conditions encountered in the field during construction.
2. This location for topsoil will be required if full width topsoil stripping is required.

Entrega Pipeline Project

Figure 2.2-2
Typical Construction ROW when Adjacent to Existing Pipeline

These totals do not include the short-term use of about 196 access and haul roads totaling 1,067 miles in length to access the ROW, many of which would require upgrading or maintenance (see section 2.2.4).

Approximately 2,074 acres of the 5,371 acres used for construction would be required for operation of the project. Of this total, about 1,989 acres would be for the pipeline permanent ROW, an additional 84 acres would be for the aboveground facilities and 1 acre for powerlines. The remaining 3,297 acres of land would be restored and allowed to revert to former use.

Approximately 45 percent of the land affected by construction and operation of the EPP would be public lands and 55 percent would be private lands. Of the total public lands, the BLM manages 72 percent, the State of Colorado manages 12 percent, and the State of Wyoming manages 11 percent. Remaining public lands are owned by local municipalities. A detailed description of land ownership is presented in section 3.7.

2.2.1 Pipeline ROW

Approximately 86 percent of the 328.1 miles of the proposed pipeline route is parallel to, and within about 300 feet, of existing pipeline, utility, or road ROWs. About 45.4 miles (14 percent) of the route proposed for construction would be newly created ROW. Where the proposed pipeline route would parallel existing utilities, Entrega's new permanent ROW would be adjacent to the existing permanent ROWs. As proposed, the new pipeline would generally be installed with a 40-foot offset from the nearest existing pipeline or utility centerline.

2.2.2 Additional Temporary Workspace Areas

Entrega proposes to expand the construction ROW to 125 feet in a number of areas to facilitate side-hill construction or to cross deeply incised drainages (**table 2.2-2**). These areas sum to more than 70 miles (more than 21 percent) of the total route.

In addition to the construction ROW, Entrega has identified the types of additional temporary workspace areas that would be required (**table 2.2-3**) and where these sites would be located. These additional temporary workspaces would be needed for areas requiring special construction techniques (e.g., river, wetland, and road crossings; horizontal directional drill entry and exit points; rocky soils) and construction staging areas. Additionally, the construction ROW width would be increased to 125 feet in certain areas to facilitate construction at steep slopes, side-hills, or deeply incised drainages (see **table 2.2.2**). Prior to construction, Entrega would be required to file a complete and updated list of temporary workspace areas with the Secretary of the Commission (Secretary) for review and approval prior to use. Additional temporary workspace areas on federal land would require authorization from the BLM in the form of a temporary use permit.

2.2.3 Pipe Storage and Contractor Yards

Off-ROW extra workspace areas that would be used during the construction phase of the project include pipe storage yards and contractor yards. Entrega proposes to use eight pipe storage yards, six contractor

Table 2.2-2
Areas Requiring Greater Right-of-Way Width

Begin MP	End MP	Length (miles)	Right-of-Way Width (feet)	Feature
6.1	7.2	1.1	125	Steep Hill
11.5	11.7	0.2	125	Steep Hill/Side Slopes
11.9	12.5	0.6	125	Steep Hill
12.9	13.2	0.3	125	Crossing/Set up for Steep Hill
13.9	14.6	0.7	125	Slopes/Side Slopes
15.4	16.0	0.6	125	Slopes/Side Slopes
16.3	17.1	0.8	125	Slopes/Side Slopes
19.7	20.2	0.5	125	Slopes/Side Slopes
20.4	21.2	0.8	125	Slopes/Side Slopes
25.3	25.9	0.6	125	Slopes and Deep Washes
26.1	26.5	0.4	125	Slopes and Deep Washes
27.5	28.1	0.6	125	Slopes and Deep Washes
29.7	30.3	0.6	125	Deep Washes
33.2	37.7	4.5	125	Slopes/Side Slopes
38.0	39.9	1.9	125	Slopes/Side Slopes/Ridge
48.5	49.8	1.3	125	Sand Dunes
52.0	56.6	4.6	125	Slopes/Side Slopes/Washes
83.3	93.2	9.9	125	Slopes/Side Slopes/Creeks/Washes
94.1	100.8	6.7	125	Slopes/Side Slopes/Creeks/Washes
116.0	117.9	1.9	125	Slopes/Side Slopes
119.3	122.2	2.9	125	Slopes/Side Slopes
143.9	144.2	0.3	125	Slopes/Side Slopes
145.6	145.9	0.3	125	Slopes/Side Slopes
174.5	174.8	0.3	125	Slopes/Side Slopes
196.9	197.6	0.7	125	Slopes and Deep Washes
204.5	207.5	3.0	125	Slopes/Side Slopes/Creeks/Drainages
213.5	219.0	5.5	125	Slopes/Side Slopes/Creeks/Drainages
223.0	225.0	2.0	125	Slopes/Side Slopes
226.0	230.0	4.0	125	Slopes/Side Slopes/Creeks/Drainages
233.6	233.7	0.1	125	Point of intersection
235.5	236.0	0.5	125	Slopes/Side Slopes
289.5	291.7	2.2	125	Slopes/Side Slopes
296.6	300.0	3.4	125	Soils/Slopes/Side Slopes/Drainages
306.2	306.3	0.1	125	Change of ROW side
312.0	317.0	5.0	125	Slopes/Side Slopes/Drainages
320.5	322.1	1.6	125	Slopes/Side Slopes

Table 2.2-3
Dimensions and Acreage of Typical Additional Temporary Workspace Areas

Feature	Dimensions[1] (length by width in feet at each side of crossing)	Acreage[1]
Full ROW topsoil stripping	Length of area x 25	Varies
Steep hill or side slopes	Length of area x area dependent upon hill and/or side slope grade	Varies
Spread mobilization/demobilization and staging	300 x 150[2]	1.0
Foreign pipeline crossovers	L-shaped	Varies
Open-cut roads	125 x 50[3]	0.1
Bored highways and railroads	175 x 50[4]	0.2
Open-cut waterbodies <50 feet wide	300 x 50[5]	0.3
Open-cut waterbodies >50 feet wide	300 x 100[6]	0.7
Directionally drilled waterbodies and wetlands	300 x 100 plus the length of the drill[7]	+0.7

[1] Dimensions and acreage are for each workspace; some crossings would require workspace on both sides of the feature.
[2] Space also could consist of one 200-foot by 150-foot area (0.7 acre) if turn around is required.
[3] Space could consist of up to four 125-foot by 50-foot areas. Space dimension is the minimum that would be required; actual dimensions could increase depending upon the individual crossing.
[4] Space could consist of up to four 175-foot by 50-foot areas. Space dimension is the minimum that would be required; actual dimensions could increase depending upon the individual crossing.
[5] Space could consist of up to four 300-foot by 50-foot areas. Space dimension is the minimum that would be required; actual dimensions would increase depending upon the individual crossing.
[6] Space could consist of up to four 300-foot by 100-foot areas. Space dimension is the minimum that would be required; crossing lengths greater than 100 feet would require that the workspace length increase depending upon the individual crossing.
[7] Space could consist of up to four 300-foot (plus length between drill entry and exit point to accommodate pipe lay-down area) by 100-foot areas.

yards, and four rail yards during construction (**table 2.2-4**). To the extent practical, Entrega proposes to use existing commercial/industrial sites or sites that previously have been used for construction. Existing public or private roads would be used to access each yard. Pipe storage yards, contractor yards, and rail yards would be used on a temporary basis and would be restored upon completion of construction. The locations of the pipe storage yards and contractor yards are shown in the topographic maps presented in appendix D.

2.2.4 Access Roads

Entrega would use preexisting roads to provide access to most of the construction ROW. Entrega plans to use 196 existing roads on a temporary basis to transport personnel, equipment, vehicles (including high clearance vehicles and heavy trucks), and materials to the proposed project work areas, with a total disturbance of approximately 1,067 miles. Eighty-four existing roads would be used in Colorado and 112 existing roads would be used in Wyoming; some roads used are in both states.

Entrega has indicated that it would need to improve and maintain about 98 of the proposed 196 temporary access roads needed to access the work areas. Class A (paved) roads and many Class B (gravel) roads may not require improvement or maintenance prior to or during construction unless the road base deteriorated or became unsafe or impassable. All of the Class C (two-track and dirt) roads would probably require some level of improvement to support construction equipment, vehicles and ongoing maintenance during the construction period, especially when rain occurs and travel over the roads degrades their condition. Road improvements such as blading and filling would be restricted to the existing road footprint

Table 2.2-4
Locations and Acreage of Pipe Storage Yards, Contractor Yards, and Rail Sidings

State/ Yard Name	Status	Legal Description	Acreage	Land Use
Colorado				
Meeker Pipe Yard	New Yard	Sections 5&6, T1N, R96W	40.5	Rangeland
Meeker Contractor Yard	New Yard	Section 18, T1N, R93W	10.0	Existing Site
Maybell Pipe Yard	New Yard	Section 2, T6N, R95W	29.0	Existing Site
Craig Pipe Yard	New Yard	Sections 2&3, T6N, R91W	51.6	Existing Site
Craig Contractor Yard	New Yard	Section 1, T6N, R91W	14.5	Existing Site
Craig Rail Siding (Empire)	New Yard	Sections 29&30, T6N, R91W	3.4	Existing Site
Wyoming				
Baggs Pipe Yard	New Yard	Section 28, T13N, R91W	20.0	Existing Site
Creston Contractor Yard	New Yard	Section 15, T20N, R92W	10.8	Rangeland (5.4) / Existing Site
Wamsutter Pipe Yard	New Yard	Section 15, T20N, R94W	58.7	Rangeland
Thayer Rail Siding	New Yard	Sections 27&28, T20N, R102W	19.7	Existing Site
Walcott Pipe Yards	New Yards	Section 35, T21N, R84W	25.2 and 28.9	Rangeland
Walcott WYCO Rail Siding (also referred to as the Walcott Missouri Pacific Rail Siding)	New Yard	Sections 25, 36, and 31, T21N, R84W	41.9	Rangeland
Walcott UPRR Rail Siding	New Yard	Section 26, T21N, R84W	9.0	Existing Site
Rawlins Contractor Yard 1	Previously Filed with FERC	Section 23, T21N, R88W	57.1	Rangeland
Rawlins Contractor Yard 2	Previously Filed with FERC	Section 21, T21N, R87W	13.3	Existing Site
Laramie Pipe Yard	Previously Filed with FERC	Section 29, T16N, R73W	19.3	Existing Site
Laramie Contractor Yard	Previously Filed with FERC	Section 29, T16N, R73W	12.9	Existing Site
Cheyenne Pipe Yard & Equipment Storage	Previously Filed - New Location w/in Original Area	Sections 27&34, T13N, R67W Section 3, T12N, R67W	2 small pieces w/in 199.8 acres previously surveyed	Existing Site

(i.e., the road may not be widened) wherever possible where there is evidence that the road was previously graded. Entrega also has proposed that where there is no evidence of previous grading or if the road required widening, road maintenance would only be allowed after completing biological and cultural resources surveys, and completing appropriate consultations with the State Historic Preservation Office

(SHPO) and FWS. In all cases, roads would be used and maintained only with permission of the landowner or land management agency.

As a part of its permanent aboveground facilities, Entrega also would construct short, permanent access roads from public roads to the proposed compressor stations, metering stations, and mainline valves. Entrega expects all of these roads to be contained within the permanent ROW, therefore no area was included in disturbance estimates. The resulting estimate of acres of disturbance is discussed in the Aboveground Facility discussion (section 2.2.5). Prior to construction, Entrega would finalize proposed permanent access roads along with any additional temporary access roads and submit them to the Secretary for review and approval. At a minimum, construction of new access roads would require completion of cultural resources and biological surveys, along with the appropriate SHPO and FWS consultations and approvals. Other state and local permits also may be required prior to construction. In the future, maintenance of newly created access roads would be the responsibility of Entrega, with ownership over the road remaining with the affected land management agency or private landowner. Any permanent access roads on federal land would be considered an ancillary facility to the ROW and added to any grant from the BLM.

2.2.5 Aboveground Facilities

Entrega proposes to use a total of about 97 acres of land for construction of aboveground facilities and 84 acres during operation, including compressor stations, metering stations, mainline valves, and pig launchers and receivers.

During Phase 2, Entrega would construct three new compressor stations: the Meeker Hub Compressor Station, the Bighole Compressor Station, and the Wamsutter Compressor Station (**table 2.1-1**). Each station would consist of a compressor building, utility building, and parking area for station personnel. In addition, each would contain compressors, gas filtration/separation equipment, and at least one generator. With the exception of the Bighole Compressor Station, stations would operate on locally purchased power for electricity for lights and heating in the buildings and would be fully automated for unmanned operation. Each station would house natural gas turbine compressors. Remote start/stop, set point controls, unit monitoring equipment, and station information would be installed at each location. Pipeline entering and exiting the compressor facilities would be below grade as practicable, but would come above ground prior to entering and exiting the compressor buildings.

Although seven meter stations would be constructed along the proposed pipeline route, only two would be built by Entrega. Metering facilities constructed by Entrega would be located within the proposed Meeker Hub Compressor Station and adjacent to the proposed Cheyenne Hub Metering Station on a 100-foot-square parcel (for deliveries to PSCo). Near Entrega's proposed Wamsutter Compressor Station, two meter stations (CIG Frewen Lake and WIC Bitter Creek) would be constructed by CIG on a new 300-foot-square site for deliveries from Entrega to the CIG and WIC systems. Three other meter stations would be constructed either on or in the immediate vicinity of Entrega's Cheyenne Hub Metering Station for deliveries from Entrega to the systems of CIG, Cheyenne Plains, and Trailblazer. The CIG and Cheyenne Plains metering facilities would be constructed by CIG on a new 300-foot by 150-foot parcel, while the Trailblazer meter would be constructed by Kinder Morgan within Entrega's Cheyenne Hub station. The meter stations

would include pressure regulating, heating, sampling, chromatography, tube switching, and electronic gas measurement equipment.

Entrega would construct 22 mainline valves along the proposed route (**table 2.1-1**). Seventeen of the mainline valves would be constructed in a 40-foot-wide by 60-foot-long site located within the 100-foot-wide pipeline construction ROW and would operate within the 50-foot-wide permanently maintained ROW. The remaining five mainline valves would be constructed and operated within the proposed compressor stations. The spacing intervals between the mainline valves would be approximately every 15 to 20 miles, in accordance with current DOT class locations.

Pig launchers and/or receivers would be constructed and operated completely within the boundaries of the compressor stations, Arlington Pigging Station, and at the Cheyenne Hub Metering Station (**table 2.1-1**). Launchers and receivers would allow the pipeline to accommodate a high-resolution internal line inspection tool.

2.3 Construction Procedures

At a minimum, the proposed facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the DOT regulations in 49 CFR 192, *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards*, and other applicable federal and state regulations. These regulations are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures. Among other design standards, Part 192 specifies pipeline material and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

To reduce construction impact, Entrega would implement its project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Entrega's Plan) in upland areas (see appendix E) and its project-specific Wetland and Waterbody Construction and Mitigation Procedures (Entrega's Procedures) for construction across wetlands and waterbodies (appendix F). Entrega's Plan and Procedures are based on the mitigation measures contained in our Upland Erosion Control, Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures. Our review indicates that the few differences between Entrega's Plan and Procedures and our Plan and Procedures are minor, generally reflect the arid western climate, and do not compromise the effectiveness of the proposed mitigation or the protection of the resources. Therefore, we believe that Entrega's Plan and Procedures would provide a level of environmental protection that is equivalent to the measures contained in our Plan and Procedures.

Additional mitigation is contained in Entrega's Construction, Mitigation, and Reclamation Plan (appendix G), developed in consultation with the BLM. In this plan, Entrega has identified seven vegetation communities (Colorado-3, Wyoming-4) crossed by the pipeline. Entrega's Plan describes reclamation techniques and procedures, including specifics of seedbed preparation, seed mixtures and rates, preventing the spread of noxious weeds, seeding methods, mulching rates, success criteria, and monitoring and reporting requirements. This plan also addresses mitigation and restoration of sensitive locations including habitat for federally listed threatened or endangered species and vegetation communities of special concern or value, areas containing sensitive cultural resources, and visually sensitive areas. Entrega's topsoil segregation

program would be an important mitigation element especially in arid habitats where vegetation is notably sensitive to disturbance, and revegetation would be a slow process.

In addition to its Plan and Procedures, Entrega has prepared several specific plans that include measures to mitigate for potential impacts. For example, Entrega's Weed Management Plan (appendix H) includes site-specific measures that would be implemented to control noxious weeds, including the use of cleaned, weed-free equipment; the installation and use of wash stations to remove seeds and other propagules from equipment prior to the beginning of construction of the project and at county lines prior and during construction; and the use of certified weed-free straw/hay bales to control erosion. Details of the Weed Management Plan including important committed mitigation measures are discussed in section 3.2.

Entrega also would implement its Spill Prevention, Control, and Countermeasure (SPCC) Plan to avoid or minimize the potential for harmful spills and leaks during construction. Entrega's SPCC Plan describes spill prevention practices, emergency response procedures, emergency and personnel protection equipment, release notification procedures, and cleanup procedures. The SPCC Plan is discussed further in the context of different resources (e.g., sections 3.2, 3.3, and 3.5)

Additional resource and issue-specific plans, including Entrega's Typical Incised Bank Stabilization Restoration Plan (appendix I), Site-Specific Waterbody Crossing Plans (appendix J), and Site-Specific Construction and Revegetation Plan for Riparian Woodland Communities (Riparian Woodland Plan, see appendix K) also would provide engineering design specifications and key mitigation to limit, to the maximum extent practicable, environmental impact from construction in and adjacent to waterbodies crossed by the EPP. Where riparian woodlands are encountered, mitigation implemented during construction would be coupled with specific restoration measures to return the woodlands to near-preconstruction conditions as quickly as possible.

Entrega also has prepared an Emergency Response Plan (ERP) to identify it's emergency personnel and the logical sequence of actions, which should be taken in the event of an emergency involving the Entrega system facilities during construction of the EPP. The ERP includes identification and notification of local first responders along the Entrega route. Prior to construction, Entrega intends to meet with the local first responders in each county and provide them with a work schedule showing the approximate timing of construction crews in each county, the expected location of the construction crews under the proposed construction schedule, and contact information for the construction contractor's emergency and safety personnel that would be at the various construction sites. Further, Entrega would provide to the local first responders contact information for its own safety and inspection personnel at the various construction sites. Once the pipeline is constructed and pipeline operations commence, the ERP will be finalized so that it meets the federal safety requirements (49 CFR 192.615). The current preliminary version of the ERP establishes written emergency shut down procedures, communication coordination, and clean-up responsibilities in the event of a gas pipeline emergency or a natural disaster.

All of Entrega's mitigation plans discussed above are important components of its POD. The POD is a document required by the BLM prior to issuance of the ROD. If the project were approved, the POD would be appended to the ROW grant issued by the BLM and would serve as a project resource manual. The BLM and Entrega are currently in the process of finalizing the POD, which will include all of the measures that are

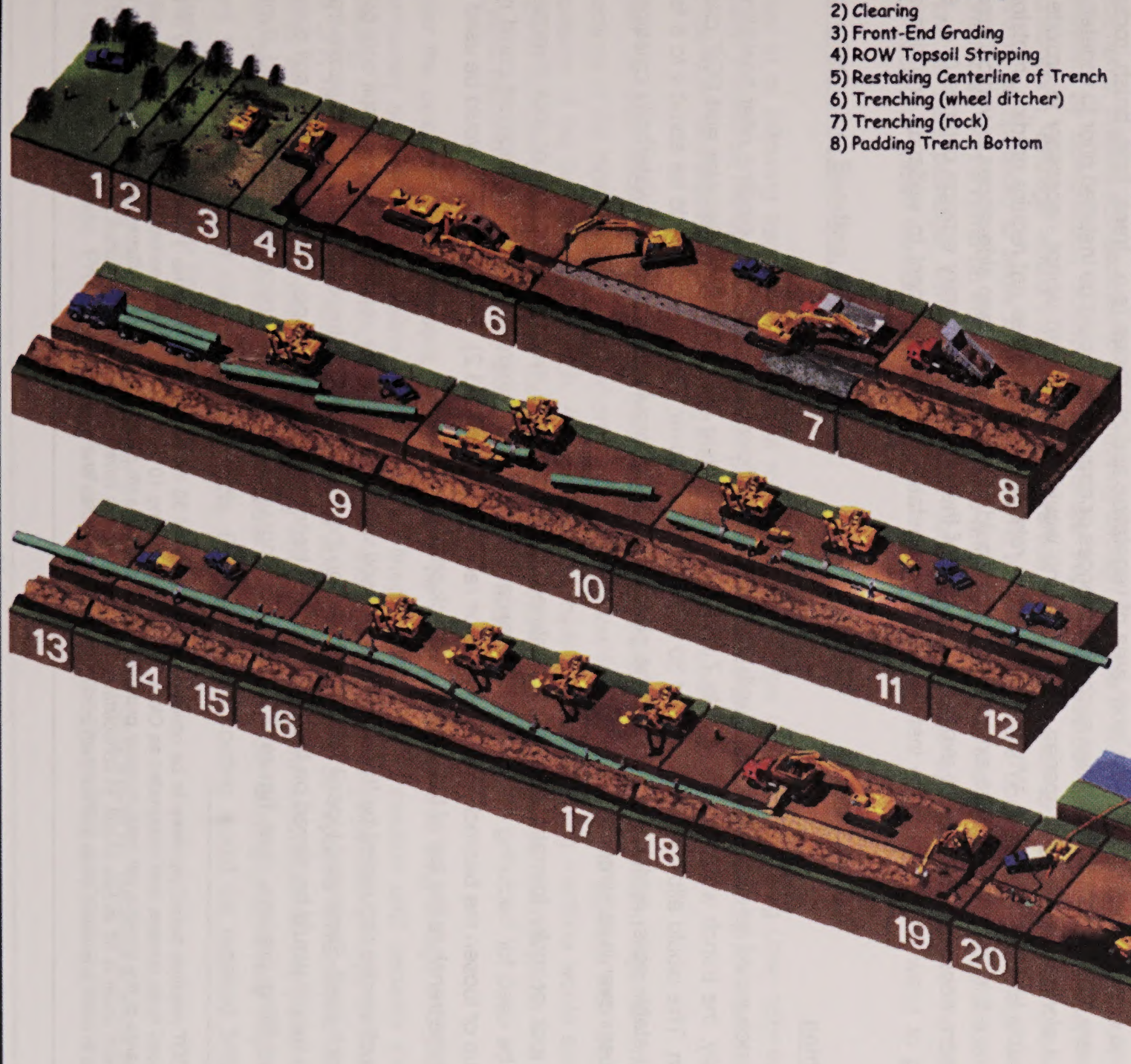
described in this EIS as well as additional site-specific stipulations that are determined to be necessary on federal lands. Any additional site-specific measures included in the POD would not contradict the mitigation measures of this EIS.

It is our intent that the mitigation and other measures contained in the POD not be limited to federal lands alone, but considered the general construction plan applicable to all lands disturbed by the EPP. This approach would enable construction to proceed with a single set of "rules," irrespective of the ownership status (federal versus non-federal) of the land being crossed. Where needed, site-specific measures required by the BLM would apply only to areas administered by a particular FO, or perhaps to all federal lands. On private lands, this plan may be modified slightly to accommodate specific landowner requests/preferences. For example, while Entrega proposes to strip and segregate topsoil from the ditch line only where surface conditions allow, a private landowner may request the topsoil on their property be stripped from a larger portion of the ROW (or even the full ROW). Another example is illustrated by a condition frequently attached to FERC certificates which states (in abbreviated form) that the FERC staff must review and provide written approval for all route realignments *except for* minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas (see recommendation 5 in section 5.5).

2.3.1 General Pipeline Construction Procedures

Before starting construction, Entrega would finalize engineering surveys of the ROW centerline and extra workspaces, and complete land or easement acquisition on private and state land. On federal land, Entrega would need to obtain a ROW grant from the BLM. Overland pipeline construction generally proceeds as a moving assembly line as shown in **figure 2.3-1** and as summarized below. Entrega currently plans to construct the pipeline in two segments. Entrega plans to construct the portion of the line located between the Meeker Hub and Wamsutter Compressor Stations (Segment 1) with one main pipeline spread, starting in Wamsutter (MP 135.6) and proceeding southerly for at least 79 miles (to MP 56.6). The remaining 57 miles of Segment 1 is complicated by terrain (slopes, side slopes, wetlands), larger road crossings, more waterbody crossings, pipeline crossings, and changing sides of the corridor, so Enterga plans to use a series of smaller spreads constructed simultaneously for this portion of Segment 1. Because of the location of Entrega's pipeline relative to existing pipelines/utilities in the I-80 utility corridor, Entrega intends to construct Segment 2 with two main pipeline spreads of roughly the same length working in a general easterly direction from MPs 135.6 and 237. Separate crews would be used for construction of the aboveground facilities.

Standard pipeline construction is composed of specific activities including survey and staking of the ROW, clearing and grading, trenching, pipe stringing, bending, welding, lowering-in, backfilling, hydrostatic testing, and cleanup. In addition to standard pipeline construction methods, Entrega would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across rugged terrain, waterbodies, wetlands, paved roads, highways, and railroads (section 2.3.2).



1) Survey and Staking
2) Clearing
3) Front-End Grading
4) ROW Topsoil Stripping
5) Restaking Centerline of Trench
6) Trenching (wheel ditcher)
7) Trenching (rock)
8) Padding Trench Bottom
9) Stringing Pipe
10) Field Bending Pipe
11) Line-Up, Initial Weld
12) Fill & Cap, Final Weld
13) As-Built Footage
14) X-Ray Inspection, Weld Repair
15) Coating Field Welds
16) Inspection & Repair of Coating
17) Lowering Pipe into Trench
18) AsBuilt Survey
19) Pad, Backfill, Rough Grade
20) Hydrostatic Testing, Final Tie-in
21) Replace Topsoil, Final Clean-Up, Full Restoration

Entrega Pipeline Project

Figure 2.3-1

Typical Pipeline Construction Sequence

Survey and Staking

The first step of construction would involve marking the limits of the approved work area (i.e., the construction ROW boundaries, additional temporary workspace areas) and flagging the location of approved access roads and foreign utility lines. Wetland boundaries and other environmentally sensitive areas also would be marked or fenced for protection at this time. Before the pipeline trench is excavated, a survey crew would stake the centerline of the proposed trench. Entrega would notify landowners at least 5 days prior to the initiation of staking and surveying on their property.

Clearing and Grading

Before clearing and grading activities were conducted, landowner fences would be braced and cut, and temporary gates and fences would be installed to contain livestock, if present. A clearing crew would follow the fence crew and would clear the work area of vegetation and obstacles (e.g., trees, logs, brush, rocks). Temporary erosion control measures such as silt fences or straw bales would be installed prior to vegetation removal along wetlands and riparian areas. Grading would be conducted where necessary to provide a reasonably level work surface. Where the ground is relatively flat and does not require grading, rootstock would be left in the ground. More extensive grading would be required in steep side-slopes or vertical areas and where necessary to prevent excessive bending of the pipeline. Temporary erosion controls (e.g., silt fencing or straw bales) would be installed prior to vegetation removal adjacent to wetlands and riparian areas.

Trenching

The trench would be excavated to a depth that provides sufficient cover over the pipeline after backfilling. Typically, the trench would be about 6 to 7 feet deep depending on the pipeline diameter and DOT class location. This would allow for the required 30 to 36 inches of cover.[2] The trench would be about 4 to 6 feet wide in stable soils. Additional cover for the pipeline would be provided at road and waterbody crossings, while less cover is required in rock.

When rock or rocky formations were encountered, tractor-mounted mechanical rippers or rock trenchers would be used for fracturing the rock prior to excavation. In areas where mechanical equipment could not break up or loosen the bedrock, blasting would be required (section 2.3.2). Excavated rock would be used to backfill the trench to the top of the existing bedrock profile.

Unless otherwise requested by the landowner, topsoil would generally be separated from subsoil only over the trench itself. Separated topsoil would be stored on the near side of the trench and in a pile separate from subsoil (which would be stored on the far side of the trench) to allow for proper restoration of the soil during the backfilling process (see **figure 2.2-1**). Depending upon conditions encountered in the field during

[2] The DOT requires buried pipelines to be covered by a minimum of 30 inches of soil in all Class 1 locations. The majority of the proposed route crosses land designated as Class 1, defined as having 10 or fewer buildings intended for human occupancy within 220 yards of the pipeline per mile. In more populated areas and beneath public road drainage ditches and railroad crossings, the minimum cover is 36 inches of soil. In consolidated rock, the minimum cover requirement is 18 inches in Class 1 locations and 24 inches in more populated areas and beneath public road drainage ditches and railroad crossings.

construction, topsoil separated from subsoil over the trench may be stored on the far side of the trench as an alternate topsoil location (see **figure 2.2-1**). In areas where the ROW would be graded to provide a level working surface and where there was a need to separate topsoil from subsoil, the ROW would be graded to collect topsoil before any subsoil was disturbed. Topsoil separated from subsoil under conditions where the entire ROW is to be stripped would be stored on the working side of the ROW as shown in **figure 2.2-1**. Again, topsoil would be piled such that the mixing of subsoil and topsoil would not occur. Topsoil will not be stripped from areas where subsoil would be stored to maintain the integrity of the natural soil horizons and preserve rootstock. Gaps would be left between the spoil piles to prevent storm water runoff from backing up or flooding. Topsoil would be returned to its original horizon after subsoil was backfilled in the trench.

In areas where rangeland is used for grazing and livestock could not be temporarily relocated by the landowner, construction activities could potentially hinder the movement of livestock across those allotments. Wildlife accustomed to freely moving through the area in search of food and water could also be hindered by construction activities. To minimize impact on livestock and wildlife movements during construction, Entrega would install soft plugs (areas where the trench is excavated and replaced with minimal compaction) to allow livestock and wildlife to safely cross the open trench. Soft plugs would be constructed with a ramp on each side to enable animals that fell into the trench an avenue of escape. To allow for safe passage, soft plugs would be constructed at 1-mile intervals and where the trench is intersected by known livestock or wildlife trails.

Pipe Stringing, Bending, and Welding

Prior to or following trenching, sections of externally coated pipe up to 80 feet long (also referred to as "joints") would be transported by truck over public road networks and along authorized private access roads to the ROW and placed or "strung" along the trench in a continuous line.

After the pipe sections were strung along the trench and before joints were welded together, individual sections of the pipe would be bent where necessary to allow for uniform fit of the pipeline with the varying contours of the bottom of the trench. A track-mounted, hydraulic pipe-bending machine would shape the pipe to conform to the contours of the terrain. Where multiple or complex bends were required in a section of pipe, that section of the pipeline would be bent at the factory.

After the pipe sections were bent, the joints would be welded together into long strings and placed on temporary supports. The pipeline joints would be lined up and held in position until securely joined by welding. One hundred percent of the welds would undergo radiographic inspection (X-ray), as outlined in 49 CFR 192. Welds that do not meet established specifications would be repaired or removed. Once the welds were approved, a protective epoxy coating would be applied to the welded joints. The pipeline would then be electronically inspected or "jeeped" for faults or voids in the epoxy coating, and visually inspected for any faults, scratches, or other coating defects. Damage to the coating would be repaired before the pipeline was lowered into the trench.

Gaps every mile in the strung pipe string and a corresponding soft plug would be installed to allow passage to livestock and wildlife. Prior to lowering-in of the pipe into the trench, multiple sections of pipeline may be

welded together above the ditch to create welded lengths of pipe that may be greater than 1 mile in length. These sections of pipeline will be lowered into the ditch no later than 7 days after they are joined.

Lowering-in and Backfilling

Before the pipeline is lowered in, the trench would be inspected to be sure it is free of livestock or wildlife, as well as rocks and other debris that could damage the pipe or protective coating. In areas where water had accumulated, dewatering could be necessary to inspect the bottom of the trench. The pipeline then would be lowered into the trench. On sloped terrain, trench breakers (stacked sand bags or foam) would be installed in the trench at specified intervals to prevent subsurface water movement along the pipeline. The trench would then be backfilled using the excavated material. In rocky areas, the pipeline would be protected with a rock shield (fabric or screen that is wrapped around the pipe to protect the pipe and its coating from damage by rocks, stones, and roots). Alternatively, the trench bottom would be filled with padding material (e.g., finer grain sand, soil, or gravel) to protect the pipeline. No topsoil would be used as padding material.

Hydrostatic Testing

The pipeline would be hydrostatically tested in 14 sections to ensure the system was capable of withstanding the operating pressure for which it was designed (see appendix M, Hydrostatic Test Plan). This process involves isolating the pipe segment with test manifolds, filling the line with water, pressurizing the section to a pressure commensurate with the MAOP and class location, and then maintaining that pressure for a period of 8 hours. The hydrostatic test would be conducted in accordance with Title 49 CFR Part 192. Entrega proposes to obtain water for hydrostatic testing from surface water sources through specific agreements with landowners and in accordance with federal, state, and local regulations. The pipeline would be hydrostatically tested after backfilling and all construction work that would directly affect the pipe has been completed. If leaks are found, they would be repaired and the section of pipe retested until specifications were met. Water used for the testing would then be transferred to another pipe section for subsequent hydrostatic testing or the water would be tested to ensure compliance with the National Pollution Discharge Elimination System (NPDES) discharge permit requirements, treated if necessary, and discharged. Hydrostatic testing is discussed further in sections 3.3.2, 3.5.1, 3.6.1, and 3.6.4.

Final Tie-in

Following successful hydrostatic testing, test manifolds would be removed and the final pipeline tie-ins would be made and inspected.

Commissioning

After final tie-ins are complete and inspected, the pipeline would be cleaned and dried using mechanical tools (pigs) that are moved through the pipeline with pressurized, dry air. The pipeline would be dried to minimize the potential for internal corrosion. Once the pipe has dried sufficiently, pipeline commissioning would commence. Commissioning involves activities to verify that equipment has been properly installed and is working, the controls and communications systems are functional, and that the pipeline is ready for

service. In the final step, the pipeline is prepared for service by purging the line of air and loading the line with natural gas.

Cleanup and Restoration

During cleanup, construction debris on the ROW would be disposed of and work areas would be final graded. Preconstruction contours would be restored as closely as possible. Segregated topsoil would be spread over the surface of the ROW and permanent erosion controls would be installed. After backfilling, final cleanup would begin as soon as weather and site conditions permit. Every reasonable effort would be made to complete final cleanup (including final grading and installation of erosion control devices) within 20 days after backfilling the trench (10 days in residential areas). Construction debris would be cleaned up and taken to a disposal facility.

After permanent erosion control devices are installed and final grading has occurred, all disturbed work areas would be seeded as soon as possible. Seeding is intended to stabilize the soil, revegetate areas disturbed by construction, and, depending upon land use, restore native flora. Timing of the reseeding efforts would depend upon weather and soil conditions and would be subject to the prescribed dates and seed mixes specified by the landowner, land-managing agency, or Natural Resource Conservation Service (NRCS) recommendations.

With landowner approval, Entrega would restrict access along the ROW using gates, boulders, or other barriers to minimize unauthorized access by all-terrain vehicles. Pipeline markers would be installed at fence, road, and railroad crossings and other locations (as required by 49 CFR 192) to show the location of the pipeline. Markers would identify the owner of the pipeline and convey emergency information. Special markers providing information and guidance to aerial patrol pilots also would be installed.

2.3.2 Special Construction Procedures

In addition to standard pipeline construction methods, Entrega would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across paved roads, highways, railroads, steep terrain, waterbodies, wetlands, and when blasting through rock. These are described below.

Road, Highway, and Railroad Crossings

Entrega has prepared a Traffic and Transportation Management Plan (TTMP) as part of its POD. The TTMP identifies mitigation to reduce potential impacts of project-related road use and construction activity and plans for maintenance or moderate upgrading of existing access roads. Construction across paved roads, highways, and railroads would be in accordance with the requirements of Entrega's road and railroad crossing permits and approvals obtained by Entrega. In general, major paved roads, highways, and railroads would be crossed by boring beneath the road or railroad. Boring requires the excavation of a pit on each side of the feature, the placement of boring equipment in the pit, then boring a hole under the road at least equal to the diameter of the pipe. Once the hole was bored, a prefabricated pipe section would be pushed through the borehole. For long crossings, sections could be welded onto the pipe string just before

being pushed through the borehole. Boring would result in minimal or no disruption to traffic at road, highway, or railroad crossings. Each boring would be expected to take 2 to 10 days.

Most smaller, unpaved roads and driveways would be crossed using the open-cut method where permitted by local authorities or private owners. The open-cut method would require temporary closure of the road to traffic and establishment of detours. If no reasonable detour is feasible, at least one lane of traffic would be kept open, except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings would be completed and the road resurfaced in 1 or 2 days. Entrega would take measures, such as posting signs at open-cut road crossings, to ensure safety and minimize traffic disruptions.

Steep Terrain

Additional grading may be required in areas where the proposed pipeline route would cross steep slopes. Steep slopes often need to be graded down to a gentler slope to accommodate pipe-bending limitations. In such areas, the slopes would be cut away, and after the pipeline is installed, reconstructed to their original contours during restoration.

In areas where the proposed pipeline route crosses laterally along the side of a slope, cut and fill grading may be required to obtain a safe, flat work terrace. Topsoil would be stripped from the entire ROW and stockpiled prior to cut and fill grading on steep terrain. Generally, on steep side-slopes, soil from the high side of the ROW would be excavated and moved to the low side of the ROW to create a safe and level work terrace. After the pipeline is installed, the soil from the low side of the ROW would be returned to the high side, and the slope's original contours would be restored. Topsoil from the stockpile would be spread over the surface, erosion control features installed, and seeding implemented.

In steep terrain, temporary sediment barriers such as silt fence and certified weed-free straw bales would be installed during clearing to prevent the movement of disturbed soil off the ROW. Temporary slope breakers consisting of mounded and compacted soil would be installed across the ROW during grading, and permanent slope breakers would be installed during cleanup. Following construction, seed would be applied to steep slopes, and the ROW would be mulched with certified weed-free hay or non-brittle straw or covered with erosion control fabric. Entrega would use mulching materials approved by the BLM on the portion of the route that is under its jurisdiction. Sediment barriers would be maintained across the ROW until permanent vegetation is established.

Waterbody Crossings

A total of 43 perennial waterbodies would be crossed by the proposed EPP. Some of these waterbodies would be crossed multiple times. Perennial waterbodies would be crossed using one of four techniques: the open-cut method (Entrega's preferred method), horizontal directional drill (HDD) method, flume method, or dam-and-pump method as described below.

If a waterbody was flowing at the time of construction, Entrega's preferred crossing method would be to use an open-cut. The open-cut method involves trenching through the waterbody while water continues to flow

through the construction work area. Pipe segments for the crossing would be fabricated adjacent to the waterbody. Backhoes generally operating from one or both banks would excavate the trench within the streambed. In wider rivers, in-stream operation of equipment may be necessary. Trench plugs (stacked, compacted sand bags) would be placed to prevent the flow of water into the upland portions of the trench. Trench spoil excavated from the streambed would be generally placed at least 10 feet away from the water's edge. Sediment barriers would be installed where necessary to control sediment and to prevent excavated spoil from entering the water. After the trench is dug, the prefabricated pipeline segment would be carried, pushed, or pulled across the waterbody and positioned in the trench. The trench would then be backfilled with native material or with imported material if required by applicable permits. Following backfilling, the banks would be restored and stabilized.

At the White and Yampa Rivers in northwestern Colorado, Entrega would avoid conflicts with endangered fish by using the HDD method of construction to cross the rivers. The HDD method involves drilling a pilot hole under the waterbody and banks, then enlarging the hole through successive reamings until the hole is large enough to accommodate a prefabricated segment of pipe. Throughout the process of drilling and enlarging the hole, a slurry made of non-toxic fluids, such as naturally occurring bentonite and water, would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. This slurry is referred to as drilling mud. Pipe sections long enough to span the entire crossing would be staged and welded along the construction work area on the opposite side of the waterbody and then pulled through the drilled hole. Ideally, use of the HDD method results in no impact on the banks, bed, or water quality of the waterbody being crossed. **Figure 2.3-2** shows a conceptual HDD waterbody crossing.

While the flume and dam-and-pump methods also could be considered as alternative crossing methods, Entrega has not proposed to use either. The flume crossing method involves diverting the flow of water across the trenching area through one or more flume pipes placed in the waterbody. The dam-and-pump method is similar to the flume method except that pumps and hoses would be used instead of flumes to move water around the construction work area. In both methods, trenching, pipe installation, and backfilling are done with the streambed in a relatively dry condition while water flow is maintained for all but a short reach of the waterbody at the actual crossing. Once backfilling is completed, the flume or pump hoses are removed and the streambanks restored and stabilized.

The project also would cross approximately 306 intermittent waterbodies. If these intermittent waterbodies are dry at the time of crossing, Entrega proposes to use conventional upland cross-country construction techniques. If an intermittent waterbody is flowing when crossed, Entrega would install the pipeline using one of the waterbody crossing methods discussed above. When crossing waterbodies, Entrega would adhere to the guidelines outlined in Entrega's Plan and Procedures (appendices E and F) and the requirements of its waterbody crossing permits. For major waterbodies (greater than 100 feet wide), Entrega has prepared site-specific crossing plans (appendix J).

Additional temporary workspace areas would be required on both sides of all waterbodies to stage construction, fabricate the pipeline, and store materials. These workspaces would be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Before construction, temporary bridges (e.g., clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, flexi-float apparatus) would be installed across all

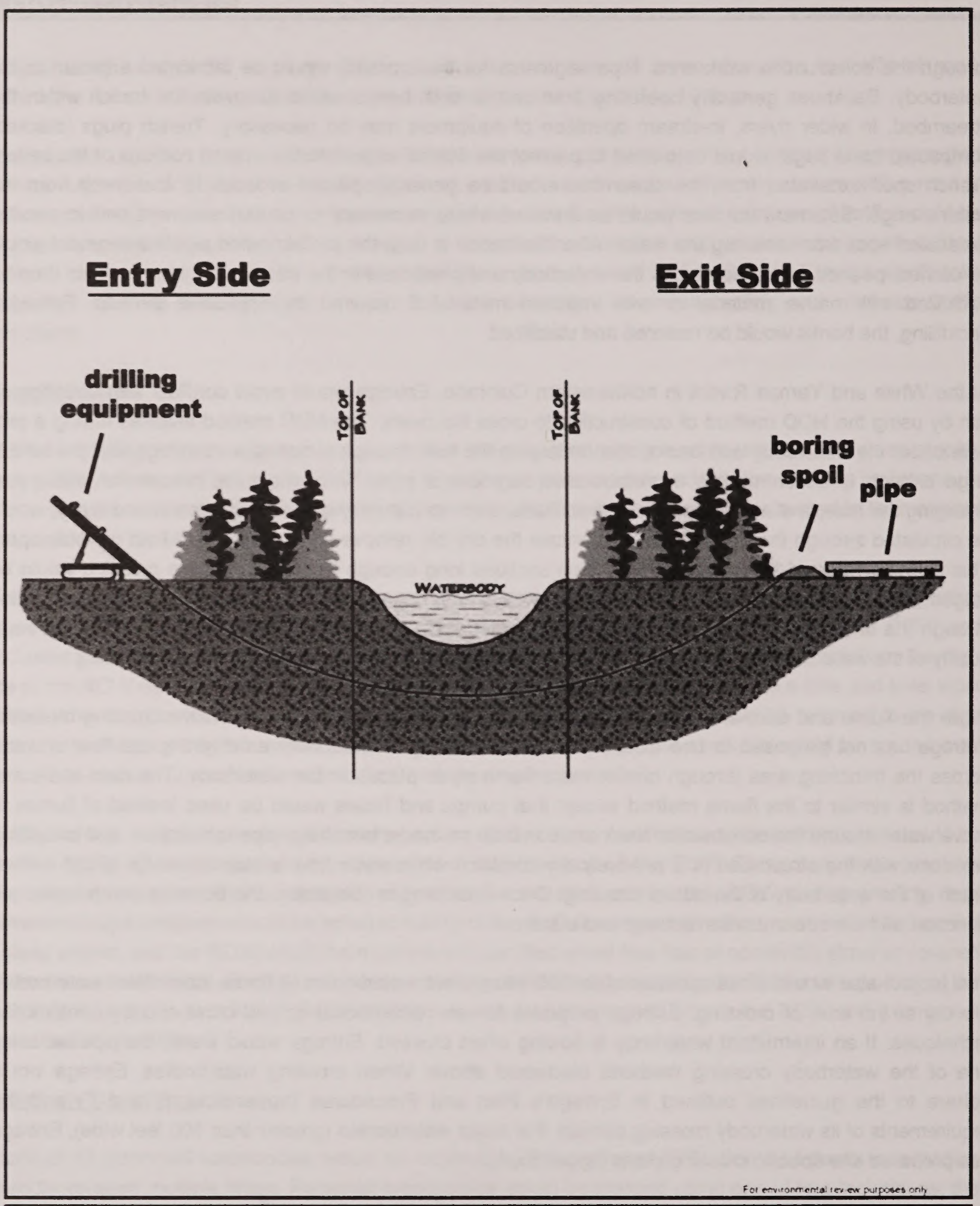


Figure 2.3-2
Entrega Pipeline Project
Conceptual Horizontal Directionally Drilled Waterbody Crossing

perennial waterbodies to allow construction equipment to cross. Construction equipment would be required to use the bridges, except the clearing crew who would be allowed one pass through the waterbodies before the bridges were installed.

Clearing adjacent to waterbodies would involve the removal of vegetation from the construction ROW and additional temporary workspace areas. If no herbaceous strip exists, sediment barriers would be installed at the top of the streambank. Initial grading of the herbaceous strip would be limited to the extent needed to create a safe approach to the waterbody and to install bridges. To minimize impacts on riparian woodlands, Entrega has prepared a Riparian Woodland Plan (appendix K). In riparian woodlands, Entrega would reduce the construction ROW to 75 feet in width. The plan identifies measures to relocate temporary workspace areas away from riparian woodlands, avoid the removal of trees located within the construction area to the maximum extent possible, and revegetate riparian areas with a diversity of species and at densities that will encourage revegetation to preconstruction conditions.

During clearing, sediment barriers would be installed and maintained across the ROW adjacent to waterbodies and within additional temporary workspace areas to minimize the potential for sediment runoff. Silt fence and/or certified weed-free straw bales located across the working side of the ROW would be removed during the day when vehicle traffic is present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence and/or straw bales.

In general, equipment refueling and lubricating at waterbodies would take place in upland areas that are 100 feet or more from the edges of the water. When circumstances dictate that equipment refueling and lubricating would be necessary in or near waterbodies, Entrega would follow its SPCC Plan to address the handling of fuel and other hazardous materials.

After the pipeline is installed beneath the waterbody using one of the methods described above, restoration would begin. Waterbody banks would be restored to preconstruction contours or to a stable angle of repose. Rock riprap or gabion baskets (rock enclosed in wire bins) would be installed as necessary on steep waterbody banks in accordance with permit requirements. More stable banks would be seeded with native grasses and mulched or covered with erosion control fabric. Waterbody banks would be temporarily stabilized within 24 hours of completing in-stream construction. Sediment barriers, such as silt fence and/or certified weed-free straw bales or drivable berms would be maintained across the ROW at all waterbody approaches until permanent vegetation was established. Temporary equipment bridges would be removed following construction.

Wetland Crossings

Based on wetland delineation (WEST 2005) map data, the proposed pipeline route would cross 189 wetlands, 56 in Colorado and 133 in Wyoming. Pipeline construction across wetlands would be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential for pipeline construction to affect wetland hydrology and soil structure. To minimize impacts to the environment, Entrega would cross wetlands using the procedures outlined in Entrega's Procedures (appendix F).

Entrega would use a 75-foot-wide construction ROW through wetlands. Additional temporary workspace areas would be required on both sides of wetlands to stage construction, fabricate the pipeline, and store materials. These additional temporary workspace areas would be located in upland areas a minimum of 50 feet from the wetland edge.

Construction equipment working in wetlands would be limited to that essential for ROW clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the ROW. In areas where there is no reasonable access to the ROW except through wetlands, non-essential equipment would be allowed to travel through wetlands only if the ground was firm enough or had been stabilized to avoid rutting. Otherwise, non-essential equipment would be allowed to travel through wetlands only once.

Clearing of vegetation in wetlands would be limited to trees and shrubs, which would be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, stump removal, grading, topsoil segregation, and excavation would be limited to the area immediately over the trenchline. A limited amount of stump removal and grading could be conducted in other areas if dictated by safety-related concerns. Topsoil segregation over the trenchline would only occur if the wetland soils were not saturated at the time of construction.

During clearing, sediment barriers, such as silt fence and certified weed-free staked straw bales, would be installed and maintained adjacent to wetlands and within additional temporary workspace areas as necessary to minimize the potential for sediment runoff. Sediment barriers would be installed across the full width of the construction ROW at the base of slopes adjacent to wetland boundaries. Silt fence and/or certified weed-free straw bales installed across the working side of the ROW would be removed during the day when vehicle traffic was present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence or certified weed-free straw bales. Sediment barriers also would be installed within wetlands along the edge of the ROW, where necessary, to minimize the potential for sediment to run off the construction ROW and into wetland areas outside the work area.

The method of pipeline construction used in wetlands would depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or straw mats, construction would occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trenchline would be stripped and stored separately from subsoil. Topsoil segregation generally would not be possible in saturated soils.

Where wetland soils were saturated and/or inundated, the pipeline could be installed using the push-pull technique. The push-pull technique would involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline would be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats would be removed and the pipeline would sink into place. Most pipe installed in saturated wetlands would be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Because little or no grading would occur in wetlands, restoration of contours would be accomplished during backfilling. Prior to backfilling, trench breakers would be installed where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil would be backfilled first, followed by the topsoil. Topsoil would be replaced to the original ground level leaving no crown over the trenchline. In some areas where wetlands overlie rocky soils, the pipe would be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or certified weed-free straw mats would be removed from wetlands following backfilling.

Where wetlands are located at the base of slopes, permanent slope breakers would be constructed across the ROW in upland areas adjacent to the wetland boundary. Temporary sediment barriers would be installed where necessary until revegetation of adjacent upland areas was successful. Once revegetation is successful, sediment barriers would be removed from the ROW and disposed of properly.

In wetlands where no standing water is present, the construction ROW would be seeded in accordance with the recommendations of the local soil conservation authorities or land management agency. Lime, mulch, and fertilizer would not be used in wetlands.

Blasting

Entrega has stated that limited blasting might be required in areas where competent shallow bedrock or boulders were encountered that could not be removed by conventional excavation methods. If blasting were required to clear the ROW and to fracture the ditch, strict safety precautions would be followed. Entrega would exercise extreme care to avoid damage to underground structures, cables, conduits, pipelines, and underground watercourses or springs. To protect property or livestock, Entrega would provide adequate notice to adjacent landowners or tenants in advance of blasting. To protect nesting birds from potential impacts from blasting during the breeding season, Entrega would consult with the FWS to develop mitigation measures to avoid or mitigate impacts. Blasting activity would be performed during daylight hours and in compliance with federal, state, and local codes and ordinances and manufacturers' prescribed safety procedures and industry practices.

Residential Construction

Entrega identified only one residence located within 50 feet of the proposed construction ROW. This residence is located at MP 304.7 and is currently vacant. Entrega intends to acquire and have the structure removed prior to construction, thereby avoiding construction constraints at this location.

Fences and Grazing

Fences would be crossed or paralleled by the construction ROW. Entrega would contact grazing lessees prior to crossing any fence on public lands or any fence between public and private land, and would offer the lessee the opportunity to be present when the fence is cut so that the lessees can be satisfied that the fence is adequately braced and secured. The grazing permitees would be contacted prior to the start of construction and reclamation on their allotments. Before cutting the wires for pipeline construction, each

fence crossed by the ROW would be braced and secured to prevent the slacking of the wire. To prevent the passage of livestock, the opening in the fenceline would be temporarily closed when construction crews left the area. If gaps in natural barriers used for livestock control were created by the pipeline construction, the gaps would be fenced according to the landowners or land management agency requirements. Whenever possible, a minimum of 10 feet of undisturbed area will be maintained where the pipeline parallels a fenceline.

All existing improvements, such as fences, gates, irrigation ditches, cattle guards, and reservoirs would be maintained during construction and repaired to pre-construction conditions or better. If pipelines transporting water for livestock and wildlife were damaged by construction activities, Entrega would repair the pipelines to the landowner or land management agency specifications. If needed, Entrega has committed to providing an emergency source of potable water.

2.3.3 Aboveground Facility Construction Procedures

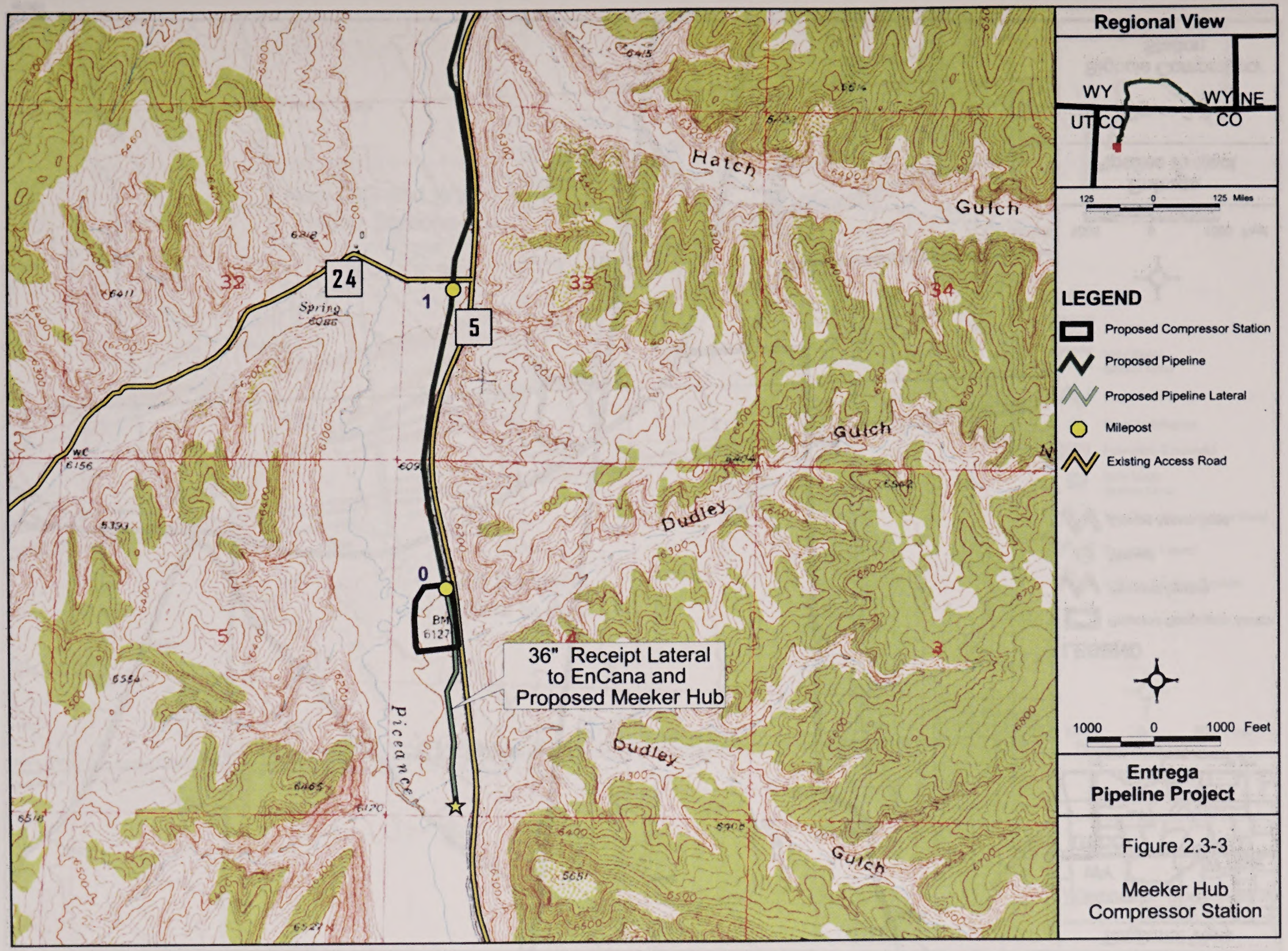
Construction activities at each of the three compressor stations would follow a standard sequence of activities: clearing and grading, installing foundations for the compressor and control buildings, and erecting the structures to house the compressors and associated facilities. A mainline valve would be required at each station. In addition, a pipeline pig launcher and/or pig receiver facility would be installed at each of the compressor stations. Construction activities and the storage of building materials would be confined to the compressor station construction sites. **Figures 2.3-3** through **2.3-7** illustrate the locations of the proposed compressor, pigging, and metering stations in relation to surrounding topography and land uses.

The sites for the compressor stations would be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for the building foundations. Foundations would be constructed for the buildings, and soil would be stripped from the area of the building foundations.

Each compressor station would include two buildings: one utility building and one compressor building. The utility building would include control equipment to filter, measure, and regulate fuel gas. The compressor building at each station would house the compressors. The compressor building would be acoustically treated to attenuate sound. The natural gas piping, both above and below ground, would be installed and pressure-tested using methods similar to those used for the main pipeline. After testing is successfully completed, the piping would be tied in to the main pipeline. Piping installed below grade would be coated for corrosion protection prior to backfilling. In addition, all below grade facilities would be protected by a cathodic protection system. Before being put into service, compressors, controls, and safety devices would be checked and tested to ensure proper system operation and activation of safety mechanisms.

Each compressor station would require electricity and telephone facilities, which would be obtained from local services (except for Bighole, which would generate its own power). **Table 2.3-1** summarizes electrical power and distribution lines requirements.

After the completion of startup and testing, the compressor station sites would be graded and landscaped. A permanent security fence would be installed around each compressor station site. Because each of the

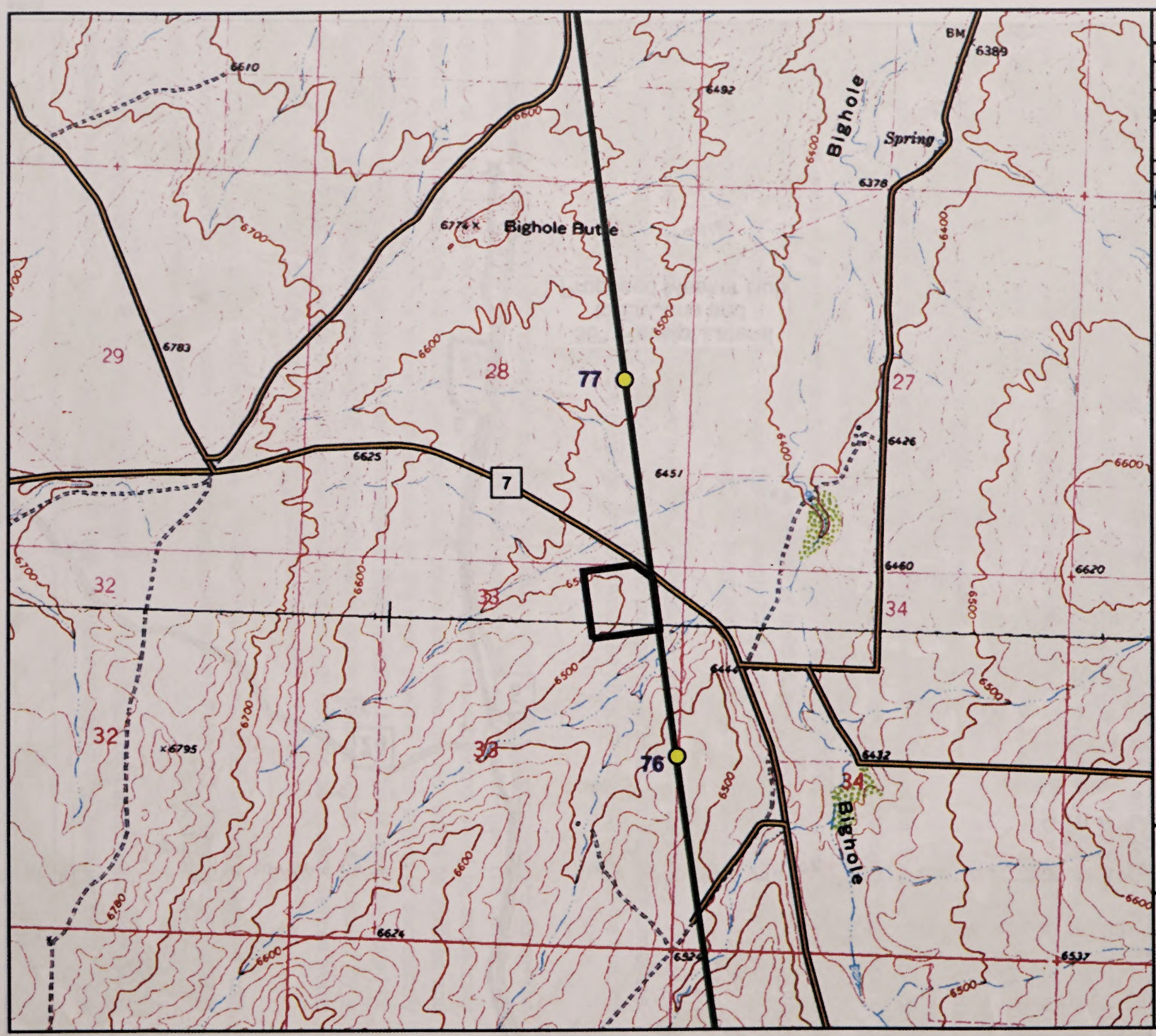


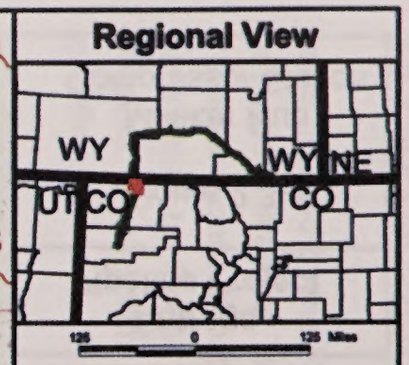
Entrega Pipeline Project

Figure 2.3-3

Meeker Hub Compressor Station

6/6/05





LEGEND

- Proposed Compressor Station
- Proposed Pipeline
- Milepost
- Existing Access Road

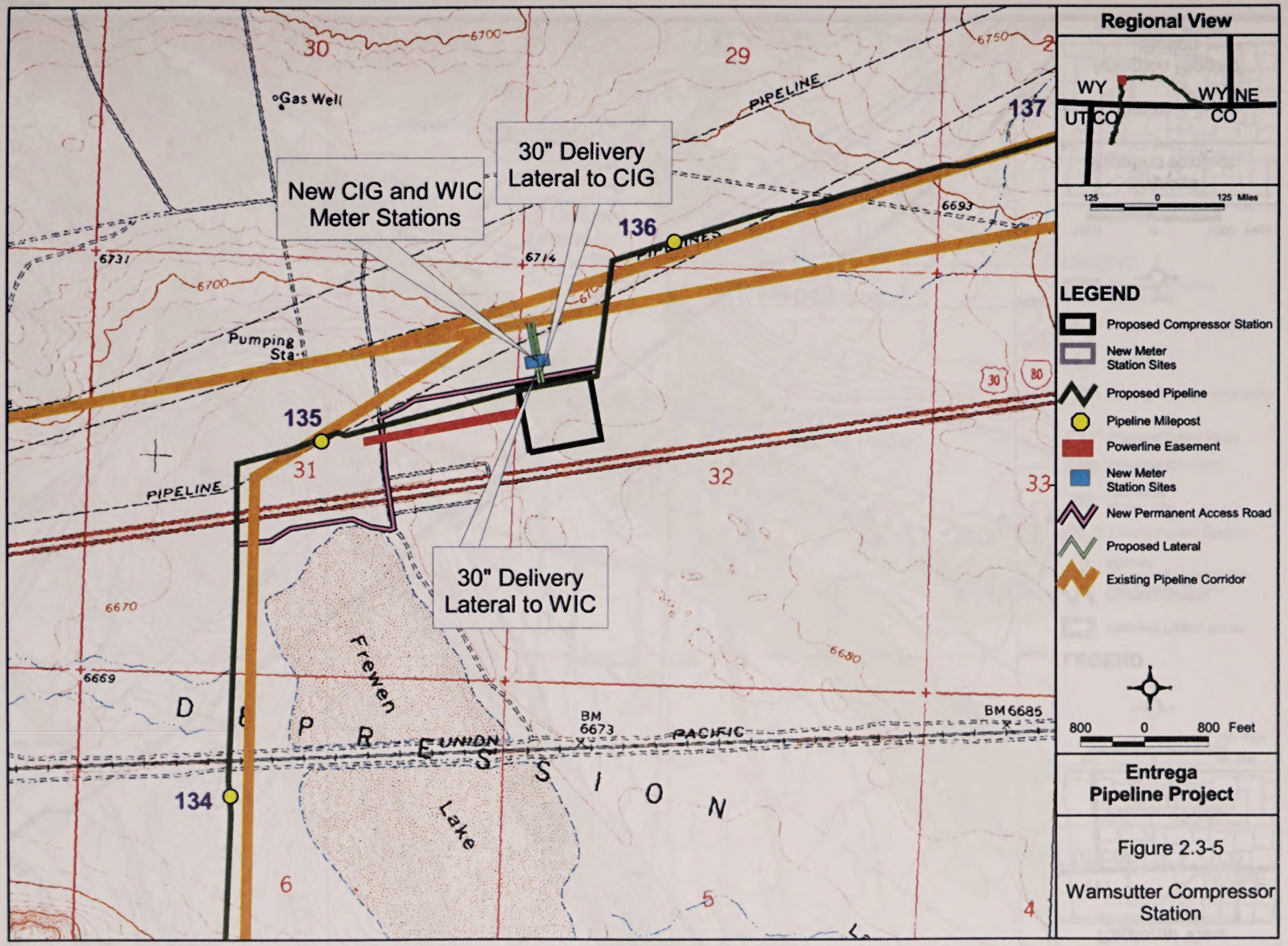
1000 0 1000 Feet

Entrega Pipeline Project

Figure 2.3-4

Bighole Compressor Station

6/6/05

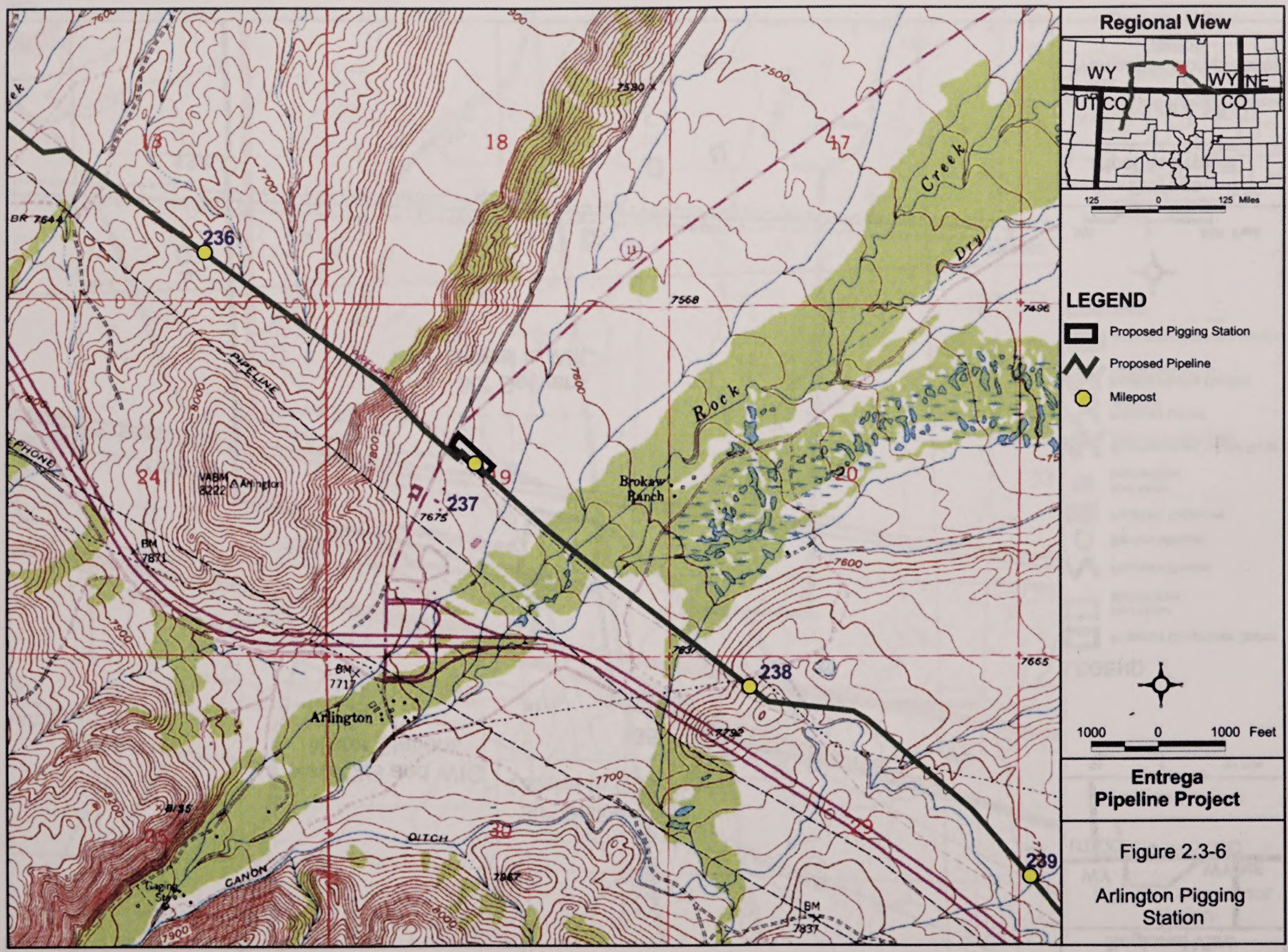


Entrega Pipeline Project

Figure 2.3-5

Wamsutter Compressor Station

6/6/05



Entrega Pipeline Project

Figure 2.3-6

Arlington Pigging Station

5/12/05

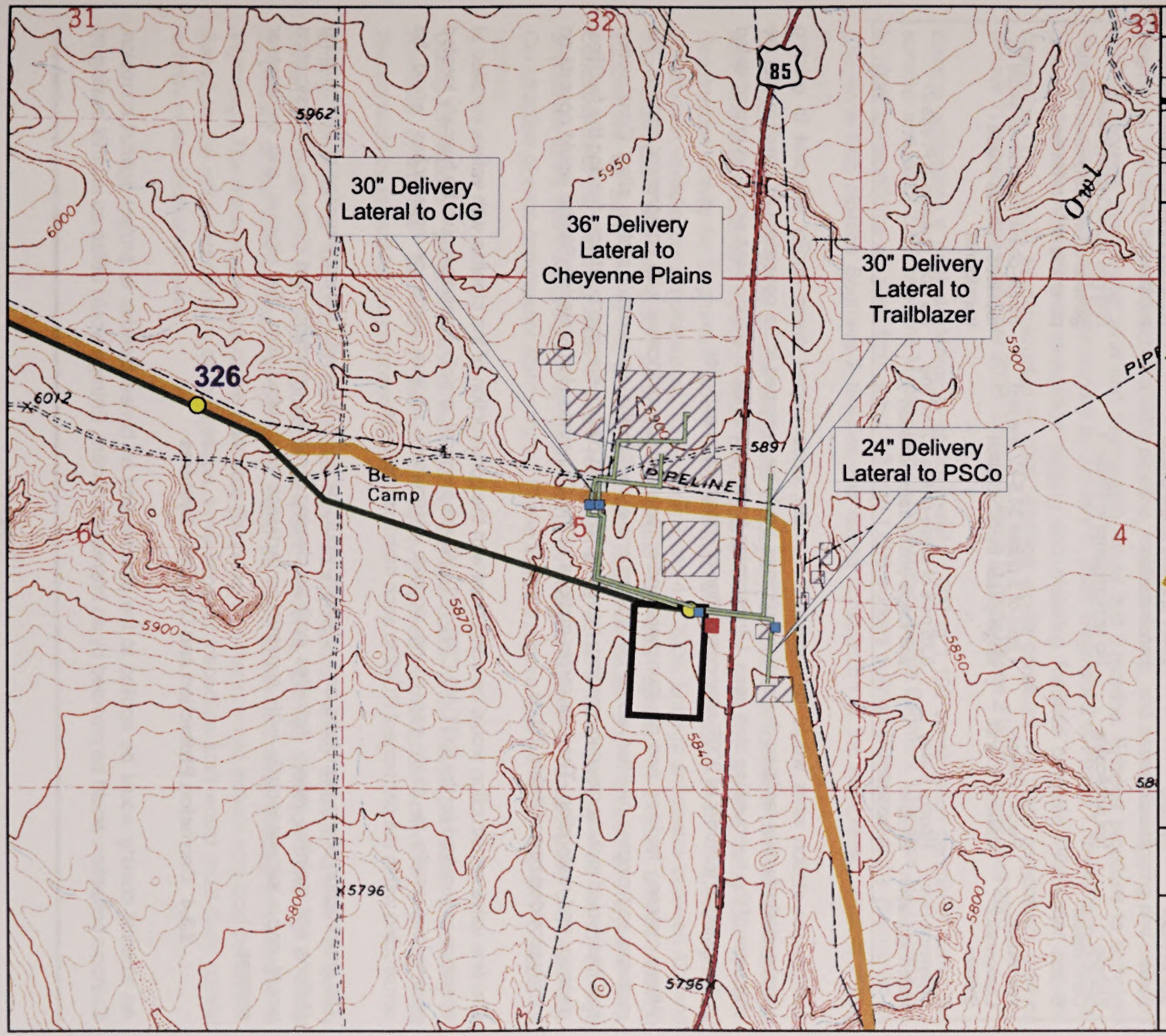

30" Delivery Lateral to CIG
36" Delivery Lateral to Cheyenne Plains
30" Delivery Lateral to Trailblazer
24" Delivery Lateral to PSCo
326
85
PIPELINE
Camp
31
32
33
5
6
4
5962
5950
6000
6012
5900
5891
5870
5840
5850
5800
5796
Regional View
WY
NE
CO
UT
125 0 125 Miles
LEGEND
Proposed Metering Station Site
Proposed Pipeline Route
Milepost
Existing Aboveground Facility
Proposed Lateral Route
Powerline Easement
New Meter Station Sites
Existing Pipeline Corridor
Proposed Interconnection with Existing Pipeline
750 0 750 Feet
Entrega Pipeline Project
Figure 2.3-7
Cheyenne Hub Metering Station
6/6/05

Table 2.3-1
Summary of Electrical Power Supply Requirements for Compressor and Meter Stations

Station	Utility	Phase 1 Service Description	Phase 2 Service Description
Meeker Hub Compressor Station	White River Electric Association	One span with 300 yards of 3-phase 25-kV line and single-phase transformation	Single-phase transformer would be replaced by three-phase transformer
Bighole Compressor Station	Not applicable	No work required in Phase 1	Entrega would install power generation at facility since nearest powerline is 18 miles away
Wamsutter Compressor Station	Pacific Power-Rawlins District	1 mile of 3-phase 34.5-kV line and single-phase transformation	Single-phase transformer would be replaced by three-phase transformer
Cheyenne Hub Metering Station	Poudre Valley Electric Association	0.25 mile of single-phase 7.2-kV line and single-phase transformation	No work required in Phase 2

compressor station sites would be located in remote, undeveloped areas and/or adjacent to existing commercial/industrial facilities, the station buildings would be designed to be consistent as possible with the character of the surrounding land uses. Landscaping for the compressor station sites would be implemented in the spring or summer of 2007 after completion of construction activities.

Where metering facilities and pig launchers and/or receivers are collocated with compressor stations, the metering and pigging facilities would be located entirely within the compressor station sites. Construction activities would include clearing, grading, trenching, installing piping, erecting buildings, fencing the facilities, cleanup, and restoration. The four meter stations at the Cheyenne Hub Metering Station would operate on locally provided power (**table 2.3-1**).

Mainline valve construction would be concurrent with the construction of the pipeline with valves installed at spacings as required by the DOT (49 CFR 192). Where practical, mainline valves would be typically located near public roads to allow year-round access. Permanent access roads or approaches would be constructed within the permanent ROW to each mainline valve site.

The construction of pig launchers and receivers would be concurrent with the construction of the metering stations and mainline valves. Activities such as clearing, grading, trenching, and clean-up and restoration would occur simultaneously with construction activities associated with the pipeline and compressor stations.

2.3.4 Corrosion Protection and Detection Systems

An external coating would be applied to the pipeline and all buried facilities to protect against corrosion. Cathodic protection would be provided by an impressed current. Entrega would utilize an internal coating on

the pipeline to reduce the effect of the pipe roughness on the flow of gas. This internal coating would improve transportation efficiency, reduce potential for internal pipe corrosion prior to installation, and reduce the amount of iron oxide introduced into the hydrostatic test water.

2.4 Construction Workforce and Schedule

Entrega proposes to begin construction in late summer 2005. The proposed construction period for Segment 1 of Phase 1 (the 36-inch-diameter pipeline, mainline valves, and associated pigging and metering facilities between the Meeker Hub and Wamsutter) would last 6 months. Entrega proposes to complete Segment 1 construction and begin service by January 1, 2006. Segment 2 of Phase 1 (the 42-inch-diameter pipeline, mainline valves, and associated pigging and metering facilities between Wamsutter and the Cheyenne Hub) would be constructed in 2006. Entrega would construct the three compressor stations (Phase 2) beginning in September 2006. Entrega intends to have Phase 2 in-service by April 2007.

Entrega anticipates a peak workforce of approximately 1,000 to 1,100 construction personnel during the summer and fall of 2005 while the Meeker Hub-to-Wamsutter pipeline Segment 1 facilities are constructed. In 2006, the workforce will peak from about 1,300 to 1,600 workers during construction of the Wamsutter-to-Cheyenne Hub pipeline Segment 2 facilities and during construction of the compressor stations during Phase 2.

Construction personnel would consist of Entrega employees, contractor employees, construction inspection staff, and environmental inspection staff. Entrega is planning to build the pipeline using four spreads. Construction activity for Segment 1 would occur simultaneously by Spreads 1 and 2 in 2005. Segment 2 construction would occur simultaneously by Spreads 3 and 4 in 2006. Entrega anticipates between 425 and 550 construction and inspection personnel associated with each spread. In addition, seven metering stations will be built, one at the Meeker Hub, two near Wamsutter and four at the Cheyenne Hub. Construction of the metering stations would require 50 to 75 workers for a relatively short period. Entrega anticipates about 100 individuals across the project to be involved in material transportation and unloading. Construction of each compressor station during Phase 2 would require approximately 125 to 175 additional workers.

During construction, personnel would work during daylight hours, 6 to 7 days per week depending on schedule constraints. **Table 2.4-1** outlines Entrega's proposed construction schedule and workforce requirements by spread for the proposed project.

Entrega, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population. At peak workforce, Entrega anticipates that up to about 20 percent of the total construction workforce could be hired locally (currently residing in Colorado or Wyoming). The remaining portion of the workforce (80 percent or more) would include non-local personnel. Based on the specialized nature of the position, environmental inspection staff would most likely consist entirely of non-local employees.

Table 2.4-1
Pipeline Construction Workforce and Proposed Schedule

Phase/Spread	Associated Aboveground Facilities	Begin MP	End MP	Estimated Workforce	Proposed Schedule	County and State
Phase 1						
1	Meeker Hub metering facilities	-0.5	51.0	475 to 550	July to December 31, 2005	Rio Blanco and Moffat, Colorado
2	Wamsutter metering facilities	51.0	136.0	425 to 475	July to December 31, 2005	Moffat, Colorado; Sweetwater, Wyoming
3	N/A	135.5	231.0	475 to 550	June to December 15, 2006	Sweetwater and Carbon, Wyoming
4	Arlington Pigging Station; Cheyenne Hub Metering Station	231.0	327.0	475 to 550	June to December 15, 2006	Carbon, Albany, and Laramie, Wyoming; Larimer and Weld, Colorado
Phase 2						
	Compressor Stations (Meeker Hub, Bighole, and Wamsutter)	0.0, 76.3, and 135.5		300 to 400	September 2006 to April 2007	Rio Blanco and Moffat, Colorado; Sweetwater, Wyoming

Only work vehicles would be allowed on the construction ROW or additional temporary workspace areas during construction. Equipment operators would drive a company-owned or personal pick-up truck to the construction site. Parking would be limited to the construction ROW, additional temporary workspace areas, or along existing authorized access roads. Adjacent ROWs would not be used for parking. Construction workers would not be permitted to travel cross-country on public lands during construction of the project.

2.5 Environmental Inspection, Compliance Monitoring, and Post-Approval Variances

2.5.1 Environmental Inspection

Under the NGA, the FERC may impose conditions on any Certificate it grants for the EPP. These conditions could include additional requirements and mitigation measures recommended in this EIS to minimize the environmental impact that would result from the construction and operation of the project (see chapters 4.0 and 5.0). We will recommend that these additional requirements and mitigation measures (bold type in the text) be included as specific conditions to any approving Certificate issued for the EPP. We will also recommend that Entrega be required to implement the mitigation measures that it has proposed as part of the project unless specifically modified by other Certificate conditions (see recommendation 1 in section 5.5).

In accordance with the MLA, the BLM would require Entrega to furnish a bond, or other security, to ensure that Entrega would comply with the terms and conditions of the BLM's ROW grant. While there would be some jurisdictional differences between the FERC's and the BLM's requirements, the environmental inspection and compliance monitoring programs for the EPP would address requirements placed on the project by the federal and other agencies.

Entrega proposes to assign at least two environmental inspectors (EIs) to each construction spread. The EIs would likely be hired from a qualified third-party contractor. The responsibilities of the EIs are outlined in section II of Entrega's Plan (see appendix E) and would include ensuring that the Certificate and environmental conditions attached to other permits and authorizations are met. During the construction phase, Entrega's EIs would inspect all construction and mitigation activities to ensure compliance with the requirements of environmental plans, permits, and conditions. EIs may also oversee cultural resource monitors and/or biological monitors that may be required to monitor and evaluate construction impacts on resources as specified in this EIS.

The lengths of Entrega's construction spreads range from 90.5 to 100 miles on Segment 2 to 57 to 79 miles on Segment 1 (although the 57-mile-long interval on Segment 1 would actually be a series of smaller spreads focusing on difficult terrain, river crossings, etc., and constructing simultaneously). We believe that more than two EIs would be necessary to adequately inspect all construction and mitigation activities and perform the other duties outlined above. Therefore, **we recommend that Entrega employ a team of EIs (i.e., 3 or more) on each construction spread. The EIs shall be:**

- **responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;**
- **responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;**
- **empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;**
- **a full-time position, separate from all other activity inspectors;**
- **responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and**
- **responsible for maintaining status reports.**

Entrega has committed to hiring EIs who are sufficiently qualified to evaluate construction impacts on fish and wildlife resources when biological monitors are not present. These qualifications would include knowledge of the ecology of the particular species that may be observed within the project area.

Inspectors from the FERC and BLM also would conduct field inspections during construction. Other federal and state agencies may also conduct oversight of inspection to the extent determined necessary by the individual agency.

After construction is completed, the FERC and BLM would continue to conduct oversight inspection and monitoring. If it is determined that any of the proposed monitoring timeframes are not adequate to assess

the success of restoration, Entrega would be required to extend its post-construction monitoring programs. The BLM would retain Entrega's bond or other security until the BLM is satisfied with Entrega's reclamation efforts.

2.5.2 Compliance Monitoring

The BLM has indicated that it intends to require a separate compliance monitoring program to evaluate Entrega's environmental inspection program during construction and insure compliance with the terms and conditions of the BLM ROW grant. We believe that a joint third-party independent Environmental Compliance Monitoring and Reporting Program (ECMR Program) would provide a number of benefits, both to the agencies themselves and to Entrega, as well. The overall objective of an ECMR Program would be twofold: to assess environmental compliance during construction in order to achieve a high level of environmental compliance throughout the project, and to assist the FERC and BLM staffs in screening and processing variance requests during construction.

The joint ECMR Program would involve the use of full-time third-party compliance monitors representing both agencies at each construction spread to monitor compliance with project mitigation measures and requirements throughout construction. These monitors would provide continuous feedback on compliance issues to both agencies, as well as to Entrega's personnel, and track and document progress of construction by the preparation and submittal of reports to the FERC and BLM staffs on a regular and timely basis.

2.5.3 Post-Approval Variance Process

Surface disturbance locations and acreages identified in this EIS are anticipated to be sufficient for the construction and operation (including maintenance) of the project and all ancillary improvements. However, route realignments and other project refinements often continue past the project review phase and into the construction phase. As a result, work area locations and disturbed acreages documented in the EIS often change after project approval. These changes frequently involve minor route realignments or moving approved temporary workspace, adding new temporary workspace, and adding access routes to work areas and associated temporary use areas. This section describes the procedure used for assessing impact on workspace areas outside those evaluated in this EIS and for approving their use.

Subsequent to project approval, when work areas outside those evaluated in this EIS are found to be needed, additional inventory and evaluation would be performed to ensure that impact on biological, cultural, and other resources would be avoided or minimized to the maximum extent practicable. New workspace location and survey results would be documented and forwarded to the FERC (and the BLM, as applicable) in the form of a "variance request;" one of the two federal agencies would take the lead on reviewing the request, depending on the ownership status of the subject land.[3] Appropriate agency consultations/approvals would be conducted/obtained prior to approval of the variance. At the conclusion of the project, as-built drawings would be provided to the FERC and BLM.

[3] Recommendation 5 in section 5.5 illustrates our approach to considering variance requests subsequent to project authorization.

2.6 Operation and Maintenance

Entrega would operate and maintain the project facilities in accordance with the DOT regulations in 49 CFR 192 and other applicable federal and state regulations. Operation and maintenance of the pipeline system would, in most cases, be accomplished by Entrega personnel. Entrega estimates that operation of the pipeline would require 8 to 10 additional employees. Operation of the pipeline would require access along the pipeline ROW by Entrega personnel. While Entrega would make an effort to notify landowners prior to entering private property, landowner notification is not required for entry along the ROW, particularly in emergency situations.

2.6.1 ROW Monitoring and Maintenance

In order to maintain accessibility of the ROW and to accommodate pipeline integrity surveys, vegetation along the pipeline ROW would be periodically cleared over the pipeline. In most areas, the ROW would be maintained in an herbaceous state. Large trees would be removed from the permanent ROW. Entrega would use only mechanical mowing or cutting along its ROW for normal vegetation maintenance.

Noxious weeds and invasive plant monitoring and control activities would occur during routine ROW monitoring and maintenance activities. Noxious weeds discovered within the ROW would be controlled according to the measures specified in the Weed Management Plan (see appendix H).

In the future, pipeline integrity surveys and vegetation maintenance could identify areas on the ROW where permanent erosion control devices need to be repaired or additional erosion control devices may be needed. If problem areas were evident, erosion control devices would be repaired or installed as necessary and the ROW would be stabilized to prevent future degradation.

In the vicinity of waterbodies, wetlands, and upland areas, Entrega would adhere to the operation and maintenance procedures described in Entrega's Plan and Procedures (appendices E and F). Entrega also has committed to adhere to the maintenance commitments made in its POD and appendices for the BLM. Operation and maintenance procedures, including record keeping, would be performed in accordance with the DOT requirements.

2.6.2 Pipeline Integrity

Entrega's pipeline facilities would be operated and maintained in accordance with the federal safety standards (49 CFR 192). Operation and maintenance of the EPP facilities would be performed by or at the direction of Entrega. The pipeline would be inspected periodically from the air and on foot as operating conditions permit, but no less frequently than as required by 49 CFR 192. These surveillance activities would provide information on possible encroachments and nearby construction activities, erosion, exposed pipe, and other potential concerns that may affect the safety and operation of the pipeline. Evidence of population changes would be monitored and class locations changed as necessary. Mainline valves also would be inspected annually and the results documented.

2.7 Future Plans and Abandonment

Entrega notes that the EPP would be capable of transporting up to 2.0 Bcfd between Wamsutter and the Cheyenne Hub Metering Station by installing about 11,000 horsepower of additional compression at the Wamsutter Compressor Station and about 14,000 horsepower at a new Arlington Compressor Station (adjacent to the site of the proposed Arlington Pigging Station). Even greater volumes could be transported between Meeker and the Cheyenne Hub Metering Station by installing more horsepower at proposed compressor station sites and at new station sites along the system. However, Entrega has no plans to expand the system or increase its capacity at the present time. If, in Entrega's judgment, future market demands warrant expansion of the EPP, Entrega would file an appropriate application with the FERC at that time.

Properly maintained, the proposed pipeline is expected to operate for 50 or more years. If and when Entrega abandons any of the proposed facilities, the abandonment would be subject to separate approvals by the FERC, the BLM, and other land managing agencies. The FERC review would be conducted under section 7(b) of the NGA. On federal lands, the BLM would require Entrega to submit an abandonment plan at least 90 days prior to anticipated abandonment. Entrega has no plans for abandonment of the pipeline system.

The FERC typically allows a buried pipeline that has reached the end of its service life to be internally cleaned, purged of natural gas, isolated from interconnections with other pipelines, and sealed without removing the pipe from underground. We believe that this approach generally minimizes surface disturbance and other potential environmental impact. The aboveground pipeline at compressor and meter stations would be completely removed, including all related aboveground equipment and foundations, and the station sites restored to as near original condition as possible. The disposition of pipeline facilities on federal lands would depend on decisions made in the abandonment plan discussed above.

Upon abandonment of the pipeline, in part or in whole, the ROWs associated with the abandoned facilities would normally be returned to the landowners/land management agencies according to the specific easement agreements between the landowners/land managing agencies. However, on federal lands, the pipeline ROW could be used for other utility ROW (e.g., fiber optic lines) depending upon future decisions made by the BLM.

2.8 Permits, Approvals, and Regulatory Requirements

As federal agencies, the FERC, BLM, and FWS are required to comply with a number of regulatory statutes, including, but not limited to, the NEPA, the ESA, and the National Historic Preservation Act of 1966 (NHPA). In addition, the BLM will review the proposed project and facilities and make a determination whether or not the project would conform with its own statutory requirements and regulatory frameworks. Because the BLM administers federally owned lands, it has additional permitting requirements under other rules and regulations, such as the Federal Land Policy and Management Act, Archaeological Resources Protection Act (ARPA), and/or Native American Graves Protection and Repatriation Act.

Federal, state, or local agencies that have permit, approval, or consultation authority for portions of the proposed project are identified in **table 2.8-1**. The Commission states in its orders that applicants should cooperate with state and local agencies. However, any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any Certificate the Commission may issue. Although the Commission encourages cooperation between interstate pipelines and local authorities, this does not mean that state and local agencies, through application of state and local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the Commission.

Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any federal agencies (e.g., the Commission) should not "...jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined...to be critical..." [16 USC § 1536(a)(2)(1988)]. The Commission, or the applicant as a non-federal party, is required to consult with the FWS to determine whether any federally listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the proposed project. If, upon review of existing data, the Commission determines that these species or habitats may be affected by the proposed project, the Commission is required to prepare a Biological Assessment (BA) to identify the nature and extent of adverse impact, and to recommend mitigation measures that would avoid the habitat and/or species or that would reduce potential impact to acceptable levels. If, however, the Commission determines that no federally listed or proposed endangered or threatened species or their designated critical habitat would be affected by the proposed project, no further action is necessary. We are requesting that the FWS consider this EIS as our BA for the proposed project. See section 3.6 of this EIS for the status of this review.

The BLM would prepare a ROD to authorize an additional pipeline within new or existing corridors through BLM-administered lands in Colorado and Wyoming. As discussed above, the BLM would adopt this EIS per 40 CFR 1506.3 to meet its responsibilities under NEPA in considering Entrega's application for a ROW grant. Under Section 185(f) of the MLA, the BLM has the authority to issue the ROW grant for all affected federal lands.

Section 106 of the NHPA, as amended, requires the FERC to take into account the effects of its undertakings on historic properties and to afford the ACHP an opportunity to comment. Historic properties are prehistoric or historic districts, sites, buildings, structures, objects, or properties of traditional religious or cultural importance, which are listed or eligible for listing on the National Register of Historic Places (NRHP). The Commission is using the services of Entrega, as an applicant, to prepare information, analyses, and recommendations necessary to comply with Section 106, according to the ACHP's regulations at 36 CFR 800.

Entrega must comply with Sections 401, 402, and 404 of the CWA. Water quality certification (Section 401) has been delegated to the jurisdiction of individual state agencies, with review by the U.S. Environmental Protection Agency (EPA). Water used for hydrostatic testing that is point-source discharged into waterbodies would require a NPDES permit issued by the state with EPA oversight.

The COE has responsibility for determining compliance with all regulatory requirements associated with Section 401 of the CWA. Entrega intends to submit its Section 404 permit applications to the appropriate COE District offices in 2005.

2.0 PROPOSED ACTION

Ambient air quality is protected by federal regulations under the Clean Air Act (CAA). These regulations include compliance under the New Source Performance Standards (NSPS) and the requirements for the Prevention of Significant Deterioration (PSD). The federal permitting process for the CAA has been delegated to individual state agencies. Although applications are reviewed by both states and the EPA, the states would determine the need for NSPS or a PSD permit.

Table 2.8-1
Major Permits, Approvals, and Consultations for the Entrega Pipeline Project

Agency	Permit or Consultation/Authority	Agency Action
FEDERAL		
Advisory Council on Historic Preservation (ACHP)	Section 106, National Historic Preservation Act (NHPA)	Provide comments on the proposed undertaking, as necessary.
Federal Energy Regulatory Commission (FERC)	Certificate of Public Convenience and Necessity (Natural Gas Act)	Determine whether the construction and operation of the proposed project is in the public interest. Consider issuance of a certificate.
U.S. Department of Commerce		
National Oceanic and Atmospheric Administration	National Ocean Service's National Geodetic Survey	Consider approval of relocations of geodetic control monuments disturbed by the project.
U.S. Department of Defense		
Corps of Engineers (COE) - Sacramento and Omaha Districts	Section 404, CWA Individual Permit (Stream and Wetland Crossings)	Consider issuance of Section 404 individual permits for the placement of dredge or fill material in waters of the U.S., including wetlands.
	Section 404, Clean Water Act (CWA) Nationwide Permit	Consider issuance of Section 404 nationwide permits, as applicable.
U.S. Department of Interior		
Bureau of Land Management (BLM)	Archaeological Resources Protection Act (ARPA) Permit	Consider issuance of cultural resource use permit to excavate or remove cultural resources on federal lands.
	Paleontological Resources Use Permit	Consider issuance of paleontological permit to excavate or remove significant paleontological resources on public lands.
	ROW Grant and Temporary Use Permit under Section 28 (Mineral Leasing Act [MLA])	Consider approval of ROW grant and temporary use permits for the portions of the project that would encroach on federal lands.
	Plan of Development (POD)	Consider approval of Entrega's detailed plan for construction, operation, and maintenance.
	Notice to Proceed	Following issuance of a ROW grant and approval of Entrega's POD, consider the issuance of a Notice to Proceed with project development and mitigation activities.
Fish and Wildlife Service (FWS)	Endangered Species Act (ESA), Section 7 Consultation, Biological Opinion	Consider lead agency finding of an impact on federally listed or proposed species. Provide Biological Opinion if the project is likely to adversely affect federally listed or proposed species or their habitats.

Table 2.8-1 (Continued)

Agency	Permit or Consultation/Authority	Agency Action
	Fish and Wildlife Coordination Act	Provide comments to prevent the loss of and damage to wildlife resources.
U.S. Department of Transportation (DOT)		
Federal Highway Administration	Encroachment Permit	Consider issuance of permits for the crossing of federally funded highways.
U.S. Department of Treasury		
Bureau of Alcohol, Tobacco, and Firearms	Explosive User's Permit	Consider issuance of a permit to purchase, store, and use explosives for site preparation during pipeline construction.
U.S. Environmental Protection Agency (EPA), Region VIII	Section 401, CWA, Water Quality Certification	In conjunction with states, consider the issuance of water use and crossing permits.
	Section 402, CWA, National Pollutant Discharge Elimination System (NPDES)	In conjunction with states, review and issue NPDES permit for the discharge of hydrostatic test water.
	Section 404, CWA	Review CWA, Section 404 applications for wetlands dredge-and-fill applications for the COE with 404 veto power for wetland permits issued by the COE.
	Stormwater Discharge Permit	In conjunction with states, review and issue stormwater permit for activities associated with pipeline and aboveground facilities construction.
COLORADO		
Colorado Historical Society	Consultation under Section 106, NHPA	Review and comment on activities potentially affecting cultural resources.
Department of Natural Resources		
Division of Water Resources	Section 401, CWA, Water Quality Certification	Consider issuance of a permit for stream and wetland crossings.
	NPDES Temporary Discharge Permit	Consider issuance of a permit regulating hydrostatic test water discharge, and construction dewatering to waters of the state.
	NPDES Stormwater Discharge Permit	Consider the issuance of a permit regulating discharge of stormwater from the construction work area.
Division of Wildlife	Consultation	Review and comment on activities potentially affecting wildlife, particularly state-listed species and potential impacts to state lands.
Department of Public Health and Environment		
Air Quality Control Division	Permit to construct	Consider issuance of a permit to construct facilities with the potential for air emissions.

Table 2.8-1 (Continued)

Agency	Permit or Consultation/Authority	Agency Action
	Permit to operate	Consider issuance of a permit to operate facilities with the potential for air emissions.
Department of Transportation	Encroachment Permits	Consider issuance of permits for encroachment on state highways.
State Land	ROW Permit	Consider issuance of a permit to construct pipeline facilities on state lands.
County Road Departments	Encroachment Permits	Consider issuance of permits for encroachment on county roads.
WYOMING		
Department of Environmental Quality		
Air Quality Division	Permit to construct	Consider issuance of a permit to construct facilities with the potential for air emissions.
	Permit to operate	Consider issuance of a permit to operate facilities with the potential for air emissions.
Water Quality Division	Section 401, CWA, Water Quality Certification	Consider issuance of a permit for stream and wetland crossings.
	NPDES Temporary Discharge Permit	Consider issuance of a permit regulating hydrostatic test water discharge, and construction dewatering to waters of the state.
	NPDES Stormwater Discharge Permit	Consider issuance of a permit regulating discharge of stormwater from the construction work area.
	Water Appropriation Permit	Consider issuance of a permit for water appropriations for hydrostatic test water.
Department of Transportation	Encroachment permits	Consider issuance of permits for encroachment on state highways.
Game and Fish Department	Special Use Permits	Consider issuance of permits for activities on Wildlife Habitat Management Areas (WHMAs) in Wyoming.
Game and Fish Department	Consultation	Review and comment on activities potentially affecting wildlife, particularly state-listed species and potential impacts to state lands.
State Historic Preservation Office	Consultation under Section 106, NHPA	Review and comment on activities potentially affecting cultural resources.
State Lands and Investments	Grant of Easement – Non-roadway	Consider issuance of a permit to construct pipeline facilities on state lands.
County Road Departments	Encroachment Permits	Consider issuance of permits for encroachment on county roads.

ENVIRONMENTAL ANALYSIS

CHAPTER 3

ENVIRONMENTAL ANALYSIS

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3.0 ENVIRONMENTAL ANALYSIS

3.1 Geology

3.1.1 Geology and Physiography

The proposed EPP route would cross parts of three major physiographic provinces: the Wyoming Basin Province, the Southern Rocky Mountains Province, and the Great Plains Province (Fenneman and Johnson 1946; USGS 1985). The Wyoming Basin Province and Southern Rocky Mountain provinces generally consist of mountain ranges separated by broad basins, while the Great Plains Province is a remnant fluvial plain. **Table 3.1-1** summarizes by MP the physiographic province, section, and geology along the proposed pipeline route.

Construction of the proposed project facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area. Construction effects would include disturbances to the natural topography along the ROW and aboveground facilities due to grading and trenching activities. Upon completion of construction, Entrega would restore topographic contours and drainage patterns as closely as possible to their pre-construction condition. Operation of the pipeline and its associated facilities would not affect the geologic and physiographic conditions in the project area.

3.1.2 Mineral Resources

Potentially Exploitable Resources

In Colorado, known oil and gas producing reservoirs underlay approximately 90 percent of the proposed pipeline route and aboveground facilities and approximately 45 percent of the proposed project lies within an area of known oil shale-bearing strata in the Piceance Basin. Coal-bearing formations that are potentially mineable (both surficial and sub-surface sources) would underlay approximately 60 percent of the proposed pipeline route through Colorado, in Rio Blanco and Moffat Counties (Colorado Division of Minerals and Geology 2003). These areas also are potentially capable of producing economic quantities of coal-bed methane (EPA 2002).

In Wyoming, approximately 80 percent of the EPP in Wyoming would occur in sedimentary basins with known oil and gas producing regions. Producing fields in those regions are clustered around the proposed Wamsutter Compressor Station in Sweetwater and Carbon Counties. Other producing fields lie near the proposed project in the Laramie Basin, in western Albany County (De Bruin 2002). Approximately 22 percent of the proposed route would lie within an area of known oil shale-bearing strata extending from the Wyoming-Colorado border north to Wamsutter, in the Washakie Basin. Approximately 60 percent of the proposed pipeline route would cross surface and subsurface coal-bearing formations that are potentially mineable in the Green River, Hanna and Rock Creek Coal Fields of Sweetwater, Carbon, and Albany Counties (Glass and Roberts 1980; Jones 1991; Case et al. 1998a).

Typically, the pipeline trench would be about 6 to 7 feet deep to account for the pipe and adequate cover. Limited blasting could be required in areas where competent shallow bedrock or boulders were encountered

Table 3.1-1
Geologic Conditions Along the Proposed Pipeline Route

Physiographic Province/ Section	MP Range	Geology	Topography/Elevation	Miles of Shallow Hard Bedrock[1]
COLORADO				
Wyoming Basin	**-0.5 to 85.8**			
Piceance Basin	-0.5 to 39.4	Alluvial, colluvial, and mud flow Quaternary deposits along drainages. Tertiary and Cretaceous claystone, shale, siltstone, and sandstone bedrock.	Approximately 6,100 feet above mean sea level (msl) to 6,540 feet above msl. Low relief along pipeline route, with intermittent and adjacent high angle slopes and adjacent hills to 800 feet above drainage floors.	12.5
Axial Basin	39.4 to 54.5	Tertiary siltstone and sandstone bedrock with Quaternary alluvium along drainages.	Approximately 5,970 feet above msl to 8,220 feet above msl. Variable moderate to high relief.	0.0
Sand Wash Basin	54.5 to 85.8	Alluvial, colluvial, and mud flow Quaternary deposits along drainages. Tertiary and Cretaceous claystone, shale, siltstone, and sandstone bedrock.	Approximately 6,000 feet above msl to 6,900 feet above msl. Moderate to low relief.	0.0
Great Plains	**318.5 to 327.0**			
Denver Basin	318.5 to 327.0	Light colored tuffaceous claystones, sandstones, and conglomerates of the Miocene Ogallala Formation with minor Quaternary alluvium along drainages.	Approximately 5,935 feet above msl to 6,220 feet above msl. Low relief.	0.4
			Colorado Total	**12.9**
WYOMING				
Wyoming Basin	**85.8 to 214.0**			
Washakie Basin	85.8 to 133.5	Alluvial, colluvial Quaternary deposits along drainages. Tertiary oil shales and marlstones, claystone, sandstone, and conglomerate bedrock.	Approximately 6,200 feet above msl to 7,010 feet above msl. Variable relief.	2.7
Wamsutter Arch	133.5 to 192.8	Gravel, piedmont and fan Quaternary deposits (MPs 149.1 to 155.1). Otherwise dominated by Tertiary to Cretaceous sandstone, siltstone, and shale bedrock with occasional thin coal or carbonaceous beds.	Approximately 6,520 feet above msl to 7,100 feet above msl. Low relief.	0.5
Saratoga Valley	192.8 to 214.0	Miocene tuffaceous sandstone and white marl with Tertiary to Cretaceous sandstone, siltstone, and shale bedrock with occasional thin coal or carbonaceous beds.	Approximately 6,500 feet above msl to 7,220 feet above msl. Low relief.	0.7

Table 3.1-1 (Continued)

Physiographic Province/ Section	MP Range	Geology	Topography/Elevation	Miles of Shallow Hard Bedrock[1]
Southern Rocky Mountains	**214.0 to 305.0**			
Medicine Bow Mountains	214.0 to 246.4	Minor alluvial, colluvial and mud flow Quaternary deposits along drainages. Tertiary sandstone, conglomerates, shales, and coal with occasional massive quartzite boulders and Cretaceous sandstone, siltstone, and shale bedrock with occasional thin coal or carbonaceous beds.	Approximately 6,965 feet above msl to 7,940 feet above msl. Variable relief.	1.5
Laramie Basin	246.4 to 284.0	Mostly gravel, piedmont, and fan Quaternary deposits with Quaternary alluvium and colluvium. Cretaceous gray sandstone and soft gray shale bedrock with occasional bentonitic clay seams.	Approximately 7,140 feet above msl to 7,800 feet above msl. Low relief.	0.2
Laramie Mountains	284.0 to 305.0	Mostly Permian and Pennsylvanian thick-bedded sandstone with some interbedded limestone along western flanks, followed by Middle Proterozoic granite bedrock in the core area with some Early Proterozoic meta-sedimentary and meta-volcanic bedrock along the eastern flank.	Approximately 7,380 feet above msl to 8,230 feet above msl. Variable, moderate relief.	16.1
Great Plains	**305.0 to 318.5**			
Denver Basin	305.0 to 318.5	Light colored tuffaceous claystones, sandstones, and conglomerates of the Miocene Ogallala Formation with minor Quaternary alluvium along drainages.	Approximately 6,150 feet above msl to 7,405 feet above msl. Moderate relief.	3.4
			Wyoming Total	**25.1**

[1]Shallow bedrock locations (within 5 feet of the surface) were determined using the State Soil Geographic (STATSGO) database (NRCS 1995). MPs represent areas where 15 percent or more of the map unit comprises shallow to bedrock soils.

Source: Fenneman and Johnson 1946; USGS 1985; Geological Survey of Colorado 2003a.

that could not be removed by conventional excavation. **Table 3.1-1** identifies those areas along the proposed pipeline route in Colorado and Wyoming where shallow bedrock would be anticipated. Additional discussion of blasting impacts is presented in section 3.3.1.

None of the oil and gas wells identified would be located within the proposed pipeline construction ROW. However, blasting operations could potentially damage nearby oil and gas wells, and trenching could encounter underground gathering pipelines associated with the wells. Because oil and gas is generally produced from depths of more than 1,000 feet, construction of the pipeline would not be expected to affect the ability of the wells to produce oil and/or natural gas. Rather, any construction-related damage that could occur would be limited to surface or near-surface components of the wells and gathering systems, which could temporarily disrupt production until repairs were made. Potential affects of blasting on nearby wells would be mitigated by implementing the project-specific Blasting Specification Plan (Entrega 2004a) as well as additional mitigation measures identified in section 3.3.1. Prior to construction, Entrega would identify any associated underground gathering lines in the project construction ROW and would either avoid piping, or take appropriate precautions to protect the integrity of such facilities.

Mining and Mineral Resource Operations

Anywhere the route would follow drainages in both Colorado and Wyoming, the surface materials (alluvium, colluvium and fan deposits) are potentially mineable for industrial minerals, such as sand and gravel (Harris 1992, 1996). Other areas of known or potential mineral resources include uranium in the Medicine Bow Mountains, and copper, gypsum, carbonates, and granite along the flanks of the Laramie Range (U.S. Department of the Interior [USDI] 2002).

Mining and mineral recovery operations within 1,500 feet of the proposed project were identified using aerial photography and project alignment sheets, USGS topographic maps, information on mineral operations from the National Atlas of the United States (USDI 2002), state mineral publications, and the USGS Minerals Yearbook (USGS 2003). In Colorado, mineral resource operations near the proposed project consist of one active sand and gravel pit and nine oil and gas wells (USDI 2002; USGS 2003). In Wyoming, 11 sand and gravel operations (5 active, 6 inactive), 1 underground coal mine (inactive), 1 quarry (active), and 66 oil and/or gas wells, would be located within 1,500 feet of the proposed project (USDI 2002; USGS 2003).

The only active operation intercepted by the pipeline route would be a Union Pacific quarry between MPs 297.4 and 298.1. The pipeline would cross a reclaimed area with active mining approximately 200 feet south of the proposed pipeline route. A field survey conducted by Entrega confirmed that construction of the pipeline through this reclaimed area would not represent an engineering or environmental concern that would require a reroute.

Potential impacts to surface mining operations, if any, would be limited to temporary short-term encumbrances during construction and would be minimized by Entrega working with the owners and/or operators of these mining operations during ROW negotiations and facilities construction to minimize conflicts where mineral resources could be affected. Because construction of the pipeline would be limited

to near-surface disturbance, the proposed project would not impact oil and gas production in the area or other underground resource recovery operations, such as coal.

The proposed project would cross private and federal lands in the Red Rim Coal Area between about MPs 167.5 and 169.7. The Red Rim Coal Area has been designated for mining development by the BLM. This area is discussed further in section 3.7.3. Operation of the proposed pipeline and aboveground facilities would not have a significant added impact on current or future mineral recovery operations in the area because most of the proposed pipeline route would follow existing ROWs that have already precluded mineral development along the route. Additionally, impacts on future mineral development would not constitute a significant loss of mineral resource or mineral availability because of the narrow, linear nature of the pipeline ROW relative to the expanse of areas with mineral resource potential.

It is anticipated that the pipeline would be backfilled with materials derived from the trench excavation, and it might be necessary to obtain some construction sand and gravel from local, existing commercial sources for use as backfill, road base, or surface facility pads. These demands for sand and gravel would not substantially affect the long-term availability of construction materials in the area.

3.1.3 Geologic Hazards

Geologic hazards are natural physical conditions that, when active, can result in damage to the land and structures, or injury to people. Geologic hazards that exist in the proposed project area consist of seismic-related hazards (i.e., earthquakes, ground rupture, soil liquefaction), landslide, subsidence, flooding/scour, and avalanche. The conditions necessary for the occurrence of other geologic hazards, such as karst features and volcanism, are not present in the project area. The potential for geologic hazards to affect pipeline facilities is characterized as low to moderate.

Due to the routing of the pipeline and its design, it is unlikely that the pipeline facilities would suffer significant damage from geologic hazards or other naturally occurring events during operation. Further, construction and operation of the project and facilities would not worsen unfavorable geologic conditions in the area.

Seismic Hazards

We reviewed known fault zones that could pose potential geological hazards to the proposed pipeline and aboveground facilities. While the proposed pipeline route would not cross any faults in Colorado that are known to be active or which have a high potential for future surface rupture, the proposed pipeline route would be located near several faults that are considered potentially active (Geologic Survey of Colorado 2003b). The Dudley Gulch Graben – South Fault is located near MP -0.5 and the Dudley Gulch Graben - North Fault is located near MP -0.4. The faults that bound the graben have not experienced surface ruptures since at least 11,000 years ago nor were they activated during the most extreme historically recorded earthquake in the area, which occurred in 1882. If reactivation were to occur on the Dudley Gulch Graben boundary faults, the potential exists for landslides and/or mudflows to develop in Dudley Gulch or North Dudley Gulch (Clift 1986).

In general, the potential for seismic events sufficient to damage the proposed pipeline is lower in Wyoming than in Colorado. No active or potentially active surface faults are known to be located along the proposed route in Wyoming (Case et al. 1995a,b, 1998b; Case 1997; King et al. 1987).

Secondary seismic effects (liquefaction, lateral spreading, flow failure) are often more damaging than shaking or surface faulting. Soil liquefaction is a phenomenon that occurs when saturated, cohesionless soils are subjected to strong and prolonged shaking from seismic events. Liquefaction can lead to loss of load bearing strength and can result in lateral spreading, flow failures, and flotation of buried pipelines. Lateral spreading and flow failure involve the horizontal movement of competent surficial soils due to the liquefaction of an underlying deposit. These events can pose a potential hazard to pipeline integrity since they can shift large amounts of material that could bend and weaken a pipeline along slopes. Lateral spreading normally develops on very gentle slopes and involves displacements ranging from 3 to 6 feet, while flow failures generally occur in saturated, loose sands with ground slopes ranging between 10 and 20 degrees.

For soil liquefaction and the related effects of lateral spreading or flow failure to occur, a relatively shallow water table, rapid, strong ground motions, and susceptible soils all must be present. Since the potential for strong earthquake ground-shaking to occur along the proposed pipeline route in Colorado is categorized as low, the potential for soil liquefaction and related effects to develop also is considered to be low.

To protect the pipeline and facilities from seismic activity and its associated hazards, project facilities would be constructed and tested to meet federal standards outlined in 49 CFR Part 192 and geotechnical studies would be conducted so that facilities would be designed and constructed to minimize any effects that shaking or faulting could have on the project facilities.

Landslides

Landslides refer to the downward and outward movement of slope-forming materials reacting under the force of gravity. **Table 3.1-2** identifies areas where the potential for landslides along the proposed pipeline route may exist. No area of high landslide susceptibility was identified for the proposed route, although portions of the route in the Wyoming Basin Province are moderately susceptible to landslides. A potential landslide deposit was identified adjacent to the proposed pipeline route (MPs 236.7 to 236.9, in the Medicine Bow Mountains). For this 0.2-mile section, the risk of further landslides is characterized as moderate. The proposed EPP route is located within an area of low seismic hazard potential, which reduces the potential for landslides to occur.

We consulted with WIC regarding their existing UBL pipeline, since the EPP would parallel the UBL along many segments in western Colorado and southwestern Wyoming. From these consultations, an area was identified along the proposed EPP route at MP 31 where landslides have previously occurred. Construction of the proposed EPP near MP 31 could damage drain tiles previously installed by WIC to mitigate the landslide hazard in the area. As a result, Entrega has committed to repair any construction-related damage that might occur to the drain tile system, thereby ensuring continued protection against landslide recurrence in the area.

Table 3.1-2
Potential Geologic Hazards Along the Proposed Pipeline Route

State/Region	Approximate MP(s)	Potential Geologic Hazard
COLORADO		
Piceance Basin	-0.5 to 39.4	Moderate to low landslide susceptibility and low liquefaction susceptibility.
	-0.5 to 6.3 7.0 to 11.7 12.8 to 14.1 14.7 to 15.5 27.3 to 33.5	Alluvial floodplains and alluvial fans are subject to flooding and scour. Floodplains adjacent to high-angle slopes are especially susceptible to debris flows or land slides.
	-0.5 to -0.4	Low potential for differential movement and surface rupture of the Dudley Gulch Graben boundary faults (North and South).
	13.8	Unnamed normal fault of the Maybell Fault group. Late Cenozoic. No record of recent seismic activity.
	15.3	Unnamed normal fault. Late Cenozoic. No record of recent seismic activity.
	28.0	Unnamed normal fault of the Brown Parks Fault group. No record of recent seismic activity.
Axial Basin	39.4 to 54.5	Moderate to low landslide susceptibility and low liquefaction susceptibility.
	43.0 to 44.3 50.3 to 50.6	Alluvial floodplains and alluvial fans are subject to flooding and scour. Floodplains adjacent to high-angle slopes are especially susceptible to debris flows.
Sand Wash Basin	54.5 to 85.8	Moderate to low landslide susceptibility and low liquefaction susceptibility.
	55.6 to 57.0 59.8 to 60.1 83.9 to 84.8	Alluvial floodplains and alluvial fans are subject to flooding and scour.
	84.7	Unnamed normal fault of the Elkherd Mountain Fault (west) group. No record of recent seismic activity.
	85.6	Same fault as above (Unnamed normal fault of the Elkherd Mountain Fault (west) group). The proposed pipeline route crosses this fault twice. No record of recent seismic activity.
Denver Basin	318.5 to 327.0	Low landslide susceptibility and low liquefaction susceptibility.
	320.2 to 320.7	Alluvial floodplains and alluvial fans are subject to flooding and scour.
WYOMING		
Washakie Basin	85.8 to 133.5	Low landslide susceptibility and low liquefaction susceptibility.
	96.0 to 96.2 98.5 to 98.7 109.8 to 110.0	Alluvial floodplains and alluvial fans are subject to flooding and scour.
Wamsutter Arch	133.5 to 192.8	Low landslide susceptibility and low liquefaction susceptibility.
	134.0 to 134.3 170.9 to 171.1 175.9 to 177.2 188.0 to 188.1 192.7 to 192.8	Alluvial floodplains and alluvial fans are subject to flooding and scour. Internal drainage basins are subject to flash flooding during storm events.
	168.7 172.5	Abandoned underground mines in the area, but none known to be beneath the proposed route. Low potential for underground mine-induced subsidence to impact the project.
Saratoga Valley	192.8 to 214.0	Low landslide susceptibility and low liquefaction susceptibility.
	205.7	Abandoned underground mines in the area, but none known to be beneath the proposed route. Low potential for underground mine-induced subsidence to impact the project.

Table 3.1-2 (Continued)

State/Region	Approximate MP(s)	Potential Geologic Hazard
	212.6 to 212.9	Alluvial floodplains and alluvial fans are subject to flooding and scour.
Medicine Bow Mountains	214.0 to 246.4	Moderate landslide susceptibility and low liquefaction susceptibility.
	225.2 to 225.9 237.3 to 237.6	Alluvial floodplains and alluvial fans are subject to flooding and scour.
	236.7 to 236.9	Route adjacent to a potential landslide deposit along the steep east side of a north-south trending ridge. Moderate landslide susceptibility.
Laramie Basin	246.4 to 284.0	Low landslide susceptibility and low liquefaction susceptibility.
	249.9 to 250.1 274.2 to 274.5	Alluvial floodplains and alluvial fans are subject to flooding and scour.
	256.3 to 259.6	Abandoned underground mines in the area, but none known to lie beneath the proposed route. Low potential for underground mine-induced subsidence to impact the project.
Laramie Mountains	284.0 to 305.0	Low landslide susceptibility.
Denver Basin	305.0 to 318.5	Low landslide susceptibility.

In the event that any previously unknown landslides that would damage the pipeline are identified prior to construction, Entrega has committed to bury the pipeline below the potential landslide depth, if feasible, and/or to implement drainage control to reduce the chance of a landslide. Drainage control could include any of the following methods, either singly or in combination:

- frequent slope breakers;
- frequent ditch breakers;
- subsurface gravel or cobble drains;
- culverts to carry water away from the ROW;
- drainage ditches to carry water to a stream;
- reducing the slopes on cuts; and
- special pipeline padding to reduce drag on the pipeline should the slope move.

Implementation of Entrega's Plan and Procedures (appendices E and F) and the project-specific Blasting Specification Plan (Entrega 2004a) would reduce the potential for construction-related activities to trigger landslides or other slope failures. Additional committed measures for potential ground failure would include the implementation of erosion control measures as described in Entrega's Plan (appendix E). At a minimum, these measures would include the construction of trench breakers, permanent slope breakers, and establishment of permanent vegetation within the ROW.

Subsidence

Subsidence, the loss of surface elevation due to removal of subsurface support, is one of the most diverse forms of ground failure, ranging from small or local collapses to broad regional lowering of the earth's surface. Causes of subsidence can include dissolution in limestone aquifers (karst topography), past and present underground mining, and withdrawal of fluids (groundwater, petroleum, geothermal).

The greatest risk for collapse or subsidence in the project area is from underground mining operations. In Colorado, the most common form of subsidence occurs over abandoned underground coal and clay mines. No areas along the proposed pipeline route in Colorado were identified to have the potential for subsidence resulting from underground mining activities. Further, the proposed project would not cross directly over any known active or abandoned underground mines. We also consulted with WIC to determine if subsidence had been an issue along the existing UBL pipeline. WIC has not experienced problems with mining-induced subsidence along the UBL pipeline.

Similarly, the most common form of subsidence in Wyoming is associated with abandoned underground coal and clay mines. While abandoned underground mines were identified near MPs 168.7, 172.5, 205.7, and 256.3 to 259.6 (Case 1993), Entrega found no evidence of subsidence directly underlying the route. In Wyoming, the proposed EPP route generally follows existing pipelines, which would reduce the likelihood of encountering previously unknown areas of subsidence.

Other types of subsidence are less common in Colorado (Shelton and Prouty 1979) and generally do not pose a significant risk to the proposed pipeline project. No areas of regional subsidence were identified in

the proposed project area. Sites of proposed surface facilities were selected to avoid any known underground mines in the area. Overall, the potential for localized subsidence or collapse features to develop along the project route is low. Nevertheless, WIC did identify two areas of potential concern for sinkholes along their existing UBL pipeline (MPs 25.5 and 53.5 to 54.5). Localized areas of subsidence that materialize as a sinkhole can cause a span area in the pipeline. The length of acceptable span varies depending on the pipe design parameters, but can be easily calculated. The strength and ductility of the pipeline allows it to span over a considerable distance without threatening the integrity of the pipeline. Entrega would monitor the pipeline route for sinkholes during construction and operation. If a span was created that posed a safety hazard, Entrega would be required to mitigate the hazard as required by DOT regulations.

Flooding

In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the pipeline would cross small watersheds. The proposed pipeline route would cross 21 perennial and 174 intermittent waterbody crossings in Colorado and 22 perennial and 178 intermittent waterbody crossings in Wyoming, all of which are locations where seasonal or flash flooding could occur. **Table 3.1-2** identifies areas where the proposed pipeline route would cross alluvial floodplains and alluvial fans, which are areas with an elevated risk for flood-related debris flows and scouring to occur. Though flooding in and of itself does not represent a significant risk to buried pipelines, stream scour and mud/debris flows that can accompany flooding can impact pipelines by exposing and leaving unsupported spans of pipe. To minimize these effects, the pipeline would be buried at a sufficient depth to avoid possible scour at waterbody crossings.

We are concerned about the potential for streambed scour on the White, Yampa, Little Snake, and North Platte Rivers, since these rivers can experience very large spring runoff events. Entrega has committed to perform a brief assessment of potential streambed scour depths for seasonal high flows for the North Platte, Yampa, and Little Snake Rivers, and would cross the White and Yampa Rivers by HDD, (placing the pipeline well below scour depth). The assessment would be based on existing stream flow data, USGS topographic maps, and aerial photographs for each crossing. Additional, site-specific information may be obtained, if necessary. **We recommend that Entrega include the White River in its assessment of potential streambed scour depths, so that this information would be available for design purposes if an open-cut crossing is ultimately required at this location.**

Flooding also could damage the project facilities by inundating surface facilities, scouring streambeds at the point of the pipeline crossing, or causing debris flows that could damage surface facilities. The compressor, meter, and pigging stations and mainline valves do not appear to be located within areas susceptible to flooding.

Review of Federal Emergency Management Agency maps for the Meeker Hub Compressor Station (MP 0) indicates that the facility lies entirely outside the 100-year floodplain of Piceance Creek. Minimal hazard of flooding from Piceance Creek (less than 1 percent in any given year) would be present at surface facilities.

Most of the Meeker Hub Compressor Station site, including the location of all aboveground facilities is above the floodplain on an alluvial fan (up to about 5 feet above the floodplain). Siting aboveground facilities on an alluvial fan exposes them to other potential hazards. An alluvial fan is a fan-shaped geological feature formed by material deposited where a stream issues from a narrow mountain valley onto a plane or broad valley. In this case, the feature is the result of material deposited by flows from the intermittent North Dudley Gulch as it joins the broader Piceance Creek valley. Siting the proposed compressor facilities on the alluvial fan exposes them to an increased potential for flash flooding and debris flows associated with North Dudley Gulch. However, the drainage has been rerouted along the highway frontage (south of the station) and, in most cases, would prevent flood and debris flows from reaching the site.

Avalanche

Snow avalanches are the rapid down-slope movement of snow, ice, and associated debris, such as rocks and vegetation. While avalanches would not pose a hazard to the underground pipeline facility, an avalanche could damage surface facilities and would pose a risk to workers in the affected area. In the mountainous areas of Colorado and Wyoming, avalanches generally occur above 8,000 feet elevation, and on slopes with average gradients of 30 to 45 degrees. Slopes steeper than 45 degrees usually do not accumulate enough snow to produce large avalanches (Mears 1979).

Overall, the risk of an avalanche damaging the project facilities would be categorized as low because most of the proposed pipeline route would lie below 8,000 feet elevation. Isolated portions of the route in Colorado (MPs 53.3 to 54.0) and Wyoming (MPs 236.4 to 236.9) would traverse or approach elevations and terrain that could favor avalanche development. The currently proposed locations for the compressor and meter stations (un-manned facilities) are not located in avalanche prone areas. The un-manned Arlington Pigging Station (MP 236.9) would be located at the base on the leeward side of a steep slope in one of these designated areas. While snow slides would occur on these slopes, the amount of snow that would accumulate on the slope and the distance from the base of the slope to the pigging facilities suggests that damage to structures would be unlikely.

3.1.4 Paleontological Resources

A paleontological study of existing data was conducted to identify geological units and known fossil localities crossed by the proposed pipeline route. The study identified 33 formal geological formations ranging in age from Precambrian to Pliocene along the proposed pipeline route, many of which are known to contain scattered vertebrate fossil localities and abundant plant and invertebrate fossil sites in the vicinity of the proposed project (Uinta Paleontological Associates, Inc. 2005). The study also identified six informal Quaternary units. The sensitivity of each unit for containing fossil material subsequently was evaluated using a three-tiered classification system established by the BLM (BLM Paleontology Resources Manual and Handbook H-8270-1). Under this system, units are ranked according to their potential for noteworthy fossil occurrences as follows:

- **Condition 1** – Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.

- **Condition 2** – Areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.

- **Condition 3** – Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils based on their surficial geology, igneous or metamorphic rocks, extremely young alluvium, colluvium, or aeolian deposits, or the presence of deep soils.

Entrega conducted a paleontological field survey in the spring and summer of 2004 to identify fossil localities that could be disturbed by pipeline construction. The survey covered a 250- to 300-foot-wide corridor along the length of the fossiliferous strata along the proposed pipeline route, unless the grade was considered too steep, the surface exposures were too well vegetated, or there was substantial alluvial or soil cover. Along segments of the proposed route that parallel an existing pipeline, the edge of the 250- to 300-foot-wide corridor was located 50 feet from the proposed centerline on the side with the existing pipeline and 200 to 250 feet from the centerline on the other side. Where the proposed pipeline would not parallel an existing pipeline, a 300-foot-wide survey corridor centered on the staked centerline of the pipeline route was examined. In addition to the pipeline corridor, access roads, temporary use areas, and associated ancillary facilities also were examined for paleontological resources.

The field survey identified 91 occurrences of fossils in Colorado grouped into 36 localities, and 263 occurrences of fossils in Wyoming grouped into 60 localities. Most of these localities are along the north-south segment of the proposed corridor, between Meeker, Colorado, and Wamsutter, Wyoming, on the eastern edges of intermontane Tertiary basins. Much of the remainder of the proposed pipeline ROW, between Wamsutter and its terminus south of Cheyenne, Wyoming, is covered with an undetermined thickness of well-vegetated Quaternary deposits that are not known to be fossiliferous. However, where the Quaternary deposits are thin, pipeline construction may impact underlying fossiliferous units (Uinta Paleontological Associates, Inc. 2005).

The field surveys undertaken for the project examined those units mapped as meeting the BLM's Condition 1 paleontological criteria (approximately 160 miles of the pipeline corridor). Spot checks or rock exposure evaluations were done along the Condition 2 units (approximately 71 miles). However, subsequent evaluation of the field survey data indicates there are 123.3 miles that meet the Condition 1 criteria, 42.6 miles in Colorado and 80.7 miles in Wyoming (**tables 3.1-3** and **3.1-4** lists the miles of Conditions 1, 2, and 3). Entrega will monitor Condition 1 locations during construction. Field surveys indicate that Condition 2 criteria are met along 124 miles of the proposed pipeline corridor, 22.5 miles in Colorado and 101.5 miles in Wyoming. Entrega will spot check these areas for fossils during ground disturbing activities associated with project construction. Condition 3 units were not included in the field surveys, and no further work is needed on these units (approximately 21.1 miles in Colorado and 59.1 in Wyoming). No field surveys were conducted from MP 247 to MP 254.8 and MP 285.7 to MP 289.7 due to denied access.

As a result of the field survey, at least 354 new occurrences of fossils were found, many of which were grouped into 96 new localities. Several scientifically critical discoveries were made: dinosaur remains in the Iles Formation (UCM 2004063), and faunal assemblages in local areas of the Laney Tongue of the Green River Formation and the Cathedral Bluffs Member of the Wasatch Formation (UCM 2004039, 2004026, and

Table 3.1-3
Conditions 1, 2, and 3 Along the Surveyed Entrega Pipeline Route

Formation	BLM Rating	Fossil Potential	Miles Surveyed
Alluvium and colluvium	Condition 3; Condition 1 near rivers	Usually low, but river beds can be rich	44.2
Alluvium and colluvium over Jurassic Morrison Formation	Condition 1	Usually fossiliferous	0.7
Alluvium and colluvium over Triassic Chugwater Formation	Condition 2	Low to moderate	0.8
Alluvium over Wasatch	Condition 3	Usually low, but river beds can be rich	2.5
Battle Spring Formation – proximal conglomerate correlative with Wasatch Formation	Condition 2	Moderate	3.8
Browns Park Formation, Wyoming and Colorado	Condition 1	Locally high	9
Casper and Fountain Formations	Condition 2	Low for vertebrates	3.3
Chugwater Formation or group by Laramie	Condition 2	Moderate	1.1
Eolian, wind blown, or loess over Wasatch	Condition 3	Low	0.8
Ferris Formation	Condition 1	Locally high	1.9
Forelle Limestone and Satanka Shale = Goose Egg Formation	Condition 2	Low for vertebrates	2.3
Fort Union Formation, Colorado	Condition 2	Moderate	1
Fort Union Formation, Wyoming	Condition 1	High	6.6
Gravel, pediment, and fan deposits	Condition 3	Low	18.9
Green River Formation/Lower Wasatch Formation Interface	Condition 1	High	1.8
Green River Formation: Laney member	Condition 1	High	23.1
Green River Formation: Laney member (lower)	Condition 1	High	0.4
Green River Formation: Luman tongue	Condition 1	High	0.8
Green River Formation: Parachute Member, Colorado	Condition 1	High	1.9
Green River Formation: Tipton shale member or tongue	Condition 1	High	5.6
Green River Formation: Wilkins Peak member	Condition 1	High	0.1
Hanna Formation	Condition 1	High	9.3
Iles Formation, Colorado	Condition 2 to 1	Moderate	1.8
Lance Formation	Condition 1	Locally high	2.9
Land slide deposits	Condition 3	Low	0.2
Lewis Shale, Colorado	Condition 2	Low for vertebrates	0.2
Lewis Shale, Wyoming	Condition 2	Low for vertebrates	11.3
Mancos Formation, Colorado	Condition 2	Moderate	0.9
Medicine Bow Formation	Condition 2	Moderate	1.9
Mesaverde Group	Condition 1	Locally high	9.5
Metasedimentary and Metavolcanic Rocks	Condition 3	Low	3.6
Miocene Rocks	Condition 1 to 2	Locally high	12.3
Miocene Rocks (Browns Park, North Park, Troublesome, or Ogallala formation equivalents)	Condition 1	High	0.5

Table 3.1-3 (Continued)

Formation	BLM Rating	Fossil Potential	Miles Surveyed
Niobrara Formation	Condition 2	Low for vertebrates	0.6
Ogallala Formation	Condition 2	Locally high	5.9
Playa lake and other lacustrine deposits	Condition 3	Low	1.2
Pleistocene gravels – terrace, glacial, alluvial	Condition 3	Low	2
Quaternary alluvium over Green River Formation, Colorado	Condition 1	High	3.7
Quaternary alluvium over Uinta Formation with Green River Formation tongues, Colorado	Condition 1	High	1
Quaternary alluvium over Wasatch Formation	Condition 1	High	0.8
Quaternary alluvium over Wasatch Formation	Condition 3 or 1	Low to high	1.1
Sherman Granite	Condition 3	Low	11.4
Steele Shale	Condition 2	Low for vertebrates	5.6
Steele Shale and Niobrara Formation	Condition 2	Low for vertebrates	14.7
Uinta Formation with Green River Formation tongues in Colorado	Condition 1	High	1.1
Upper Miocene Rocks	Condition 2	Locally high	12.3
Variable thickness of alluvium and colluvium over Browns Park	Condition 3; Condition 1 near rivers	Usually low, but river beds can be rich	0.9
Wasatch Formation – Main Member	Condition 1	High	0.3
Wasatch Formation aka DeBeque Formation in Piceance Creek Basin, Colorado	Condition 1	High	10.3
Wasatch Formation: Cathedral Bluffs tongue	Condition 1	Locally high	33.4
Wasatch Formation: main body in Wyoming	Condition 1	High	13.3
Washakie Formation	Condition 1	High	2.5
White River Formation	Condition 1	High	3.7
Williams Fork Formation, Colorado	Condition 1	Locally high	4.7
Wind River Formation – at base locally includes equivalent of Indian Meadows Formation	Condition 1	High	0.8
		Total miles	**316.9**

Source: Uinta Paleontological Associates Inc. 2005.

Table 3.1-4
Conditions 1, 2, and 3 Along the Entrega Pipeline Route Developed by Mapping[1]

Formation	BLM Rating	Fossil Potential	Miles Mapped
Alluvium and colluvium	Condition 3; Condition 1 near rivers	Usually low, but river beds can be rich	1.1
Casper and Fountain Formations	Condition 2	Low for vertebrates	3.7
Gravel, pediment, and fan deposits	Condition 3	Low	0.3
Hanna Formation	Condition 1	High	0.3
Lewis Shale, Wyoming	Condition 2	Low for vertebrates	1.6
Mesaverde Group	Condition 1	Locally high	1.4
Sherman Granite	Condition 3	Low	0.3
Steele Shale	Condition 2	Low for vertebrates	0.8
Wind River Formation – at base locally includes equivalent of Indian Meadows Formation	Condition 1	High	1.7
		Total Miles	**11.2**

[1] This table lists the total miles of formations and corresponding Conditions 1, 2, and 3 that were not surveyed due to denied access. The data shown in the table was obtained through the use of geological maps rather than by field survey.

Source: Uinta Paleontological Associates Inc. 2005.

2004073). For UCM 2004073, Entrega recommends that surface fossils be collected prior to construction (Uinta Paleontological Associates, Inc. 2005). Little excavation work would be necessary. Mitigation or avoidance is recommended for UCM 2004063, UCM 2004039, and UCM 2004026. Entrega is currently evaluating options for avoiding UCM 2004063 and UCM 2004039. Entrega has indicated that it will file an addendum report of the reroutes in May 2005.

Potential impacts to fossil localities during construction could be both direct and indirect. Trenching through significant fossil beds could result in direct damage to or destruction of fossils. Indirect effects during construction could include erosion of fossil beds due to slope regrading and vegetation clearing. Another possible indirect effect could be unauthorized collection of significant fossils by construction workers or the public due to increased access to fossil localities along the ROW.

To manage impacts to fossil localities, Entrega has prepared and would implement a Monitoring and Mitigation Plan to protect fossil resources that may be encountered during project construction, including the resources identified during the field survey (Uinta Paleontological Associates, Inc. 2005). Primary elements of the Monitoring and Mitigation Plan include:

- paleontological monitoring and spot checking of construction activities across Condition 1 and 2 units;
- mitigation procedures for fossil localities identified during construction (e.g., avoidance, excavation, recording of localities);
- provisions for the preparation and curation of fossil collections; and
- provisions for the preparation of a final report based on the recovered data.

All work conducted under the Monitoring and Mitigation Plan would be performed by qualified paleontologists with trained assistants. The plan would be filed with the Secretary prior to construction.

Normal operation of the proposed pipeline and its associated facilities would not disturb important paleontological resources. Maintenance activities would result in surface disturbance, but typically would occur within the trenchline previously disturbed during construction. Since no new disturbances would be anticipated from maintenance activities (i.e., maintenance activities would occur within the EPP ROW), impacts to paleontological resources would be negligible. As a result of a comment from the BLM, Entrega has committed to paleontological monitoring in areas where maintenance activities require trenching that would be wider than the original trench.

3.2 Soils and Noxious Weeds

Soils characteristics that can affect construction or increase the potential for soil impacts include: highly erodible soils; prime farmland; hydric soils; compaction-prone soils; presence of stones and shallow bedrock; droughty soils; depth of topsoil; and percent slope. Additional soil-related issues include revegetation potential, soil salinity, and soil contamination. **Tables 3.2-1** and **3.2-2** summarize characteristics of soils that would be crossed by the pipeline route.

Table 3.2-1
Acreage Summary of Sensitive Soils

State/ County	Total Acres[1]	Highly Erodible		Prime Farmland[4]	Hydric[5]	Compaction Prone[6]	Stony – Rocky[7]	Shallow Bedrock[8]	Droughty[9]
		Water[2]	Wind[3]						
COLORADO									
Rio Blanco	396	396	12	0	0	0	295	241	30
Moffat	853	792	258	0	26	0	143	68	407
WYOMING									
Sweetwater	1,135	750	128	0	<1	0	465	131	443
Carbon	1,175	1,071	80	0	0	0	454	233	465
Albany	724	533	10	0	46	10	311	227	128
Laramie	272	268	0	0	4	0	193	195	4
COLORADO									
Larimer	3	3	0	0	0	0	2	2	0
Weld	148	106	2	0	0	0	23	29	38
Project Total Acres[10,11]	**4,706**	**3,919**	**490**	**0**	**76**	**10**	**1,886**	**1,126**	**1,515**

[1] Acreage assumes a 100-foot-wide construction ROW, including areas where ROW was increased/decreased due to site-specific conditions, and additional temporary workspace. Individual soils may occur in more than one characteristic class.
[2] Includes land in capability subclasses 4E through 8E and soils with slopes greater than or equal to 9 percent.
[3] Includes soils in wind erodibility groups 1 and 2.
[4] Includes land listed by the NRCS (1995) as potential prime farmland if adequate protection from flooding and adequate drainage are provided.
[5] As designated by the NRCS (1995).
[6] Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.
[7] Includes soils that have either: 1) a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class, or 2) have >5 percent (weight basis) of stones larger than 3 inches in the surface layer.
[8] Includes soils that have bedrock within 60 inches of the soil surface.
[9] Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.
[10] Total does not include 149 acres in Colorado and 516 acres in Wyoming of land to be used for pipe storage and contractor yards, as no soil data was available.
[11] Discrepencies in acreages are due to rounding.

Pipeline construction activities that have the potential to adversely affect soils and revegetation potential include: clearing and grading along the ROW, trenching, backfilling, and restoration. Potential soil impacts include: loss of soil due to water or wind erosion, especially on steep slopes or fine sandy soils; reduction of

Table 3.2-2
Acreage Breakdown of Topsoil Depth and Average Slope Class
Along the Entrega Pipeline Route

State/ County	Total Acres[1]	Topsoil Depth[2] (inches)					Slope Class[3] (percent)				
		0 - 6	>6 - 12	>12 - 18	>18 - 24	>24	0-5	>5-8	>8-15	>15-30	>30
		Acres									
COLORADO											
Rio Blanco	396	225	150	0	0	21	18	43	123	47	166
Moffat	853	526	299	0	15	12	116	237	265	135	99
WYOMING											
Sweetwater	1,135	631	402	55	0	44	755	11	168	165	32
Carbon	1,175	828	328	0	0	19	405	225	269	250	25
Albany	724	469	110	75	21	50	355	43	117	110	99
Laramie	272	96	119	21	4	31	51	38	53	105	25
COLORADO											
Larimer	3	1	1	0	0	<1	1	1	<1	1	0
Weld	148	37	103	3	1	3	60	50	27	10	0
Project Total Acres[4,5]	**4,706**	**2,813**	**1,512**	**154**	**41**	**180**	**1,761**	**648**	**1,022**	**823**	**446**

[1] Acreage assumes a 100-foot-wide construction ROW, including areas where ROW width was increased/decreased due to site-specific conditions and additional temporary workspace areas.
[2] Topsoil includes A-horizons (layers 1, 11, and 12) listed in the STATSGO layer table.
[3] Slopes are grouped by the averages of the high and low slope ranges provided in the STATSGO database for each map unit identification (MUID) component soil series. For example, Tresano series, 3 to 10 percent slopes, is 20 percent of MUID CO010. Its average slope is 6.5 percent. The representative acreage, calculated by multiplying percent composition by the total MUID acreage, is included in the >5 to 8 percent slope class.
[4] Discrepencies are due to rounding.
[5] Total does not include 149 acres in Colorado and 516 acres in Wyoming of land to be used for pipe storage and contractor yards, as no soil data were available.

soil quality by mixing topsoil with subsoil or by bringing excess rocks to the surface; soil compaction due to traffic by heavy equipment; introduction of noxious weeds or invasive plant species; and disruption of surface and subsurface drainage or irrigation systems.

None of the soils that would be crossed by the proposed pipeline route or the aboveground facilities are considered prime farmland or potentially prime farmland (**table 3.2-1**). Therefore, no impacts on highly productive agricultural soils are anticipated.

Construction of the compressor, meter, and pigging stations would affect about 76 acres. The Meeker Hub Compressor Station would be located on land already dedicated to commercial/industrial uses, while the Bighole and Wamsutter Compressor Stations, Cheyenne Hub Metering Station, and the Arlington Pigging

Station would be built on rangeland. Soils in these areas are susceptible to wind and water erosion. At the Meeker Hub Compressor Station, soils on a portion of the site are hydric and prone to compaction.

Seventeen of the 22 mainline valves would be constructed in the 50-foot-wide permanently maintained ROW. The remaining five mainline valves would be located within compressor and meter stations. Each mainline valve that was located within the ROW would occupy an area of 40 feet by 60 feet. Soil constraints for these mainline valves would be the same as those identified for the surrounding pipeline ROW.

Ancillary facilities would consist of 6 contractor yards, 8 pipe storage yards, and 4 rail sidings occupying about 517 acres of land. A number of the pipe storage yards would be located in areas already used for industrial purposes, however, some sites would be located partially or entirely in rangeland. Generally, yard preparation would be limited to grading and leveling, and possibly importing some fill. Where the yards would be located in rangeland, topsoil would be stripped and stored at the edge of the yard and temporary traffic lanes would be installed by placing gravel over geotextile fabric. Impacts would be similar to those of pipeline construction (i.e., possibility of reduction of soil quality by topsoil loss or mixing with subsoils, compaction, and introduction of invasive or noxious weeds). Upon completion of the project, the traffic lanes would be removed, compacted soils would be mitigated according to Entrega's Plan (appendix E), and topsoil would be restored to its original position.

Soil impacts at the compressor and meter station sites would be mitigated by the implementation of Entrega's Plan, such as erosion control measures, topsoil separation and handling procedures, and remediation of compacted soils. Installation of the mainline valves would occur within the 100-foot-wide temporary construction ROW or the proposed compressor or meter station sites, so no additional land would be disturbed during construction.

While normal operations would have negligible effects to soil resources, future routine maintenance activities could result in infrequent, isolated surface disturbances along the pipeline ROW. These future maintenance activities would adhere to construction and reclamation standards within Entrega's Plan, Procedures, and POD. Adherence to these plans would minimize impacts associated with future maintenance activities.

3.2.1 Erosion

The majority of the proposed route would cross range and shrublands on gently rolling to moderately steep slopes that are highly erodible. Of the total 4,706 acres (not including pipe storage and contractor yards) potentially affected by pipeline construction, the majority (3,919 acres, 83 percent) are considered highly water erodible. About 10 percent (490 acres) of soils along the proposed pipeline route are highly wind erodible, although there is considerable overlap between wind and water erosion classes in some counties (**table 3.2-1**). Removal of vegetation and topsoil increases the likelihood of erosion by wind or water. About 37 percent (1,761 acres) of the soils along the route have average slope-ranges in the 0 to 5 percent category (see **table 3.2-2**). Fifty-three percent of the remaining soils range from greater than 5 percent to 30 percent slope (2,493 acres). About 10 percent of soils have slopes greater than 30 percent (446 acres) (**table 3.2-2**). Most of the highly erodible soils (water and wind erosion) are in western Colorado and Wyoming (1,458 acres and 2,840 acres, respectively); while most of the soils in eastern Colorado are

primarily susceptible to water erosion (**table 3.2-1**). Entrega would control erosion and sedimentation by a variety of different methods as discussed in Entrega's Plan, Procedures, and POD. Temporary slope breakers, permanent slope breakers, sediment barriers, and mulches are some of the practices that would be implemented as erosion and sedimentation control (see appendix E). On non-federal lands, we believe that permanent slope breaker spacing may be adjusted to follow the requirements of the local soil conservation authority or land management agency at the discretion of the EI. However, this change from the specifications in Entrega's Plan would require FERC approval prior to implementation. During construction in areas prone to wind erosion, Entrega has committed to "wet down" topsoil stockpiles to maintain a surface crust which would act to minimize wind-blown losses. Topsoil losses reduce soil productivity, which results in further erosion.

In areas susceptible to erosion, it is anticipated that the soil covering the pipeline could be severely eroded and compromise restoration over time. While the DOT requires that a pipeline be buried to a specified depth during construction (30 inches in most locations), there are no regulations dictating that the depth of cover be maintained during the life of the pipeline. Therefore, **we recommend that if severe wind erosion occurs (as noted by exposed pipe, deflation, or dune formation), Entrega should install and monitor erosion prevention devices (e.g., snow fences) to ensure soil stabilization as part of Entrega's ongoing maintenance program. Entrega shall notify the FERC of severe erosion and its mitigation in Entrega's quarterly activity reports to the FERC.**

3.2.2 Sensitive Soils

During construction across BLM and state-owned lands, and subject to the approval of the land managing agency, Entrega proposes to strip and segregate topsoil from the ditch line only, except in cut areas where the ROW or additional temporary workspace areas must be leveled for safe construction. In such areas, Entrega would strip the full ROW. The stripped topsoil would be stored separately and not allowed to mix with trench spoil. On private lands, Entrega would segregate topsoil according to landowner requests. If the landowner has not made a specific request regarding topsoil segregation, Entrega would use the same methods as described above for BLM and state-managed lands. To further minimize potential impacts to soil resources, topsoil would not be stripped from areas used for subsoil stockpiles.

We generally agree that limiting the amount of stripping in shallow topsoil areas reduces impacts on topsoil by limiting its disturbance and how much it is handled. Less disturbance generally equates to improved reclamation success and less opportunity for the introduction of invasive species; less handling results in less topsoil loss, which is especially important when topsoil is shallow. However, by not stripping topsoil from the working side of the construction ROW, there is the potential for heavy construction equipment to pulverize the topsoil and intermix it with subsoil as the equipment and vehicles move up and down the ROW. In windy areas, pulverized topsoil would be blown off the ROW and effectively lost. As a result, Entrega has committed to monitor for potential topsoil degradation in areas where it is not stripped from the working side of the construction ROW. If topsoil in these areas becomes powdered or pulverized to a depth of 4 inches and is being mixed with subsoil, or if wind is moving topsoil off the ROW regardless of dust control measures applied, then the EIs, in conjunction with the agencies' compliance monitors, would require that Entrega change its procedures to strip topsoil from both the ditch line and the working side of the ROW. As required by Entrega's Plan, topsoil stockpiles would be segregated from trench spoil. Entrega would continue with this expanded topsoil stripping procedure until construction encountered an area with

soils having a more coarse texture and greater cohesiveness. Here, limited topsoil stripping of the ditch line only could be resumed if approved by both the ElS and agencies' compliance monitors. The BLM has indicated it may require implementation of additional measures to conserve topsoil on federal land.

About 10 acres (less than 1 percent of total area) of compaction-prone soils were identified (**table 3.2-1**) and all of these areas are located in Albany County, Wyoming. In these susceptible areas, Entrega would minimize compaction by restricting activities during wet soil conditions. Entrega would alleviate soil compaction and rutting in agricultural and rangeland soils, as specified in Entrega's Plan, Procedures, and POD.

About 3 percent of the pipeline route contains soils with substantial rocks and stones in the surface soil horizons, with the majority of rocky soils occurring in Rio Blanco County, Colorado, and the four counties in Wyoming (**table 3.2-1**). Soils containing shallow bedrock occupy about 24 percent (1,126 acres) of the proposed pipeline route. About 12 percent of the total acreage of shallow bedrock is designated as hard rock that could require blasting. The remaining areas of shallow bedrock are soft enough to be ripped with backhoes or bulldozers equipped with rippers. The majority of shallow bedrock areas are located in Rio Blanco County, Colorado, Carbon, Albany, and Laramie Counties, Wyoming (**table 3.2-1**).

During construction, Entrega would minimize the introduction of subsoil rock into topsoil (Entrega 2004b,c), ensuring that the amount of rock on the ROW after construction would be similar to or less than the area adjacent to the ROW. Where necessary, excess rock would be either hauled off the ROW and disposed of at an approved off-site facility, stockpiled to prevent public use of the ROW, or otherwise used appropriately, if approved by the landowner or land management agency and as allowed by applicable permit conditions.

About 32 percent (1,515 acres) of soils along the proposed pipeline route are inherently droughty (**table 3.2-1**). To mitigate the adverse effects of pipeline construction on droughty soils that are not under cultivation and to assist with revegetation efforts, Entrega would apply mulch and stabilize the soil surface to minimize wind erosion and to conserve soil moisture (Entrega 2004b,c).

The proposed pipeline route would cross about 76 acres of hydric soils, an indicator of areas that may contain drain tiles for crop production. Entrega has committed to replace or repair any drain tiles damaged by construction activities. Entrega has prepared an Irrigation System Repair and Monitoring Plan (appendix L). In this plan, Entrega has agreed to maintain water flow to irrigation systems throughout construction unless landowner permission is obtained to temporarily interrupt water flow. If damage to irrigation systems occurred during construction, Entrega has agreed to restore or repair the damage. Trench backfilling would be conducted in lifts, with water additions and compaction between lifts to minimize settling and misdirection of irrigation flows.

In parts of Moffat County, Colorado, and Sweetwater, Carbon, and Albany Counties, Wyoming, the proposed pipeline route would cross a variety of soils affected by salinity and sodicity. These soils exhibit a characteristic pattern of localized bare spots and scattered, salt-tolerant vegetation and often lack recognizable topsoil. Although saline and sodic soils do not comprise a large acreage of soils along the pipeline route (about 2 percent [over 6 miles] of the entire pipeline route), construction disturbances in areas containing these soils would be difficult to revegetate and could require additional efforts to achieve

adequate restoration. Entrega would consult with NRCS and BLM personnel, or other soils specialists, as appropriate, to develop additional restoration measures for these soils.

3.2.3 Soil Contamination

Soil contamination along the route could result from at least two sources: material spills during construction and trench excavation through pre-existing contaminated areas. Contamination from spills or leaks of fuels, lubricants, coolants, and solvents from construction equipment could impact soils. These impacts would typically be minor because of the low frequency and volumes of these occurrences. Furthermore, Entrega has developed a SPCC Plan that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuels, lubricants, coolants, or solvents. Entrega would be required to clean up spills in accordance with its SPCC Plan (Entrega 2004d). There are currently no known contaminated sites crossed by the proposed pipeline route or affected by aboveground and ancillary facilities. If contaminated or suspect soils (e.g., hydrocarbon contamination) were identified during trenching operations, work in the area of the suspected contamination would be halted until the type and extent of the contamination was determined. The type and extent of contamination, the responsible party, and local, state, and federal regulations would determine the appropriate cleanup method(s) for these areas.

There are no known National Priority List sites, Comprehensive Environmental Response, Compensation, and Liability Information System sites, or state landfills within 1 mile of the proposed pipeline route (EPA 2003a,b). Review of the NRCS identified six reported spills within 1 mile of the proposed pipeline route (EPA 2004a). Based on review of the public reports on these spill sites, it is unlikely any contaminated soils would be encountered during construction due to their location in relation to the proposed pipeline route. Based on the data contained in the spill reports, the spills are located down gradient from the pipeline route and have been contained and cleaned up (EPA 2004a).

3.2.4 Noxious Weeds and Other Invasive Plants

After disturbances to the soil, vegetation communities can be susceptible to infestations of invasive or exotic weed species. Vegetation removal and soil disturbance during construction could create optimal conditions for the establishment of invasive, non-native species. Construction equipment traveling from weed-infested areas into weed-free areas could disperse invasive or noxious weed seeds and propagates, resulting in the establishment of noxious weeds in previously weed-free areas.

The prevention of the spread of noxious and invasive weeds is a high priority to nearby communities. We received 12 comments related to noxious weeds during the public scoping period for this project. Under Executive Order (EO) 13112, federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless it has been determined that the benefits of such actions outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

The BLM maintains a list of invasive species, some of which may potentially occur within the proposed project area in Colorado and Wyoming (**table 3.2-3**). These are species that the BLM attempts to manage in

Table 3.2-3
Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

Common Name	Scientific Name	Colorado Noxious Weed List	BLM Little Snake Field Office	BLM White River Field Office	BLM Rawlins Field Office	Rio Blanco County, CO	Moffat County, CO	Larimer County, CO	Weld County, CO	Sweetwater County, WY	Carbon County, WY	Albany County, WY	Laramie County, WY
Camelthorn	*Alhagi pseudalhagi*	A											
Common Burdock	*Arctium minus*	C			X	X				X			
Cheatgrass	*Bromus tectorum*	C	X										
Plumeless Thistle	*Carduus acanthoides*	B				X							
Whitetop / Hoary Cress	*Cardaria draba*	B	X		X	X				X	X	X	
Musk Thistle / Biannual Thistle	*Carduus nutans*	B	X	X	X	X			X	X	X	X	
Spotted Knapweed	*Centaurea maculosa*	B	X	X	X	X				X	X	X	
Diffuse Knapweed	*Centaurea diffusa*	B	X		X	X			X	X			
Meadow Knapweed	*Centaurea pratensis*	A											
Russian Knapweed	*Centaurea repens*	B			X	X			X	X	X		
Yellow Starthistle	*Centaurea solstitialis*	A				X							
Squarrose knapweed	*Centaurea virgata*	A											
Rush Skeletonweed	*Chondrilla juncea*	A											
Canada Thistle	*Cirsium arvense*	B	X	X	X	X			X	X	X	X	X
Bull Thistle	*Cirsium vulgare*	B		X									
Field Bindweed	*Convolvulus arvensis*	C			X	X			X	X			X
Common Crupina	*Crupina vulgaris*	A											
Houndstongue	*Cynoglossum officinale*	B	X	X	X	X				X	X	X	
Plains Larkspur	*Delphinium geyeri*										X		
Cypress spurge	*Euphorbia cyparissias*	A											
Leafy Spurge	*Euphorbia esula*	B	X		X	X			X	X	X		X
Myrtle Spurge	*Euphorbia myrsinites*	A											
Curly Cup / Gum Weed	*Grindelia squarrosa*					X							
Halogeton	*Halogeton glomeratus*	C	X		X	X					X		
Foxtail Barley	*Hordeum jubatum*									X			
Hydrilla	*Hydrilla verticallata*	A											
Black Henbane	*Hyoscyamus niger*	B		X	X	X				X	X	X	
Dyer's Woad	*Isatis tinctoria*	A			X					X			
Kochia / Fireweed / Summer Cypress	*Kochia scoparia*					X							
Sericea Lespedeza	*Lespedeza cuneata*	A											
Perennial Pepperweed / Tall Whitetop	*Lepidium latifolium*	B	X	X	X	X	X			X		X	
Dalmation Toadflax	*Linaria dalmatica*	B	X		X	X		X	X	X		X	X
Yellow Toadflax	*Linaria vulgaris*	B	X			X		X					

Table 3.2-3 (Continued)

Common Name	Scientific Name	Colorado Noxious Weed List	BLM Little Snake Field Office	BLM White River Field Office	BLM Rawlins Field Office	Rio Blanco County, CO	Moffat County, CO	Larimer County, CO	Weld County, CO	Sweetwater County, WY	Carbon County, WY	Albany County, WY	Laramie County, WY
Wyeth Lupine	*Lupinus wyethii*										X		
Purple Loosestrife	*Lythrum salicaria*	A											
Scotch Thistle	*Onopordum acanthium*	B				X			X				
Plains Pricklypear	*Opuntia polyacantha*										X		
African Rue	*Penganum harmala*	A											
Sulfur Cinquefoil	*Potentilla recta*	C				X							
Russian Thistle / Tumbleweed	*Salsola tragus*					X							
Mediterranean Sage	*Salvia aethiopis*	A											
Giant Salvinia	*Salvinia molesta*	A											
Tansy Ragwort	*Senecio jacobaea*	A											
Medusahead	*Taeniatherium caput-medusae*	A											
Salt Cedar / Tamarisk	*Tamarix* spp.	B	X		X					X			
Common Mullein	*Verbascum thapsus*	C		X		X				X			

western states. The states of Colorado and Wyoming also maintain similar, but not identical, lists of designated noxious weed species.

The Wyoming Weed Program is a programmatic plan, similar to the BLM Weed Management Plan. In comparison, the Colorado Weed Program is more prescriptive. In Colorado, noxious weeds are classified as List A, B, or C under the Colorado Noxious Weed Act (§ 35 5.5-101 through 119, C.R.S. [2003]). Each list has specific control requirements, with the most stringent requirements for those species found on List A, including yellow starthistle and Dyer's woad. If these species were found along Entrega's ROW or at aboveground facilities in Colorado, Entrega would be required to follow the prescribed management techniques stipulated by Colorado's Noxious Weed Act. For species in List A, these techniques must be applied for the duration of the seed longevity for the particular species, which is at least 8 years for Dyer's woad and at least 10 years for yellow starthistle. Control requirements for species on Lists B and C are less stringent.

To control the spread of noxious weeds, Entrega has prepared a Weed Management Plan (appendix H) incorporating details regarding known occurrences of noxious and invasive weeds along the proposed project, current treatment of known noxious weed areas, and mitigation measures that Entrega would implement to minimize the spread and establishment of noxious weeds and non-native invasive species. Entrega would require that its contractors adhere to the mitigation measures outlined in its Weed Management Plan. Mitigation measures found in the Weed Management Plan include:

- Prior to construction, Entrega would complete surveys of the areas of known and anticipated infestations of noxious weeds to identify locations of infestations or presence of noxious weed species identified by federal, state, and local agencies.

- Based on survey results and agency consultations, pretreatment of noxious weed infestations may be conducted in selected areas. Depending on the species and the time of construction, such pretreatment methods may include chemical, biological, or mechanical methods to remove invasive weed populations from the construction ROW prior to surface disturbance.

- Prior to the beginning of construction of the project, all contractor vehicles and equipment would be required to be cleaned of soil and debris that is capable of transporting noxious weed propagules. All contractor vehicles and equipment would be inspected by the EI(s) and may require additional cleaning.

- Prior to entering each county before and during construction, Entrega would clean all contractor vehicles and equipment of soil and debris capable of transporting weed propagules.

- The contractor would ensure that certified weed-free straw or hay bales used to construct sediment control devices or used as mulch applications are obtained from approved certified sources, as recommended by the County Weed and Pest Districts, Weed Control Supervisors, and the states of Colorado and Wyoming.

- An equipment wash station would be installed at the Yampa River crossing (MP 50.6).

- Segregated topsoil in areas identified as supporting noxious weeds would be maintained adjacent to the areas from which they were obtained to eliminate the transport of soil-bourne noxious and invasive weed propagules to other areas along the right-of-way.

During scoping, we received several comments expressing concern about loss of vegetation productivity. However, the most common concern expressed was the potential for the introduction and spread of noxious and invasive weeds. Many of the concerns and suggestions are addressed by elements of Entrega's Plan (such as topsoil segregation and NRCS recommendations for seeding and weed control) and by Entrega's Weed Management Plan. This plan presents information provided by various county weed departments and BLM offices, identifying where noxious or invasive weed species are present along portions of the proposed route. Entrega has committed to conducting full noxious and invasive weed surveys within and immediately adjacent to all areas of project-related disturbance beginning in spring 2005. Results of the weed survey will be attached to Entrega's Weed Management Plan to create a project-specific plan that identifies locations and mitigation for control in areas of known weed infestations. In addition, **we recommend that Entrega revise its Weed Management Plan to include:**

a. identification of the locations by MP where noxious or invasive weeds are currently present either within or immediately adjacent to all areas of project-related disturbance; and

b. a site-specific plan for each location where weeds are present which:

i. describes options for pretreatment (including the month(s) of the year when pretreatment would be effective);

ii. identifies who was consulted regarding possible pretreatment options; and

iii. includes whether the landowner/administrator has approved of the pretreatment.

During construction, Entrega proposes to site vehicle and equipment wash stations at various locations such as the Yampa River crossing, prior to entering each county, and where equipment would be moved from an area that is known to contain noxious or invasive weeds. Information regarding the specific locations and number of wash stations, as well as how these stations would be operated and restored, has now been included in the revised Weed Management Plan (appendix H). Entrega's revised Weed Management Plan identifies the locations of equipment wash stations, the source(s) of the wash water, how effluent from the wash stations would be monitored/treated to prevent seed releases, and plans for station configuration and decommissioning. Wash stations would be at least 0.25 mile from all perennial streams and monitored for weeds after construction as part of the ROW monitoring and reclamation efforts. Additional discussion of related water resources considerations is presented in section 3.3.2.

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline operation and maintenance activities (e.g., ground surveillance, routine checks of mainline valves) would increase the prevalence of noxious weeds along the ROW or that weeds would be transported into areas that were

relatively weed-free. In order to accomplish weed prevention and control in the most appropriate and effective manner, Entrega should consult with BLM FOs, Conservation Districts (e.g., Saratoga-Encampment-Rawlins, White River, Colorado First Soil, West Greeley, and the Medicine Bow Conservation Districts), local governments (e.g., Wyoming Department of Agriculture, Division of Natural Resources sponsored Great Divide Reclamation and Weed Cooperative Resource Management), Weed Management Areas (e.g., Southeast Carbon County Weed Management Area), the Wyoming Weed and Pest Council, and appropriate BLM FO. Entrega has committed in their Weed Management Plan to monitor noxious weeds annually for 5 years following construction. To further reduce the spread of invasive and noxious weeds following construction activities, **we recommend that Entrega conduct weed management surveys and control measures at least once every 3 years (following the initial 5 years of reclamation and weed control surveys) for the life of the project. Reports of these surveys would be sent to all aforementioned parties. Measures for long-term weed control strategies should be developed by consultations with the groups listed above, as well as the local NRCS, weed control board or officials, land management agencies, and landowners. Entrega's developed methods and comments from the various agencies should be filed with the Secretary for the review and written approval of the Director of the Office of Energy Projects (Director of OEP) before implementation.**

Finally, to provide landowners, local governments, and weed management areas (affected parties) with a specific avenue for resolving construction and ROW restoration issues, **we recommend that Entrega develop and implement an environmental complaint resolution procedure that remains active for at least 3 years following the completion of construction. The procedure should provide landowners, local governments, and weed management agencies (affected parties) with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the ROW. Prior to construction, Entrega should mail the complaint resolution procedure to each landowner whose property would be crossed by the project and to each affected agency.**

a. **In its letter to affected parties, Entrega should:**

   i. **provide a local contact and telephone number that the affected parties should call first with their concerns; the letter should indicate how soon they should expect a response;**

   ii. **provide Entrega's Hotline phone number and instruct the affected parties that, if they are not satisfied with the response, they should call Entrega's Hotline; the letter should indicate how soon to expect a response; and**

   iii. **instruct the affected parties that if they were still not satisfied with the response from Entrega's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030 or at hotline@ferc.gov.**

b. **In addition, Entrega should include a table in its weekly status report containing the following information for each problem/concern:**

i. the identity of the caller and the date of the call;

ii. the identification number from the certificated alignment sheet(s) of the affected property and approximate location by MP;

iii. a description of the concern/problem; and

iv. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.

3.3 Water Resources

3.3.1 Groundwater

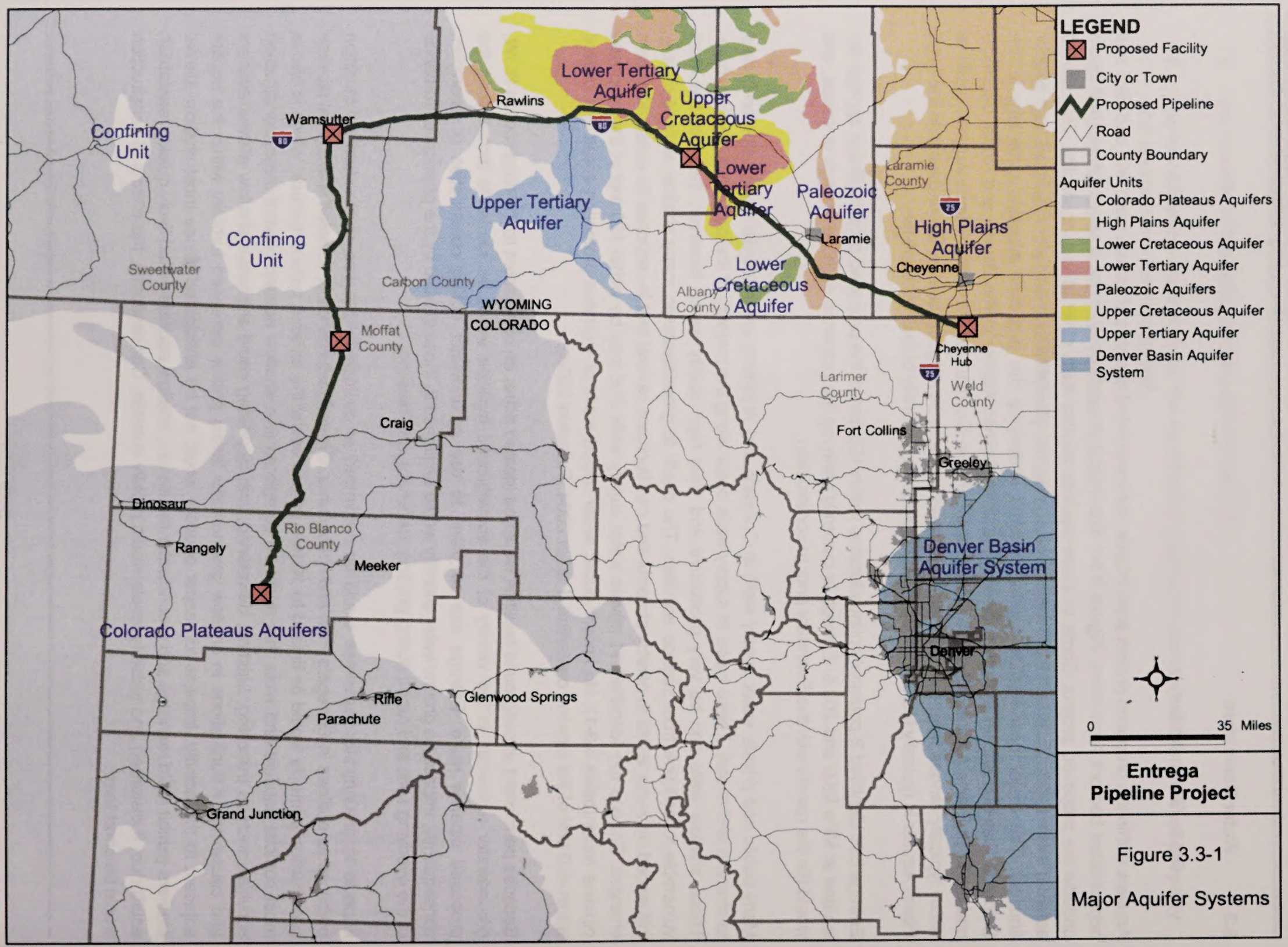
Aquifers within the proposed project area include unconsolidated deposits of gravel, sand, silt, and clay, and consolidated bedrock formations. **Figure 3.3-1** illustrates the locations of major aquifer systems that would underlie the proposed project. Some of these aquifers overlap each other at varying depths. Thin alluvial aquifers immediately underlie the proposed project area, but groundwater is typically withdrawn from deeper aquifers. The major near-surface aquifer systems underlying the proposed pipeline route include the Colorado Plateaus aquifer system (including the Uinta-Animas Aquifer in Rio Blanco and Moffat Counties) and the High Plains Aquifer in Larimer, Weld, and Laramie Counties. In the Uinta-Animas Aquifer, depth to water typically ranges from 0 to 500 feet and water tends to be of good quality. Groundwater in the High Plains Aquifer is typically found from 50 to 300 feet and is generally of excellent quality.

Entrega has identified 2 potential springs located within 150 feet of the proposed project. These springs are located at MPs 56.0 and 203.5. Entrega is currently verifying the presence of these springs or seeps, and would file the results with the Secretary prior to construction.

Many public and private water supply wells in Colorado and Wyoming are in alluvial valleys (lowlands next to streams and rivers). These types of supply wells occur along the majority of the proposed pipeline route. These shallow wells can be very productive and yield high quality water; however, they are the most vulnerable to pollution from surface activities. The depth to groundwater in many shallow wells is directly influenced by water levels in nearby streams and can fluctuate several feet in response to seasonal stream changes. Entrega has identified 11 private water supply wells that may be within 150 feet of the proposed pipeline route (**table 3.3-1**). No known public water supply wells or wellhead protection areas are located within 400 feet of the pipeline centerline (Parker 2004; Parachini 2004).

Because permanent aboveground facilities would be located either on or adjacent to the construction ROW, groundwater resources in the vicinity of the aboveground facilities would be similar to those along the proposed pipeline route. Entrega has no plans to use groundwater during construction or operation, consequently, impacts to groundwater quantity would be limited to those caused by the physical disturbance of the overlying soils and runoff during grading, trenching, and blasting.

Impacts to groundwater resources would be minimized or avoided by the use of standard construction practices as outlined in Entrega's Plan and Procedures. Ground disturbance associated with typical pipeline construction primarily would be limited to 10 feet or less below the existing ground surface, which is above most surficial aquifers and wells that might be completed in a shallow aquifer. Nevertheless, construction activities such as trenching, blasting, dewatering, and backfilling could encounter shallow alluvial aquifers and cause minor fluctuations in shallow groundwater levels and/or increased turbidity within the aquifer adjacent to the activity. Impacts to deeper aquifers would not be anticipated. Since most shallow alluvial aquifers exhibit rapid recharge and groundwater movement, shallow aquifers would likely quickly reestablish equilibrium if disturbed and turbidity levels would rapidly subside. Consequently, the effects of construction would be short term.



Entrega Pipeline Project

Figure 3.3-1

Major Aquifer Systems

5/12/05

Table 3.3-1
Private Water Supply Wells Identified Within 150 Feet of the Entrega Pipeline Project[1]

State / Approximate MP	County	Direction from Construction Workspace
COLORADO		
-0.46	Rio Blanco	West
4.7	Rio Blanco	East
7.1	Rio Blanco	North
15.6	Rio Blanco	West
35.33	Moffat	East
WYOMING		
128.54	Sweetwater	East
160.8	Sweetwater	North
178.6	Carbon	South
184.21	Carbon	North
236.8	Carbon	North
236.9	Carbon	South
262.5	Albany	Southwest
277.77	Albany	North
283.05	Albany	South
290.35	Albany	South
301.89	Laramie	North
301.91	Laramie	North
302.8	Laramie	North
304.72	Laramie	North
305.75	Laramie	North
309.74	Laramie	South

[1] Based on a search of Wyoming Well Permit Spatial Data (University of Wyoming 2003); USGS well information (USGS 1995, 1996); USGS topographic maps (USGS 2004); and the Colorado Division of Water Resources well information (CDWR 2001).

Blasting would likely be required along segments of the proposed pipeline route where bedrock is located at or near the ground surface (**table 3.2-1**). Blasting operations have the potential to damage nearby structures including wells, buildings, and underground pipelines. To minimize potential impacts, Entrega has developed a Blasting Specification Plan (Blasting Plan, POD Appendix H) that identifies blasting procedures including safety, use, storage, and transportation of explosives (Entrega 2004a). Briefly, the Blasting Specification Plan requires that:

- all blasting be performed by registered licensed blasters who would be required to secure all necessary permits and comply with regulatory requirements in connection with the transportation, storage, and use of explosives, and blast vibration limits;

- appropriate flags, barricades, and warning signals be used to ensure safety during blasting operations. Blast mats would be used when needed to prevent damage and injury from fly rock;

- blasting in the vicinity of existing pipelines would be coordinated with the other pipeline operator(s), and would follow operator-specific procedures, as necessary;

- if blasting occurs within 200 feet of any identified water well or potable spring, water flow performance and water quality testing would be conducted before blasting. If the water well is damaged during construction, Entrega would provide an alternative source of potable water until the well repaired/replaced or the landowner is fairly compensated for the damage; and

- within 30 days of placing the pipeline facilities in service, Entrega would file a report with the Secretary identifying all water supply wells/systems damaged by construction, and how they were repaired, including a discussion of any complaints concerning the well yield or water quality and how each problem was resolved.

In its comments on the draft EIS, Entrega agreed to conduct pre-blast surveys of structures or water wells within 200 feet of construction in blast areas and monitoring ground vibration at structures and wells within this range. However, Entrega's revised Blasting Plan (filed as part of the POD on May 20, 2005) specifies that during blasting activities, ground vibrations would be monitored at any water wells, potable springs, and at any aboveground structure within 150 feet of the blasting. In addition, water supply considerations along the ROW extend to features or systems other than wells or potable springs. Examples include springs or wells that might not meet drinking water standards but are still used for irrigation or livestock watering, municipal water pipelines, lined canals, or other systems. Therefore, **we recommend that Entrega**

- **file with the Secretary prior to construction the location by MP of all water supply wells or water supply systems within 200 feet of all construction work areas. For each, the filing should identify the type of feature (well, pipeline conveyance, lined channel) and its use (domestic, municipal, industrial, agricultural, etc.);**

- **revise its Blasting Plan to clarify that ground vibration monitoring would be conducted at all aboveground structures, water supply wells, and water supply systems within 200 feet of construction areas subject to blasting; and**

- **provide an alternative source of water until any water supply well/system damaged during construction is repaired/replaced or the water rights owner is fairly compensated for the damage.**

While there are currently no designated sole source aquifers in Colorado (EPA 2004b), the EPA has designated the Elk Mountain Aquifer as a sole source aquifer in Wyoming. Based on the designated boundary map, the Elk Mountain Aquifer is located approximately 2,500 feet south of the proposed pipeline route at its nearest location at about MP 234.0 (EPA 2004b). In addition to the Elk Mountain Aquifer, the City of Laramie and the County of Albany have designated an aquifer protection overlay zone, known as the Casper Aquifer Protection Area, to safeguard wells and springs located east of Laramie, Wyoming. The pipeline alignment passes within approximately 1 mile of the southwest edge of the Casper Aquifer Protection Area near MP 280. Based on the project's distance from these designated aquifers and

implementation of Entrega's SPCC Plan, we believe that construction and operation of the proposed project would have no significant impact on protected or sole source aquifers.

A potential hazard of long-term groundwater contamination exists from vehicle refueling and maintenance, from hazardous material spills that occur during construction, or from the disturbance of contaminated soils. Spills or leaks of fuels or other hazardous liquids may affect groundwater quality, and dispersal of pollutants from affected soils could be a continuing source of aquifer contamination. The deterioration of groundwater quality by such factors could adversely affect groundwater uses. These impacts could be avoided or minimized by restricting the locations of parking, refueling and storage areas and by implementing procedures to prevent and respond to spills or leaks of hazardous materials.

In the event that contaminated soil and/or groundwater contamination was encountered during construction, Entrega would notify the affected landowner and coordinate with the appropriate federal and state agencies as mandated by notification requirements. Pipeline construction may involve disposal of groundwater encountered during trench excavation. Since the disposal structures are likely to be located outside the cleared disturbed area, prior approval from the landowner and federal and state agencies would be required. By law, Entrega would be required to apply to the states for temporary groundwater disposal permits, and comply with permit stipulations as well as erosion control/revegetation provisions of Entrega's Plan and POD. It is expected that such regulatory compliance would avoid or minimize potential impacts from trench dewatering.

Entrega's Procedures set forth measures that restrict locations for overnight parking and fueling of equipment, hazardous materials storage, and concrete coating activities. Additional procedures address preparedness for rapid containment and prompt and effective cleanup of spills. In addition, because of potential contamination impacts to both groundwater and surface water resources, Entrega has developed an SPCC Plan that addresses some of these issues (Entrega 2004d). In combination with its SPCC Plan, Entrega's overall Plan and Procedures:

- identify preventative measures to avoid hazardous material spills or leaks;
- regulate locations for refueling, lubricating, and equipment washing activities;
- provide for vehicle and equipment inspection and maintenance;
- define proper storage and handling of fuels, lubricants, and hazardous materials;
- identify immediate spill response procedures for uplands, wetlands, or waterbodies; and
- establish reporting and notification protocols.

A major feature of Entrega's SPCC Plan is that refueling and lubricating of construction equipment would be restricted to upland areas at least 100 feet from the edge of any streams, wetlands, ditches, and other waterbodies on private lands, 200 feet from private water supply wells, and 400 feet from public water supply wells. Storage sites for fuels, other petroleum products, chemicals, and hazardous materials (including wastes) would be located in upland areas. No hazardous substances would be stored within 500 feet of streams and/or 200 feet of private water supply wells (or 400 feet of public water supply wells). Entrega would confirm the locations of areas where such activities are prohibited with the EI prior to site entry with construction equipment. If necessary due to space restrictions, contingency plans for refueling,

materials storage, and handling would be verified with the EI before initiating activities in restricted areas that are exceptions to these criteria.

Entrega also would correspond with all landowners prior to construction to obtain the location(s) of known private water supply wells on their property.

Our Procedures require that refueling activities and hazardous material storage occur at least 100 feet from a wetland, waterbody, or designated municipal watershed areas. The SPCC Plan filed by Entrega equals or surpasses this requirement and addresses related issues for avoiding, controlling, reporting and mitigating spills. Other Entrega plans also address related issues of erosion control and procedures for construction and mitigation at wetlands and waterbodies (see appendices). Earlier BLM comments indicated that the separation distance for refueling and storage should be increased to 500 feet in order to minimize impacts on wetlands, waterbodies, and sensitive resources that could be damaged by pipeline construction. A 500-foot setback for parking and refueling on all streams, ditches, wetlands, and waterbodies is likely to prove infeasible in some areas due to spacing between such resources. In addition, Entrega claims that significantly more vehicle traffic would be involved to maintain such a requirement during construction, with potential consequences on other resources. The time involved may lengthen the construction and restoration period.

However, BLM would determine setbacks and other requirements it deems appropriate to the lands and resources it manages. Entrega has agreed to ensure that all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland. Based on further consultations with the BLM, Entrega has revised its Procedures to indicate that storage sites for hazardous materials, including but not limited to chemicals, fuels, and lubricating oils must be located at least 500 feet from a wetland, waterbody, or municipal watershed. Further, Entrega must provide a detailed plan to the BLM disclosing the types and quantities of materials to be stored and the spill prevention and containment measures in place for any hazardous material storage site on federal land. Prior to construction, Entrega should discuss and modify the SPCC Plan and other procedures and mitigation commitments with the BLM as needed, so that the agency's requirements are addressed on federal lands.

We believe that implementation of the measures and the procedures contained in Entrega's Plan and Procedures would avoid or minimize potential impacts associated with vehicle and equipment refueling and lubricating activities, hazardous material storage and handling, and responses to spills or leaks of hazardous materials during construction of the project. During future operation and maintenance activities, Entrega would continue to adhere to standards within its Plan, Procedures, and POD to prevent contamination of groundwater resources from potential spills of hazardous materials. Future variances from these procedures would require the approval of the FERC and the affected land management agency or landowner. Given the low probability of a pipeline leak and the physical and chemical properties of processed natural gas, adverse impacts to groundwater resources would not be anticipated during operation and maintenance of the pipeline and its associated facilities. Overall, we believe that construction and operation of the proposed project would not significantly impact groundwater resources.

3.3.2 Surface Water

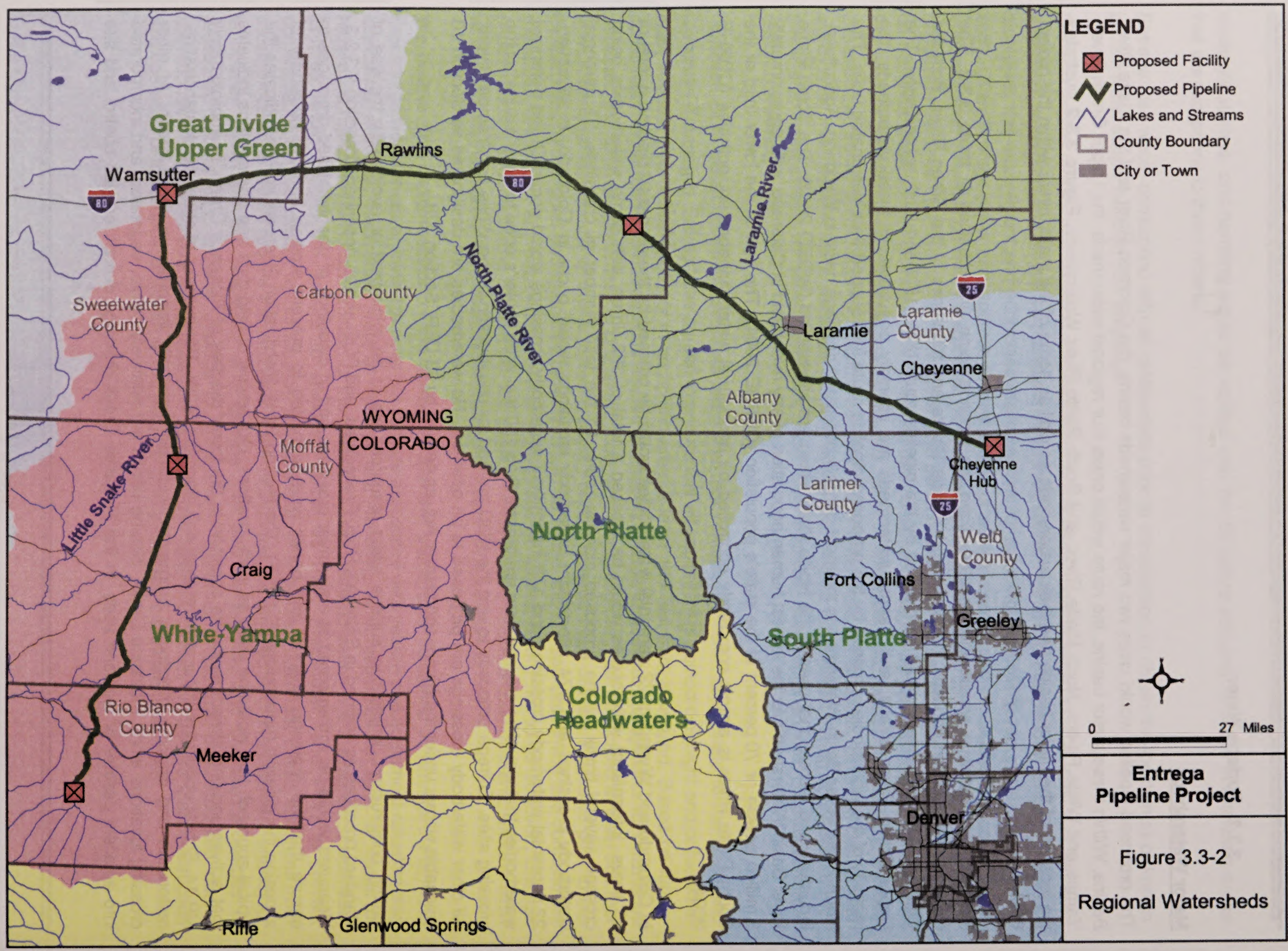
Major Watersheds

The proposed pipeline would cross two major watersheds basins, the Colorado River and the Platte River Basins. Within these major basins, the route would cross four regional watersheds: the Upper Green River, Yampa and White Rivers, North Platte River, and South Platte River Watersheds. **Figure 3.3-2** illustrates the location of the major basins and their watersheds as well as some of the major rivers within the project area.

Major and/or sensitive waterbodies located along the pipeline route are identified in **table 3.3-2**. The Colorado River Basin contains the White and Yampa Rivers and tributaries of the Green River. Both the White and Yampa Rivers would be crossed by the pipeline route (MPs 15.2 and 50.6, respectively). The Upper Green River, White, and Yampa watersheds are sparsely populated. In these watersheds, the majority of the waterbodies crossed by the proposed pipeline route fully support their designated uses. The North Platte River Basin Watershed is the most densely populated drainage basin in Wyoming. Agricultural, industrial, and recreational uses of the North Platte River are widespread (WDEQ 2002). The South Platte River Basin Watershed has the largest human population of any river basin in Colorado, with approximately 3 million people or 70 percent of the state's population (CDPHE 2004). The flow in the lower third of the South Platte River is almost completely controlled by agricultural water management activities (CDPHE 2004).

In Colorado and Wyoming, 27 perennial waterbodies would be crossed by the proposed pipeline a total of 43 times. Intermittent waterbodies would be crossed a total of 352 times, with some waterbodies being crossed several times by the proposed pipeline route. Of the total number of crossings, 21 perennial waterbody crossings and 174 intermittent waterbody crossings would occur in Colorado. In Wyoming, 22 perennial waterbody crossings and 178 intermittent waterbody crossings would occur. Of the perennial waterbodies that would be crossed, four are greater than 100 feet wide (water's edge to water's edge) at the crossing sites. Entrega proposes to use the HDD method for construction at the White and Yampa Rivers. All other waterbody crossings are proposed to be open-cut. No waterbodies are designated as Section 10 navigable waters under the Rivers and Harbor Act, as defined by 33 CFR, Section 328.

During construction, impacts to surface water resources would be minimized or avoided by the use of standard practices as outlined in Entrega's Plan, Procedures, and POD and as described in section 2.3.2.3. Measures would be implemented at major river crossings and at crossings of deeply incised drainages to ensure that the drainage channel and banks were stabilized to prevent erosion and the possibility of exposing the pipeline (appendices E and F). The Incised Bank Stabilization Restoration Plan indicates the typical approach that would be used as such locations. Our review of field data and photographs indicates that actively incising streambanks are common in the lower reaches of Piceance Creek, to approximately MP 14. Similar conditions occur at other locations along the ROW. The success of streambank stabilization, restoration and ongoing monitoring programs would be especially important in these areas. At other crossing locations along Piceance Creek, sloping banks are relatively stable, vegetated, and incorporated into adjacent pasture or cropland uses. In the Piceance Creek drainage overall, erosion control and site


Great Divide -
Upper Green
Wamsutter
Rawlins
80
Laramie River
North Platte River
Sweetwater
County
Carbon County
Laramie
Laramie
County
25
Cheyenne
Albany
County
WYOMING
COLORADO
Moffat
County
Cheyenne
Hub
Larimer
County
Little Snake River
North Platte
Weld
County
Craig
Fort Collins
White-Yampa
Greeley
South Platte
Colorado
Headwaters
Rio Blanco
County
Meeker
Denver
Rifle
Glenwood Springs
LEGEND
Proposed Facility
Proposed Pipeline
Lakes and Streams
County Boundary
City or Town
0
27 Miles
Entrega
Pipeline Project
Figure 3.3-2
Regional Watersheds

5/12/05

Table 3.3-2
Major and Sensitive Waterbodies

State/MP	Waterbody Name	Sensitivity	State Water Quality Classification
COLORADO			
Multiple crossings (2.2 to 13.8)	Piceance Creek	Scientific reference site; adjacent hayfields.	AqLife Warm2; Rec2; Agriculture
15.2	White River	Threatened and/or endangered species present; >100 feet; surface water intakes located approximately 30 miles downstream of the crossing location.	AqLife Cold1; Rec1; Water Supply; Agriculture
50.6	Yampa River	Threatened and/or endangered species present; >100 feet.	AqLife Warm1; Rec1; Water Supply; Agriculture
84.5	Little Snake River	>100 feet.	AqLife Cold1; Rec1; Water Supply; Agriculture
WYOMING			
192.8	North Platte River	>100 feet; surface water intake located within 3 miles downstream of the crossing location.	2AB
225.5	Medicine Bow River	Coldwater fishery.	2AB
237.5	Rock Creek	Surface water intake located within 3 miles downstream of the crossing location.	2AB
260.9	Little Laramie River	Coldwater fishery.	2AB
274.4	Laramie River	Coldwater fishery.	2AB

Colorado

- AqLife Cold 1 = (subset of aquatic life) waters capable of sustaining a wide variety of coldwater biota, including sensitive species, where physical habitat, water flows or levels, and water quality result in no substantial impairments.
- AqLife Warm 1 = (subset of aquatic life) waters capable of sustaining a wide variety of warmwater biota, including sensitive species, where physical habitat, water flows or levels, and water quality result in no substantial impairment.
- AQLife Warm 2 = (subset of aquatic life) waters not capable of sustaining a wide variety of warmwater biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions.
- Rec1 = (subset of recreation) waters suitable or intended to become suitable for recreational activities (e.g., swimming, rafting, kayaking, tubing).
- Rec2 = (subset of recreation) waters not suitable or intended to become suitable for primary contact recreation uses, but are suitable for wading, fishing, and other streamside activities.
- Agriculture = waters suitable or intended to become suitable for irrigation of crops and not hazardous for use by livestock.
- Water Supply = waters suitable or intended to become suitable for potable water supplies.

Wyoming

- Class 2 = Waters known to support fish or drinking water supplies. Class 2AB waters support game fish populations and nursery areas and have sufficient water quality and quantity to support drinking water supplies.

restoration activities as identified in Entrega's Plan and Procedures are expected to be successful due to the relatively gentle slopes, deep soils, and agriculturally oriented vegetation types along the drainage. Temporary use areas would be required at waterbody crossings and, unless impractical due to topography

or other technical constraint, these areas would be set back at least 50 feet from the edge of the waterbody. Deviations from this 50-foot setback would require approval of the FERC prior to construction.

In our draft EIS, we requested public comment on the use of the PBEP route as an alternative to the first 34 miles of Entrega's proposed route (see section 4.4.1). One of the reasons for considering an alternative to Entrega's proposed route was to avoid or minimize impacts on irrigated pastures and wetlands along Entrega's initial 14 miles of construction through the Piceance drainage. The PBEP route alternative would also avoid multiple crossings of Piceance Creek.

In its comments, the COE expressed its support for selection of an alternative that would follow the proposed PBEP route because it would avoid all crossings of Piceance Creek, as well as reduce the amount of wetland impacted by construction.[1] As discussed in section 4.4.1, we have concluded that the impacts associated with use of the PBEP route alternative would outweigh the impacts associated with Entrega's proposed route. Therefore, we are not recommending that Entrega adopt the PBEP route alternative. However, we believe that it may be possible to significantly reduce the number of Piceance Creek crossings by adopting some minor alterations to the proposed route. In particular, by rerouting along an existing utility on the uplands west of the proposed route between about MPs 6.7 and 8.2, and to adjacent lands east of the proposed route between about MPs 12.8 and 13.8, five crossings of Piceance Creek could be avoided (see **figures 3.3-3** and **3.3-4**). Therefore, **we recommend that Entrega revise its proposed route between MPs 6.7 and 8.2 and MPs 12.8 and 13.8 (as shown in figures 3.3-3 and 3.3-4, respectively) to reduce the number of crossing of Piceance Creek. Revised alignment sheets should be filed with the Secretary for review and written approval by the Director of OEP prior to construction.**

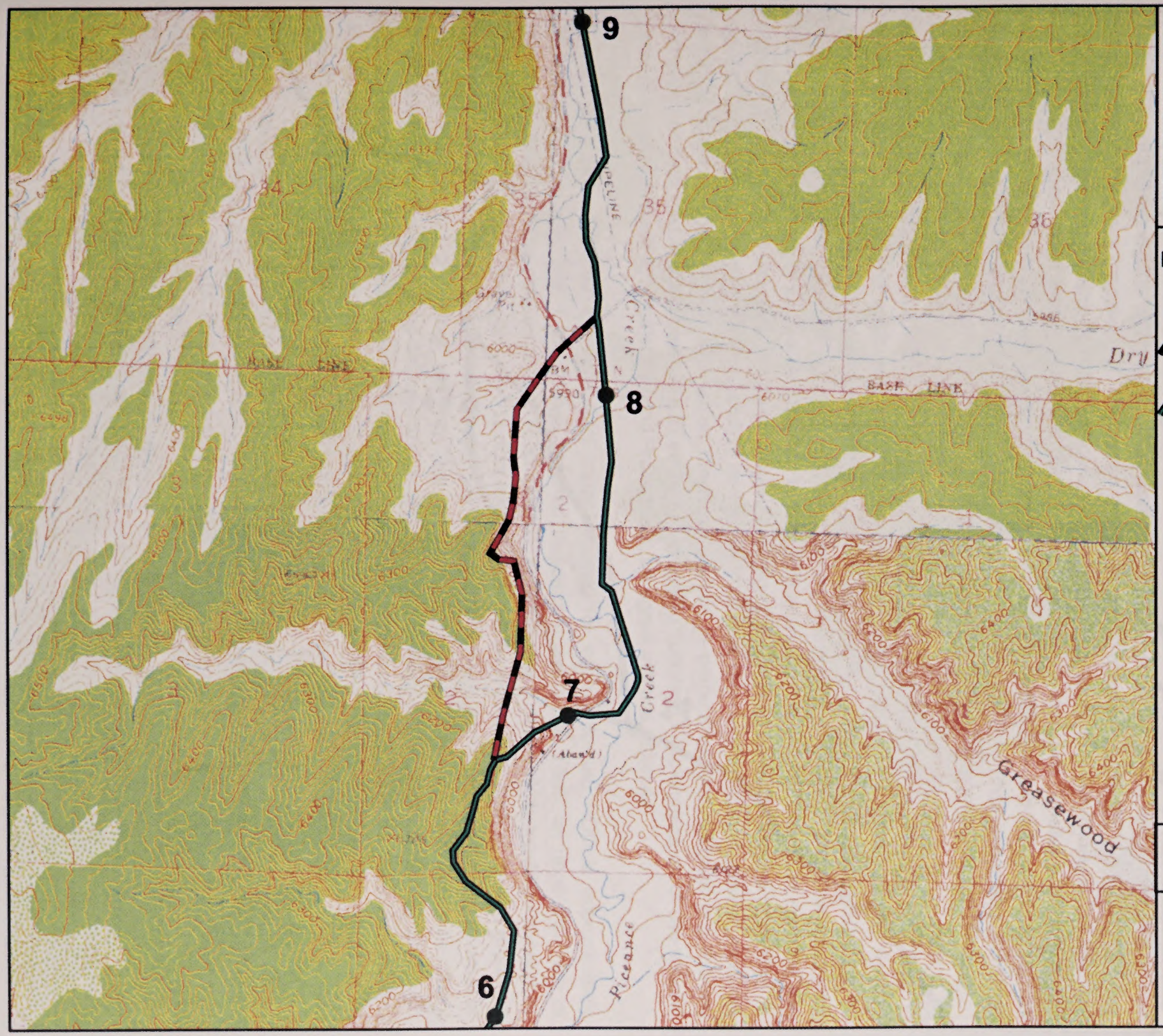
Site-Specific Waterbody Crossing Plans

Entrega prepared Site-Specific Waterbody Crossing Plans proposing HDD crossings for the Yampa and White Rivers and open-cut crossings of the Little Snake River, North Platte River, Medicine Bow River, and Rock Creek.

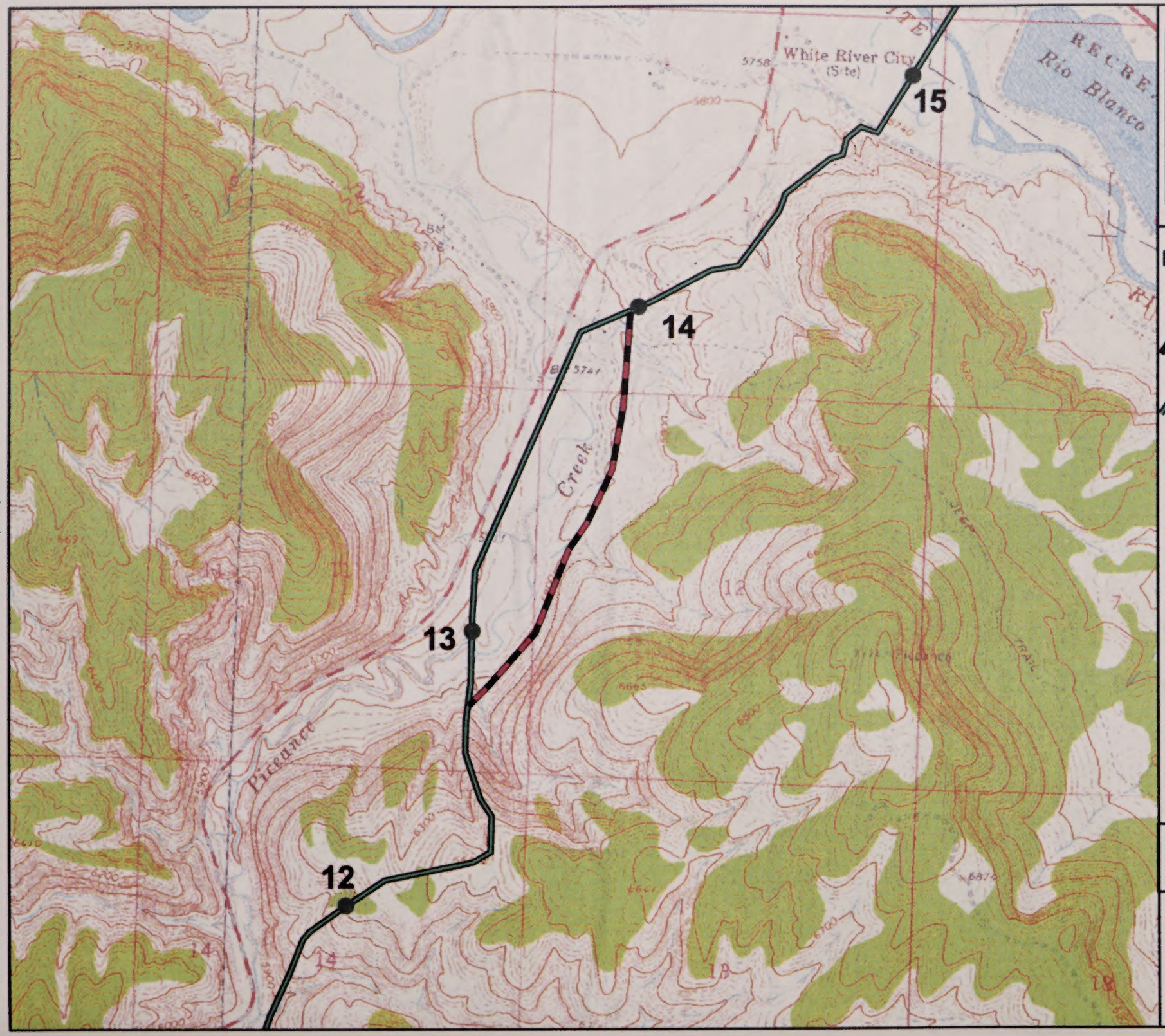
Entrega filed revised Site-Specific Waterbody Crossing Plans for proposed HDD crossings of the White and Yampa Rivers on April 6, 2005 (see appendix J). Our review of this submittal and the previous plans for open-cut crossings indicates that Entrega has provided sufficient information to assess potential impacts of the proposed crossings. However, to be consistent with the correct Plan and Procedures, Entrega should modify the site-specific HDD crossing plans to reflect a 500-foot setback from wetlands or waterbodies for hazardous materials storage.

As shown in appendix J, drill entry points would be on the north side of the White River and the south side of the Yampa River. Temporary use areas for drilling activities and storage would be associated with the entry points. Room for the drill rig, drill pipe stockpile, instrumentation trailer, lined mud pits and frac-tank, equipment and supplies storage, and additional space for construction activities, traffic, and parking would be included. Access to the sites would be from nearby paved roads. At either HDD crossing, a railroad car or equivalent span bridge may be placed across the river for access. All temporary use areas would be

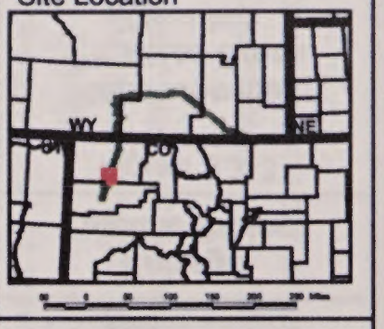
[1] Entrega's latest alignment sheets, filed May 20, 2005, indicate that Piceance Creek would be crossed a total of 11 times.


9
8
7
6
Base Line
Base Line
Dry
Piceance Creek
Greasewood
Site Location
WY
NE
CO
LEGEND
Mileposts
Recommended Reroute
Entrega Proposed Route
1000 0 1000 Feet
Entrega Pipeline Project
Figure 3.3-3
Recommended Piceance Creek Reroute 1

6/2/05



Site Location



LEGEND

- Mileposts
- Recommended Reroute
- Entrega Proposed Route

1000 0 1000 Feet

Entrega Pipeline Project

Figure 3.3-4

Recommended Piceance Creek Reroute 2

3-40

6/2/05

enclosed by silt fences, and straw bales or other installations would be placed across the ROW and maintained to minimize erosion and sedimentation. Silt fence reinforced with straw bales or equivalent would be placed parallel to both sides of each river, with a 50-foot setback from the waterbody.

The stringing areas for pipeline welding and pullback would be located in temporary use areas associated with the drill exit points on the south side of the White River and the north side of the Yampa River. At the proposed Yampa River site, the pipe stringing area would be located in upland rangelands. On the White River, the exit point and pipe stringing activities would be located on the floodplain, in an area of irrigated agriculture and wetlands (appendix J). Temporary use areas would avoid the wetlands. A 10-foot minimum setback from the large wetland near the temporary use area on the south side would be established and protected with straw bales and/or embedded silt fence as a minimum measure. Smaller wetlands further south on the White River floodplain would be crossed using ROW construction and mitigation procedures (appendix F). Potential impacts to irrigation systems on the Yampa and White River floodplains would be avoided or mitigated according to the proposed Irrigation System Repair and Monitoring Plan (appendix L).

Entrega has indicated that the HDD configuration at the proposed White River crossing is due to a combination of spacing and equipment requirements for the nearby bore under State Highway 64 and advantages of staging the HDD pullback from the south side of the river. There is more space available on higher ground at the proposed drill entry site near Highway 64 on the north side of the river. This space and relatively better drainage would be more suited to the HDD equipment and traffic needs. In contrast, the highway proximity would decrease the length available for pipe stringing and pullback from the north side. In addition, Entrega claims that the exit location on the south side of the river provides a greater available length for pipe stringing, which can lessen the time involved in preparation and pullback and thereby increase the likelihood of a successful HDD crossing. Assuming successful implementation of site-specific protective measures and Entrega's Plan and Procedures, we agree with this rationale.

Entrega has estimated that the volume of water required for each proposed HDD is approximately 35,000 gallons per day, with 7 to 10 days required to complete each drill. Thus, an upper estimate of 350,000 gallons would be needed at each HDD location. An additional 90,000 gallons would be needed for preliminary testing. Thus, approximately 1.3 acre-feet of water will be required for each of the two proposed HDD crossings. The proposed sources of water are the respective rivers. Assuming that there is minimal or no water storage and a 10-hour workday, the steady-state pumping diversion rate would be about 0.13 cubic feet per second during drilling activities. Given recent average historic flow conditions, this would not create an impact to surface flows. The diversion rate for preliminary testing could be more. Assuming a 5,000-gallon per minute pumping rate, about 11 cubic feet per second would be diverted. This would be on the order of 4 to 8 percent of recent average flows for the late summer and early fall.

Entrega should interact with water rights holders and the Colorado Division of Water Resources (State Engineer's Office) to arrange for diversion and use of the water needed for the HDD crossings. In addition, because of potential impacts on flows and water quality from withdrawal and subsequent discharge of surface water used in preliminary testing, **we recommend that Entrega consult with FWS, CDOW, and CDPHE to establish withdrawal and discharge rate guidelines and practices for water used in preliminary testing of the HDD crossings.** We assume that such interactions would parallel those undertaken as a result of similar recommendations made for the withdrawal and discharge of hydrostatic

test water here and in section 3.3. To be consistent with the current Plan and Procedures, Entrega should modify the site-specific HDD crossing plans to reflect a 500-foot setback from wetlands or waterbodies for equipment refueling or hazardous materials storage.

Entrega indicates that drilling mud would be stored in lined pits and would be recycled for use during the drills. Any excess mud that is unsuitable for containment in excavated lined pits would be stored in tanks. At the end of the HDD construction, all waste materials (including cuttings) would be removed from the sites and disposed of in approved off-site landfills. Examples of such locations include landfills at Craig, Colorado, or at Baggs and Rawlins, Wyoming. The potential disposal sites include sanitary landfills, demolition landfills, or hazardous waste landfills. Other disposal locations would be considered by Entrega on a case-by-case basis. The construction contractor would require Entrega's approval prior to using a given location.

Entrega has investigated geotechnical conditions for the proposed HDD crossings at the White and Yampa Rivers. At the Yampa River, geotechnical borings indicate unconsolidated sands, silts, and gravels overlying soft sedimentary bedrock. At the White River, unconsolidated clays and sands, and sands and gravels, overlie somewhat harder sedimentary bedrock. Entrega expects that HDD crossings could be successfully installed at both locations.

The estimated depths of burial under the riverbeds at the proposed HDD crossings are approximately 50 feet for the White River and approximately 48 feet at the Yampa River. These depths are well below any anticipated scour or channel degradation depths, and the drill path geometry should provide substantial protection against possible channel migration (i.e., meander shifts). The anticipated depth of drilling also is likely to prevent a frac-out (the escape of drilling fluid, and resultant sediment transport and water quality impacts). Although a frac-out is unlikely at either HDD crossing, the possibility of such an occurrence exists. As part of its overall Plan and Procedures, Entrega has developed an HDD Inadvertent Release Control Plan. Visual inspections of the drill path and continuous examination of drilling mud pressures and return flows would be the primary detection procedures used to monitor the progress of the HDD and identify a possible frac-out. The HDD Inadvertent Release Control Plan identifies sets of notification procedures, regulatory interactions, and corrective actions that would be implemented in the case of drilling fluid seepage into an upland, wetland, or waterbody. Containment equipment would typically consist of lumber for temporary shoring, sandbags, portable pumps, hand tools, silt fence, straw bales, and heavy equipment such as backhoes and bulldozers.

Follow-up procedures for a frac-out would consist of attempts to determine the cause of the drilling fluid seepage, an assessment of corrective measures or abandonment, and an evaluation of an alternative crossing approach. In the case of abandonment, thickened drilling mud and cuttings would be pumped into the drill hole as the drill assembly is extracted. Pending agency approvals, an HDD crossing may proceed along a different alignment or an open-cut crossing approach may be employed.

No public water supplies are located within 3 miles downstream of either proposed HDD crossing. On the basis of Entrega implementing its Plan and Procedures, and with adherence to additional conditions and recommendations presented in this EIS, we believe that minimal impacts to wetlands, waterbodies, and surface water and groundwater resources would result from the proposed HDD crossings of the White and Yampa Rivers.

Site-specific open-cut crossing plans are proposed by Entrega for the Little Snake River (MP 84.5), North Platte River (MP 192.8), Medicine Bow River (MP 225.5), and Rock Creek (MP 237.5) (see appendix J). In addition, contingency plans for open-cut crossings have been prepared for the White and Yampa Rivers. In general, temporary use areas would be located a minimum of 50 feet from the edge of the waterbody at each crossing. Staked straw bales and/or embedded silt fence would be employed at minimum to control sediment at the boundaries of temporary use areas, and sediment control devices would be placed between the spoil areas and the waterbody. Restoration of the stream bed and banks would approximate the original geometry, and would use clean gravel or cobbles in the upper foot of the trench backfill. Containment and recovery supplies and equipment would be on hand in case of material spills or equipment leaks. Additional features of the site-specific crossing plans are presented in appendix J.

In general, the site-specific crossing plans in combination with Entrega's overall Plan and Procedures would avoid or minimize impacts to wetlands and waterbodies associated with these crossing locations. However, impacts from in-stream disturbance would occur during the construction and restoration period at each proposed crossing. The major impact of the open-cut crossings would be disturbance of channel bed and bank geometry, increased sediment transport, and associated effects on turbidity and dissolved oxygen. These impacts are expected to occur at each crossing where flow exists at the time of construction. The duration of impacts is expected to be temporary and would be minimized by implementation of the restoration plan. Impacts would extend downstream dependent on flow and mixing conditions. Construction-related impacts on fisheries and aquatic resources would be primarily dependent on season of construction, and the extent and duration of in-stream activities. Related impacts on fisheries and aquatic resources are discussed further in section 3.5. Construction impacts on wetlands would be minimized by implementation of Entrega's Procedures (appendix F). Related impacts to riparian woodlands are discussed in section 3.4.

Entrega's Procedures state that extra workspaces would be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Site-specific waterbody plans repeatedly state that a 10-foot buffer zone would be maintained between placement of trench spoil and the water's edge. In addition, span bridges would cross the waterbodies as necessary. In general, these provisions are in line with our Procedures. However, for the proposed crossing of the Little Snake River and the open-cut contingency plan for the White River and Yampa River, temporary use areas are proposed at a 10-foot minimum setback from the waterbody or wetland. Further, at the proposed Medicine Bow River crossing, much of the temporary use area is located in a wetland.

Entrega has indicated that the 10-foot minimum setback of the temporary use area at the Little Snake River would lessen impacts to a wetland occurring on the north side of the river, and would reduce the duration of in-stream construction activities. On the north side of the river, which is formed from gently sloping sediments and bars deposited on the inside of a bend, the 10-foot setback variance is warranted on the basis of having a wider, closer area in which to work and deposit trench spoil. This would reduce the number of traffic passes over the narrow, low-lying emergent wetland that fringes the waterbody at that location. Protection of the wetland and the waterbody would be maintained with erosion control devices set back a minimum of 10 feet from the landward edge of the wetland. On the south side of the Little Snake River, however, a high and active cutbank has formed on the outside of the river bend. Streamlain sediments have sloughed off the bank, contributing sediment to the river. Immediately downstream, the

Little Snake River is included in the monitoring and evaluation program for Clean Water Act Section 303(d) listing as a sediment-impaired stream segment. Given the eroding conditions at the south side of the river, and the possible low stability and bearing strength of the cutbank, we believe that our standard 50-foot setback is warranted on the south side of the Little Snake River. For the same reason, we believe that the open-cut contingency plans for the White River and Yampa River should maintain the standard 50-foot setback on both sides of the waterbodies. Approval of the Site-Specific Waterbody Crossing Plans cannot be completed without these provisions. Therefore, **we recommend that Entrega file with the Secretary for the review and written approval of the Director of OEP prior to construction, revised Site-Specific Waterbody Crossing Plans (including contingency plans) that include a 50-foot setback for the Little Snake, White, and Yampa Rivers.**

At the proposed Medicine Bow River crossing, wetland impacts from construction activities associated with the temporary use area cannot be avoided as currently routed. Field surveys indicate that the proposed temporary use area is on an emergent wetland used for irrigated or sub-irrigated hayland and dominated by meadow foxtail (an introduced pasture grass). Section 3.4 further discusses impacts associated with the crossing of the Medicine Bow River.

Entrega's proposed crossings of the Yampa and Little Snake Rivers are at the same general locations as the crossings proposed by WIC for its PBEP. In order to minimize disturbance at these crossing locations, **we recommend that Entrega coordinate with WIC regarding the crossings of the Yampa and Little Snake Rivers. This coordination should attempt to minimize in-stream and bank disturbances and should consider the use of a shared crossing bridge at each location. Entrega should file the results of this coordination with the Secretary for the review and written approval of the Director of OEP prior to constructing these crossings.**

Water Supply Watersheds

In Colorado, no surface water intakes are located within 3 miles downstream of waterbody crossings. In Wyoming, there are surface water intakes located within 3 miles downstream of the North Platte River (MP 192.8) and Rock Creek (MP 237.5) crossings (Parker 2004). The surface water intake at the North Platte River is located approximately 1 mile north of the proposed waterbody crossing at a rest area operated by the Wyoming Department of Transportation. Water is used at the rest area for irrigation and as a potable source. The surface water intake located at Rock Creek is located approximately 0.9 mile north (downstream) of the proposed crossing and is used by the Town of Rock River as a potable water source (Lemler 2004).

Based on review of USGS topographic maps, the pipeline route would cross one aqueduct in Colorado at MP 52.3 and three aqueducts in Wyoming (MPs 212.5, 293.0, and 305.3).

Entrega has indicated that it would coordinate with the City of Cheyenne to avoid impacts on existing ranch waterlines and proposed new roads. Elsewhere in Wyoming, the operators of the surface water intakes within 3 miles of the pipeline have indicated that they have flexibility regarding an interruption of water flow or can use alternative intakes buried beneath the river bed to minimize the uptake of turbid water (Jaure 2004; Lemler 2004). Because open-cut construction techniques would result in short-term increases in sediment loads that could temporarily impact surface water quality, **we recommend that Entrega continue**

to consult with the water supply operators and the appropriate federal and state agencies regarding potential impacts on water supplies and the need for specific mitigation measures during pipeline construction.

Water Quality

In order to minimize potential impacts on water quality, Entrega would adhere to the measures contained in its Procedures (appendix F), including, but not limited to: installing and maintaining sediment barriers to prevent silt-laden water from entering wetlands and waterbodies; restoring original contours; and revegetating disturbed areas.

The accidental release of hazardous materials (fuels, lubricants, and coolants) used by heavy equipment during pipeline installation could adversely affect aquatic species and contaminate public water supplies that rely on surface water intakes located downstream of the waterbody crossing. Entrega's SPCC Plan (Entrega 2004d) would minimize the potential impact of spills of these hazardous materials. Furthermore, Entrega would immediately notify the operators of any accidental releases of hazardous materials that may impact their water supply. Entrega would comply with NPDES permit requirements for water discharges associated with construction activity.

A comment was received from the Medicine Bow Conservation District requesting that they be consulted concerning total sediment load that enters the Medicine Bow River and Rock Creek during construction and reclamation, and that they be kept apprised of water quality issues. A related comment was received from the Saratoga-Encampment Rawlins Conservation District, concerning water quality, stream crossings, wetland restoration, and Best Management Practices (BMPs). We agree that Entrega should coordinate with conservation districts concerning water quality, construction starts, and restoration issues within their jurisdiction. In addition, Entrega would consult with WDEQ, CDPHE, and any other appropriate agencies on water quality issues before and after construction. Further descriptions of such activities are contained in the appendices.

Public scoping comments raised a concern regarding construction activities and the potential to elevate selenium levels in local waters. High selenium concentrations are often due to naturally occurring conditions, irrigated agricultural land, or the result of resource extraction. Currently, one waterbody crossed by the proposed project, the North Platte River, has been identified as exceeding the water quality standard for selenium (WDEQ 2004; CDPHE 2004). Elevated selenium levels were reported near Casper, Wyoming, which is located approximately 80 miles north of where the pipeline route crosses the North Platte River.

Construction of the proposed pipeline is not anticipated to cause an increase in selenium levels in local waters because construction activities would impact a relatively small area and would be limited in duration. Most importantly, construction would not involve activities suspected of increasing the concentration of selenium in ground and surface waters, such as the prolonged discharge of water to the land surface or the long-term exposure of surficial or bedrock formations to precipitation and/or runoff.

No waterbodies crossed by the proposed pipeline route receive effluent from municipal or industrial wastewater treatment facilities within a 3-mile radius of the proposed crossing locations (EPA 2004c).

Sediment Contamination

The proposed pipeline route would not cross any watersheds containing areas of probable concern for sediment contamination (EPA 1997). Additionally, none of the waterbodies crossed by the pipeline route are known to contain contaminated sediments (Vranka 2004; Parker 2004).

Dust Suppression and Equipment Washing

Water use would be required for dust suppression and equipment washing during pipeline construction. The U.S. Department of Interior filed comments on the Draft EIS that requested an analysis of impacts on water resources based on estimated quantities of water that would be used for fugitive dust suppression during construction of the project. Any water withdrawals for dust suppression obtained from surface water sources could have direct impacts on aquatic resources. However, for both dust suppression and equipment washing, water sources would be from existing private and municipal supplies and no water would be withdrawn from surface water flows.

For dust suppression and related activities, Entrega has estimated that no more than 1.2 million gallons (about 3.7 acre-feet) would be used for dust control, topsoil stabilization, and minimizing soil pulverization. Based on current construction schedules, half of the dust-suppression water would be used during 2005, and the remaining half would be needed in 2006.

For equipment washing, Entrega estimates that washing stations would be placed at county lines and possibly at the south side of the Yampa River, to prevent the spread of noxious and invasive weed seeds. Each station would be placed a minimum of 0.25 mile from perennial waterbodies, and would use no more than 150,000 gallons of water (a total of about 4.1 acre-feet for nine stations). Cleaning stations would not allow drain water to flow into any waterbody, wetland, or irrigation canal. Water from drains would flow through energy dissipators such as straw bales, silt fence, stable vegetation, or rock. Each station would be decommissioned by collecting the sediment, framework, filter fabric, waste soil, weeds, and seeds, and transporting these materials to an approved off-site landfill.

Since no water for dust suppressioin or equipment washing would be withdrawn from surface water flows or released into a waterbody, no impacts to surface waters or dependent resources are anticipated from these activities. Also, because the groundwater amounts anticipated for use are minor in comparison to existing permitted supplies, no impacts to groundwater resources are anticipated. When such sources and corresponding anticipated withdrawals are identified, Entrega should provide the information to the FERC. Entrega understands that the FWS needs to be informed of the sources and amounts of all waters used during the project, and agrees to provide such information to the agency for review when sources are identified by the contractor.

Hydrostatic Test Water

To verify the integrity of the pipeline before placing it into service, Entrega would conduct a series of hydrostatic tests. These tests would involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. As currently proposed, the pipeline would be divided into

14 hydrostatic test sections; see Entrega's Hydrostatic Test Plan (appendix M). **Table 3.3-3** identifies the surface water sources of hydrostatic test water, the approximate water volumes that would be required, the rate of withdrawal, and the withdrawal and discharge locations.

Table 3.3-3
Currently Proposed Hydrostatic Test Water Volumes and Sources

Withdrawal MP	Discharge MP(s)	Days of Use	Max. Withdrawal Rate (gpm)	Volume of Water (approximate gallons)	Potential Water Sources
15.2	15.2	7 14	5,000 gpm 4% of recent average Aug/Sept flow	6,800,000 5,800,000	White River[1]
50.6	50.6	7 10	3,000 gpm 4% of recent average Aug/Sept flow	900,000 8,800,000	Yampa River
84.5	84.5	14 20	1,500 gpm 8% of recent average Aug/Sept flow	1,400,000 6,000,000	Little Snake River
192.8	192.8	14 20	5,000 gpm 4% of recent average Aug/Sept flow	3,900,000 10,200,000	North Platte River (City of Rawlins)
225.5	225.5	20	500 gpm 8% of recent average Aug/Oct flow	9,700,000	Rock Creek
260.9	260.9	25	1,000 gpm 9% of recent average Aug/Sept flow	13,900,000	Little Laramie River
			Total	**61,600,000**	

[1]Because of the test section configuration, a total of only 6.8 million gallons would be withdrawn from the White River (see appendix M).

Entrega has stated that it would either purchase water from licensed sources or landowners, or appropriate water from surface waters for construction and hydrostatic testing. If discharge rates of hydrostatic test water are not carefully controlled, discharges into surface waters could cause erosion of the streambanks and streambottoms, resulting in a temporary increase of sediment load and destruction of habitat. Entrega plans to discharge directly back to the source waters. Discharge effects would be minimized through the use of a splash pup system (appendix M). A splash pup is a smaller section of pipeline welded at the end of the discharge line at a 90 degree angle with a splash plate attached. The splash pup is suspended above the river, allowing the discharge to spray into the air and fall onto the flow surface. This can be an effective means of energy dissipation and erosion control. The anticipated discharge rates are presented in the Hydrostatic Test Plan. Discharge activities would be monitored by environmental inspectors, and the outflow rates adjusted if necessary so that erosion impacts would be avoided.

If Entrega could not receive a permit to discharge hydrostatic test water directly into the waterbodies, Entrega may be required to discharge onto nearby upland locations. In this instance, Entrega would use

energy-dissipating devices (e.g., filter bag, straw bale structure) that would dissipate and slow the velocity of the discharge water.

The discharge of hydrostatic test water into surface waters could potentially contaminate state water, depending on the waterbody's designated use classification. Contamination in the hydrostatic test waters would likely be low, since the pipeline would be constructed entirely from new internally coated pipe. Nevertheless, Entrega would be required to obtain permits from the appropriate agencies and adhere to the stipulations outlined in its NPDES permits when discharging hydrostatic test water. This would include the requirement for Entrega to test and, if necessary, treat the hydrostatic test water prior to discharging the water.

The Hydrostatic Test Plan (appendix M) and the last portion of the Procedures (appendix F, part VII) present further detail on requirements and proposed practices. No chemical or biological additives would be used during testing, and new pipe would be used throughout the construction. Pipe would be capped at night. Therefore, introduction of contaminants would be minimal. Withdrawal or discharge involving state-designated exceptional value waters, waterbodies providing habitat to federally listed threatened or endangered species, or waterbodies designated as public water supplies would not be used unless written permission was obtained from appropriate agencies. Based on consultations with the FWS and Wyoming Game and Fish Department (WGFD), hydrostatic test water withdrawal would occur between October 1 and March 1 for the White, Yampa, and Little Snake Rivers and between August 1 and September 30 for the North Platte and Little Laramie Rivers and Rock Creek. Water quality testing would be done in accordance with permit requirements prior to discharge.

In Colorado, discharges of test water would be analyzed as required for selected water quality constituents, and results reported to the CDPHE in accordance with the Colorado Discharge Permit System. In keeping with stated preferences from the FWS, discharges in Colorado would be made under the terms of the permit directly to the receiving water (the White, Yampa, or Little Snake River) at the location of the original withdrawal. No reaches of these rivers near the proposed crossings or the intake and discharge locations are listed on Colorado's Section 303(d) list of water-quality-limited segments. However, downstream of the proposed discharge locations, all three rivers are being monitored and evaluated for water quality impairment from sediment. Entrega plans to discharge through a splash pup device directly back into the source in order to prevent scour and prohibit sediment release.

In Wyoming, the WFGD expressed concern that discharge directly into a waterbody could result in alterations to the stream channels, increased sediment loads, and adverse impacts to aquatic biota. Entrega would be required to address this site-specific issue during the discharge permit process with the WDEQ. The reaches of the waterbodies near the proposed crossings or at the intake and discharge locations are not listed on Wyoming's Section 303(d) list of water-quality-limited segments for any constituents associated with pipeline construction activities. Test water would be analyzed for appropriate water quality constituents in accordance with pertinent state agency requirements. Discharges would be conducted at controlled rates, as indicated in the Hydrostatic Test Plan, to avoid accelerated erosion and resulting sedimentation and turbidity effects in the river. However, the exact measures that would be required by the WDEQ for the discharge permit have not yet been finalized. Because of the continuing state-consultation on the issue of hydrostatic test water discharges, **we recommend that prior to construction Entrega finalize their**

Hydrostatic Test Plan in consultation with pertinent state and federal agencies (FWS, WGFD, WDEQ, CDOW, CDPHE) and appropriate conservation districts. Entrega should provide additional descriptions of the discharge/erosion control structures that would be utilized at the discharge locations. Documentation of these consultations along with the finalized Hydrostatic Test Plan should be filed with the Secretary for review and written approval of the Director of OEP prior to construction. To account for changing site-specific conditions, Entrega should consult and coordinate with the appropriate agencies and organizations immediately before and during the hydrostatic testing program (including the discharge phases) to ensure that impacts are avoided or minimized in applicable agency jurisdictions.

Impacts on fisheries resources from sedimentation and water depletions (associated with hydrostatic test water withdrawals) are discussed in greater detail in sections 3.5.1 and 3.6.3.

The WGFD commented on the potential to spread nuisance aquatic species such as New Zealand mud snails, whirling disease spores, or others via construction equipment operating within stream channels. If such dissemination occurred, serious impacts on fisheries and related resources would result. The agency consultations and coordination recommended above should consider this issue, ascertain associated risks along the construction segments, and develop preventative practices that would be implemented during construction and maintenance. We believe that washing construction equipment with water spray to control the spread of weeds, as presented in the Weed Management Plan (appendix H), also may help control the spread of nuisance aquatic species.

With existing plans and procedures and our additional recommendations, overall impacts to surface water resources from construction would be short-term and minimal. Construction would cause temporary increases in sediment, but these impacts would be minimized by setbacks, sediment barriers, and streambank stabilization. Waterbody crossings would be completed within several days, minimizing the duration of the effects.

Surface water would not be required for the operation of the pipeline and aboveground facilities. To minimize sedimentation and to prevent contamination of surface water resources from spills of hazardous materials associated with future maintenance activities conducted along the pipeline ROW, Entrega would be required to adhere to construction and reclamation standards within Entrega's Plan, Procedures, and POD. Future variances from these plans and procedures would require the approval of the FERC, the affected land management agency, and affected landowner. Given the low probability of a pipeline leak (particularly a leak in a location that could enter surface water) and the physical and chemical properties of processed natural gas, adverse impacts on water resources are not expected.

3.3.3 Wetlands

Wetlands occupy about 4.0 miles (1 percent) of the proposed pipeline route (**table 3.3-4**). Of this distance, 0.5 mile of wetlands occur in Colorado and 3.5 miles occur in Wyoming. Wetland vegetation communities occurring along the proposed project area include emergent, scrub-shrub, littoral/playa, and shoreline and aquatic bed wetlands. The most common type of wetland along the proposed project area is emergent. Emergent wetlands are dominated by rooted herbaceous vegetation, while scrub-shrub wetlands are

dominated by woody species less than 20 feet in height. Littoral/playa wetlands are shallow wetlands that are most obvious in the spring due to snowmelt, precipitation, and high water table. Shoreline and aquatic bed wetlands are found adjacent to or located within surface waters. Water sources for wetland communities include seepage from ditches and canals, irrigation runoff, sub-irrigation, and ponding on poorly drained soils. Common wetland species identified along the pipeline route are included in section 3.4, **table 3.4-1**.

Table 3.3-4
Summary of Wetland Types Affected by Construction and Operation

State	Wetland Classification[1]	Length of Wetland Crossed (miles)	Wetland Acreage Affected During Construction[2]	Wetland Acreage Within Permanent Easement[3]
COLORADO				
	PSS	<0.1	<0.1	<0.1
	PEM	0.5	5.6	0.0
	PFO	0.0	0.0	0.0
Colorado subtotal		0.5	5.6	<0.1
WYOMING				
	PSS	0.1	1.4	1.0
	PEM	3.4	38.5	0.0
	PFO	<0.1	<0.1	<0.1
Wyoming subtotal		3.5	39.9	1.0
PROJECT TOTAL[4]				
	PSS	0.1	1.4	1.0
	PEM	3.9	44.1	0.0
	PFO	<0.1	<0.1	<0.1
		4.0	45.5	1.0

[1] Wetland Types; classified during wetland survey conducted by Western EcoSystems Technology, Inc. 2005h.
PSS - Palustrine scrub-shrub
PEM - Palustrine emergent
PFO – Palustrine forested

[2] Wetland impacts are based on delineated wetland data provided by Western EcoSystems Technology, Inc. Wetland boundaries were recorded with a Global Positioning System unit rated for sub-meter accuracy. Acreages for pipeline disturbance were calculated based on a 75-foot-wide ROW centered over the pipeline. Disturbances due to temporary work areas occurring in delineated wetlands were included.Disturbance attributed to temporary workspace areas that fall within the delineated wetlands are included in the total.

[3] Based on the amount of wetland within the 50-foot-wide permanent easement. No vegetation maintenance is anticipated in emergent wetlands. Operational impacts to forested wetlands would occur within a 30-foot-wide ROW maintained above the pipeline.

[4] Note: the numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

Based on survey data (West 2005h), a total of 189 wetlands would be crossed by the proposed pipeline; 56 in Colorado and 133 in Wyoming. These wetlands are identified in appendix N and on the project maps located at the end of this document. Approximately 97 percent of the wetlands crossed are characterized as emergent, with the remaining 3 percent comprised of scrub-shrub and forested wetland types. While no farmed delineated wetlands would be crossed by the proposed project, several wetlands are located in actively grazed rangeland.

Construction in wetlands would primarily result in temporary effects including the temporary loss of wetland vegetation, soil disturbance, and temporary increases in turbidity and fluctuations in wetland hydrology. To minimize these impacts to wetlands, Entrega would use a 75-foot-wide construction ROW through wetland

areas, would follow the measures identified in Entrega's Procedures and POD, and would locate the pipeline route immediately adjacent to existing utilities, where possible, to minimize impacts by overlapping the construction ROW along previously disturbed corridors.

Temporary use areas would be required at wetland crossings and, unless impractical due to topography or other constraint, these areas would be set back at least 50 feet from the edge of the wetland. While Entrega's Site-specific Waterbody Crossing Plans identify a setback of less than 50 feet at the Yampa and Little Snake crossings, deviations from the standard 50-foot setback would require approval of the FERC prior to construction.

Entrega originally proposed to seed non-saturated wetlands with annual ryegrass after the pipeline is constructed. While non-native annual ryegrass is not anticipated to persist in wetlands, the BLM expressed concern that ryegrass could become established on nearby upland areas, particularly in wheat fields. Entrega has subsequently agreed to specify that a commercial hybrid (sterile) cover crop be used for temporary stabilization of disturbed wetlands.

Entrega proposes to use a wetland revegetation approach wherein traffic areas in wetlands would not be grubbed, leaving root masses intact over most of the ROW. This would encourage regrowth and revegetation on those areas. On areas to be excavated, Entrega proposes to salvage topsoil and use that material, when replaced, as a source of native seeds and propagules. These procedures would constitute a passive approach to wetland revegetation in the trench and traffic areas. Further, Entrega's Procedures (appendix F) include the commitment to ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species. Proposed post-construction maintenance defines this as being at least 80 percent of the type, density, and distribution of vegetation in adjacent undisturbed wetland areas. If revegetation is not successful at the end of 3 years, Entrega would develop and implement (in consultation with a professional wetland ecologist) a remedial plan to actively revegetate the wetlands. The resulting program would be implemented and would continue until wetland revegetation is successful.

Entrega believes that the measures in the Construction Mitigation and Revegetation Plan could potentially serve as a project-specific Wetland Restoration Plan. While we agree with this viewpoint, we believe it is necessary for the final plan to be reviewed by the appropriate land management and state agencies prior to its implementation. Therefore, **we recommend that Entrega file with the Secretary its final Construction Mitigation and Revegetation Plan (including a line list by MP of proposed wetland mitigation measures) for review and written approval by the Director of OEP prior to commencing service. Entrega should include the comments of the land management and state agencies with whom it consulted during plan development and indicate whether reclaiming wetlands with native species was suggested by these agencies.**

Wetland vegetation would be temporarily lost during construction. A total of 45.5 acres of wetlands (5.6 acres in Colorado and 39.9 acres in Wyoming) would be affected by pipeline and aboveground facility construction (**table 3.3-4**). In general, emergent wetland vegetation would be expected to reestablish within 3 years after construction, while scrub-shrub vegetation would likely take somewhat longer.

None of the aboveground facilities are located within National Wetland Inventory (NWI)-mapped wetlands. At the Meeker Hub Compressor Station, a portion of the site would be located alongside the Federal Emergency Management Agency-defined 100-year floodplain, however, aboveground facilities at the Meeker Hub Compressor Station do not appear to be located within either the floodplain or wetlands.

Similar to forest areas, Entrega would periodically remove woody species from wetlands to facilitate post-construction inspections of the permanently maintained pipeline ROW. A 30-foot-wide strip centered over the pipeline would be maintained clear of trees taller than 15 feet to facilitate pedestrian and aerial inspections. Additionally, a 10-foot-wide strip centered over the pipeline would be maintained clear of woody vegetation to allow vehicles rapid access along the ROW in case of emergencies. As a result, operational impacts in wetlands would result in the conversion of <1 acre of scrub-shrub wetland to herbaceous wetland within the 10-foot-wide maintained strip (**table 3.3-4**).

3.4 Vegetation

Vegetation Communities

Five general vegetation communities characterize the proposed EPP area: grassland, shrubland, agricultural land, woodlands, and wetlands (**table 3.4-1**, **figure 3.4-1**). The two predominant vegetation communities that are crossed by the proposed pipeline route are grassland and shrubland, comprising 29 and 59 percent based on acres of disturbance, respectively, of the vegetated lands. Wetlands are discussed in section 3.3.3. Open water and waterbodies (including dry washes, discussed in section 3.3.2), commercial land, and areas with bare rock account for less than 1 percent of the disturbance along the proposed pipeline route and do not display vegetation characteristics; consequently, they are not discussed in this section of the EIS (see section 3.7).

Construction of the proposed pipeline and aboveground facilities (including powerline easement) would disturb approximately 1,554 acres of grasslands, 3,192 acres of shrublands, 212 acres of agricultural land, and 224 acres of woodlands (**table 3.4-2**). The primary impact of the proposed project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. Temporary ROW and additional temporary workspace areas cleared for construction would be reseeded and allowed to revegetate naturally with tree and shrub species after construction is completed.

To minimize environmental impacts and ensure site stabilization and revegetation, Entrega would follow construction procedures detailed in its POD, including its Plan and Procedures with approved variances and its Construction, Mitigation, and Reclamation (CM&R) Plan (Entrega 2004c). The CM&R Plan describes methods that would be implemented to stabilize disturbed sites by reducing runoff and erosion; to reestablish a vegetation condition comparable to preconstruction conditions; to restore functional qualities of the area including wildlife habitat and livestock forage; and to prevent degradation of areas off the construction ROW. Additionally, Entrega would follow the measures outlined in the SPCC Plan and the Storm Water Pollution Prevention Plan (Entrega 2004e) to minimize and mitigate potential impacts on wetlands.

Upon completion of construction, disturbed areas would be revegetated in compliance with Entrega's Plan, Procedures, and CM&R Plan or in accordance with site-specific requirements from applicable federal, state, and local agencies. Timely stabilization of the construction ROW and reseeding with an appropriate seed mix would minimize the duration of vegetation disturbance. The FERC and BLM staff would inspect the pipeline ROW for several years to ensure Entrega's compliance with revegetation standards established in Entrega's Plan and Procedures.

After construction, the vegetation along the majority of the pipeline ROW would be allowed to revert to pre-construction conditions. Entrega would reduce the width of the permanently maintained ROW in woodland areas (i.e., pinyon-juniper, ponderosa pine, and riparian woodlands); however, given the long recovery period for woodlands, maintenance of vegetation in the future would be nominal. Impacts to vegetation from permanent aboveground facilities would be limited to those required for the operation of the compressor stations, pigging facilities, meter stations, mainline valves, and permanent access roads (about

Table 3.4-1
Vegetation Communities Crossed by the Entrega Pipeline

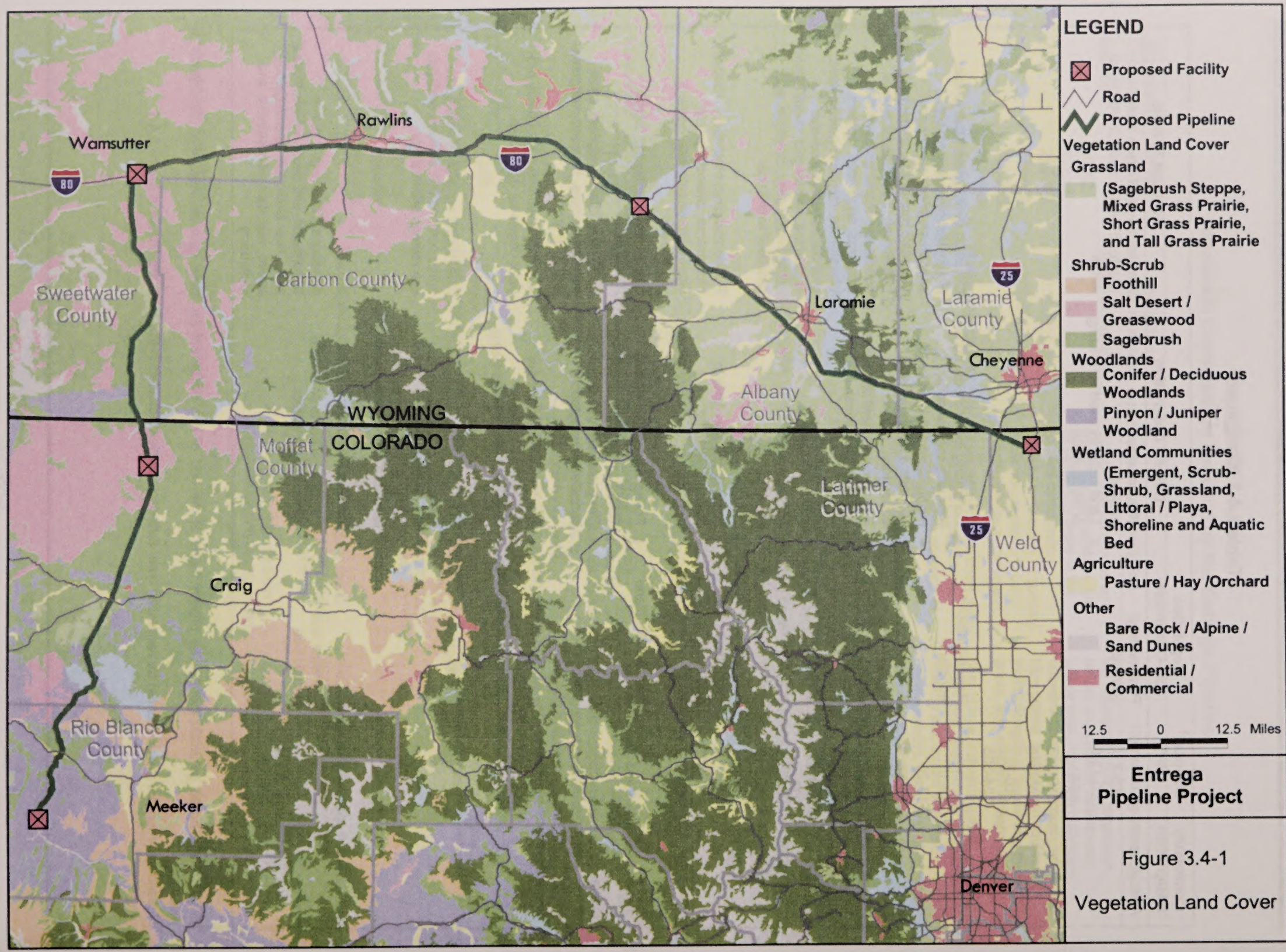
Community Designation	Milepost[1] (MP)	Vegetation Sub-Community	General Description	Common Species
Grassland	40-42 112-117 238-246 248-260 263-285 287-289 291-294 295-301 302-304 305-314 315-327	Sagebrush steppe	• Combination of shrubs and grasses where grasses are 50 percent or more of the species composition. • Density and variety of species in the community is greatly affected by fire suppression.	big sagebrush, black sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, ephedra, fourwing saltbush, winterfat, blue grama, bottlebrush squirreltail, Indian ricegrass, needle and thread grass, and western wheatgrass
		Mixed grass prairie	• Distinguished from short grass prairie by a higher floristic diversity and an absence of buffalo grass. • Found throughout eastern Wyoming.	blue grama, sideoats grama, bluebunch wheatgrass, western wheatgrass, Indian ricegrass, needlegrasses, Sandberg bluegrass, New Mexico feathergrass, green needlegrass, fringed sagewort, prickly pear, prairie sandreed, little bluestem, sand bluestem, common reed, blowout grass, lemon scurfpea, galleta, and foxtail barley
		Short-grass prairie	• Bunch grasses with total cover of trees and shrubs less than 25 percent of total vegetation cover. • Buffalo grass is an indicator species. • Found primarily in northeast Colorado.	buffalo grass, blue grama, western wheatgrass, needlegrass, prickly pear, fringed sagewort, Indian ricegrass, and broom snakeweed
Shrub-scrub	2.0-3.0 15-17 20-25 27-36 39-40 42-50 51-85 86-93 94-112 117-212 213-225 226-237 285-287 314-315	Sagebrush	• Combination of dense sagebrush, with a sparse understory of grasses, forbs, and smaller shrubs (<50 percent cover). • Occurs throughout central and western Wyoming and northwestern Colorado.	big sagebrush, black sagebrush, sand sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, horsebrush, spiny hopsage, ephedra, saltbush, Indian ricegrass, needle and thread grass, and western wheatgrass
		Salt desert scrub/greasewood	• Occurs as a mosaic within sagebrush communities, dominated by greasewood. • Found throughout central and western Wyoming and northwestern Colorado.	greasewood, saltbush, spiny hopsage, budsage, saltbush, and winterfat
		Foothill shrub-scrub	• Mountain mahogany found within northern mixed prairie and short grass prairie habitats. • Gambel oak extends from Colorado into Wyoming on the western slope of the Rocky Mountains.	mountain mahogany, scrub oak (Gambel oak)

Table 3.4-1 (Continued)

Community Designation	Milepost[1] (MP)	Vegetation Sub-Community	General Description	Common Species
Agriculture	-0.5-2.0 3.0-12.0 50-51 212-213 246-248 260-263 304-305	Pasture/ hay/ orchard	• Natural vegetation is not evident. • Land currently used for grazing or horticulture.	irrigated hay and alfalfa fields, livestock feeding areas, horticultural areas
Woodlands	12-15 17-20 25-27 36-39 85-86 93-94 226 235 237-238 289-291 294-295 301-302	Pinyon-juniper woodland	• Commonly found on dry ridge tops with shallow soils. • Highly competitive and supports a highly variable understory. • Pinyon component increases at higher elevations.	Colorado pinyon pine, Utah juniper, Rocky Mountain juniper, big sagebrush, black sagebrush, mountain mahogany, snakeweed, little rabbitbrush, Sandberg bluegrass, needle and thread grass, Indian ricegrass, squirreltail, western wheatgrass, stemless golden weed, oval buckwheat, yellow-eye cryptantha, scarlet gilia, dwarf cateye, brittle prickly pear, claretcup, and heartleaf twistflower
		Ponderosa pine woodland	• Patches on rocky soils in eastern Wyoming.	Ponderosa pine, mountain mahogany, blue grama, sideoats grama, bluebunch wheatgrass, western wheatgrass
		Riparian woodland	• Found adjacent to surface waters.	narrow leaf cottonwood, willow
Wetlands[2]		Emergent	• Dominated by rooted herbaceous vegetation.	baltic rush, inland saltgrass, alkali sacaton, sedges, bluejoint reedgrass, and bent grass
		Scrub-shrub	• Scrub-shrub wetlands are dominated by woody vegetation less than 20 feet in height.	willow, thinleaf alder, river birch, red-osier dogwood, and aspen
		Littoral/playa	• Most obvious in spring due to snowmelt, precipitation, and high water table. • Wetlands that have been dry for over a year frequently have a thin layer of grasses and forbs on the bottom.	Due to their ephemeral nature, the entire composition of these wetlands can change within a day
		Shoreline and aquatic bed	• Found adjacent to or located within surface waters.	narrowleaf cottonwood, plains cottonwood, salt cedar, willow, thinleaf alder, river birch, red-osier dogwood, aspen, wild rose, serviceberry, and snowberry

[1]Mileposts are broad generalizations. See project maps at the end of this document for more detailed vegetation description by milepost.

[2]Wetland communities are delineated by vegetation type. Sub-communities indicated in this table are shown in **figure 3.4-1**.



Entrega Pipeline Project

Figure 3.4-1

Vegetation Land Cover

5/12/05

Table 3.4-2
Acres of Land Within Construction and Operation Rights-of-Way[1]

Facility	Grassland		Shrub-scrub		Agriculture		Woodlands		Other	
	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
Pipeline (main)										
Colorado	123	59	842	396	120	59	140	61	<1	<1
Wyoming	959	467	1,867	882	59	30	71	34	1	<1
Total[2]	1,082	526	2,709	1,278	179	89	211	95	1	1
Pipeline (laterals)										
Colorado	12	6	6	3	0	0	0	0	0	0
Wyoming	0	0	4	2	0	0	0	0	0	0
Total[2]	12	6	10	5	0	0	0	0	0	0
Additional Temporary Workspace Areas										
Colorado	10	0	68	0	23	0	7	0	0	0
Wyoming	114	0	185	0	10	0	6	0	0	0
Total[2]	124	0	253	0	33	0	13	0	0	0
Pipe Storage and Contractor Yards[3]										
Colorado	40	0	0	0	0	0	0	0	109	0
Wyoming	276	0	160	0	0	0	0	0	80	0
Total[2]	316	0	160	0	0	0	0	0	189	0
Aboveground Facilities[4,5]										
Colorado[6]	19	19	32	32	0	0	0	0	0	0
Wyoming	0	0	24	23	0	0	0	0	0	0
Total[2]	19	19	56	55	0	0	0	0	0	0
Permanent Access Roads										
Colorado	0	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0
Total[2]	0	0	0	0	0	0	0	0	0	0
Powerlines										
Colorado	1	<1	0	0	0	0	0	0	0	0
Wyoming	0	0	4	<1	0	0	0	0	0	0
Total[2]	1	<1	4	<1	0	0	0	0	0	0
Project Total[2,7]	**1,554**	**551**	**3,192**	**1,338**	**212**	**89**	**224**	**95**	**190**	**1**

Table 3.4-2 (Continued)

Footnotes:

[1] Const. – construction. Oper. – operation. Construction ROW; based on a 100-foot-wide construction ROW except for a 75-foot-wide ROW in wetlands and riparian woodlands, and an increased construction ROW width for site-specific construction conditions. Operation ROW; based on a 50-foot-wide operational ROW. Acreage totals do not include developed, commercial land, open water, or barren areas that do not display vegetation characteristics.
[2] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.
[3] Some yards are located on land (e.g., commercial/industrial) that do not display vegetation characteristics.
[4] Meter stations and pig launchers and receivers would be located within the 20-acre area associated with compressor station sites. Mainline valves would be constructed within the 100-foot-wide construction ROW and operated within the permanently maintained 50-foot-wide operational ROW, or constructed within meter or compressor station sites.
[5] Mainline values are contained within the 50-foot easement, therefore, they are not included with aboveground facilities.
[6] This includes the Meeker Hub Compressor Station (meter stations, pig launcher, and mainline valve) that would be located on previously developed land purchased by Entrega from one of its affiliates.
[7] Wetland delineation (WEST 2005h) are included within surrounding vegetation types. Refer to appendix N for wetland locations.

55 acres of shrubland and 19 acres of grassland) and mainline valves (about 0.25 acre of grassland, 0.5 acre of shrub-scrub, 0.05 acre of woodlands, and 0.05 acre of agriculture). Permanent impacts due to powerlines would be limited to the footprint of the poles, and are therefore negligible.

Grassland

Grassland occurs along about 83 miles (25 percent) of the proposed pipeline route, with sagebrush steppe being the dominant sub-community. Sagebrush steppe is a semi-closed steppe characterized by an overstory of sagebrush and understory of grasses, forbs, and smaller shrubs. Grass species comprise more than 50 percent of the species composition in this community; big sagebrush is the dominant shrub component throughout. The mixed-grass prairie sub-community occurs throughout most of eastern Wyoming and typically supports a high diversity of grasses, including short-, mid-, and tall-grass species. It is distinguished from the short-grass prairie sub-community by having a much higher floristic diversity and an absence of buffalo grass. The short-grass prairie is dominated by bunch grasses less than 20 inches tall. Buffalo grass is considered the indicator species of short-grass prairie.

Long-term impacts may occur on short-grass prairie and sagebrush steppe, as well as native grasslands and shrublands. Recovery of these habitats may take a minimum of 5 to 7 years due to poor soil and low moisture conditions.

Shrub-scrub

Shrubland accounts for approximately 206 miles (63 percent) of vegetation cover that would be crossed by the pipeline route. This community designation includes sagebrush, salt desert shrub/greasewood, and foothills shrub-scrub sub-communities. Sagebrush is the most widespread shrubland sub-community. This vegetation type is characterized by an overstory of big sagebrush and an understory of grasses, forbs, and smaller shrubs. Salt desert shrub/greasewood occurs as a mosaic within sagebrush communities, frequently on the fringes of playas, desert lakes, ponds, rivers, and streams. Foothills shrub-scrub communities consist of both mountain mahogany and scrub oak sub-communities. Mountain mahogany primarily occurs within northern mixed prairie and short-grass prairie habitats. This deciduous shrub forms dense thickets with sparse understory vegetation. It typically occurs on rocky or shallow soils and is often associated with a limestone, sandstone, or shale substrate. In oak scrub, Gambel oak is the dominant shrub, comprising more than a quarter of the total vegetation cover. This sub community does not occur on the eastern slope, but extends from Colorado into Wyoming on the western slope of the Rocky Mountains.

Long-term construction impacts may occur on shrublands, such as sagebrush. Recovery of these habitats may take a minimum of 20 to 30 years due to poor soil and low moisture conditions.

Agriculture

Agricultural land occurs along about 18 miles (5 percent) of the proposed pipeline route. This community is primarily comprised of irrigated hay and alfalfa fields. These areas are used primarily for livestock grazing.

Pasture and hayfields would typically regenerate quickly after cleanup and reseeding of the construction ROW, typically within 2 years. Entrega would reseed pasture and hayfields with seed mixes as requested by the landowner to restore the area to preconstruction conditions. Entrega would not reseed cultivated agricultural areas unless requested by the landowner.

Woodlands

Woodlands occur along about 18 miles (5 percent) of the proposed pipeline route. Woodland sub-communities include pinyon-juniper woodland, ponderosa pine woodland, and riparian woodland. Along the pipeline route, the dominant community is pinyon-juniper woodland. Colorado pinyon pine and Utah juniper dominate the pinyon-juniper woodland plant community. Ponderosa pine woodland is commonly found on lower mountain foothills and slopes. Riparian woodlands occur along many perennial waterbodies and are characterized by cottonwood trees and a variety of riparian shrubs.

Clearing of woodland vegetation within the construction ROW would result in long-term and permanent environmental change. In this region, it is anticipated that regrowth of woodlands to mature conditions could take between 50 to 100 years, depending on the species (long-term impact). Permanent impacts to woodlands would be limited to the permanent corridor, which Entrega would maintain in an herbaceous state by occasional mowing or brush clearing.

Six riparian woodland communities would be crossed by the EPP. These areas are associated with the North Platte River, Medicine Bow River (2), a tributary to Foote Creek, and Rock Creek (2) crossings. Entrega also proposes temporary workspaces within riparian woodlands at the Medicine Bow and North Platte River crossings. To minimize impacts, Entrega has prepared a Riparian Woodland Plan (appendix K). In this plan, Entrega has committed to reduce the construction ROW to 75 feet in riparian woodlands, avoid the removal of trees to the maximum extent practical, leave root systems of small woody vegetation intact along the construction ROW, and not use herbicides and pesticides for vegetation maintenance within 100 feet of a waterbody. Entrega has agreed to reduce the permanently maintained ROW to a 10-foot-wide corridor centered over the pipeline. Further, Entrega's vegetation maintenance program would allow a riparian strip of at least 25 feet wide, as measured from the high-water mark and parallel to the waterbody, to permanently revegetate with native plant species across the entire construction ROW.

The Riparian Woodland Plan provides for minimization of topsoil disturbance, reseeding with seed mixtures approved of by the land managing agency and NRCS, and replanting of trees and shrubs to mimic the surrounding vegetation and density. To facilitate the restoration of riparian woodlands, **we recommend that Entrega conduct pre-construction surveys in woody riparian areas to determine the existing vegetation community composition and density. Based on the results of these surveys, Entrega should reseed and replant with these existing tree and shrub species at pre-construction densities, accounting for intact root masses.**

Also, **we recommend that Entrega file site-specific plans for each of the six riparian woodland crossings with the Secretary for review and approval by the Director of OEP prior to construction activities in these riparian woodland communities. In developing these plans, Entrega should locate temporary workspace areas to avoid riparian woodland to the maximum extent practicable. Entrega**

should provide detailed justification for any temporary workspace area that is not sited to avoid disturbance of riparian woodland. At a minimum, each plan should include:

i. **an inventory of the area of disturbance, based on the preconstruction survey;**
ii. **site-specific measures to avoid or reduce the extent of riparian woodland disturbance;**
iii. **site-specific measures to restore all riparian woodland disturbance to near-preconstruction conditions;**
iv. **an aerial-photo based plot plan showing all areas of disturbance, environmental controls, and restoration measures (scale 1:1,200); and**
v. **specific criteria for assessing restoration success.**

At the Medicine Bow River, about 140 trees would require removal from the right-of-way. They range in diameter from 8 inches to 48 inches with a mean diameter of 18 inches. About 76 trees range in diameter from 13 to 20 inches, 10 trees range in the diameter from 21 to 30 inches, and 1 tree would be greater than 30 inches in diameter. Where possible, Entrega intends to avoid removal of the trees greater than 21 inches in diameter. Entrega would provide a final number of trees to be removed prior to construction. Entrega proposes to plant about 800 replacement trees from non-rooted willow and aspen cuttings at 10 feet-on-center and rooted cottonwoods at 15 feet-on-center.

We believe that the magnitude of impact on the riparian woodland at this crossing warrants consideration of alternatives to Entrega's proposal. Alternatives which have not yet been seriously considered include the possibility of an HDD crossing or rerouting the pipeline away from the existing corridor to cross the river in an area with fewer mature trees. While replanting trees may return the area to a near pre-construction condition at some time in the distant future, we are not prepared to adopt this approach without seriously evaluating alternatives that would avoid or significantly reduce the number of mature trees removed by construction. As a result, we believe that additional analysis of the Medicine Bow River crossing is needed. In order to confirm that all options to minimize impacts on mature woodlands near the Medicine Bow River have been considered, **we recommend that prior to construction at the Medicine Bow River, Entrega prepare and file with the Secretary for review and written approval of the Director of OEP a report indicating whether an HDD crossing is feasible at this site, and evaluating another route(s) for crossing the river that would avoid or minimize the number of trees to be removed by construction.**

While impacts resulting from construction of the EPP would result in the long-term and permanent loss of forest and woodland vegetation, and would cause a small incremental increase in woodland fragmentation. However, except for the Medicine Bow River crossing, the effects would generally be small relative to the available habitat in the region.

Unique, Sensitive, and Protected Vegetation Communities

No unique, sensitive, or protected vegetation communities have been identified within the project area.

3.5 Fish and Wildlife

3.5.1 Fishery Resources

The proposed EPP route would cross a total of 32 different waterbodies in Colorado and Wyoming that support fish species, including 8 that support warmwater fisheries, and 24 that support coldwater fisheries. Waterbodies that provide persistent habitat or are being managed for fish species are presented in **table 3.5-1**. In addition to these perennial waterbodies, the project would cross perennial and intermittent waterbodies a total of 395 times in Colorado and Wyoming. No waterbodies are present within the boundaries of the proposed aboveground facilities.

Table 3.5-1
Fisheries Crossed by the Proposed Project

Waterbody	Intermittent (I)/ Perennial (P)	Fishery Classification	Maximum Crossing Width	Number of Times Crossed	Proposed Crossing Method
Colorado					
Piceance Creek	P	Warmwater	40	11	Open Cut
Tributary to Piceance Creek	P	Warmwater	<10	1	Open Cut
Broad Channel Fed by Jack Hill Spring	P	Warmwater	10	1	Open Cut
White River	P	Coldwater	110	1	HDD
Deep Channel Creek	P	Warmwater	13	3	Open Cut
Tributary to Deep Channel Creek	P	Warmwater	<10	1	Open Cut
Yampa River	P	Warmwater	120	1	HDD
Little Snake River	P	Coldwater	120	1	Open Cut
Lone Tree Creek	P	Warmwater	18	1	Open Cut
Wyoming					
North Platte River	P	Coldwater	100	1	Open Cut
North Platte River East Fork	P	Coldwater	50	1	Open Cut
Medicine Bow River	P	Coldwater	28	1	Open Cut
Bear Creek	P	Coldwater	<10	1	Open Cut
Wagonhound Creek	P	Coldwater	20	1	Open Cut
Tributary to Foote Creek	P	Coldwater	<10	1	Open Cut
West Fork Foote Creek	I	Coldwater	<10	1	Open Cut
Rock Creek	P	Coldwater	50	1	Open Cut
Onemile Creek	P	Coldwater	10	1	Open Cut
Threemile Creek	P	Coldwater	<10	2	Open Cut
East Fork Dutton Creek	P	Coldwater	12	1	Open Cut
Cooper Creek	P	Coldwater	<10	1	Open Cut
Fourmile Creek	P	Coldwater	<10	1	Open Cut
Sevenmile Creek	I	Coldwater	<10	1	Open Cut
Little Laramie River	P	Coldwater	28	1	Open Cut
Alsop Ditch	I	Coldwater	18	1	Open Cut
Browns Creek	P	Coldwater	20	1	Open Cut
Tributary to Browns Creek	I	Warmwater	<10	1	Open Cut
Laramie River	P	Coldwater	69	1	Open Cut
Dale Creek	I	Coldwater	<10	1	Open Cut
Lone Tree Creek	P	Coldwater	<10	2	Open Cut
Goose Creek	I	Coldwater	<10	1	Open Cut
Duck Creek	I	Coldwater	40	1	Open Cut

Representative fish species that are managed within coldwater waterbodies crossed by the proposed pipeline route include brook trout, brown trout, and rainbow trout. Non-game fish species known to occur in these coldwater waterbodies include: brassy minnow, carp, creek chub, common shiner, fathead minnow, Johnny darter, longnose dace, longnose sucker, sand shiner, and white sucker. Trout species, along with walleye that occur in the North Platte and Medicine Bow Rivers and smallmouth bass, channel catfish, and pike that occur in the Yampa River, are game species that offer the potential for recreational or commercial fishing opportunities along the proposed route. Representative fish species that occur within the warmwater waterbodies crossed by the proposed project route include catfish, crappie, bass, yellow perch, white sucker, Iowa darter, and creek chub.

No waterbodies affected by the project contain or have the potential to contain species managed by National Marine Fisheries Service, nor do they support essential fish habitat (EFH) as defined under the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265 as amended through October 11, 1996). Therefore, no EFH would be affected by the project.

Construction-related impacts on fisheries would be primarily dependent on season of construction, duration of in-stream activities, and stream crossing methods. As stated in Entrega's Procedures, construction activities at coldwater fisheries would occur from June 1 to September 30, and from June 1 to November 30 for warmwater fisheries, unless otherwise permitted or restricted by the FWS, WGFD, and/or the CDOW. For example, to protect streams that have both spring and fall salmonid spawning, the WGFD has stated that the crossing of waterbodies classified as coldwater fisheries would occur between May 16 and October 14.

Construction-related impacts at waterbody crossings could result from sedimentation and turbidity, streambank erosion, and contamination from fuel and chemical spills. These impacts primarily relate to perennial waterbodies. The extent of impacts on fisheries, if any, would depend on the construction method used to cross the waterbody, duration of instream activity, and the seasonal timing of in-stream construction.

Entrega proposes to use the open-cut crossing method to construct across all perennial waterbodies along the proposed pipeline route, with the exception of the White and Yampa Rivers, which would be crossed by HDD. If successful, an HDD crossing would result in no impact on fisheries. All non-HDD methods would increase sediment loads and turbidity that could have an effects on fishery resources. Increased sediment loads can alter a stream's substrate composition and fill inter-gravel spaces and pool habitats. Increased sediment loads can degrade the existing aquatic habitat by reducing spawning habitat, available rearing habitat, and benthic invertebrate production (the primary food supply of many fish). Increased sediment loads also can adversely affect fish populations by suffocating eggs and newly hatched larvae living in gravels and by abrading sensitive gill membranes of both young and adult fish. However, an open cut crossing is typically the quickest crossing method, involving 1 day or less of in-stream construction for smaller streams and 2 to 3 days for larger waterbodies. Therefore, sedimentation and turbidity resulting from construction would be short-term and generally limited to periods of active construction within a waterbody. Adverse effects to aquatic biota would tend to be localized. Additionally, most of the waterbodies that would be crossed are intermittent and likely would have little to no flow during the mid-summer to late fall construction period. Crossing such waterbodies would have little to no impact on fisheries.

To minimize sedimentation and turbidity impacts during open-cut, flume, or dam-and-pump waterbody crossings, Entrega would adhere to its Procedures, which would ensure that Entrega would store trench spoil at least 50 feet from streambanks, use sediment barriers such as silt fence to prevent or significantly reduce runoff into streams, and complete construction as quickly as possible to shorten the duration of sedimentation and turbidity. Following completion of construction, Entrega would immediately stabilize the construction site, including the streambanks. If circumstances required a construction delay, Entrega would employ adequate site stabilization measures in accordance with its Procedures and permit conditions. In addition, Entrega has agreed to construct during low-flow periods for stream crossings or adhere to the construction windows to avoid spawning periods, as required by the appropriate agency, and would implement crossing methods to avoid or minimize potential sedimentation and turbidity impacts on aquatic species during spawning seasons, as discussed above.

Clearing and grading of vegetation within the construction ROW and additional temporary workspace areas during construction could increase erosion along streambanks and turbidity levels in the waterbodies, as well as cause localized changes in water temperature and light penetration, which could affect aquatic habitat, primary and secondary production, and fish use patterns. Alteration of the natural drainages or compaction of soils by heavy equipment near streambanks during construction could accelerate erosion of the banks, runoff, and the transportation of sediment into waterbodies. The degree of impact on aquatic organisms due to erosion would depend on sediment loads, stream velocity, turbulence, streambank composition, and sediment particle size. Additionally, localized changes in water temperature and light penetration caused by the removal of boulders, woody debris, streambank vegetation, and undercut banks could temporarily displace fish that utilize these features for cover, nesting, and feeding. However, these impacts would be temporary and relatively minor due to the limited amount of total stream bank area affected per waterbody. As discussed in section 2.3.1, erosion would be minimized by installing temporary erosion controls (e.g., silt fencing or strawbales) prior to vegetation removal, and rootstock would be left in the ground where possible. Further discussion on reducing impacts along streambanks can be found in Entrega's Procedures (appendix F), CM&R Plan (appendix G), and the Riparian Woodland Plan (appendix K).

To minimize impacts associated with streambank erosion during construction, Entrega would use equipment bridges, mats, and pads to support equipment that must cross the waterbody or work in saturated soils adjacent to the waterbody. In accordance with its Procedures and where topography allows, Entrega would locate additional temporary workspace areas at least 50 feet from the edge of flowing waterbodies, except where site-specific approval has been granted, and limit clearing of vegetation between additional temporary workspace areas and the edge of the waterbody to the certificated construction ROW. Entrega would implement erosion and sediment control measures (e.g., silt fence) to minimize erosion and prevent sediments from leaving the construction site and entering waterbodies. To minimize sedimentation and channel instability impacts to fishes and their habitats, Entrega also would complete in-stream construction activities for open-cut waterbody crossings within 24 hours for minor waterbodies (less than 10 feet wide), within 48 hours for intermediate waterbodies (10 to 100 feet wide), and within 72 hours for major waterbodies (more than 100 feet wide).

State wildlife agencies have expressed concerns about open-cut construction across some waterbodies. In response to these concerns, Entrega has prepared Site-Specific Waterbody Crossing Plans (appendix J).

These plans would help minimize sedimentation and ensure channel bank stabilization. The withdrawal and discharge of hydrostatic test water also could affect fisheries. Hydrostatic test water is discussed in detail in section 3.3.2, and the potential effects of water withdrawal and discharge on special status species is discussed in section 3.6. Entrega has identified the White River (MP 15.2), Yampa River (MP 50.6), Little Snake River (MP 84.5), North Platte River (MP 192.8), Rock Creek (MP 237.5), and Little Laramie River (MP 260.9) as the sources of hydrostatic test water (appendix M). To avoid uptake of organic debris or entrainment of aquatic species during water withdrawals, Entrega would install test water intakes with filtering and screening devices, and would suspend the intakes above the stream bottom. Entrega would not use chemical additives during hydrostatic testing.

If discharge rates are not carefully controlled, the discharge of large volumes of hydrostatic test water to surface water sources could temporarily affect the biological uses of the resource. Hydrostatic discharges could result in a change in water temperature and dissolved oxygen levels, increase downstream flows, and contribute to streambank and substrate scour. As described in section 3.3.2, Entrega would use energy dissipating devices and/or filter bags to prevent erosion, streambed scour, suspension of sediments, and excessive streamflow during test water discharges. Entrega would discharge test water directly into surface waters unless otherwise authorized or required by its NPDES permits. Discharge of hydrostatic test water would be conducted at the same location as the withdrawal point, as specified in Entrega's Hydrostatic Test Plan (appendix M). Based on the current construction schedule, hydrostatic testing and discharge would avoid the brown trout spawning period. However, in the event that the schedule is delayed or modified, **we recommend that Entrega consult with the FWS and appropriate state agencies to determine appropriate mitigation for discharging hydrostatic test water within the brown trout spawning season.** Further discussion of hydrostatic test water withdrawals and associated impacts on federally listed species is included in sections 3.6.1 and 3.6.4.

A direct spill of fuel, drilling fluids, or other hazardous materials into a waterbody could adversely affect aquatic resources. To minimize the potential for spills, Entrega would implement its SPCC Plan, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigation measures, such as containment and cleanup, to minimize potential impacts should a spill occur. The SPCC Plan restricts the location of fuel storage, fueling activities, and construction equipment maintenance along the construction ROW and provides procedures for these activities. Training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities also are described in the SPCC Plan.

Adherence to the SPCC Plan would prevent a large spill from occurring near surface waters because construction equipment fueling by mobile tankers or mobile tanks is prohibited within 100 feet of the waterbody bank and hazardous material storage is prohibited within 500 feet of waterbodies. If a small spill were to occur, adherence to measures in the SPCC Plan would decrease the response time for control and cleanup of the spill, thus avoiding or minimizing the effects of a spill on aquatic resources.

3.5.2 Wildlife Resources

The predominant wildlife habitats along the proposed pipeline route consist of grassland (sagebrush steppe, mixed grass prairie, short-grass prairie), shrub-scrub (sagebrush, salt desert shrub/greasewood, mountain

mahogany), woodlands (pinyon-juniper, riparian), wetlands, and agricultural land. These vegetation types support a diversity of wildlife species. This section focuses on species of high economic and/or recreational importance and those that are considered sensitive to human disturbance.

In total, surface disturbing activities would be conducted within approximately 5,371 acres of wildlife habitat. However, due to the linear nature of the project over a large geographic area, these acreages represents far less than 1 percent of available wildlife habitat on a regional basis.

Potential impacts on terrestrial wildlife species from the proposed project can be classified as short-term, long-term, and permanent. Short-term impacts consist of habitat removal, activities associated with project construction, and changes in wildlife habitats lasting less than 5 years. Long-term impacts would consist of changes to wildlife habitats lasting 5 years or more. Permanent impacts result from construction of aboveground facilities that convert natural habitat to natural gas operations. The severity of both short- and long-term impacts would depend on factors such as the sensitivity of the species impacted, seasonal use patterns, type and timing of project activities, and physical parameters (e.g., topography, cover, forage, and climate).

Less mobile or burrowing species may be killed as a result of crushing from construction vehicles and equipment. Other potential impacts include habitat loss or alteration, habitat fragmentation, and animal displacement. Individuals may be permanently displaced and perish due to increased competition or other effects of being forced into sub optimal habitat. Indirect impacts from increased noise and additional human presence also could lead to displacement and lowered fitness. Although the habitat adjacent to the construction zone may support some displaced animals, any species that is at or near its carrying capacity could exhibit increased localized mortality.

Habitat fragmentation is frequently a concern when clearing ROWs. In general, fragmentation can result in an altered wildlife community as species more adaptable to edge habitats establish themselves, while species requiring undisturbed habitats are subject to negative effects. However, fragmentation disturbance to wildlife and wildlife habitats from the proposed EPP is not expected to be significant because a majority of the construction would be adjacent to or overlap an existing cleared natural gas ROW. Approximately 86 percent of the EPP would be collocated (within 300 feet) with existing pipeline, utility, or road ROWs. About 45.4 miles or 583 acres (14 percent) of the proposed route would be newly created ROW (not collocated with other ROWs). Thus, new edge habitat would replace existing edge habitat along the majority of the route. In addition, most of the pipeline would cross relatively open habitat types (e.g., shrubland, grassland, agriculture). As such, we believe the effects of habitat fragmentation would be minimal. Entrega's Procedures, CM&R Plan, and Riparian Woodland Plan have been developed to reduce the extent and duration of impacts on habitats along the project ROW.

In order to reduce potential impacts on wildlife from pipeline construction, Entrega has committed to the following measures on federal land:

- Entrega would place earthen ditch plugs, with ramps on either side, at 1-mile intervals along the trench and at well-defined livestock and wildlife trails intersected by the trench. These plugs would provide a

means for wildlife to escape if individuals fall into the trench and also would provide a bridge for other wildlife to cross the open trench.

- Entrega also would leave breaks in the strung and welded pipe, topsoil, and spoil piles at locations that correspond to the earthen trench plugs to allow movement of wildlife and livestock across the construction ROW.

- The pipeline trench would be inspected on a regular basis during construction and immediately prior to backfilling to identify entrapped animals. Wildlife found in trenches during construction would be coaxed to the nearest ramp and either be encouraged to exit the trench, removed by hand, or trapped (if other methods are unsuccessful). If any animal in the trench is determined to be a sensitive species, only authorized individuals would be allowed to remove it from the trench.

- Entrega would limit the duration that welded pipe would be left above the ditch by lowering the pipe no later than 7 days after pipe segments are joined.

Other alternative measures that Entrega states it would consider on a case-by-case basis include raising the welded pipe string to provide a minimum 5-foot clearance or establishing earthen ramps across the pipe.

In general, we believe that implementing these measures would provide adequate opportunity for wildlife in most situations to cross or escape from the pipeline trench. However, we do not agree that such measures should be limited only to federally managed land. Thus, in order to ensure project-wide protection of wildlife, **we recommend that the mitigation measures listed above be uniformly applied throughout the project.**

Further, we believe that depending on the season of construction and the specific location, spacing the trench plugs/pipeline breaks closer together may be warranted. For example, closer spacing may be needed if construction timing encroached on occupied critical big game winter ranges. In order to provide the opportunity for the spacing of trench plugs/pipeline breaks to be modified to facilitate wildlife crossover/escape from the ditch, **we recommend that Entrega's EIs should, as needed and in conjunction with the federal agencies' compliance monitors, modify the spacing of ditch-plug bridges/escape ramps and breaks in the strung and welded pipe at specific locations where the 1-mile spacing is found to be inappropriate.**

Potential indirect impacts on general wildlife (big game, nesting birds, small game, etc.) could result from increased noise levels from the operation of the proposed Bighole Compressor Station in Moffat County, Colorado. The distance wildlife is displaced is strongly influenced by the level and timing of the human activity, topography, and the presence of vegetation (Lyon 1979), presumably due to noise attenuation and visual cover. Overall, reductions in bird population densities in both open grasslands and woodlands are attributed to a reduction in habitat quality produced by elevated noise levels (Reijnen et al. 1995, 1997). Reijnen et al. (1996) determined a threshold effect for bird species to be 47 aecibels on the A-weighted scale (dBA), while a New Mexico study in a piñon-juniper community found that effects of gas well compressor noise on bird populations were strongest in areas where noise levels were greater than 50 dBA. However, moderate noise levels (40 to 50 dBA) also showed some effect on bird densities in this study

(LaGory et al. 2001). To minimize potential noise impacts on wildlife, Entrega has committed to reducing the noise level of the Bighole Compressor Station to a 55 dBA day-night equivalent sound level (L_{dn}) at the facility boundary. This mitigation would reduce noise impacts to nesting birds to within 631 feet (59 acres) (based on a 47 dBA threshold level for potential effects to birds) of the facility over the life of the project.

Operation of the proposed pipeline would require the permanent maintenance of a 50-foot-wide ROW corridor. In wetlands, a 30-foot-wide ROW would be maintained clear of trees taller than 15 feet, with 10 feet of this permanent ROW maintained clear of all woody vegetation. In addition, 84 acres associated with aboveground pipeline facilities (e.g., compressor stations and meter stations) and permanent access roads also would be maintained during the operation of the project. As a result, approximately 2,074 acres of wildlife habitat would experience incremental long-term or permanent impacts; however, disturbance was calculated based on the 50-foot increment along the entire pipeline. These acreages represent far less than 1 percent of available wildlife habitat on a regional basis but would provide an incremental contribution to habitat fragmentation. In many cases, the acres affected by operational impacts would be included in the acres of long-term impacts attributed to construction, given the long recovery period of vegetation in the region.

Operation of the pipeline also could result in future surface disturbance activities due to maintenance of the pipe (e.g., pothole inspections, repair of pipe, replacement of rectifier beds). Entrega would follow its POD and other measures referenced in this EIS to minimize impacts to wildlife and their habitats during pipeline operation.

Big Game

The primary big game species that occur within the project area are elk, mule deer, and pronghorn antelope (pronghorn). Other less prominent big game species that could potentially occur along the project route are white-tailed deer and Rocky Mountain bighorn sheep. Certain habitat ranges for these species are considered crucial for maintenance of game populations. In Wyoming, the WGFD and the BLM have established several categories based on seasonal use of the habitat. For example, crucial winter range areas are considered essential in determining a game population's ability to maintain itself at a certain level over the long term. Other regions may not usually be a part of a herd's range, but are used as survival areas during extremely harsh winters. Likewise, the CDOW has identified critical winter habitat ranges for elk, mule deer, and pronghorn in Colorado. **Table 3.5-2** summarizes the linear miles and acreage of disturbance that would occur within important big game ranges along the project route.

Elk inhabit a variety of habitats along the project route including grassland, shrubland, coniferous forests, aspen, and, to a lesser extent, agriculture and pastureland. Approximately 29.4 miles of critical winter range for elk would be crossed by the project ROW in Rio Blanco and Moffat Counties in western Colorado. Two critical winter range areas of particular importance along the project route were identified by the CDOW. The most important of these areas occurs from the north end of the Deception Creek Canyon in Moffat County through the Spring Creek Canyon, north of the Yampa River. A considerable portion of this critical area is located on the Bitter Brush State Wildlife Area (SWA). The second area of concern is located in the vicinity

Table 3.5-2
Crucial Big Game Habitats Affected by the Entrega Pipeline Project

State/Habitat Type	Milepost Locations	Total Length Crossed (miles)[1]	Acreage Affected During Construction[2]	Acreage Affected by Permanent Facilities[3]
COLORADO				
Elk, Mule Deer, and Pronghorn Critical Winter Habitat	15.1 to 28.0 39.5 to 56.0	29.4	425	<1
WYOMING				
Mule Deer Crucial Winter/Yearlong Habitat	85.7 to 89.2 179.8 to 187.6 188.1 to 189.2 192.9 to 197.1 202.0 to 207.7 221.6 to 231.4 252.0 to 252.8	33.4	484	<1
Pronghorn Crucial Winter/Yearlong Habitat	85.7 to 90.1 134.7 to 152.6 192.8 to 201.6 220.5 to 223.5 242.0 to 259.0	51.2	737	22
Elk Crucial Winter Habitat	242.0 to 249.5	7.5	89	0

[1] Length crossed includes increased pipeline length due to reroutes.
[2] Based on the pipeline construction ROW, aboveground facilities, powerline easements, and additional workspace areas, but does not include pipe contractor yards or temporary access roads.
[3] Permanent aboveground facilities include: compressor stations, pigging facilities, meter stations, mainline valves, and permanent access roads.

of White River Dome/Indian Valley located north of the White River in Rio Blanco County. In addition to these areas specifically identified by the CDOW, approximately 7.5 miles of crucial winter range would be crossed by the project ROW in Carbon and Albany Counties in southern Wyoming. In Colorado, critical winter range also encompasses some severe winter ranges as well as some winter concentration areas.

Mule deer occur throughout the majority of the project region, inhabiting virtually all vegetation types, but reach the greatest densities in shrublands on rough, broken terrain, which provides abundant browse and cover habitat. Critical winter ranges for mule deer in Colorado are the same as described above for elk. In addition, approximately 33.4 miles of crucial winter/yearlong range would be crossed by the project route in Sweetwater, Carbon, and Albany Counties in southern Wyoming.

Pronghorn are generally found in prairie grassland and semi-desert shrubland habitats on flat to rolling terrain with good visibility. They are most abundant in short- or mid-grass prairies and are least common in xeric habitats. Critical winter ranges for pronghorn in Colorado are the same as described above for elk and mule deer, including two important winter ranges, as described above for elk. In addition, approximately 51.2 miles of crucial winter/yearlong range would be crossed by the project route in Sweetwater, Carbon, and Albany Counties in southern Wyoming.

In Colorado, the proposed pipeline route would cross three SWAs; the Piceance SWA, Rio Blanco Lake SWA, and Bitter Brush SWA, which are owned by the CDOW. The Piceance SWA would be crossed by the pipeline ROW at several locations along Piceance Creek, from the vicinity of Horse Draw north to the White River. Disturbance within the Rio Blanco Lake SWA would be limited to a drill box that would be utilized to bore under the White River to the south and Highway 64 to the north. The Bitter Brush SWA is located along Deception Creek, south of the Yampa River. The Bitter Brush SWA is one of the big game critical winter range areas described above, and CDOW has indicated that no construction activity should occur on this SWA between October 10 and November 21 due to heavy hunter concentrations. In Wyoming, the proposed pipeline route would cross WGFD property on the Red Rim-Daley WHMA and the Wick/Beumee WHMA in Carbon County. These state lands are discussed further in section 3.7.1.

The Piceance SWA was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk, and the Wick/Beumee WHMA was purchased by the WGFD for elk management. Both purchases were made with Federal Aid in Wildlife Restoration Act grant funds. The CDOW and WGFD will need to obtain the approval of the Regional Director, Region 6, FWS, through grant amendments, prior to their approval of easements for the construction of the pipeline through these areas.

Entrega's proposed ROW would cross the Piceance SWA at two locations (approximate MPs 2.1 to 5.8 and MPs 11.2 to 12.7), the Wick/Beumee WHMA at one location (MPs 230.7 to 232.7), and the Red Rim-Daley WHMA at one location (MPs 163.6 to 165.7). Protected wildlife known to inhabit the area of the proposed route through the Piceance SWA and Wick/Beumee WHMA include two golden eagle nests, two red-tailed hawk nests, and two great horned owl nests. These areas also provide habitat for special status species such as mountain plover, sage grouse, and black-footed ferret. A portion of the Wick/Beumee WHMA crossing (MPs 230.7 to 231.4) also is located in crucial winter range for mule deer. Protection and mitigation measures for these species are discussed in section 3.6, as well as Entrega's Conservation Measures Plan (appendix O).

In Colorado, construction activities would result in the long-term incremental reduction of approximately 67 acres of habitat in the Piceance SWA, approximately 11 acres in the Rio Blanco Lake SWA, and approximately 39 acres of habitat in the Bitter Brush SWA in Rio Blanco and Moffat Counties, Colorado. A portion of the Bitter Brush SWA that would be crossed by the proposed ROW includes elk, mule deer, and pronghorn winter habitat as discussed above. In Wyoming, the proposed pipeline route would cross approximately 38 acres of habitat on the Red Rim-Daley WHMA and approximately 27 acres of habitat on the Wick/Beumee WHMA in Carbon County. However, on a regional basis, these acreages of disturbance would represent a small percentage (less than 1 percent) of the overall available habitat within these areas.

Construction impacts to big game species (elk, mule deer, pronghorn) would include the incremental loss of potential forage (native vegetation and previously disturbed vegetation) and would result in an incremental increase in habitat fragmentation within the proposed surface disturbance areas. However, as noted above, these incremental losses of vegetation would represent only a small percent of the overall available habitat within the broader project region. The loss of native vegetation would be long term (greater than 5 years and, in some cases, more than 20 years). In the interim, herbaceous species may become established within 3 to 5 years, depending on future weather conditions and grazing management practices that would

affect reclamation success in the project region. In most instances, suitable habitat adjacent to the disturbed areas would be available for wildlife species until grasses and woody vegetation were reestablished within the disturbance areas.

Indirect impacts would result from increased noise levels and human presence during surface disturbance activities. Big game animals (especially pronghorn and mule deer) likely would decrease their use within 0.5 mile of surface disturbance activities (Ward et al. 1980; Ward 1976). This displacement would be short-term and animals would return to the disturbance area following construction activities. However, assuming the adjacent habitats are at or near carrying capacity, and given the current drought conditions in the project region, displacement of wildlife species (e.g., big game) as a result of construction could cause some unquantifiable reduction in wildlife populations. Entrega would minimize potential blasting impacts on wildlife by adhering to sensitive big game habitat timing restrictions. Entrega also has committed to consulting with FWS prior to blasting activities.

In order to reduce potential impacts to big game species, Entrega has committed to avoiding construction and non-emergency maintenance activities in designated crucial winter/yearlong big game ranges between November 15 and April 30 in Wyoming, and in designated critical winter big game range areas between December 1 and April 30 in Colorado, unless otherwise permitted by the BLM. In order to further minimize impacts to big game species during winter, **we recommend that:**

- **Entrega avoid WHMA lands during non-emergency maintenance activities from November 15 through April 30; and**

- **in addition to the winter constraint periods, Entrega avoid constructon in the CDOW Bitter Brush SWA from October 10 through November 21 to avoid heavy hunter concentration areas.**

Operational activities occurring from permanent aboveground facilities (i.e., compressor stations, pigging facilities, meter stations, mainline valves, and permanent access roads) would result in the permanent loss of less than 1 acre of critical winter habitat for elk, mule deer, and pronghorn in Colorado. In Wyoming, operational activities occurring from permanent aboveground facilities would result in the permanent loss of less than 1 acre of mule deer crucial winter/yearlong habitat and approximately 22 acres of pronghorn crucial winter/yearlong habitat. No permanent aboveground facilities would be constructed within elk crucial winter habitat in Wyoming.

Small Game Species

Small game species that occur within the project region include upland game birds, waterfowl, and furbearers and other various small mammals. Furbearers include beaver, muskrat, mink, badger, bobcat, coyote, red fox, and swift fox. Small game species include greater sage grouse, mourning dove, white-tailed jackrabbit, desert cottontail, Nuttall's cottontail, and a number of migratory waterfowl. The greater sage grouse is considered the most sensitive small game species along the project route and is discussed further in section 3.6.

Potential impacts on small game from the proposed project would include the incremental loss of habitat and increased habitat fragmentation until reclamation has been completed and native vegetation is reestablished. Potential direct impacts to small game species would include nest or burrow abandonment or loss of eggs or young. Indirect impacts could include the temporary displacement of small game from the disturbance areas as a result of increased noise and human presence. Displacement of small game animals from disturbance areas would be short-term and animals would return to the disturbance areas following construction activities.

Nongame Species

A diverse number of nongame species (e.g., small mammals, amphibians, and reptiles) occupy a variety of trophic levels and habitat types along the proposed pipeline ROW. Common wildlife species include small mammals such as bats, voles, squirrels, gophers, prairie dogs, rabbits, woodrats, and mice. These small mammals provide a substantial prey base for the area's predators including larger mammals (coyote, badger, bobcat); raptors (eagles, buteos, accipiters, owls); and reptiles.

In order to minimize potential impacts to smaller, less mobile species, Entrega has committed to capping uncovered pipe that has been placed in the trench at the end of each workday to prevent animals from entering the pipe. In addition, EIs or biological monitors would remove animals from open trenches during construction.

Raptors and Other Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and EO 13186 (66 FR 3853). The MBTA serves to protect migratory birds from deleterious impacts. EO 13186 was enacted to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions and agency plans on migratory birds.

Other elements of EO 13186 state that the federal agency should restore and enhance the habitat for migratory birds and abate the detrimental alteration of the environment from pollution. EO 13186 also states that emphasis should be placed on species of concern, priority habitats, and key risk factors. General impacts to migratory birds and Entrega's proposed measures to minimize such impacts are discussed below. Federally listed and other sensitive bird species are discussed in section 3.6.2.

This EIS discusses several plans (e.g., Entrega's Procedures, CM&R Plan, SPCC Plan, Riparian Woodland Plan, and BLM Conservation Measure Plan) that would reduce the extent and duration of impacts on migratory bird habitat, actively and naturally allow a great majority of the construction ROW to return to pre-construction condition, and avoid or limit the potential effects from spills or environmental contamination.

Migratory birds are considered integral to natural communities and act as environmental indicators based on their sensitivity to environmental changes caused by human activities. Some of the more visible bird species that occur within the project region are lark bunting, brewer's sparrow, and chipping sparrow.

Approximately 86 percent of the proposed EPP would be collocated (within 300 feet) with existing pipeline, utility, or road ROWs. About 45.4 miles (14 percent) of the proposed route would be newly created ROW (i.e., not collocated with other ROWs). The non-collocated ROW consists of four general vegetation communities: shrub-scrub (approximately 25.1 miles; 331 acres), grassland (12.6 miles; 164 acres), agriculture (2.8 miles; 39 acres), and woodland (3.8 miles; 44 acres). Migratory bird species that use the shrub-scrub habitat type for nesting in the project area include Brewer's sparrow, sage sparrow, and sage thrasher (Nicholoff 2003). Grassland is frequented by such migratory birds as the horned lark, lark bunting, and vesper sparrow (Beidleman 2000). Common migratory birds within the woodland community (mainly pinyon-juniper) include the gray flycatcher, Bewick's Wren, chipping sparrow, and blue-gray gnatcatcher. Habitat fragmentation and "edge effects" are concerns for nesting migratory birds along the EPP ROW. These effects result in overall changes in habitat quality, habitat loss, increased animal displacement, reductions in local wildlife and migratory bird numbers, and changes in species composition. However, the severity of these effects on migratory birds depends on factors such as sensitivity of the species, seasonal use, type and timing of project activities, and physical parameters (e.g., topography, cover, forage, and climate).

Because a majority of the construction would be adjacent to or overlap an existing ROW, new edge habitat would replace existing edge habitat. In addition, most of the pipeline would cross relatively open habitat types (e.g., grassland, agriculture, and shrubland) rather than fragmenting dense woodland habitat. As such, we believe the effects of habitat fragmentation to migratory birds and their habitats from the proposed project would not be significant. Further discussions on the habitats that would be affected by the EPP are included in section 3.4.

Representative raptor species that occur as residents or migrants within the project region include eagles (bald and golden eagles), buteos (red-tailed hawk, Swainson's hawk, ferruginous hawk), falcons (peregrine falcon, prairie falcon, American kestrel), accipiters (northern goshawk, Cooper's hawk, sharp-shinned hawk), owls (great-horned owl, burrowing owl, long-eared owl, short-eared owl), the northern harrier, and the turkey vulture. Based on historical raptor data obtained from the CDOW, WGFD, and Wyoming BLM-Rawlins FO, a total of 54 historic nest sites have been documented within 1 mile of the ROW. These 54 historic nest sites were as follows: 2 bald eagles, 16 ferruginous hawk, 10 golden eagle, 2 red-tailed hawk, 1 rough-legged hawk, 1 Swainson's hawk, 2 northern harrier, 6 prairie falcon, 4 American kestrel, 2 great-horned owl, 5 burrowing owl, and 3 short eared owl. We note that historic raptor information for Colorado was limited to data obtained from the CDOW, as no historic raptor data were received from the Colorado BLM FOs. As a result, only one historic raptor nest site (bald eagle) was documented along the project route in Colorado. It is likely that additional historic raptor nest sites occur along the project route in Colorado. The BLM has recently indicated that approximately 186 historic raptor nest sites occur with 1 mile from the ROW in Wyoming. **We recommend that Entrega coordinate with the BLM to obtain applicable historic raptor nest locations, prior to conducting preconstruction surveys for raptors.**

In order to assess current nest activity, Entrega conducted preliminary aerial breeding raptor surveys along the proposed ROW using inventory procedures. The aerial raptor surveys were conducted between April 23 and May 4, 2004, to identify occupied territories or active nest sites located within 1 mile of the outside edge of the construction ROW. Aerial surveys focused on cliff nesters (e.g., golden eagle, falcon species), species that commonly build nests on deciduous trees or on promontory points (e.g., red-tailed hawk,

Swainson's hawk, ferruginous hawk, great-horned owl), and ground nesters (e.g., northern harrier). The preliminary raptor surveys did not concentrate on cavity nesters (e.g., American kestrel), subterranean nesters (e.g., burrowing owl), or most conifer nesters (e.g., accipiters), based on visibility limitations from the helicopter. Entrega has committed to conducting preconstruction raptor surveys for cavity and subterranean nesters during periods when the nests, or activity at these nests, would be most visible. More information regarding nest surveys can be found in Entrega's Conservation Measures Plan and Survey Plan (appendix O).

Based on the results of the year 2004 breeding raptor surveys, a total of 40 active nest sites (Colorado-10, Wyoming-30) were documented within 1 mile of the ROW. The active nest sites were occupied by red-tailed hawk (14), golden eagle (11), ferruginous hawk (9), great-horned owl (3), and bald eagle (2); one raptor nest was occupied by a common raven.

Because raptors may change nesting locations from year to year, Entrega has committed to completing pre-construction raptor surveys in spring 2005, in accordance with established raptor survey protocol as identified in the "Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances" (FWS 2002a) and Entrega's BLM Survey Plan. These surveys would enable Entrega to identify specific areas where construction may affect active nests (and, in the case of burrowing owls, cause direct impacts on nesting habitat) and where buffer zones may be required. Entrega would confirm the appropriate buffer zone radius and seasonal restriction through consultation with the FWS, BLM, WGFD, and CDOW, as applicable, and would implement appropriate protection measures such as seasonal constraints and establishment of buffer zones, as discussed in Entrega's BLM Conservation Measure Plan. Survey results and buffer zone information would be filed with the FERC as a part of Entrega's construction Implementation Plan.

Northern harriers would likely not be detected by aerial surveys. This species prefers areas of tall, dense herbaceous vegetation. Surveyors would note presence when conducting wetland or other surveys in suitable habitat. Likewise, burrowing owls would not be detected by aerial surveys. Burrowing owls inhabit open, dry areas with low-growing vegetation such as grasslands and prairie dog towns. Surveyors would note Northern harrier and burrowing owl presence when conducting habitat surveys and when surveying for mountain plover, prairie dogs, and black-footed ferret, as indicated in Entrega's BLM Survey Plan.

In order to minimize this type of impact on raptors, the BLM usually recommends seasonal and distance restrictions for raptor nests. The seasonal restriction is typically from mid-February to mid-August, although the period may be adjusted based on site specific factors (e.g., distance, topography, and natural barriers; pre-existing conditions such as highways; and the specific activity of a given nest). In Wyoming, Entrega would follow FWS protection measures, which require 1.0 mile avoidance zones for ferruginous hawks and bald eagles (including roosts), and 0.5 mile avoidance zones for all other raptors. Avoidance zones in Colorado have been established by the CDOW and are acceptable to the FWS. These avoidance zones range from 75 yards for burrowing owls to 0.5 mile for bald eagles and ferruginous hawks (FWS 2005). Avoidance zones may be adjusted based on local state and federal raptor protection guidelines and site-specific factors discussed above. Raptor nests and roosts on federally managed land may have different buffers, based on BLM requirements. Certain sensitive non-raptor bird species also have seasonal and spatial considerations (e.g., mountain plover and sage grouse—see section 3.6). On federal land, the

BLM is the agency responsible for including BLM-approved land use stipulations or conditions consistent with BLM RMPs for protecting nesting raptors.

The removal of suitable foraging and nesting habitat also can be considered a type of direct impact. This type of impact cannot be avoided altogether during construction; however, Entrega has proposed measures that would minimize it to the extent practicable. For example, Entrega has committed to reducing the construction ROW width in riparian woodlands (favorable habitat for many bird species) and would restore upland vegetation habitats (e.g., grassland, shrub-scrub, woodlands) in the construction ROW to preconstruction conditions, as discussed in Entrega's CM&R Plan. See also our discussion and recommendations in chapter 5.0 regarding woodland habitat, and potential alternate crossing methods/locations at the Medicine Bow River.

Other direct impacts to migratory birds include construction-related destruction of nests and mortality of individuals. We believe these types of impacts would be small for tree-dwelling birds, given the minimal amount of woodland that would be affected by the project (approximately 225 acres, or 4 percent of the total project disturbance) and the raptor protections discussed above. The greatest chance for "take" (i.e., the unintended death, harm, or harassment) of a nest is for ground-nesting and shrub-nesting species.

Entrega's proposed construction schedule for Phase 1, Spread 3 and 4, would overlap the breeding season for many migratory bird species. Thus, the EPP could cause direct and indirect effects to raptors and other migratory birds. Indirect effects are associated with increased human presence and noise from construction activity near enough to active nests to disturb the birds. These impacts could include interruption of foraging, roosting, and nesting patterns and behaviors. We do not believe this type of impact would be significant for non-nesting birds, as individuals temporarily relocating to avoid construction activity is an impact of limited duration. However, disturbance of nesting birds could cause nest abandonment or otherwise reduce the productivity of a nest for that breeding season. The specific impact for a particular nest would depend on a number of variables including the distance of the nest site from construction activity, the species' relative sensitivity to disturbance, breeding phenology, and possible topographic shielding. **We recommend that Entrega conduct pre-construction clearing of suitable habitat for shrub-nesting species for the proposed 2006 construction. Such clearing would be conducted in late fall 2005 or winter 2005/early 2006 (prior to the 2006 migratory bird nesting season), which would make the cleared areas unattractive to potential nesters and thus avoid destruction of active nests during actual construction. Suitable habitat (scrub-shrub) for shrub nesters is primarily located along the western portion of Phase 1, Spread 3 and 4 (between MP 135.5 to 236.68 and MP 285.2 to 286.9). Entrega should file a preconstruction clearing plan with the Secretary for the review and written approval of the Director of OEP prior to initiating clearing. This plan should identify mileposts to be cleared and provide results of consultations and any applicable permits and authorization from the BLM and/or WGFD that address the extent and method of clearing and fall/winter project activity in big game ranges, as applicable.**

We believe that blasting is proposed, blasting effects to nesting birds and other wildlife should be taken into consideration and minimized to the extent practicable, including establishing protective buffers as appropriate. Entrega has committed to consulting with the FWS to develop mitigation measures to avoid or minimize blasting impacts on nesting birds. **We recommend that prior to conducting blasting at any**

location along the EPP ROW, Entrega file the results of its FWS consultation with the FERC for review and approval of the Director of OEP. The filing should specify the specific locations (by MP) where blasting may occur, known raptor and other migratory bird nest locations within the general vicinity of the blasting, and mitigation measures that would be implemented to minimize impacts on nesting birds.

We note that EO 13186 requires federal agencies to avoid or minimize negative impact to migratory bird *populations*. The executive order also requires the federal agency to identify where unintentional "take" is likely to have a measurable negative effect on migratory bird populations. Effects to non-sensitive ground-nesting birds (which do not have significantly reduced populations) would not result in long-term or significant population-level effects, given the stability of local populations and the abundance of available habitat outside of the proposed ROW, and the linear nature of the project over a large geographic range (see also our discussion on the burrowing owl, an underground-dwelling raptor, in section 3.6.2). We conclude that the EPP would not result in population-level impacts to migratory bird species.

Three new electrical powerline segments would provide electrical power to the Meeker and Wamsutter Compressor Stations and the Cheyenne Hub (see **table 2.3-1**). These electrical powerline segments would incrementally increase the collision potential for migrating and foraging bird species (e.g., raptors and migratory birds [APLIC 1994]). However, collision potential typically is dependent on variables such as the line location in relation to high use habitat areas (e.g., nesting, foraging, and roosting), line orientation to flight patterns and movement corridors, species composition, visibility, and line design. In addition, these new powerline segments (one 25-kV powerline, one 34.5-kV powerline, and one 7.2-kV powerline could pose an electrocution hazard for raptor species attempting to perch on the structure. Configurations less than 1 kV or greater than 69 kV typically do not present an electrocution potential, based on conductor placement and orientation (APLIC 1996). To minimize potential collision and electrocution impacts to migrating and foraging bird species, Entrega has committed to the following protection measures, which would be implemented project wide:

- The electrical service providers will incorporate standard, safe designs as outlined in Suggested Practice for Raptor Protection on Power Lines (APLIC 1996) into the design of electrical distribution lines in areas of identified avian concern to prevent electrocution of raptor species attempting to perch on the power poles and lines. These measures would include, but would not be limited to, a 60-inch separation between conductors and/or grounded hardware and recommended use of insulating materials and other applicable measures depending on line configuration (APLIC 1996).

- The electrical service providers will incorporate standard raptor-proofing designs as outlined in Mitigating Bird Collision with Power Lines (APLIC 1994) into the design of the electrical distribution lines to prevent collision to foraging and migrating raptors within the project area, as applicable.

- The electrical service provider will use adequate raptor proofing designs to minimize the potential use of power poles by foraging raptors that cross sage grouse habitat and prairie dog colonies.

3.6 Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed and federally proposed species that are protected under the ESA, as amended, or are considered as candidates for such listing by the FWS, and those species that are state-listed as threatened or endangered. For this EIS, special status species also include those species that have been designated by the BLM as sensitive.

Entrega, acting as the FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated informal consultation with the FWS on October 7, 2003, regarding federally listed species with the potential to be affected by the proposed project. Initial consultations concluded that the Wyoming FO of the FWS would serve as the lead office for project consultations.

In accordance with the ESA, the lead agency in coordination with the FWS must ensure that any action authorized, funded, or carried out does not jeopardize the existence of a federally listed threatened or endangered species, or result in the adverse modification of the designated critical habitat of a federally listed species. We are requesting that the FWS consider this EIS as our BA for the proposed project. Pending additional surveys and related information from Entrega, we may have to enter formal consultation for one or more species in order to fulfill our Section 7 obligations. Our recommendations (detailed below, as applicable) would ensure that Entrega would not be authorized to begin project work until any necessary comments, concurrence, or formal consultation is completed between the FERC and the FWS regarding the proposed action.

In addition, as stated in Special Status Species Management Policy 6840 (Policy 6840) (Rel. 6-121), it is BLM policy "to conserve listed species and the ecosystems on which they depend, and to ensure that actions requiring authorization or approval by the BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of the ESA, or other provisions" identified in the Policy 6840.

The construction impact analysis for special status plant and wildlife species focused on those species that were identified as potentially occurring within the project area. Special status plant and animal species considered for the proposed project are presented in appendix P.

Applicant-committed protection measures that have been developed for the project to prevent or minimize direct impacts on special status species include survey plans (Entrega Pipeline Special Status Species Survey Plan and BLM Survey Plan) and corresponding conservation measure plans (Entrega Pipeline Conservation Measure Plan and BLM Conservation Measure Plan). These survey plans and conservation measure plans are presented in appendix O.

The Entrega Pipeline Special Status Species Survey Plan includes survey protocols for a number of special status species including federally listed and proposed species, federal candidate species, and other species of concern identified by the FWS (e.g., sage grouse, mountain plover, and raptors). This survey plan was approved by the FWS on June 23, 2003. The Entrega Pipeline Conservation Measure Plan includes measures that would be implemented if federally listed species or species of concern were identified along

the proposed pipeline route during project-specific surveys. In coordination within the FWS, the Conservation Measure Plan includes the appropriate measures that would prevent or minimize potential impacts to protected species, such that the proposed project would not be likely to adversely affect these species (see appendix O).

The BLM Survey Plan includes survey protocols for BLM sensitive species that were identified for the project. This survey plan was approved by the Rawlins, Little Snake, and White River BLM FOs. The BLM Conservation Measure Plan includes measures that would be implemented if BLM sensitive species were identified along the proposed pipeline route during project-specific surveys. In coordination with the BLM, the conservation measure plan includes measures that would prevent or minimize impacts on sensitive species, such that the proposed project would not be likely to result in a loss of viability, nor cause a trend toward federal listing or a loss of species viability rangewide (see appendix O).

3.6.1 North Platte River Threatened and Endangered Species

The FWS has expressed concern about the potential downstream impacts on seven federally listed species (bald eagle, whooping crane, piping plover, Eskimo curlew, interior least tern, pallid sturgeon, and western prairie-fringed orchid) resulting from water withdrawal from hydrostatic testing and other consumptive water use in the North Platte River Basin in southern Wyoming. Other than the bald eagle which occurs throughout the project area (see section 3.6.3), the other six species would not be expected to occur within or near the project area. These species occur in the middle Platte River Drainage, more than 100 miles downstream from the project area. As a result, no direct impacts to the whooping crane, piping plover, Eskimo curlew, interior least tern, pallid sturgeon, and western prairie-fringed orchid would occur from the EPP.

It has previously been determined by the FWS that any depletion[2] to the Platte River is likely to adversely affect the seven above-referenced federally listed species and would contribute to the destruction or adverse modification of designated critical habitat for the whooping crane and the northern Great Plains breeding population of the piping plover. Thus, any consumptive use of water from the Platte River Basin would be considered a depletion requiring formal consultation under Section 7 of the ESA (Abbott 2004).

Entrega plans on withdrawing approximately 115.7 acre-feet (about 37.7 million gallons) of water from three locations within the North Platte River drainage in Wyoming. Specifically, the water would be withdrawn from the North Platte River, Rock Creek, and the Little Laramie River in Carbon and Albany Counties in August and September (see **table 3.3-3**). Hydrostatic testing for the various test sections is currently planned to occur over a multiple-day period. The actual duration of hydrostatic testing for a given test section would be dependent on the rate of withdrawal and the section of pipe that would be tested. Entrega would return the water to the basin after testing is completed. Entrega's hydrostatic testing plan is included as appendix M of this EIS.

[2] The FWS defines a "depletion" as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. A minor depletion occurs when the average annual consumptive use is 25 acre-feet or less; a major depletion is when the average annual consumptive use is greater than 25 acre-feet.

Entrega would minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in its Procedures and Hydrostatic Testing Plan. See appendix M and section 3.3 of this EIS for specific descriptions and our discussion on measures Entrega would employ to avoid adverse impact on aquatic resources, streambeds, and downstream flows during test water withdrawal and return.

We note that Entrega originally planned to purchase about 98 acre-feet of water from the Bureau of Reclamation for use in 2005. This withdrawal would have been considered consumptive use, for which Entrega would have paid a set mitigative fee to the National Fish and Wildlife Foundation as a part of the Platte River Cooperative Agreement that the Department of the Interior has entered into with several western states. Entrega now proposes to complete hydrostatic testing in the Platte River Basin in 2006 and no longer proposes to take a consumptive-use withdrawal. Rather, Entrega now proposes to return to water to the source waterbody in accordance with its Hydrostatic Testing Plan (appendix M). Because the water would be returned with minimal loss from evaporation or consumptive use, Entrega contends that this is a "non-depletion" use of the water. However, it is our understanding that regardless of the volume consumed Entrega may be required to pay a mitigative fee based on the actual volume of water withdrawn from the Platte River.

Determination Statement

Effect on the Species and Critical Habitat: We conclude that Entrega's withdrawal and temporary use of approximately 115.7 acre-feet of water from the Platte River Drainage would not constitute a depletion. Thus, we have determined that the Entrega Pipeline Project *is not likely to adversely affect* the bald eagle, whooping crane, piping plover, Eskimo curlew, interior least tern, pallid sturgeon, and western prairie-fringed orchid or their critical habitat. However, we recognize that the FWS may, after reviewing Entrega's proposal, determine that the proposed temporary water use would be defined as a depletion. If so, we request that the FWS consider this EIS/BA our initiation of formal consultation under Section 7 of the ESA for these seven species. Entrega would not be authorized to contribute to a depletion in the Platte River Basin until any necessary formal consultation is completed.

3.6.2 Plant Species

A total of 17 sensitive plant species were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix P. Occurrence potential along the project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, five plant species (Park rockcress, ephedra buckwheat, Utah genetian, narrow-leaf evening primrose, and Rollins cryptanth) were eliminated from detailed analysis. The EPP would not affect these five species. The remaining 12 plant species are analyzed in greater detail.

Potential impacts on sensitive plant species from surface-disturbing activities could include the loss of individuals as a result of crushing from construction vehicles and equipment. Construction-related impacts also could result in the incremental long-term disturbance of habitat for these species along portions of the project route and at ancillary facilities (i.e., compressor stations, meter stations, mainline valves, temporary use areas, and pipe and contractor yards). Because surface disturbance within the project area would be

localized and distributed over a large geographic area, population-level impacts on sensitive species are not anticipated. Nevertheless, construction activities could potentially reduce local populations of special status plant species within the project area. Species-specific impact summaries, Entrega's committed conservation measures, additional mitigation measures, and our recommendations and determination statements (as applicable) are presented below.

Federally Listed Plants

Colorado Butterfly Plant, Dudley Bluffs Bladderpod, Blowout Penstemon, Dudley Bluffs Twinpod, and Ute Ladies'-tresses[3]

Potential impacts on these federally listed plant species could include the loss of individuals or local populations as a result of crushing from construction activities. Impacts also would result from the incremental long-term disturbance of habitat until reclamation is completed and native vegetation has become reestablished. Indirect impacts could include invasion of the habitat by invasive or noxious plant species.

Entrega's 2004 surveys identified Dudley Bluffs twinpod between MPs 0 to 1; however the plants were outside of the proposed construction corridor (West 2004). Entrega did not identify any other federally listed plant species in the project area. However, potentially suitable habitat was identified within the project ROW. Thus, Entrega would conduct preconstruction field surveys in accordance with its Special Status Species Survey Plan (see appendix E). Prior to the start of construction, **we recommend that Entrega conduct preconstruction field surveys for federally listed plant species (i.e., the Colorado butterfly plant, Dudley Bluffs bladderpod, blowout penstemon, Dudley Bluffs twinpod, and Ute ladies'-tresses) in areas subject to project-related disturbance in accordance with its Special Status Species Survey Plan. Prior to construction, Entrega should file the following information with the Secretary:**

- **name(s) and qualifications of the person(s) conducting the survey;**
- **method(s) used to conduct the survey;**
- **date(s) of the survey;**
- **area surveyed (include the MPs surveyed); and**
- **results of the surveys, to indicate species presence or absence.**

If plants are identified along the edge of the ROW, Entrega would place exclusion fencing around the plants so they would be avoided by construction activities. If plants are located within the ROW, Entrega would evaluate the potential for a route realignment or change to the ROW configuration (e.g., reducing the width of the ROW) to avoid the population. In order for us to complete our Section 7 obligations, if a federally listed

[3] One additional federally listed plant, the western prairie fringed orchid, is discussed in section 3.6.1. Potential impacts on this species are associated with downstream effects of water withdrawals rather than direct construction-related impacts.

plant species is found during the preconstruction surveys, **Entrega must notify the Commission staff and the FWS before commencing any project construction activity. This notification shall contain Entrega's evaluation of whether or not the plant(s) could be avoided by reroute or by the use of a horizontal bore. Further, Entrega shall not begin construction activities until:**

a. **the staff receives comments from the FWS regarding the proposed action;**

b. **the staff completes formal consultation with the FWS, if required; and**

c. **Entrega has received written notification from the Director of OEP that construction or use of mitigation may begin.**

Determination Statement

Effect on Critical Habitat: No effect. No critical habitat for these plants has been designated within the project area.

Effect on the Species: We conclude that the EPP *may affect, but is not likely to adversely affect* the Colorado butterfly plant, Dudley Bluffs bladderpod, blowout penstemon, Dudley Bluffs twinpod, and Ute ladies'-tresses. Our determination is based on 1) negative results for the 2004 surveys (with the exception of the Dudley Bluffs twinpod, which was outside of the project corridor), 2) our analysis of Entrega's proposed action and mitigation plans (e.g., Entrega's Plan and Procedures, POD, Weed Management Plan), 3) Entrega's Special Status Species Survey plan and Conservation Measure Plan, and 4) our recommendations.

BLM Sensitive Plant Species

Debris Milkvetch, Nelson Milkvetch, Narrow-stem Gilia, Piceance Bladderpod, Gibben's Beardtongue, and Laramie False Sagebrush

Potential impacts to these BLM sensitive plant species could include the loss of individuals or local populations as a result of crushing from construction activities. Impacts also would result from the incremental long-term disturbance of habitat until reclamation is completed and native vegetation has become reestablished. Indirect impacts may include invasion of the habitat by invasive or noxious plant species.

Entrega's 2004 surveys identified Gibben's beardtongue between MPs 97 to 99; however, the plants were outside of the proposed construction corridor (West 2004).

If suitable habitat for these sensitive plant species is identified within the project ROW on federal lands, a field survey would be conducted in accordance with the BLM Survey Plan (see appendix E). If plants are found immediately along the edge of the ROW, exclusion fencing would be placed around the plants so they are avoided by construction activities. If plants are located within the ROW, Entrega would evaluate the potential to change the ROW configuration to avoid plants located on the edge of the ROW. If a

reconfiguration of the ROW is not possible and it is determined that a plant population would be impacted from construction activities, the following protection measures would be included in the BLM ROD and ROW Grant for federal lands:

- Entrega would coordinate with the BLM to determine if additional mitigation measures or other appropriate actions would be required to reduce potential impacts to the population. Entrega would not be authorized to proceed with construction until any BLM-required mitigation had been implemented in accordance with the BLM ROW Grant.

- The Field Manager may grant an exception if an on the ground plant inventory is conducted and an analysis indicates that the nature or conduct of the action as proposed would not directly or indirectly contribute to the need to list or perpetuate listings under the ESA or the BLM Special Status Species policy provisions. An inventory would determine, to the extent practical, the occurrence, distribution, population dynamics and habitat condition and significance on federal lands with respect to maintaining or restoring those species.

Entrega would monitor and implement the conservation plan to ensure actions are consistent with recovery needs and the topsoil shall be segregated for ditchline and spoil storage areas containing sensitive plants to ensure adequate topsoil is segregated and would replace the topsoil to ensure the seed bank is returned to the affected area.

Implementation of Entrega's Weed Management Plan would minimize the introduction and/or spread of invasive plant species. We believe that the EPP may impact individuals but is not likely to cause a trend to federal listing or loss of viability for these plant species.

3.6.3 Terrestrial Animal Species

A total of 28 sensitive terrestrial species (mammals, birds, reptiles, amphibians) were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix P. Occurrence potential along the project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, three species (northern goshawk, yellow-billed cuckoo, and western boreal toad) were eliminated from detailed analysis. The EPP *would not affect* these three species. Species-specific impact summaries, applicant-committed conservation measures, mitigation measures, and determination statements (if applicable) are presented below.

Potential impacts to sensitive species from surface disturbance activities would include the loss (short-term, long-term, or permanent), alteration, or fragmentation of potential breeding and/or foraging habitats. Potential impacts also could result in mortalities of less mobile or burrowing species as a result of crushing by vehicles and equipment, and the potential abandonment of a nest site or territory and the loss of eggs or young. Other impacts could include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence.

Federally Listed Animal Species

Black-footed Ferret

The federally endangered black-footed ferret was once distributed throughout the high plains of the Rocky Mountains and western Great Plains regions, but is now thought to be the rarest mammal in the U.S. In general, ferrets are secretive, primarily nocturnal, and rarely observed. Black-footed ferrets are found in association with prairie dog colonies in grasslands and shrublands, and are highly dependent on prairie dog colonies for both food and shelter. All active prairie dog colonies or complexes of towns large enough to support ferrets are considered to be potential habitat. Although the project area occurs within the historic range of the species, there have been no recent sightings of wild black-footed ferrets within the project region. However, according to the Wyoming Natural Diversity Database, a ferret skull was found in Sweetwater County in 2000.

The black-footed ferret was considered extirpated from the U.S. until a small population was discovered in Wyoming in 1981. A captive breeding and re-introduction program, guided by the FWS, established some experimental/nonessential populations in Wyoming, Montana, South Dakota, and Arizona. Relative to the project area, a nonessential/experimental population of black-footed ferrets occurs within the Shirley Basin/Medicine Bow management area located approximately 30 miles north of the project ROW in Carbon County, Wyoming. However, through personal communications with Martin Grenier of the WGFD, the FWS has determined it would be highly unlikely that individual ferrets from the Shirley Basin/Medicine Bow management area would be present along the project ROW. As a result, we believe no impacts to individual ferrets from this management area would occur from the EPP.

The FWS has block-cleared all prairie dog colonies in the Colorado portion of the project area. In Wyoming, all black-tailed prairie dog colonies in the project area have been block cleared. Therefore, no surveys are necessary for these locations. The FWS also has block-cleared several white-tailed prairie dog colonies that would not require ferret surveys. For those white-tailed prairie dog colonies that have not been block-cleared by the FWS, surveys are required if certain size and density requirements are met. Specifically, a prairie dog colony is defined as a group of prairie dog burrows for which density meets or exceeds eight burrows per acre. According to FWS protocol, surveys for black-footed ferrets are required for prairie dog colonies or complexes larger than 200 acres. Colonies less than 4.3 miles apart are considered part of the same complex for survey threshold purposes. When assessing burrow density, the burrows need not be active to be counted, but must be recognizable and intact (i.e., not caved in or filled with debris) (see appendix E).

Entrega reports that 11 white-tailed prairie dog colonies or complexes of sufficient size and density to require black-footed ferret surveys are present in Wyoming between MPs 87 and 147 totaling approximately 2,945 acres (West 2004). Potential impacts on ferrets could result from abandonment of underground nursery dens and the potential loss of adults and young from the compaction of prairie dog burrows during project construction, if present. Indirect impacts could occur from the increase in noise levels and other disturbances related to construction and human presence.

Entrega conducted black-footed ferret surveys in these prairie dog colonies in 2004 in accordance with the survey plan. No black-footed ferret observations or signs were identified during the survey period. As a result, no direct impacts to the black-footed ferret would be anticipated from the proposed project.

Determination Statement

Effect on Critical Habitat: No effect. No critical habitat has been designated for this species.

Effect on the Species: We conclude that the EPP *may affect, but is not likely to adversely affect* the black-footed ferret. This determination is based on the disturbance of prairie dog towns, but the low potential for ferrets to occur within the project area and negative survey results for this species.

Preble's Meadow Jumping Mouse

Favorable Preble's meadow jumping mouse habitat consists of areas where woody riparian vegetation and dense herbaceous understory is present along perennial streams. Preble's meadow jumping mice are known to stay close to stream edges in dense vegetation but will venture into nearby upland herbaceous and/or grassy habitat to forage and possibly winter. Potentially suitable habitat for the Preble's meadow jumping mouse was identified at eight areas along the project ROW between MPs 289.7 and 320.3. Habitat also was located along two Class A (paved) access roads for the project (West 2004).

Potential direct impacts on the Preble's meadow jumping mouse during construction could include displacement, injury, or death of individuals at stream crossings during clearing, trenching, while the trench is open prior to pipe lowering-in and backfilling, and during general vehicle movement along the ROW. Other impacts could result from the temporary loss of habitat until reclamation is complete, soil compaction (which may limit revegetation success), and the permanent loss of habitat as a result of vegetation maintenance within the pipeline corridor. Indirect impacts on the Preble's meadow jumping mouse could occur from the increase in noise levels and other disturbances related to construction and human presence.

Entrega would evaluate the potential for a route realignment upstream or downstream or a change to the ROW configuration (e.g., using the opposite side of the ROW to operate vehicle traffic) to avoid Preble's meadow jumping mouse habitat. If Entrega determines that a reroute or configuration change is not feasible, it would conduct live trapping field surveys in accordance with FWS protocols.

Entrega has developed a set of conservation and mitigation measures it would use in the event the presence of Preble's meadow jumping mouse was confirmed at a particular location. These are:

1. The width of the ROW would be reduced, as practical.

2. No equipment would be parked closer than 100 meters from the stream crossing.

3. Permitted biologists (person(s) that holds the applicable FWS permit to conduct live trapping of the Preble's meadow jumping mouse) would clear the area of mice prior to commencing construction of the crossing. To do this, the biologist would search the area and trap it for one night prior to

construction initiation using live traps. Any Preble's mouse captured would be moved upstream or downstream at least 100 feet away from the edge of the ROW.

4. If the crossing occurs during the breeding season (in June or July), captured adults would be released at the trap site and followed to attempt to determine if they have young in a nest. If a nest is located within the ROW, a decision would be made to move the ROW and avoid the nest or delay the crossing until late July when the young should be mobile and able to be trapped and moved from the immediate area.

5. If the route is moved to avoid an identified nest but still occurs in suitable habitat, surveys would be conducted as necessary and the above measures would be implemented.

6. Whenever a piece of equipment needs to cross the area, the biologist would walk in front of the equipment to clear the area. Each subsequent piece of equipment would require having the biologist walk in front of it to make sure no mice have come back into the ROW.

Construction through areas of suitable habitat would be conducted as quickly as is practical.

Following construction, areas of suitable habitat would be restored by broadcast seeding the banks with a seed mix that includes native species and is acceptable to the landowner, local NRCS office, or other applicable agencies. In addition, Entrega would replace plugs of willow and/or preexisting shrub species from the riparian area with one plant (willow sprig or bare root stock) every square foot. If it is possible for cattle to graze in replanted riparian areas and the landowner provides consent, Entrega would fence the area to exclude grazing until vegetation is reestablished.

To prevent the permanent loss of Preble's meadow jumping mouse habitat, Entrega would modify its plan for long-term maintenance of the permanent ROW within suitable habitat. Generally, Entrega's Procedures allow for a 10-foot-wide corridor centered over the pipeline to be maintained in an herbaceous state to facilitate periodic pipeline corrosion/leak surveys. In addition, trees greater than 15 feet in height within 15 feet of the pipeline are typically removed from the permanent ROW. In modifying its plan for long-term maintenance, Entrega would allow for the revegetation of native shrub species in addition to herbaceous species within the 10-foot-wide corridor, and would only remove trees over 15 feet tall as necessary. **We recommend that Entrega should not begin construction of Phase I, Spread 4 activities until:**

a. **Entrega files with the Secretary for review and written approval by the Director of OEP its evaluation of possible ROW re-alignments to avoid Preble's meadow jumping mouse habitat;**

b. **the staff receives the Preble's meadow jumping mouse survey report as well as comments from the FWS on the survey report and the proposed action's effects on the Preble's meadow jumping mouse;**

c. **the staff completes formal consultation with the FWS, if required; and**

d. Entrega has received written notification from the Director of OEP that construction or use of mitigation may begin.

Determination Statement

Effect on Critical Habitat: No effect. No critical habitat has been designated within the project area.

Effect on the Species: We conclude that the EPP *may affect, but is not likely to adversely affect* the Preble's meadow jumping mouse. This determination is based on Entrega's commitment to either 1) avoiding Preble's meadow jumping mouse habitat or conducting surveys to determine the presence of the species; 2) in the event surveys are positive, implementing conservation measures (including those in its Riparian Woodland Plan); and 3) our recommendations here and in section 3.4.1.

Bald Eagle

The bald eagle is currently federally listed as threatened. Historically, populations of bald eagles were drastically reduced principally due to low productivity as a result of the bioaccumulation of pesticides. Since the banning of organochlorine pesticides such as DDT, bald eagle numbers have been increasing, leading to the species being proposed for federal delisting on July 4, 1999, as recovered. The bald eagle will, however, remain protected under the ESA until delisting is finalized. Bald eagles also are protected under the MBTA and the Bald and Golden Eagle Protection Act.

Because the bald eagle's diet consists mostly of fish, individuals tend to be found associated with bodies of water such as lakes, rivers, and reservoirs. Eagles also may forage opportunistically, especially in winter, feeding on waterfowl, dead fish, jackrabbits, and big game carrion.

Bald eagles may be present in the project area, where they typically roost communally during the winter and nest during the summer. Winter roosts in the project area may be occupied from November 1 to April 15. Typically, bald eagles will select roost sites such as large, stoutly limbed trees, snags, broken-topped trees, or rocks or cliff facings near water that provide easy access to hunting or feeding areas. Eagles tend to use the same roosts each year.

The bald eagle nesting season in the project area is generally from November 15 to August 15, but the specific dates vary, depending on location (i.e., Colorado or Wyoming). Migrant (non-nesting) individuals also could be present during the summer in appropriate habitat. Nests are usually large and conspicuous stick assemblages, and are built in habitat similar to that used for roosting. In Colorado and Wyoming, nest tree habitat can include old-growth ponderosa pine as well as narrow strips of riparian vegetation surrounded by rangeland.

Potential direct impacts on bald eagles during construction could include displacement of individuals to adjacent habitats or damage to occupied and/or unoccupied nests. If construction were to occur during the nesting season, impacts also could include abandonment of eggs or nestlings, injury to nestlings, destruction of eggs, or mortality of nestlings. Additionally, construction could potentially affect the availability of the bald eagles' primary food sources, thereby indirectly affecting individuals.

Two bald eagle nest sites were identified in Colorado during Entrega's 2004 raptor surveys (West 2004). If construction were to occur during the breeding season for the bald eagle, Entrega would conduct pre-construction bald eagle nest surveys at known nest sites and within suitable nesting habitat during the appropriate period in accordance with the survey plans (see appendix E). On May 11, 2005, the FWS recommended that Entrega adopt state-specific buffer zones for nesting and roosting bald eagles in the project area (FWS 2005). Therefore, **we recommend that Entrega should not construct within 0.5 mile of active bald eagle nest sites in Colorado during the nesting season**. In Colorado, bald eagles generally nest from November 15 through July 31. However, buffer zones may be adjusted upon consultation with the FWS on a site-specific basis depending on topography and line-of-sight factors, the specific project activity (e.g., active construction vs. a one-time pass-through), other features in the area (e.g., a highway between the nest site and the construction zone), and the status of the nest (e.g., downy eaglets vs. fully fledged young). Entrega would have a monitor present to evaluate these and other factors to determine whether or not to request a buffer zone variance from the FWS.

If a new bald eagle nest is found in Wyoming during the pre-construction bald eagle surveys, **we recommend that Entrega should not construct within 1 mile of active bald eagle nest sites in Wyoming during the nesting season.** In Wyoming, bald eagles generally nest from February 1 through August 15.

Entrega further states that if a previously unidentified active bald eagle nest were discovered during construction, Entrega would stop work in the area and contact the FWS. **We further recommend that if Entrega encounters a previously unidentified active bald eagle nest within 1 mile of the construction ROW in Wyoming or within 0.5 mile of the construction ROW in Colorado, Entrega should concurrently notify the Commission staff, the BLM (if on federal land), and the FWS, and file such information with the Secretary. Entrega should not continue with construction until the staff has reviewed the information, completed any necessary consultation with the FWS, and the Director of OEP notifies Entrega in writing that construction may proceed or use of mitigation may begin.** The BLM is the agency responsible for including BLM-approved land use stipulations or conditions consistent with RMPs for the area to mitigate impacts to nesting bald eagles.

In the event that an active bald eagle nest is located within the specified buffer zone, Entrega would provide an experienced biologist to monitor the nest prior to construction to determine when young birds are no longer dependent on the natal nest or nest area, in accordance with Entrega's Conservation Measure Plan (see appendix E).

Impact on roosting bald eagles generally occurs in either of two ways: 1) construction activity directly disturbs roosting eagles, or 2) construction results in the clearing of potential roost trees in suitable habitat.

Non-nesting bald eagles may be temporarily displaced during construction, but this is not usually considered a significant impact. Individual eagles could find other suitable roosts in the general area until construction activity has passed. However, the FWS often recommends measures to minimize the amount and extent of such displacement. Examples of such measures include a 0.25-mile (or a 1-mile) spatial buffer around roosting eagles, timing construction to certain portions of the day, or having a waiting interval to see if

eagles will leave the area on their own accord. (Typically, if construction is ongoing and an eagle enters the project activity area, construction would not have to stop.) As discussed above for bald eagle nests, the FWS recommended that Entrega adopt state-specific buffer zones for nesting and roosting bald eagles in the project area (FWS 2005). Therefore, in order to minimize impacts to roosting bald eagles, **we recommend that Entrega conduct surveys for roosting eagles within potential winter roost areas if construction occurs between November 15 and March 15 in Colorado or between November 1 and April 15 in Wyoming. In the event that occupied bald eagle winter roost sites are identified within 0.25 mile of construction areas in Colorado (within 1 mile of construction areas in Wyoming), Entrega should coordinate with the BLM (if on federal land) and the FWS to determine if protection measures (e.g., timing restrictions and/or buffer areas) would be required. Entrega should report the results of the coordination in a filing with the Secretary, and should not begin construction until the staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies Entrega in writing that construction or use of mitigation may begin.** On federal land, BLM is the agency responsible for including BLM-approved land use stipulations or conditions consistent with RMPs for the area to mitigate impacts to roosting bald eagles.

Entrega's Riparian Woodland Plan commits to reducing the construction ROW width to 75 feet in riparian woodlands and to avoiding the removal of trees in these areas to the maximum extent practical. Entrega further states that it would consider measures to avoid or minimize impact on roost trees if such trees may be affected during construction. However, we believe there should be a stronger commitment to avoiding the removal of trees within bald eagle roosting and nesting habitat. Therefore, **we recommend that Entrega should identify all potential bald eagle roosting trees on or immediately adjacent to the ROW and assess measures to avoid any trees that could be damaged by construction. Any potential bald eagle roosting tree that Entrega believes could not be avoided should be identified to the staff with a justification as to why the tree must be removed and what measures Entrega considered before determining that removal was necessary. This information should be filed with the Secretary for review and written approval of the Director of the OEP before construction or use of mitigation may begin.**

Determination Statement

Effect on Critical Habitat: No effect. No critical habitat has been designated for this species.

Effect on the Species: We conclude that the EPP *may affect, but is not likely to adversely affect* the bald eagle. This determination is based on the implementation of Entrega's proposed conservation measures and our recommendations.

Wyoming Toad

The Wyoming toad historically occurred in wet and moist habitats within the Laramie Basin in Wyoming. However, the current known distribution is restricted to a few lakes in the basin. The closest known recent occurrences of the Wyoming toad relative to the proposed project route are the Mortenson Lake National Wildlife Refuge (6.9 miles away) and the Hutton Lake National Wildlife Refuge (4.8 miles away).

Entrega's proposed route would not cross within 2 miles of either of these refuges; therefore, no surveys are proposed. If any route realignments were to come within 2 miles of either wildlife refuge, Entrega would conduct species-specific surveys for the Wyoming toad. We note that if Entrega's proposed route changes such that federally listed species habitat is crossed or new surveys are required, Entrega would not be authorized to commence construction until we have had the opportunity to review the realignment, evaluate potential impacts to federally listed species (including survey reports and correspondence with the FWS), and complete any Section 7 consultation necessary.

Determination Statement

Effect on Critical Habitat: No effect. No critical habitat has been designated for this species.

Effect on the Species: We conclude that the EPP *would not affect* the Wyoming toad. This determination is based on the lack of suitable habitat in the proposed project area.

BLM Sensitive Animal Species

Townsend's Big-eared Bat, Fringed Myotis, and Yuma Myotis

No historic communal bat roost sites (e.g., hibernacula, nursery colonies, bachelor roosts) have been recorded along the project route. Much of the project route would occur adjacent to or within previously disturbed ROW; thus we do not anticipate any direct impacts to communal roosts. Potential direct impacts to individual bats could occur as a result of crushing by vehicles and equipment during ROW clearing and other project-related construction. Impacts also would result from the incremental long-term reduction of potential foraging habitat (including habitat fragmentation) until reclamation is completed and native vegetation has become reestablished. Indirect impacts could result from increased noise levels and human presence. Entrega would minimize potential direct and indirect impacts on bats by implementing BLM BMPs.

The proposed project may impact individuals but is not likely to cause a trend to federal listing or loss of viability of these bat species.

Swift Fox

Potential impacts to breeding swift fox could result from abandonment of den sites and the potential loss of adults and young from the compaction of dens during project construction. Impacts also could result from the incremental short-term disturbance of grassland habitat until reclamation is completed and native vegetation has become reestablished. Indirect impacts would result from the increased noise levels and human presence related to construction.

Entrega would document swift fox observations and den sites within the project area during other survey efforts, in accordance with the survey plans. If an active den is identified within the ROW, Entrega would evaluate the potential for a route realignment or reconfiguration of the ROW (e.g., reduce the width of the

ROW) to avoid the den. If an active den is identified outside of the ROW boundary, Entrega would minimize impacts to the den area by reducing the width of the ROW, as practical.

We believe the proposed project may impact individuals but is not likely to cause a trend to federal listing or loss of viability of the swift fox.

White-tailed Prairie Dog and Black-tailed Prairie Dog

Prairie dogs live in colonies and inhabit dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Fine-to-medium textured soils are preferred, presumably because burrows and other structures tend to retain their shape and strength better than in coarse, loose soils. White-tailed prairie dogs typically live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs.

During the 2004 field survey, 43 active white-tailed prairie dog colonies were identified along the project ROW between MPs 44.6 and 246.7, and 1 active black-tailed prairie dog colony was identified at MP 320.7. In addition, 42 white-tailed prairie dog colonies were identified along proposed access roads (West 2004).

The potential effects of construction through a prairie dog colony may include temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and nesting activities due to disturbance associated with construction equipment. Direct mortality of prairie dogs could result if active burrows are occupied at the time of construction. If construction occurs later in the prairie dog's reproductive season, in late May to early June, most prairie dogs are expected to be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. Following construction and restoration, the revegetated ROW would provide foraging habitat for prairie dogs, and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.

Larger white-tailed prairie dog colonies have been found in the proposed project area between MPs 86.0 and 152.0, while smaller, scattered towns have the potential to occur between MPs -0.5 and 86.0 and between MPs 152.0 and 300. For those prairie dog colonies that occur within the ROW footprint, Entrega would evaluate the potential for a route realignment or change to the ROW configuration (e.g., using the opposite side of the ROW to operate vehicle traffic). If it is not possible to avoid the population, Entrega would reduce the width of the ROW as practical given the extent of the colony. In addition, if a colony only occurs along the edge of the ROW, the colony edge would be flagged or exclusion fencing would be placed so that construction could avoid impacting the colony, if possible. Entrega would avoid siting staging areas, temporary workspaces, or pipe yards within active colonies. Following construction, areas of potential habitat would be restored to preconstruction conditions. Thus, we believe that the EPP may impact individuals but is not likely to cause a trend to federal listing or loss of viability of these prairie dog species.

Golden Eagle, Ferruginous Hawk, Swainson's Hawk, American Peregrine Falcon

Potential impacts to these raptors are discussed along with other migratory birds in section 3.5.2, above.

Western Burrowing Owl

Burrowing owls typically use burrows made by prairie dogs and other small mammals. Destruction of burrows could result in displacement of owls into less suitable habitats, potentially increasing susceptibility to predation, reducing cover or forage habitat, or reducing reproductive success. Displacement, injury, or direct mortality could result if active burrows are occupied at the time of destruction.

While Entrega has not proposed species-specific surveys for the burrowing owl, surveyors would note owl presence when conducting habitat surveys and when surveying for mountain plover, prairie dogs, and black-footed ferret. Burrowing owls were observed at six different locations (between MPs 113.0 to 122.5 and at MP 163.2) during Entrega's 2004 habitat surveys (West 2004). Entrega's on-site EI or biological monitor would take note of any occurrences sighted during active construction. If active burrows are identified, Entrega has committed to adhering to the appropriate spatial and seasonal buffers as identified for Colorado and Wyoming. Thus, we believe that the EPP may impact individual burrowing owls but is not likely to cause a trend to federal listing or loss of viability to this species.

Greater Sage Grouse

The greater sage grouse is designated as a sensitive species by the BLM, and has been petitioned for federal listing consideration. In April 2004, the FWS determined that listing the sage grouse under the ESA may be warranted and initiated a status review. However, based on a 12-month finding for petitions to list the greater sage grouse as threatened or endangered, the FWS subsequently determined that the listing is not warranted (70 FR 2244).

Sage grouse are highly dependent on sagebrush for cover and food. Sagebrush also serves as the critical component in leks (strutting grounds), nesting, feeding sites, rearing sites, and wintering grounds. Although the sage grouse typically prefers taller sagebrush plants and stands for nesting and roosting cover, lekking grounds are generally open areas with low, sparse sagebrush, such as swales, meadows, and burned areas. Lekking grounds are generally surrounded by areas of 20 to 50 percent low-height, sagebrush cover. Secondary to sagebrush habitat, sage grouse require moist wetland and wet meadows to aid in brood rearing.

Potential direct impacts of construction on sage grouse may include the loss of lekking grounds and other sage grouse habitat. Although the EPP would not result in a permanent loss of habitat along the pipeline ROW, the regeneration of sagebrush would likely be slow and could take up to several decades. However, potential impacts on sage grouse habitat would be minimized by locating the proposed ROW within previously disturbed areas (i.e., adjacent to existing pipelines and/or roads) to the extent possible. Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline ROW would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the proposed project could potentially impact sage grouse during lekking activities or brood rearing, and could cause displacement, injury, or direct mortality of individuals. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds on mornings and evenings from early March to early May. Construction activities and associated noise occurring in early

morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities. In addition, once breeding activities have concluded, sage grouse hens create their nests on the ground underneath sagebrush plants in proximity to the lekking grounds. The proposed project could potentially impact nesting sage grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. In addition, brood rearing habitat could potentially be impacted by causing injury or direct mortality to the young.

A total of 38 historic sage grouse lek sites have been identified as occurring within 2 miles of the project ROW in Colorado and Wyoming (CDOW 2004a; West 2004; WGFD 2004). Of these historic sites, 11 leks (5 leks in Colorado and 6 leks in Wyoming) occur within 0.25 mile from the ROW. Surveys for breeding sage grouse were conducted within 2 miles of the project ROW during the 2005 breeding season, in accordance with survey plans (see appendix E). A total of 21 occupied lek sites (leks with birds present during surveys) were documented during these surveys in Colorado (10) and Wyoming (11). Of the occupied leks that were documented during the 2005 survey, four leks were located within 0.25 mile from the ROW. Entrega has committed to conducting additional full surveys for sage grouse leks during the year of constructing each phase/segment of the pipeline.

For an occupied lek identified by the surveys within 0.25 mile of the construction ROW, Entrega would minimize impacts to the lek and its associated nesting habitat by avoiding construction between March 1 and June 30, or as otherwise permitted by the appropriate resource agency. In addition, Entrega would minimize impacts to the lek by avoiding permanent surface development within 0.25 mile of a known lek. **We further recommend that where the construction ROW is within 0.25 mile of a sage grouse lek site (whether actived or inactive), Entrega should reduce its construction ROW width to 75 feet.**

For suitable nesting habitat associated with an active lek identified by the surveys within 2 miles of the construction ROW, Entrega would minimize direct impacts to nesting habitat by avoiding construction between March 1 and June 30 and reducing the width of the ROW as practical, or as otherwise permitted by the appropriate resource agency. No permanent aboveground facilities would be constructed within 0.25 mile of a known lek site along the project route.

For suitable brood-rearing habitat associated with an active lek identified by the surveys within 2 miles of the construction ROW, Entrega would minimize direct impacts to brood-rearing habitat by beginning construction after July 15 and reducing the width of the ROW as practical, or as otherwise permitted by the appropriate resource agency.

Following construction, the project area would be restored to preconstruction contours and areas of suitable habitat would be restored by broadcast seeding with a seed mix that includes native species and is acceptable to the landowner, local NRCS, or other applicable agencies.

In addition, for those leks where the clearing limits encroach the lek boundary or where clearing is proposed immediately adjacent to the lek on federal lands, the BLM intends to require Entrega to implement the following sagebrush planting requirements: 1) Entrega would contact the BLM and the appropriate state wildlife agency after the ROW has been reclaimed to assist Entrega in identifying and marking the lek boundaries on federal lands; 2) Entrega would transplant young sagebrush plugs from surrounding areas or

obtain containerized sagebrush to be planted on the ROW in late fall when plants are dormant; and 3) planting 4 or 5 rows of sagebrush plugs on 5-foot staggered centers, starting along the original boundary of the lek. Should transplanting be unsuccessful, the BLM would require Entrega to increase sagebrush seeding efforts to establish the vegetative visual barrier around the perimeter of the leks. According to the 2005 field surveys, there is one lek site at approximate MP 211 that would be crossed during construction (within clearing limits), which is located on private property. According to the 2005 lek surveys, the clearing limits of the ROW do not encroach any known lek sites on federal land.

The CDOW and WGFD also have expressed concerns about potential impacts to breeding and nesting sage grouse from low intensity preconstruction activities (e.g., surveying and staking). We note that there are spatial and timing differences for the protection for sage grouse during the breeding season in Colorado and Wyoming. As a result, in Colorado, **we recommend if low-intensity preconstruction (e.g., surveying and staking) work is necessary within 2 miles of known sage grouse leks between March 1 and June 30, activities should occur only between 9:00 a.m. and 4:00 p.m. In Wyoming, we recommend if low-intensity preconstruction work is necessary within 0.25 mile of known sage grouse leks between March 1 and May 15, activities should occur only between 8:00 a.m. and 8:00 p.m.**

Potential indirect impacts to the sage grouse could result from increased noise levels from the operation of the proposed Bighole Compressor Station in Moffat County, Colorado. Noise levels attributable to operation of the facility are estimated to be a L_{dn} of approximately 82 dBA at the station fenceline. Based on existing sage grouse lek data for the project area, three lek sites have been documented approximately 2 miles from the proposed station site. **Table 3.6-1** shows the noise attributable to station operation extrapolated out to 2 miles from the site.

Table 3.6-1
Estimated Noise Attributable to the Proposed Bighole Compressor Station

Distance	0	1 mile	1.5 miles	2 miles
Noise Level, L_{dn} (dBA)	82.0	49.9	45.6	43.9

As shown in the table, noise level quickly drops below the "ambient" L_{dn} 47.8 dBA at the 2 miles (as identified in section 3.10, Air and Noise Quality). However, it should be noted that the A-weighted scale is weighted specifically for human hearing sensitivity and that there are currently no data on the range of frequency or noise impact thresholds applicable to sage grouse. Studies suggest a noise level of approximately 47 dBA to be the threshold effect for bird species in grassland and woodland habitat (LaGory et al. 2001; Reijnen et al. 1997, 1996) and that reducing continuous noise levels to 49 dBA or less would minimize indirect effects to songbirds and raptors during the breeding season (WGFD 2004). To minimize potential noise impacts on wildlife, Entrega has committed to reducing the noise level of the Bighole Compressor Station to 55 dBA (L_{dn}) at the station property line. This mitigation would minimize noise impacts to known sage grouse lek sites in the general facility area[4] and would further reduce

[4] The closest known leks to the Bighole Compressor Station are located approximately 10,170 feet southwest of the station (lek site "Bighole Butte A") and 10,385 feet northeast of the station (lek site "Bighole Holmstead").

noise impacts to nesting and brooding sage grouse habitat to within 631 feet (59 acres) (based on a 47 dBA threshold level for potential effects to birds) of the facility over the life of the project. As such, we do not believe that the operation of the Bighole Compressor Station would result in adverse impacts to known lek sites within the project area, and would only result in a minor impact to sage grouse habitat.

Mountain Plover

The mountain plover is a migratory species whose breeding habitat includes prairie grasslands, shrub-steppe communities, dry land farmlands, and prairie dog towns. Plovers usually nest on level terrain occupied by sparse, short vegetation (typically 4 inches or less in height). The sparse vegetation is commonly caused by herbivore grazing (domestic livestock and prairie dogs), and surface disturbance from human activities (e.g., well pads, bladed lay down areas) (FWS 2002b). Suitable shrub-steppe and grassland habitats for this species are crossed by a long EPP segment in Colorado and Wyoming.

The primary mountain plover nesting period is from May 1 through June 15. Young chicks commonly stay on the nest or freeze in place to avoid detection from about June 15 through July 10, resulting in a higher potential for losses from excavation equipment traversing over nest sites. After July 10, the chicks are sufficiently mobile to move away from construction equipment.

Approximately 193 miles of potentially suitable mountain plover habitat was identified along the project ROW at disjunct locations between MPs 44.0 and 327 (West 2004). Mountain plover habitat also was identified along 44 proposed access roads and at the Cheyenne pipe yard. A total of 23 individuals were observed between MPs 113.3 and 124.2 and between MPs 264.9 and 325.0 during the 2004 field surveys.

If construction were to occur during the breeding season (mid-April through early July), impacts to nesting mountain plover could include abandonment of a breeding territory or nest site or the potential loss of eggs or young as a result of construction activities (e.g., ground disturbance, noise, human presence).

Impacts also would result from the incremental short-term disturbance of grassland habitat until reclamation is completed and native vegetation has become reestablished. Indirect impacts would result from the incremental increase in noise levels and human presence.

Surveys for mountain plover would be conducted within suitable habitat, in accordance with the survey plans. Survey procedures would be based on the Mountain Plover Survey Guidelines (FWS 2002b) for large scale/long term linear projects. Mountain plover habitat would be surveyed 3 times during the survey window (May 1 to June 15), with each survey separated by at least 14 days, if possible. Surveys would be conducted within 0.25 mile of the pipeline centerline by driving and making visual observations of overlapping transects. The timeframe of the surveys would be sunrise to 10 a.m. and 5:30 p.m. to sunset. The location of active plover nests would be recorded on maps using Global Positioning System coordinates. If an active mountain plover nest is found, the nest would be recorded and reassessed immediately before construction, if construction is expected to occur between May 1 to June 15. If the nest is still active at that time of construction, construction would be prohibited within 0.25 mile of the nest until the young have fledged.

If a plover family group is identified during surveys or immediately before construction, the group would be monitored by a biologist to determine its use pattern. The area being used by the family group would be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the proposed centerline. Construction equipment would be allowed a one-time pass through the area with the biologist present to monitor plover location and response.

The proposed project may impact individual mountain plovers but is not likely to cause a trend to federal listing or loss of viability.

Loggerhead Shrike

This species was identified during Entrega's 2004 field surveys at six locations along the project ROW between MPs 81 and 174 (West 2004). Potential impacts to this migratory bird species would be the same as discussed for other migratory bird species in section 3.5.2, above.

Great Basin Spadefoot, Northern Leopard Frog, and Midget Faded Rattlesnake

Potential impacts to amphibian and reptile species include direct mortalities of individuals from construction activities, ground compaction, and vehicle traffic within suitable habitat. Impacts also would result from the incremental long-term reduction of potential habitat until reclamation is completed and native vegetation has become reestablished.

Entrega's 2004 surveys identified multiple northern leopard frogs between MPs -0.5 and 14.0. The other two species were not found during surveys (West 2004).

Occurrences of these amphibian and reptile species within the project area would be documented during other survey efforts, in accordance with the survey plans (see appendix E). If these species are identified, biological monitors would clear the construction ROW of individuals prior to construction and install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the population to keep individuals from entering the construction ROW.

The proposed project may impact individual amphibians and reptiles but is not likely to cause a trend to federal listing or loss of viability.

3.6.4 Fish Species

Nine sensitive fish species were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix P. The potential for occurrence at stream crossings and downstream reaches was evaluated for each species based on its habitat requirements and/or known distribution. The federally listed bonytail chub, humpback chub, and razorback sucker do not occur in the project area but are included in the detailed analysis based on the project's potential water depletion activities (i.e., hydrostatic testing and HDD) in the Colorado River Drainage. The federally listed Colorado pikeminnow could occur at the proposed crossing location of the Yampa River and downstream reaches in the White River. In addition, designated critical

habitat for the Colorado pikeminnow occurs at the proposed White and Yampa River crossing locations (MPs 15.2 and 50.6, respectively). The remaining four fishes (bluehead sucker, flannelmouth sucker, mountain sucker, and roundtail chub) are BLM sensitive species that potentially occur in the White and Yampa Rivers.

A potential leak or rupture under the White and Yampa Rivers during drilling could accidentally release muds (called a "frac-out") or disturb bottom sediments in a localized area near the rupture site. The release of drilling muds (primarily bentonite and cellulose) could cause localized increases in sediment loads and could fill interstitial gaps in the streambed, smothering habitat for benthic invertebrates, larval fish, and eggs. The amount of area impacted by a release of drilling muds would be relatively small since the consistency of the drilling muds would limit widespread dispersal along the streambed. To reduce the impacts of a frac-out, Entrega has prepared a Horizontal Directional Drilling Inadvertent Release Control Plan (HDD Plan; Entrega 2004f) that identifies detection and monitoring procedures, response equipment, notification procedures, and corrective actions. By implementing the measures in this plan, potential impacts to sensitive fish species in the White and Yampa Rivers would be minimized and short-term in duration.

Federally Listed Species

Bonytail Chub, Humpback Chub, Razorback Sucker, Colorado Pikeminnow (impacts from water depletions)

The FWS has expressed concern about the potential downstream impacts on federally listed species resulting from hydrostatic test water withdrawals from the Upper Colorado River Basin. The federally endangered bonytail chub, humpback chub, razorback sucker, and Colorado pikeminnow are known to occur in downstream portions of the White, Yampa, and Little Snake Rivers, which are part of the Upper Colorado River Basin. These fishes could be adversely affected by any action causing water depletions to the Colorado River system.

Habitat for the bonytail chub, humpback chub, and razorback sucker does not occur at the proposed crossings of the White, Yampa, and Little Snake Rivers (FWS 1994). However, habitat is present for these species at varying distances below the proposed crossings. The closest occupied or critical habitat is located at the following approximate distances downstream of the proposed crossings: 30 to 40 miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail chub); 60 miles downstream of the White River crossing (razorback sucker); and at least 30 miles downstream of the Little Snake crossing (razorback sucker). Consequently, project effects to these fish species would be limited to potential water depletions from hydrostatic testing and HDD within the Colorado River drainage. The Colorado pikeminnow likewise occurs downstream of the proposed White and Yampa River crossings and could be affected by water depletions; however, this species also could occur at the location of the proposed Yampa River crossing. Direct effects to this species and its critical habitat are discussed later in this section.

Water depletion impacts resulting from the withdrawal of approximately 73 acre-feet (23.9 million gallons) for hydrostatic testing and 2.6 acre-feet for HDD could include a slight temporary reduction of potential spawning and rearing habitat in the Upper Colorado River Basin due to changes in downstream water flow. No changes in water temperature or dissolved oxygen would be anticipated as a result of the relatively small

water volume. Potential impacts would be greatest during the spawning periods for these species in spring and early summer. The FWS defines a "depletion" as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. Any water depletion would represent an adverse impact on habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and must be considered in formal Section 7 consultation.

However, if water is returned to the source waterbody within a certain amount of time after withdrawal, the threshold for "depletion" and formal consultation may not be reached. Factors to consider in determining downstream effects to listed fishes include what time of the year water is withdrawn, whether the water has been treated, other water uses at the time of withdrawal (cumulative impact), and how close to the withdrawal source the water is returned (i.e., a source location return vs. a "basin return").

Entrega plans on withdrawing approximately 73 acre-feet (23.9 million gallons) of water from the Colorado River Basin, which include the White, Yampa, and Little Snake Rivers (see **table 3.3-3**). Hydrostatic testing for the various test sections is currently planned to occur over a multiple-day period during August and September. The actual duration of hydrostatic testing for a given test section would be dependent on the rate of withdrawal and the section of pipe that would be tested. Entrega's hydrostatic testing plan is included as appendix M of this EIS. In order to avoid or minimize potential impacts to Colorado River endangered fish species from water withdrawal in the Colorado River basin, the FWS would prefer that water withdrawal activities occur between October 1 and March 1. In addition, the FWS indicated that water withdrawal would probably not be permitted along the Yampa River between September 1 and September 15 since water has been purchased in that drainage to supplement flows to the Colorado River under action identified in the Colorado River Fishes Recovery Plan (Abbott 2004). We acknowledge these dates are in conflict with Entrega's proposed water withdrawal activities. Entrega has committed to withdrawing water from the White, Yampa, and Little Snake Rivers between October 1 and March 1, and water would be withdrawn from the North Platte, Rock Creek, and Little Laramie Rivers between August 1 and September 30.

The *Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin* (Recovery Plan) was established in 1988 to mitigate for water depletion impacts to for Colorado River federally endangered fish species. To ensure the survival and recovery of the listed species, water users are required to make a one-time payment to the Recovery Program. The current depletion fee (through September 2005) is $15.93/acre-foot. In 1995, an intra-FWS Opinion determined that the fee for depletions less than 100 acre-feet (annual average) would no longer be required (FWS 1995).

Entrega would further minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in its Procedures and hydrostatic testing plan. These measures include screening intake hoses to prevent the entrainment of fish and other aquatic organisms and regulating the rate of withdrawal of hydrostatic test water to avoid adverse impact on aquatic resources or downstream flows. Entrega would not withdraw the hydrostatic test water from waterbodies at a rate that would alter the river's flow.

Entrega proposes to discharge hydrostatic test water withdrawn from surface waters directly back into those sources immediately following hydrostatic testing by utilizing a splash pup. Discharges would be governed by the volume of water in a test section and the discharge rate. Potential impacts from water discharge

could result in increased erosion of the stream banks and stream bottoms, resulting in a temporary increase of sediment load and destruction of habitat. Entrega would minimize the potential for these effects through the use of energy-dissipating devices that would disperse and slow the velocity of any discharges. We do not anticipate the introduction of contaminants because Entrega would test only new pipe and would not chemically treat the water.

Colorado Pikeminnow (impacts from waterbody crossings)

The Colorado pikeminnow inhabits medium to large rivers in the Upper Colorado River Basin including the Colorado, Gunnison, Green, White, and Yampa Rivers. The adults use deep, turbid, strongly flowing eddies, runs, flooded bottoms, or backwaters (especially during high flow), while juveniles prefer small, quiet backwaters.

HDD activities would disturb a total of approximately 5 to 10 acres per crossing within the 100-year floodplain of the Yampa and White Rivers. These areas would be located within designated critical habitat for the Colorado pikeminnow. Surface disturbance would be required for the bore pits, drilling equipment, and pipe strings. However, the HDD work areas would be located outside of the water level of the river, which would avoid instream impacts. Construction techniques and reclamation would be designed to minimize potential increased sedimentation during future high water events. Since construction equipment would be refueled and lubricated outside of the 100-year floodplain, no fuel spills or leaks would affect habitat for Colorado pikeminnow.

Entrega's proposed HDD crossings of the White and Yampa Rivers would avoid instream impacts and thus would have little to no effect on the Colorado pikeminnow or its designated critical habitat. If a rupture or leak occurred during drilling, short-term sedimentation and bottom disturbance could occur at the crossing, as described earlier in this section. By implementing the measures in HDD Plan, potential impacts to Colorado pikeminnow would be minimized and short-term in duration.

However, if an HDD crossing could not be completed at a particular location, Entrega would likely request to cross using an open-cut technique. A non-HDD crossing would have the potential for greater impact on the Colorado pikeminnow. We typically require an applicant to file a site-specific alternate crossing plan for our review before a non-HDD crossing could begin (see appendix J). We note in this case that Entrega originally proposed to cross the White and Yampa Rivers by open cuts; thus, certain mitigation measures applicable to the open cut technique are already on file for this project. Such measures would help minimize instream impacts from sedimentation and turbidity. Entrega's originally proposed measures included expedited crossings in accordance with Entrega's Procedures, storage of trench spoil and locating extra workspaces at least 50 feet from the streambank, use of sediment barriers, limiting the clearing of vegetation as practical, performing immediate post-construction stabilization of streambanks, and returning stream channels and banks to preconstruction contours

Although we believe Entrega's originally proposed crossing plans provide a good framework for an evaluation of impacts on the Colorado pikeminnow from an open-cut crossing, our determination of effect for this species is dependent on the crossings being completed by HDD. We would still need to evaluate a non-HDD crossing and consult further with the FWS in order to comply with Section 7 of the ESA.

Therefore, **we recommend that in the event that Entrega cannot complete an HDD crossing of the White or Yampa Rivers, Entrega shall not begin a non-HDD crossing until the staff completes any necessary Section 7 consultation with the FWS, and the Director of OEP notifies Entrega in writing that it may proceed with an alternate river crossing method.**

Determination Statement

Colorado Pikeminnow (impacts from water crossings)

Effect on the Species and Critical Habitat: Entrega's crossing of the Yampa and White Rivers, as proposed, *may affect, but is not likely to adversely affect* the Colorado pikeminnow or its critical habitat. This determination is based on Entrega's proposed HDD crossings of the White and Yampa Rivers, its HDD Plan to minimize sedimentation impacts of a frac-out, and reclamation to restore surface disturbance within the 100-year floodplain.

Colorado Pikeminnow, Razorback Sucker, Humpback Chub, and Bonytail Chub (impacts from water depletions)

Effect on the Species and Critical Habitat: Entrega's withdrawal of approximately 73 acre-feet of water from the Upper Colorado River Drainage *may affect, but is not likely to adversely affect* the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub or their critical habitat. By implementing the Recovery Plan, the effects of water withdrawal on habitat for these species would be mitigated. In addition, Entrega would adhere to the timing window identified by the FWS (conducting hydrostatic testing between October 1 and March 1) to avoid or minimize potential water depletion impacts during the Colorado pikeminnow spawning season. Although Entrega's temporary use of about 73 acre-feet of water would be returned to the same locations and source waterbodies, it may still be considered a "depletion" by the FWS. If so, we request that the FWS consider this EIS/BA our initiation of formal consultation under Section 7 of the ESA for the bonytail chub, humpback chub, razorback sucker, and Colorado pikeminnow. Entrega would not be authorized to contribute to a depletion in the Colorado River basin until any necessary consultation is completed.

BLM Sensitive Species

Bluehead Sucker, Flannelmouth Sucker, and Mountain Sucker – These native species occur in the Yampa and White Rivers and Piceance Creek. They utilize a variety of habitats that include riffles, pools, runs, and backwater areas in larger streams and rivers. Spawning occurs in the spring or early summer at lower elevations (Woodling 1985).

Roundtail Chub – This species also inhabits a variety of habitats in the White and Yampa Rivers. Adults prefer pools associated with undercut banks and other types of cover, while young fish occur in shallower water with lower velocities. All age groups prefer cobble-rubble, sand-cobble, or sand-gravel substrates (Woodling 1985). Runs and riffles are used primarily during feeding. Spawning occurs in the spring or early summer.

Since these species potentially occur at and downstream of the proposed crossings, impacts of water withdrawal and stream crossing construction would be the same as described for the Colorado pikeminnow.

We believe the EPP may impact individual fish but is not likely to cause a trend toward federal listing or loss of viability for these species.

3.7 Land Use, Recreation, Visual Resources

3.7.1 Land Use

Land Ownership

About 45 percent (147 miles) of the land crossed by the proposed EPP route and aboveground facilities is managed or owned by public entities. Of the public land total, the majority is federally managed, while a smaller portion is managed or owned by the State of Colorado, the State of Wyoming, or local municipalities. The federal lands are entirely managed by the BLM. State lands in Colorado crossed by the proposed pipeline route are owned or managed by CDOW or the Colorado Land Board. State lands that would be crossed in Wyoming are owned or managed by the WGFD or the Wyoming Board of Land. Local government owners/managers consist of municipalities, such as Rawlins, and Laramie. **Table 3.7-1** summarizes public land ownerships that would be crossed by the proposed pipeline route.

Table 3.7-1
Summary of Federal, State, and Local Government Owned Lands
Crossed by the Proposed Pipeline Route

State/Ownership	Approximate Crossing Length (miles)	Percent of Total Length
COLORADO		
Federal	26.5	8
State	17.0	5
Local	0.4	<1
Colorado Subtotal	43.9	
WYOMING		
Federal	78.0	24
State	16.2	5
Local	8.2	3
Wyoming Subtotal	102.4	
Project Total	146.3	45

The remaining 55 percent (180 miles) of the proposed pipeline route would cross privately owned land.

Land Use Plans and Policies

The proposed project would cross about 105 miles of land managed by three BLM FOs: the White River FO in Meeker, Colorado; the Little Snake FO in Craig, Colorado; and the Rawlins FO in Rawlins, Wyoming. Federal land accounts for about 32 percent of the total pipeline route. In general, the BLM manages these lands for multiple uses, including recreation, wildlife management, livestock grazing, wild horses, and mineral resources under guidelines set forth in the three Resource Management Plans (RMPs) that BLM uses for management direction (BLM 1997, 1990, 1986).

Construction of the proposed project would be consistent with the existing BLM RMPs and would not preclude the management objectives set forth for BLM offices. Entrega's POD is being developed in coordination with BLM FOs. The POD is a construction plan that includes procedures for the use of BLM roads, soil and water protection measures, revegetation and weed control/management standards, biological and cultural resource protection measures, livestock and wild horse management measures, and post-construction monitoring requirements (see section 2.3, Construction Procedures).

Land owned by the states of Colorado or Wyoming that would be crossed by the proposed pipeline route is managed for wildlife habitat, recreational uses, or leased to private tenants for livestock grazing. Some state lands are special interest areas and are discussed in section 3.7.3. The remaining scattered portions of state owned or managed lands not identified as special interest areas are leased to private entities for livestock grazing and ranching. Entrega would acquire the necessary permits and approvals for construction on state lands. Environmental protection measures attached to lease agreements would be similar to those described for the BLM above.

Project Land Requirements

The EPP would require land for the construction ROW, permanent ROW, additional temporary workspace areas, access roads, pipe and contractor yards, and construction and operation of aboveground facilities. Land use calculations were based on a 100-foot-wide construction ROW, except in wetlands and riparian woodlands where the construction ROW would be reduced to 75 feet. As outlined in chapter 2.0, a 50-foot-wide permanent easement would be acquired by Entrega. This 50-foot-wide portion of the easement, referred to as the permanent ROW, would be maintained in an open condition (i.e., generally free of trees and aboveground structures) for the life of the pipeline facilities. Impacts on land use for operation of the pipeline facilities were calculated based on the 50-foot ROW width. Land use calculations for additional temporary workspace areas were based on typical requirements. Access roads, pipe and contractor yards, and aboveground facilities were based on each feature's dimensions.

In a number of areas, Entrega proposes to expand the width of its construction ROW to 125 feet to facilitate side-hill construction or to cross deeply incised drainages. These areas are listed in **table 2.2-2**. Overall, these areas amount to more than 70 miles of the total 328.1-mile-long pipeline, or more than 21 percent of the route. We have examined a number of these areas and are unable to confirm that topographic features requiring extra work space occur at the locations identified by Entrega. In addition, it is uncommon that topographic features would require extra work space for the extended distances identified. Therefore, **we recommend that prior to construction, Entrega provide a detailed justification for any area where it proposes to use a 125-foot-wide construction ROW for more than 0.5 mile at a time. The justification should be filed with the Secretary for review and written approval by the Director of OEP.**

The principal land use that would be affected by the proposed pipeline route and its associated facilities is rangeland (about 294 miles, or 90 percent of the total pipeline length). Other land uses that would be crossed by the proposed pipeline include forest land (13 miles; about 4 percent); agricultural land (18 miles; about 5 percent); open land (5 miles; about 2 percent); and residential/commercial land (less than 2 miles; <1 percent).

Construction of the proposed EPP would temporarily disturb 5,371 acres. Of that total 2,074 acres would be retained by Entrega as permanently maintained pipeline ROW and for operation of the proposed aboveground facilities (including powerlines and permanent access roads) (**table 3.7-2**). The predominant land use that would be affected by construction is rangeland (4,672 acres). Additionally affected land use includes forest land (177 acres), agricultural land (185 acres), residential/commercial land (258 acres), and open land (79 acres). Operation of the proposed project would affect 1,854 acres of rangeland, 77 acres of forest land, 90 acres of agricultural land, 24 acres of residential/commercial land, and 29 acres of open land.

Rangeland. In areas where rangeland is used for grazing, construction activities could reduce the carrying capacity of BLM grazing allotment and privately held pastures, and could hinder the movement of livestock across those allotments. To minimize impacts on grazing areas, Entrega has agreed to implement the following BLM-approved mitigation measures:

- fences crossed by the proposed pipeline route would be cut in a manner to prevent slack, and gates would be installed across the opening to prevent livestock passage, if required;
- temporary fencing would be installed to prevent livestock from entering the construction area;
- trench plugs would be installed across the trench where it crosses livestock trails to allow passage, and ramps would be installed to allow for the escape of livestock should they fall into the trench; and
- natural barriers removed during pipeline activities would be repaired or restored to pre-construction condition or if repair is not feasible, a fence would be installed in its place.

Following construction, temporary fences would be removed, the ROW restored to its pre-construction condition, and livestock would be allowed to graze and roam freely over the permanent ROW. Given the narrow, linear nature of the project, livestock forage reductions would be minor in comparison to the forage available on large BLM allotments and large private ranches that would be crossed. Pre- and post-construction weed management programs, and reseeding with mixtures approved by the BLM and state agencies would be applied. Although easement agreements may vary among landowners, similar weed control and revegetation measures would likely be included in private landowner easement agreements. The BLM and the FERC would conduct post-construction monitoring to verify revegetation success, and to identify any areas along the post-construction ROW that require further stabilization.

Operation of aboveground facilities would require the permanent conversion of about 61.9 acres of rangeland to industrial use for three compressor and meter stations plus 17 mainline valves located along the pipeline ROW.

Agricultural Land. Agricultural land crossed by the EPP consists of both dryland pastures and irrigated pastures and haylands. Of particular concern are soil replacement and drainage restoration across irrigated fields and pastures. Entrega would implement its irrigation restoration plan to insure that post-construction productivity matches that of pre-construction conditions. Hay crops may be lost for one season where haylands are crossed by the pipeline construction ROW, and it may require 1 to 2 years for disturbed,

Table 3.7-2
Summary of Land Uses Affected by Construction and Operation of the Entrega Pipeline Project (Acres)[1]

State/ Facilities	Rangeland		Forest Land		Agricultural Land		Residential/ Commercial Land		Open Land		Total[6]	
	Const[2]	Oper[3]	Const[2]	Oper[3]	Const[2]	Oper[3]	Const[2]	Oper[3]	Const[2]	Oper[3]	Const[2]	Oper[3]
COLORADO												
Pipeline (main)	960	454	110	48	137	66	5	2	11	5	1,223	574
Pipeline (lateral)	18	9	0	0	0	0	0	0	0	0	18	9
Aboveground[4]	39	39	0	0	0	0	13	13	0	0	52	52
Permanent Access Roads	0	0	0	0	0	0	0	0			0	0
ATWS[5]	100	0	2	0	0	0	<1	0	5	0	107	0
Yards	40	0	0	0	0	0	108	0	0	0	148	0
Powerlines	<1	<1	0	0	0	0	0	0	0	0	1	<1
Colorado Subtotal[6]	1,158	502	112	48	137	66	126	15	16	5	1,549	635
WYOMING												
Pipeline (main)	2,779	1,327	64	29	48	24	18	9	49	24	2,958	1,414
Pipeline (lateral)	4	2	0	0	0	0	0	0	0	0	4	2
Aboveground	24	23	0	0	0	0	0	<1	0	0	24	23
Permanent Access Roads	0	0	0	0	0	0	0	0	0	0	0	0
ATWS[5]	292	0	1	0	0	0	9	0	14		315	0
Yards	411	0	0	0	0	0	105	0	0	0	517	0
Powerlines	4	0	0	0	0	0	0	0	0	0	4	6
Wyoming Subtotal[6]	3,514	1,352	65	29	48	24	132	9	63	24	3,822	1,439
Project Total[6,7]	**4,672**	**1,854**	**177**	**77**	**185**	**90**	**258**	**24**	**79**	**29**	**5,371**	**2,074**

1 Does not include temporary access roads.
2 Const – construction. Based on a 100-foot-wide construction ROW, except in wetlands where a 75-foot-wide ROW would be used, and where construction ROW is increased due to site-specific conditions.
3 Oper – operation. Based on a 50-foot-wide permanent ROW. Includes aboveground facilities, permanent access roads, and transmission lines.
4 Aboveground facilities include compressor stations, pig launchers and receivers, and/or meter stations, and, where constructed within compressor station sites, mainline valves. Does not include a total of 0.9 acre of rangeland that would be permanently converted to commercial land for 17 mainline valves located along the pipeline route and outside of compressor or meter station sites.
5 Additional temporary workspace areas (only used during construction).
6 The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.
7 Wetland acreages as determined by wetland delineations (WEST 2005h) are included within surrounding land use types. Refer to appendix N for wetland locations.

reseeded areas to return to pre-construction productivity levels. No aboveground facilities would occupy agricultural land.

Forest Land. The EPP would not cross any land that is specifically managed for forest products (e.g., timber). The primary forest land types are pinyon-juniper woodland in western Colorado, scattered patches of ponderosa pine between Laramie and Cheyenne, Wyoming, and cottonwood riparian communities at the major river crossings. Depending on agreements with landowners, it is anticipated that mature juniper trees would be salvaged for fenceposts, and both juniper and pinyon pines would be stacked adjacent to the construction ROW for recovery as firewood. Removal of mature ponderosa pine and cottonwood would be very infrequent, and avoided where possible. Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanently maintained ROW. In riparian woodlands, the permanent ROW would be limited to a 10-foot-wide strip centered over the pipeline. The permanent ROW would be maintained to support primarily herbaceous or shrub dominated communities. The rate of forest reestablishment would vary depending on species and weather conditions, but would generally exceed 50 years. No aboveground facilities would be located within forested or woodland areas.

Residential and Commercial Areas. The proposed route would traverse rural residential areas between Laramie and the crossing of I-25 south of Cheyenne. The EPP would be located within an existing pipeline corridor in this segment. The EPP would be within 50 feet of one existing residence at MP 304.7. Prior to construction, Entrega plans to acquire the structure for removal as it is dilapidated and has been confirmed to be vacant. The landowner has approved of and has requested removal of the structure due to its severely dilapidated condition. At this site, a total of about 300 feet of residential land would be crossed. Two residential out-building structures (sheds) are located within 50 feet of the construction ROW at MP 35.3. The access roads to these two out-buildings would be crossed by the pipeline. Construction in the vicinity of the residences and residences at greater distances could potentially cause brief increases in fugitive dust, equipment noise, and brief delays along existing county and private roads crossed by the pipeline. The EPP has committed to control fugitive dust along its construction ROW, and to maintain at least one lane of traffic open across roads that are trenched to lay pipe. No commercial structures are located within 50 feet of the EPP construction area.

Entrega has consulted with the counties crossed by the proposed pipeline route and towns located near the proposed project to request information about planned future residential and commercial developments. As a result of these consultations, one future residential development, Willasden Estates, was identified as being located within 0.25 mile of the proposed project area. The Willasden Estates residential development would be crossed between about MPs 305.1 and 306.0 in Laramie County, Wyoming. The development is subdivided into 36 residential lots. The proposed pipeline would be located adjacent to an existing pipeline ROW through the development. The timeframe for construction of this residential development is currently unknown. However, Entrega would consult with the City of Laramie and the developer to minimize impacts on future construction and development within the Willasden Estates development.

The City of Laramie, Wyoming, is planning to construct a landfill near the route between MPs 307.7 and 308.7 on property referred to as the Belvoir Ranch. The landfill would be greater than 0.25 mile from the proposed pipeline construction ROW. The timeframe for construction of this landfill is currently unknown.

Given the distance from the pipeline, we do not anticipate that the proposed pipeline would affect the future construction of the landfill. Aboveground facilities would occupy about 13 acres of residential/commercial land use types.

Open Land. The proposed route will cross a small amount of open land (approximately 2 percent of the total). Open land is characterized by bare rock, sand, clay, dry wash areas, and non-forested wetlands.

3.7.2 Recreational and Public Interest Areas

The proposed pipeline route would cross a total of 13 recreation and special interest areas (one area would be crossed twice and one feature would be crossed six times) (**table 3.7-3**). One additional recreation and special interest area is within 0.25 mile of the proposed project. The route does not cross any ACECs, Wilderness or Wilderness Study Areas, or Wild and Scenic Rivers. Of the 13 recreation and special interest areas that would be crossed by the proposed route, 3 are located in Colorado, and the remainder in Wyoming. The pipeline would not cross any developed recreation areas (i.e., campgrounds, picnic grounds, or organized recreation areas such as baseball fields).

Pipeline construction would have temporary impacts on recreational traffic and use patterns. Sight seers, hikers, wildlife viewers, off-highway vehicle users, and mountain bikers would be displaced from the immediate area during construction. Issues in common to all these recreational and special interest areas are soil disturbance and revegetation, repair and maintenance of public access roads, and Entrega coordination with the agency managers to minimize conflicts between construction activities and the recreational uses for which these special areas were established. It is anticipated that lease agreements between Entrega and the BLM state land managers would include measures to ensure that the ecological functions of these areas are maintained, and recreational conflicts are avoided or minimized. Of most concern are:

1. Rio Blanco Lake SWA in Rio Blanco County, where lake fishing is provided. The pipeline would cross the White River downstream of the lake, and at least 500 feet from developed facilities, so it is expected that most conflicts with recreational uses could be avoided.

2. Piceance Creek SWA, and Bitter Brush SWA in Colorado, and the Red Rim-Daley Wildlife Habitat Management Area, Simpson Ridge Hunter Management Area, Wick/Beumee Wildlife Habitat Management Area, and Strouss Hill Hunter Management Area in Wyoming. The Piceance SWA in Rio Blanco County, Colorado, was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk. The Wick/Beumee WHMA in Carbon County, Wyoming, was purchased for elk management by the WGFD. Both of these areas were purchased with Federal Aid in Wildlife Restoration Act grant funds administered by the FWS and as such the FWS must grant approval through amendments prior to state approval of easements. Special use permits would be required for activities within WHMAs. The pipeline route has been evaluated to minimize surface disturbance, including collocation with pipeline corridors to the extent possible. Potential conflicts could occur between hunter use and pipeline construction if Entrega constructs across these areas during the

Table 3.7-3
Recreation and Special Interest Areas Crossed by or Within 0.25 Mile of the Proposed EPP Route

State/County	Start/End MP	Crossing Length (feet)	Construction Acres Affected[1]	Name	Ownership
COLORADO					
Rio Blanco	2.1 to 5.8	19,500	46.3	Piceance Creek SWA	CDOW
Rio Blanco	11.2 to 12.7	7,900	20.6	Piceance Creek SWA	CDOW
Rio Blanco	15.0 to 15.3	1,729	28.1	Rio Blanco Lake SWA	CDOW
Moffat	46.3 to 49.2	15,300	38.9	Bitter Brush SWA	CDOW
WYOMING					
Sweetwater	118.1[2]	25	0.1	Overland Trail	BLM
Carbon	163.6 to 165.7	11,000	37.9	Red Rim-Daley Wildlife Habitat Management Area	WGFD
Carbon	167.5 to 169.7	11,600	44.2	Red Rim Coal Area	BLM and Private holdings
Carbon	176.1	100	0.2	Continental Divide National Scenic Trail	BLM
Carbon	192.5 to 192.9	2,100	8.3	North Platte River SRMA	BLM
Carbon	213.5 to 220.4	36,500	101.4	Simpson Ridge Hunter Management Area	BLM / Wyoming Board of Land and Private holdings
Carbon	228.6[2]	25	0.4	Overland Trail	Private holdings
Carbon	230.7 to 232.7	30,000	27.3	Wick/Beumee Wildlife Habitat Management Area	BLM / WGFD
Carbon	234.3[2]	25	1.1	Overland Trail	WGFD
Carbon	235.1[3]	25	0.1	Overland Trail	WGFD
Carbon	242.4[3]	25	0.1	Overland Trail	Private holdings
Albany	247.2 to 255.3	42,700	109.5	Strouss Hill Hunter Management Area	BLM / Wyoming Board of Land and Private holdings
Albany	255.2[3]	25	0.3	Overland Trail	State of Wyoming Board of Land
Albany	269.2 to 271.4	11,600	30.8	Big Hollow National Natural Landmark	Private holdings
Albany	277.1 to 280.8	19,500	49.9	Monolith Ranch Hunter Management Area	Private holdings
Albany	291.9	Not crossed but within 0.25 mile	N/A	Medicine Bow National Forest	U.S. Forest Service (FS)

[1] Calculated based on a 100-foot construction ROW except in wetlands where a 75-foot ROW would be used, and where construction ROW is increased due to site-specific conditions. Disturbance for additional temporary workspace areas is included.
[2] Locations identified during cultural resource surveys.
[3] Locations identified on USGS topographic maps.

hunting season. Entrega would coordinate with the wildlife managers in both states to insure continued hunter access during hunting seasons. Entrega has agreed to incorporate mitigation measures to reduce impacts to hunters in its Winter Construction Plan.

3. Overland Trail and Continental Divide National Scenic Trail. There are no historic interpretation signs or areas at the proposed EPP Overland Trail crossings, and no well-preserved wagon ruts are evident. The EPP would cross the Continental Divide National Scenic Trail where the trail coincides with Wyoming State Route 71, which is a paved highway on the outskirts of Rawlins. Depending on the season of the crossing, and the level of recreational use, a detour around the work area would be provided.

4. White, Yampa, and North Platte Rivers. Entrega proposes to cross the White and Yampa Rivers by HDD, which would not result in channel disturbance, except for installation of temporary bridges across these rivers to move equipment. Entrega proposes to open-cut the North Platte River. The pipeline would cross the North Platte River Special Recreation Management Area (SRMA), which is owned and managed by the BLM and provides access for recreational uses such as fishing, rafting, canoeing, and camping. Construction activities would likely coincide with peak summer use of the recreational area. Construction could temporarily disrupt recreational access and use of the area, primarily as a result of construction-related traffic and equipment, noise, and air quality. Carbon County Road (CR) 347 runs adjacent and parallel to the west side of the North Platte River at the proposed crossing location (MP 192.8). The road is the only access to the Rochelle Easement, which provides public access for fishing, recreational use, and waterfowl hunting south of I-80. During warmer months, river floaters put in upstream of the proposed crossing point and then send their shuttles downstream of the construction area to takeout points accessed by this road. Entrega has recognized that its open-cut crossing of the North Platte River could interfere with recreational travel, and proposes to maintain public access along CR 347 during construction by leaving a lane of traffic open or providing a detour.

We believe that measures to minimize impacts on recreational boaters should be included as part of Entrega's Site-Specific Waterbody Crossing Plans. Therefore, **we recommend that Entrega revise its Site-Specific Waterbody Crossing Plan for the North Platte River to include specific measures to avoid or minimize impacts on recreational boat users. If an open-cut crossing is ultimately necessary at the White or Yampa Rivers, Entrega should similarly revise the site-specific crossing plans for these locations. All revised site-specific waterbody crossing plans should be filed with the Secretary for review and written approval by the Director of OEP prior to construction.**

3.7.3 Visual Resources

Visual impacts associated with the construction ROW and additional temporary workspace areas would include the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading scars associated with heavy equipment tracks, trenching, blasting, rock formation alteration or removal, and machinery and tool storage. Other visual effects may result from the removal of large individual trees that have intrinsic aesthetic value; the removal or alteration of vegetation that may currently provide a visual

barrier; or landform changes that introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture.

Visual impacts would be greatest where the proposed pipeline route parallels or crosses roads, trails, or Key Observation Points, and where the pipeline ROW may be seen by passing motorists or other recreational users. The impact of vegetation clearing would be shortest on rangeland consisting of short grasses and hay fields, where the reestablishment of vegetation following construction would be relatively fast (generally less than 5 years). The impact would be greater on shrub rangeland, which may take more than 5 years to regenerate. The greatest potential visual impact would result from the removal of mature pinyon pine, Utah Juniper, ponderosa pine, and cottonwood trees, which would take longer than other vegetation types to regenerate and would be prevented from reestablishing on the permanently maintained 50-foot-wide ROW. Topographic alterations such as sidehill cuts that may be necessary to construct the pipeline would be restored during ROW restoration. The visibility of such alterations would diminish over time as the affected areas age and begin to blend with the surrounding landscape.

Visual Resource Management (VRM) classes are assigned to the various landscapes managed by BLM. The BLM VRM classes range from Class I to Class IV, with Class I being the most restrictive and Class IV being the least restrictive. In general, the proposed project would cross lands designated as Class III or Class IV. Private lands that would be crossed by the proposed pipeline route are not subject to federal or state visual management standards. The Class III designation applies to the BLM-managed lands administered by the White River FO and to the majority of the BLM-managed lands administered by the Rawlins FO. A Class III designation allows for changes in the visual landscape caused by a management activity, but should remain an insignificant portion of the visual strength of the existing landscape. The area that would be crossed by the proposed pipeline route along I-80 to the west of Rawlins, Wyoming, has been designated by the BLM as a VRM Class IV. VRM Class IV lands may undergo management activities that significantly alter the characteristic landscape and dominate the view.

To minimize construction impacts on visual resources, Entrega has aligned the proposed pipeline route, where feasible, adjacent to existing utility corridors. This alignment would minimize impacts on visual sightlines and contrasts with adjacent vegetation communities. In areas where collocation is not possible for engineering and/or construction reasons, Entrega would align the pipeline to avoid aesthetic features to the extent possible. Following construction, topographical contours would be returned to their preconstruction condition. Therefore, construction and operation of the proposed Entrega pipeline facilities would be consistent with the objectives and definitions of VRM Class III and VRM Class IV designations. Entrega has consulted with the BLM to ensure that the proposed project would not conflict with the VRM designations.

During agency scoping meetings and field visits with staff from the BLM FOs, Entrega committed to additional mitigation measures that would reduce the effects of project activities on visual resources at three locations, including MP 39.1 along Pine Tree Gulch, the North Platte River crossing at MP 192.8, and the SeaWest Windfarm crossing at MP 236.2. Specifically, Entrega would reduce the construction ROW from 100 feet in width to 75 feet at MPs 192.7 and 236.2. Entrega would continue to consult with the BLM and other agencies during the construction period regarding impacts on visual resources.

For aboveground facilities, the impacts on visual resources from each individual facility would depend on the pre-construction condition and the visibility from the surrounding area. The following discussions provide the landscape context for each compressor station, which are the major project aboveground structures.

1. Meeker Compressor Station. This station would be located on private land next to a Rio Blanco County road that parallels Piceance Creek and associated irrigated pastureland. While agricultural uses are dominant in the foreground, existing oil and gas development (pipeline ROWs) is evident in the background, extending in several directions from the proposed site. Although the facility is located on private land, Entrega would comply with the objectives of BLM VRM Class III, which is to partially retain the existing character of the landscape by painting the compressor station a non-reflective Shale Green, or other color approved by the BLM.

2. Bighole Compressor Station. This station would be located on private land adjacent to a county road in a remote area of Moffat County. The area is characterized by low hills and valleys dominated by sagebrush. The compressor station would represent an isolated industrial development within a relatively natural nearby landscape. However, oil and gas drilling (well pads, gathering lines) are evident within 2 miles north and south of the proposed compressor station site. Although the facility is located on private land, Entrega would comply with the objectives of BLM VRM Class III, which is to partially retain the existing character of the landscape by painting the compressor station a non-reflective Shale Green, or other color approved by the BLM.

3. Wamsutter Compressor Station. This station would be located on private land adjacent to I-80 and the Union Pacific Railroad approximately 2 miles west of the community of Wamsutter. Natural gas development is highly evident in the vicinity of the station site, including a wide existing natural gas pipeline corridor, surface tanks, and existing compressor stations. Entrega would comply with the objectives of BLM VRM Class IV, which allows land disturbing structures and activities that repeat the form, line, color, and texture of the characteristic landscape. Aboveground facilities would be painted in neutral colors. The specific paint colors used for aboveground facilities on BLM properties have been identified in the BLM's POD.

Other aboveground facilties (metering station sites, some block valves) are located at or adjacent to compressor stations. Remaining block valves would be located next to lightly traveled roads that would generally be out of public view. These aboveground facilities also would be painted in neutral colors.

3.8 Cultural Resources

Section 106 of the NHPA of 1966, as amended, requires that the Commission take into account the effects of its undertakings (including the issuance of permits or Certificates) on historic properties listed on or eligible for listing on the NRHP, and afford the ACHP an opportunity to comment on the undertaking. The FERC is using the services of the applicant (Entrega) to prepare information, analyses, and recommendations necessary to meet our responsibilities under Section 106 and the ACHP's implementing regulations at 36 CFR 800. The FERC also consults with SHPOs pursuant to Section 101(b)(iii) of the NHPA and 36 CFR 800.3 through 800.6.

3.8.1 Results of Cultural Resources Survey

As part of its application, Entrega provided the FERC with its inventory reports and initial consultations with the Colorado and Wyoming SHPOs, the BLM, and Native American tribes. In addition, the application included Entrega's Monitoring and Unanticipated Discovery Plan. The inventory reports document the results of literature reviews, site file searches, cultural resources inventory, and test excavations for Entrega's proposed facilities in Colorado and Wyoming (Redman and Chandler 2004; Greiser 2004). The inventory reports are currently being reviewed by the FERC and the BLM.

The Colorado portion of the proposed pipeline route will measure 94.8 miles in length, of which 79.1 miles parallel existing pipelines, utilities, or road ROWs. Approximately 74.9 miles of the proposed route will parallel a previously inventoried pipeline. Where the proposed pipeline route parallels a previously inventoried pipeline, Entrega surveyed a 240-foot-wide corridor. The edge of the 240-foot-wide corridor was located 40 feet from the proposed centerline on the side with the existing pipeline and 200 feet from the centerline on the other side. The one exception was where Entrega paralleled the CIG Trailblazer Pipeline. Cultural resources investigations conducted in the 1980s for the Trailblazer Pipeline do not meet current inventory standards. Therefore, where Entrega paralleled the Trailblazer Pipeline (8 miles), a 300-foot-wide corridor centered on the staked centerline of the proposed pipeline route was surveyed. Where the proposed pipeline route did not parallel a previously inventoried pipeline, Entrega surveyed a 300-foot-wide corridor centered on the staked centerline of the pipeline route. In addition to the proposed pipeline route, Entrega surveyed 35.9 acres of temporary use areas that extend beyond the 240- to 300-foot-wide centerline inventory corridor, 37.8 miles (873.2 acres) of access roads, and 527.7 acres for aboveground facilities including compressor stations, meter stations, pipeyards, and contractor yards.

The Wyoming portion of the proposed pipeline route will measure 233.3 miles in length, of which 203.6 miles parallel existing pipelines and fiber optic ROWs. Approximately 123.3 miles of the proposed route will parallel a previously inventoried pipeline. Where the proposed pipeline route parallels a previously inventoried pipeline, Entrega surveyed a 250-foot-wide corridor. The edge of the 250-foot-wide corridor was located 40 feet from the proposed centerline on the side with the existing pipeline and 210 feet from the centerline on the other side. Where the proposed pipeline route did not parallel a previously inventoried pipeline, a 300-foot-wide corridor centered on the staked centerline of the pipeline route was surveyed. In addition to the proposed pipeline route, Entrega surveyed 263.9 acres of temporary use areas that extend beyond the 250- to 300-foot-wide centerline inventory corridor, 54.1 miles (324.9 acres) of access roads,

and 244.7 acres for aboveground facilities including compressor stations, meter stations, pipeyards, and contractor yards.

For both Colorado and Wyoming, a 100-foot-wide corridor was surveyed along each access road that may require blading and filling as a result of use by construction equipment and vehicles. For additional temporary workspace areas, compressor stations, meter stations, mainline valve sites, and other ancillary facilities, Entrega surveyed the footprint of each area plus a 100-foot-wide buffer zone. Access was denied to five segments of the pipeline corridor (totaling 15.5 miles) in Wyoming. As of March 2005, these areas are now inventoried and will be reported on separately in an addendum report.

Colorado

The Class III cultural resource inventory in Colorado located 73 cultural resource sites and 48 isolated finds. These include 40 previously recorded sites identified during the site file searches. The isolated finds and 33 of the sites are recommended or have been officially determined not eligible for listing on the NRHP. No additional investigation of these resources is recommended. Forty of the sites are recommended or have been officially determined eligible for the NRHP. Avoidance is recommended for these 40 sites (Redman and Chandler 2004). Entrega has provided information that indicates it currently would be able to avoid 19 of the 40 eligible sites by various methods, such as reroutes, bore, or crossing non-contributing segments of the sites. Entrega filed an addendum to the Class III cultural resource inventory of the Colorado segment of the proposed Entrega pipeline (Redman et al. 2005) for numerous reroutes and additional access roads, contractor/pipe yards, and extra workspace. The survey of reroutes resulted in the identification of three newly recorded sites and two isolated finds. All three of the sites are recommended eligible for the NRHP. The isolated finds are recommended not eligible for the NRHP. Entrega continues to explore reroutes to avoid additional eligible sites. For those sites that cannot be avoided by rerouting the pipeline, Entrega also is investigating the possibility of avoiding these sites through other means, including boring and directional drilling. Treatment plans for those eligible sites that cannot be avoided would be filed with the Commission. Cultural resources surveys still need to be completed for one access road in Colorado.

An additional 60 sites are thought to be present in the pipeline corridor based on file search data. Of these, 9 are recommended or have been officially determined eligible for the NRHP, 41 sites are recommended as needing additional data, and 10 sites are recommended or have been officially determined not eligible for the NRHP. Entrega proposed testing be conducted at 42 of the potentially eligible and eligible sites, and sites needing additional data, to determine whether they extend into the Entrega pipeline corridor and to evaluate their research potential. Testing was not proposed at the ineligible sites or at those sites that previously had been subjected to data recovery. Entrega filed an addendum to the Class III cultural resource inventory for testing at the 42 potentially eligible and eligible sites, and sites needing additional data (Eckman 2005). Testing was conducted at 28 of the proposed 42 sites. The remaining 14 sites could not be tested due to denied access. Of the 28 sites tested, nine sites produced enough evidence to recommend them eligible for the NRHP. Additional data is needed before eligibility can be determined for the remaining 19 sites.

The FERC provided the Colorado SHPO with combined federal agency (FERC and BLM) determinations of eligibility. With the exception of four sites which the agencies recommended as eligible rather than ineligible,

the FERC and BLM concurred with the recommendations in the Class III cultural resource inventory report and addendum reports. On April 13, 2005, the Colorado SHPO concurred with the agencies' determinations.

Wyoming

The Class III cultural resource inventory in Wyoming located 147 cultural resource sites and 60 isolated finds. These include 103 previously recorded sites identified during the site file searches. The isolated finds and 85 of the cultural resources are recommended or have been officially determined not eligible for listing on the NRHP. No further investigations are recommended for these resources. Forty-five of the cultural resources are recommended or have been officially determined as eligible for listing on the NRHP. Seventeen sites have been unevaluated. Avoidance is recommended for 15 of the 45 cultural resource sites recommended or officially determined eligible for the NRHP (Greiser et al. 2005). Entrega provided information that indicates it currently would be able to avoid 40 of the 45 eligible sites by various methods, such as reroutes, bore, or crossing non-contributing segments of the sites. Several segments of five NRHP-eligible historic linear sites (Cherokee Trail, Overland Trail, Old Union Pacific Railroad Grade, Lincoln Highway, and Rawlins-Baggs Road) would be crossed by the proposed Entrega pipeline; however, not all of the segments contribute to the site's overall NRHP eligibility. Adverse effects to those segments that contribute to the site's eligibility would be avoided by boring under the segments. The BLM requested additional testing at numerous sites. Entrega plans to file addendum Class III inventory reports with the Commission that present the results of the surveys of reroutes designed to avoid eligible sites and the results of additional testing. Entrega continues to explore reroutes to avoid additional sites. For those sites that cannot be avoided by rerouting the pipeline, Entrega also is investigating the possibility of avoiding these sites through other means, including boring and directional drilling. Treatment plans for those eligible sites that cannot be avoided would be filed with the Commission after Entrega has received all agency comments on the inventory and testing reports for the project and determinations of eligibility have been made by the agencies for all sites located within the APE.

A total of 74 previously recorded sites were not relocated during the cultural resources surveys. Sixty-five of the sites are presumed destroyed or possibly plotted incorrectly and nine of the sites are buried sites with no surface expressions. Entrega has recommended additional testing at five of the sites and open trench inspection for the one of the sites. Although these 6 sites could not be relocated during surveys, previous investigations have demonstrated that the sites have the potential to contain buried features. Intensive surface reconnaissance is recommended for one site to identify the position of the site relative to the project area.

The City of Cheyenne (Preservation Planner) and a citizen expressed concern regarding an historic cultural resources site, and indicated that this site should be avoided. Entrega would fence and avoid the site.

3.8.2 Native American Consultation

Entrega sent initial consultation letters to 18 Native American tribes on April 14, 2004. The letters described the project and provided the tribes with the opportunity to comment on the project and identify sites or places that might be of religious or cultural significance to the tribes. Entrega also has conducted telephone

follow-ups with the tribes. To date, 13 of the tribes have responded. **Table 3.8-1** lists the Native American tribes that have been contacted and summarizes concerns they have raised. Entrega has indicated that they are working with the various Native American tribes and intend to continue consultation throughout the environmental review and construction phase of the project. In addition, the FERC sent the NOI to these same tribes. No responses have been received to date.

Table 3.8-1
Native American Consultations for the Entrega Pipeline Project

Tribe	Date	Status
Apache Tribe of Oklahoma	01/10/05	Tribe requested copy of survey reports and to be notified if cultural resources are found.
Cheyenne & Arapaho Tribes of Oklahoma		Still reviewing consultation letter.
Cheyenne River Lakota Tribe	07/07/2004	Tribe has no comments/concerns at this time.
Comanche Tribe of Oklahoma	None[1]	
Crow Creek Lakota Tribe		Still reviewing consultation letter.
Crow Tribe	None[1]	
Eastern Shoshone Tribe	05/19/2004	Tribe requested copy of survey reports. No other comments at this time.
Jicarilla Apache Tribe	04/26/2004	Tribe has no interest in the project.
Kiowa Tribe of Oklahoma	07/07/2004	Tribe would like to be notified if cultural resources are found.
Northern Arapaho Tribe	07/13/2004	Tribe has no interest in the project.
Northern Cheyenne Tribe	05/18/2004	Tribe requested meeting with BLM or FERC to discuss the project.
Northern Ute Tribe	None[1]	
Oglala Lakota (Sioux) Tribe	07/22/2004	Tribe has no interest in the project.
Pawnee Nation of Oklahoma	04/26/2004	Tribe has no interest in the project.
Rosebud Lakota Tribe (same as Rosebud Sioux Tribe)	07/07/2004	Tribe has no comments/concerns.
Southern Ute Indian Tribe	11/04/2004	Tribe did not object to the project.
Standing Rock Lakota Tribe	05/25/2004	Tribe has no interest in the project.
Ute Mountain Ute Tribe	None[1]	

[1] To date, no response has been received.

3.8.3 Construction and Operational Impacts

Project impact or effects include not only the physical disturbance of an historic property, but also may include the introduction, removal, or alteration of various visual or auditory elements, which could alter the traditional setting or ambience of the property. In consultation with the Colorado and Wyoming SHPOs and the BLM, the FERC would determine whether construction of the proposed project would affect any properties listed on, or eligible for listing on, the NRHP. If a property would be adversely affected, mitigation would be proposed. Mitigation may include, but not be limited to, one or more of the following measures: 1) avoidance through the use of realignment of the pipeline route, relocation of temporary extra workspace, or changes in the construction and/or operational design; 2) data recovery, which may include the systematic professional excavation of an archaeological site or the preparation of photographic and/or measured drawings documenting standing structures; and 3) the use of landscaping or other techniques that would minimize or eliminate effects on the historic setting or ambience of standing structures.

Cultural resources surveys still need to be completed for one access road in Colorado. To date, there are 33 sites that are recommended or officially determined not eligible for the NRHP, requiring no further work, while 43 sites are recommended or officially determined eligible for the NRHP. Avoidance is recommended for the 43 eligible sites. Entrega indicates it would currently be able to avoid 19 of these sites, and that it continues to explore reroutes designed to avoid additional eligible sites. Treatment would be proposed for those eligible sites that cannot be avoided. An additional 42 potentially eligible or eligible sites are presumed buried. Testing was conducted at 28 of the 42 buried sites to determine whether they extend into the Entrega pipeline corridor and to evaluate their research potential. Landowner permission could not be obtained to test the remaining 14 sites.

In Wyoming, 85 sites are recommended or officially determined not eligible for the NRHP, requiring no further work, 45 sites are recommended or officially determined eligible for the NRHP, and 17 sites are unevaluated. Entrega indicates it would currently be able to avoid 40 of the 45 sites, and that it continues to explore reroutes designed to avoid additional eligible sites. Treatment would be proposed for those eligible sites that cannot be avoided. A total of 74 previously recorded sites could not be relocated during the surveys. Previous investigations have demonstrated that six of these sites have the potential to contain buried features. Evaluative testing is recommended for five of the sites and open trench inspection is recommended for one of the sites.

The process of fully complying with Section 106 of the NHPA has not yet been completed for the EPP. Evaluative testing has not been completed and reroutes to avoid eligible sites have not been finalized. Once evaluations are complete and it has been determined which sites can or cannot be avoided, the FERC, in consultation with the BLM and SHPOs, would make final determinations of NRHP eligibility and project effects. If historic properties would be adversely affected, a treatment plan to mitigate any adverse effects would be prepared in consultation with the appropriate parties. Once a treatment plan is approved, Entrega would implement the specified treatment measures before notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after certification of the proposed project. The FERC would ensure that treatment is carried out.

To ensure that the FERC's responsibilities under the NHPA and its implementing regulations are met, **we recommend that:**

- **Entrega defer construction and use of facilities and staging, storage, and temporary work areas and new or to-be-improved access roads until:**

  a. **Entrega files with the Secretary all remaining cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans;**

  b. **Entrega files with the Secretary the BLM's and the Colorado and Wyoming State Historic Preservation Offices' comments, as applicable, on all reports and plans; and**

  c. **the Director of OEP reviews and approves all reports and plans and notifies Entrega in writing that it may proceed.**

- **All material filed with the Commission that contains location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE."**

3.9 Socioeconomics

3.9.1 Population

In 2000, the population of Colorado was 4,301,261 and the population of Wyoming was 493,782. In part due to energy development activities, Colorado's population climbed by 5.8 percent to 4,550,688 in 2003, with Wyoming's population increasing by 1.5 percent to 501,242 (U.S. Census Bureau 2004). The five counties that would be crossed by the western and central portions of the proposed pipeline route are largely rural, generally with a single population center in proximity to the route. The three counties crossed by the eastern portion of the route, Laramie, Larimer, and Weld, also are relatively rural but more urbanized, with each having one or more metropolitan centers. Garfield and Routt Counties in northwestern Colorado though not directly affected by the proposed route, border Rio Blanco and Moffat Counties, and thus may experience indirect or secondary effects from the proposed project.

The least populus county crossed by the proposed pipeline route is Rio Blanco County, Colorado, which had a population of 5,986 in 2000. The most populated county that would be crossed by the proposed pipeline route is Larimer County, Colorado, which had a population of 251,494 in 2000. A majority of the population in Larimer County is centered around Fort Collins, Colorado, which is about 30 miles southwest from the proposed terminus at the Cheyenne Hub Metering Station. **Table 3.9-1** describes population and recent population change for the proposed project area.

Table 3.9-1
Population

County	2000	2003	Change, 2000 to 2003	
			Absolute	Percent
Albany, WY	32,014	31,887	(127)	-0.4
Carbon, WY	15,639	15,302	(337)	-2.2
Laramie, WY	81,607	84,083	2,476	3.0
Sweetwater, WY	37,613	37,018	(595)	-1.6
Garfield, CO	43,791	47,611	3,820	8.7
Larimer, CO	251,494	266,610	15,116	6.0
Moffat, CO	13,181	13,527	346	2.6
Rio Blanco, CO	5,986	5,938	(48)	-0.8
Routt, CO	19,690	20,788	1,098	5.6
Weld, CO	180,862	211,272	30,410	16.8

Source: U.S. Census Bureau, Population Division 2004.

Larimer and Weld Counties each experienced substantial population growth over the past 3 years, though much of the growth in Weld County occurred in the southern portion of the county, and is tied to the northward expansion of the Denver metropolitan area. The three rural counties in northwestern Colorado also have seen population gains, particularly Garfield County located just south of Rio Blanco County and the site of substantial energy exploration and development activity in recent years. Population changes in

Wyoming have been relatively limited in scale, with three of the four counties losing population between 2000 and 2003.

Potential impacts to the existing socioeconomic environment of the proposed project area arise primarily due to the relatively large-scale, temporary influx of construction workers, and to a much lesser extent the additional operation personnel. Entrega anticipates approximately 1,000 to 1,100 construction personnel would be employed during the second half of 2005 to complete Segment 1 of the pipeline phase of the project. Segment 2 of the pipeline phase is proposed for construction during the summer and fall of 2006, with construction of the three compressor stations (Phase 2) scheduled for late 2006 and early 2007. Construction personnel would consist of Entrega employees, contractor employees, construction inspection staff, and environmental inspection staff. Entrega is planning to build the pipeline in four spreads, with construction activity occurring simultaneously in Spreads 1 and 2 (Meeker Hub to Wamsutter) in 2005 and Spreads 3 and 4 (Wamsutter to Cheyenne Hub) in 2006. The applicant anticipates between 425 and 550 construction and inspection personnel associated with each spread. In addition, seven meter stations would be built, one at the Meeker Hub Compressor Station, two near Wamsutter and four at the Cheyenne Hub Metering Station. Construction of the meter stations would require 50 to 75 workers for a relatively short period, (estimated to be 3 to 5 weeks per station). Entrega anticipates about 100 individuals across the project to be involved in material transportation and unloading. At this time, Entrega has proposed to commence construction of Segment 1 in July 2005. Each spread would require 4 to 6 months to complete, with all work to be completed by the end of the year.

Construction of each compressor station would require approximately 100 to 134 additional workers. Entrega has proposed to commence construction of the three compressor stations beginning in September 2006. A 6-month construction schedule is anticipated for each of the three compressor stations. During that period, personnel would work during daylight hours.

The staggered commencement of construction, brief duration of activity associated with the meter stations and scheduled construction of Segment 2 and the compressors in 2006/2007 yields a temporary peak workforce of about 1,065 workers for a 6-month period in 2005, and a peak of 1,470 workers in November and December 2006. Entrega's proposed construction plan is for Spreads 2 and 3 to commence at Wamsutter and move south and east, respectively. Spread 1 may involve smaller crews working at multiple locations simultaneously, while Spread 4 would commence at the Cheyenne Hub and move westward (**figure 3.9-1**).

Entrega, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population, i.e., currently residing in nearby areas of Colorado and Wyoming such that would not relocate and impose additional demands on housing. It is anticipated that up to 15 percent of the total construction workforce could be hired locally in the western portion of the project (i.e., Spreads 1, 2, and 3 and the three meter stations). The remaining 85 percent, approximately 900 workers at the peak in 2005, would consist of non-local hires. Note that the local/non-local status could change for some workers as the specific location changes. For example, residents of Rock Springs employed on Spread 2 may initially commute, but then relocate to Craig temporarily as the project construction moves southward.

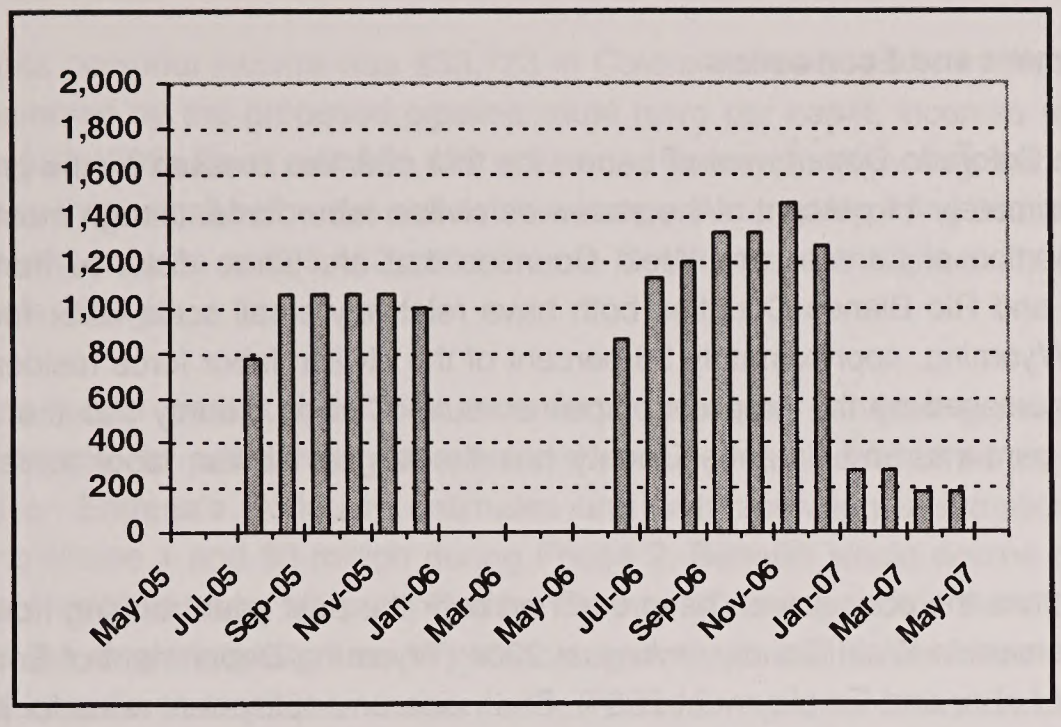


Figure 3.9-1. Projected Construction Workforce

Local hiring for Spread 4 and the four meter stations at the Cheyenne Hub Metering Station would likely be higher (i.e., 20 to 25 percent) due to the larger labor force and diminished competition in the four counties in the eastern portion of the proposed route. Non-local workforce requirements in 2006 could be as high as 1,040 workers for construction of the pipeline. Construction of the compressor stations would begin in September of 2006 and require an additional 300 to 400 workers.

Environmental inspection staff would likely consist entirely of non-local employees based on the specialized skills and experience required for the job.

Population impacts from the influx of temporary construction and inspection personnel would be temporary and dispersed across the proposed route. Due to the temporary and transitory nature of the work, most non-local workers would not be accompanied by spouses, other family members or nonfamily partners. Thus, the overall population impact would be only slightly higher than the number of workers (i.e., 20 to 40 percent). Nevertheless, the population impacts in the smaller communities would be moderate.

It is estimated that six to eight permanent employees would be required to oversee the operation and maintenance of the pipeline, including the compressor stations and other aboveground facilities. These employees would most likely be hired from outside the local labor force, as they would have specialized responsibilities or have current employment with Entrega, but then would establish residency in communities near the proposed project route. No additional personnel would be hired to operate and maintain the compressor stations as these facilities would be constructed to operate automatically. Any specific operation and maintenance task which cannot be completed by Entrega's staff would be completed on a contractual and as-needed basis. Given the small number of permanent workers, secondary employment effects would be limited. Thus, the project would not have a significant long-term impact on the permanent population.

3.9.2 Employment and Economics

Based on data from the Colorado Department of Labor, the four counties crossed by the proposed pipeline route account for approximately 11 percent of the statewide civilian labor force, though most of that is in the central and southern portion of Larimer and Weld Counties that are some distance from the proposed project location. Moffat and Rio Blanco Counties both have relatively small scale labor forces, 6,783 and 3,678, respectively. In Wyoming, approximately 36 percent of the civilian labor force resides within the four counties that would be crossed by the proposed pipeline route. Carbon County has the smallest civilian labor force with 8,156 persons, and Laramie County has the largest civilian labor force with a total of 44,291 persons.

Unemployment rates across the project area have declined over the past year, ranging from 1.7 percent in Albany County to 5.8 percent in Weld County in August 2004 (Wyoming Department of Employment 2004; Colorado Department of Labor and Employment 2004). Statewide unemployment rates for the same period were 4.9 percent in Colorado and 3.0 percent in Wyoming. Unemployment rates are generally higher in those counties that experienced the strongest population growth in recent years (**table 3.9-2**). Given the limited size of the local labor force in the more rural counties, the number of available workers is very low, for example, 122 unemployed in Rio Blanco County and 243 unemployed in Carbon County.

Table 3.9-2
Labor Market Conditions, August 2004

County	Labor Force	Employed	Unemployed	Unemployment Rate
Albany, WY	18,497	18,182	315	1.7%
Carbon, WY	8,156	7,913	243	3.0%
Laramie, WY	44,291	42,565	1,726	3.9%
Sweetwater, WY	20,829	20,277	552	2.7%
Garfield, CO	28,379	27,696	683	2.4%
Larimer, CO	160,685	153,375	7,310	4.5%
Moffat, CO	6,783	6,437	346	5.1%
Rio Blanco, CO	3,678	3,556	122	3.3%
Routt, CO	12,462	12,167	295	2.4%
Weld, CO	105,308	99,193	6,115	5.8%

Sources: Colorado Department of Labor and Employment 2004; Wyoming Department of Employment 2004.

In northwestern Colorado, the primary employment sectors of the counties crossed by the proposed pipeline route are agriculture, oil and gas development, trade and construction, while mining (both mineral and oil and gas development) education, health, public administration, trade and tourism/travel are the primary employment sectors in Wyoming. The latter is due in part to the I-80 corridor across southern Wyoming. The two eastern Colorado counties have relatively diversified economies, including higher education, more typical of metropolitan areas.

In 2002, per capita personal income was $33,723 in Colorado and $31,021 in Wyoming. In Colorado, the four counties traversed by the proposed pipeline route have per capita incomes ranging from $24,136 in Moffat County to $27,439 in Routt and $31,420 in Larimer County. In Wyoming, the counties traversed have per capita incomes that are all below the statewide average. Among Wyoming counties, Carbon County has the lowest per capita income at $25,432 and Laramie County has the highest at $30,949 (U.S. Bureau of Economic Analysis 2004).

Local businesses would benefit from demands for goods and services generated by the temporary construction workforce. In addition to the personal earnings of local temporary employees, estimated spending based on Entrega's workforce estimates and daily spending assumptions totals approximately $24 million during Phase 1 and $3 million during Phase 2. Benefits would accrue to many establishments across the entire proposed route, although Carbon County, Wyoming, would benefit the most, because it is expected to host the single largest share of nonlocal workers as well as contractor staging areas and pipe yards. Beneficial impacts on local businesses during Phase 2 would be concentrated in the western portion of the project area due to the locations of the proposed compressor stations, with Moffat County realizing the largest benefits.

In addition, local purchases for materials necessary with the EPP would be made. Entrega estimates that local purchases made by personnel associated with the construction of the EPP would primarily include consumables, fuel, and miscellaneous construction-related materials (e.g., office supplies). The costs estimated for the entire project related to materials are:

- Diesel fuel = $3 million
- Gasoline = $1.5 million
- Miscellaneous lumber, consumables, office supplies = $200,000

The economic stimulus provided by the project would result in temporary secondary impacts on employment as local establishments add staff or increase hours worked by existing staff to accommodate the increases in demand. Long-term construction projects may generate between 0.7 and 1.1 additional jobs for each direct job associated with the project. However, given the temporary nature of the EPP and the changing location of activities, the secondary impacts would be expected to be on the order of about 0.35 jobs, 744 jobs total, across the entire project.

Construction and operation of the project would have beneficial impacts on local sales and lodging tax revenue. Based on the estimated retail purchases by temporary workers and current sales tax rates, additional sales and lodging taxes during Phase 1 would be about $561,000 in Wyoming and $364,000 in Colorado. About 66 percent of the Wyoming total would accrue to the state, the remainder to various county and municipal governments. In Colorado, about 41 percent would accrue to the state, the remainder to local governments. During Phase 2, the additional totals are estimated at $75,000 in Wyoming and $49,000 in Colorado, with similar distributions of the accruals to state and local governments. Additionally, Entrega would pay sales tax for the lease and/or rental of various office and construction equipment and space for FOs and the storage of construction equipment.

Of greater significance to state and local revenues would be the sales or use taxes on pipe and other materials and installed equipment associated with the project. Such purchases are subject to sales tax if the items are manufactured in-state, or use tax when purchased outside the respective states and imported into state. Typically project owners and contractors are entitled to a credit for taxes paid in another jurisdiction (e.g., the point of purchase or manufacture), but generally have an option to specify the point of delivery as the location for purposes of taxation. All four Wyoming counties impose a use tax, as does Rio Blanco County. Moffat County does not impose a use tax. Entrega's estimated sales/use tax obligation, based on current tax rates and assuming it exercises the option for local taxation, is $11.4 million in Wyoming and $3.5 million in Colorado for Phase 1. Corresponding tax revenues for Phase 2 are $1.4 million in Wyoming and $1.3 million in Colorado. In Wyoming about 80 percent of the total would accrue to the state, the remainder distributed among the counties based on the value of installed materials and equipment. The distribution in Colorado would be about 75 percent to the state and 25 percent to Rio Blanco County.

During construction Entrega anticipates that total payroll for the project would be about $176 million (approximately two-thirds associated with construction in Wyoming and one-third in Colorado). Estimated payroll for Phase 1 is $162 million (92 percent of the total), with $14 million in added payroll in Phase 2. Individual workers who are Colorado residents, or who work in Colorado on a temporary basis would incur an income tax liability on those earnings. This would temporarily increase the tax revenue for the state, although the increase would be relatively small.

Long-term income associated with Entrega's operational workforce and the wages and salaries are not quantified, but would be relatively small in comparison to the construction payroll.

3.9.3 Housing

Housing availability across the project area is a function of the housing stock, recent economic and population growth, the inventory of short-term lodging accommodations, such as recreational vehicle (RV) parks and hotel and motel rooms, and demand for housing from other sources. In 2000, the total housing supply ranged from 2,855 units in Rio Blanco County to 105,392 units in Larimer County. Carbon County registered a total housing supply of 8,307 units (**table 3.9-3**).

A key indicator of housing availability to meet short-term needs is the number of available rental units. Among the rural counties in the western portion of the project area the number of such units recorded in the 2000 Census ranged from 127 units in Rio Blanco to 680 units in Sweetwater County. In the case of the latter, most of those units were in Rock Springs or Green River, a considerable distance from the proposed route. A larger number of rental units were available in the more urban communities in the eastern portion of the proposed route.

Relatively little new residential construction, a combined 561 total units permitted, has occurred in Rio Blanco, Moffat, Carbon, and Sweetwater Counties since the 2000 Census (U.S. Census Bureau 2004; Colorado Division of Local Government 2004; and Wyoming Department of Administration and Information 2004). Significant new construction has occurred in all the other counties, including 824 new units in Albany County, 1,876 units in Garfield County, and 1,821 units in Laramie County. Most of the new housing units were single-family residences.

Table 3.9-3
Housing Assessment, November 2004

County	Total Units – 2000	Available Rental Units – 2000	Building Permits 2000 – 2003
Albany, WY	15,215	353	824
Carbon, WY	8,307	360	131
Laramie, WY	34,213	823	1,821
Sweetwater, WY	15,921	680	190
Garfield, CO	17,336	217	1,876
Larimer, CO	105,392	1,342	13,272
Moffat, CO	5,635	189	180
Rio Blanco, CO	2,855	127	60
Routt, CO	11,217	956	1,359
Weld, CO	66,194	826	6,115[1]

[1]Includes only the unincorporated county and City of Brighton, excludes Greeley and other municipalities.

Sources: U.S. Census Bureau 2004; Colorado Division of Local Government 2004; Wyoming Department of Administration and Information 2004.

A second critical component of local housing markets is the inventory of short-term accommodations. Such accommodations include RV spaces, motel and hotel rooms and mobile home spaces. In some instances, recreational cabins and seasonal housing for migratory workers also may be available. With the exception of Rio Blanco County with 404 units, the inventory of such accommodations is relatively large in most of the counties because tourism, travel, and outdoor recreation play major roles in the local economies (**table 3.9-4**).

The short-term accommodations tend to be geographically concentrated in the largest communities in each county, although there are some RV parks and smaller motels in outlying communities, particularly along the I-80 corridor in Carbon County.

Vacancy surveys of rental housing in Wyoming indicate limited availability across the study area, with estimated vacancy rates ranging from under 1.0 percent in Sweetwater County to 8.4 percent in Carbon County. However, even the latter represents only about 50 units. (Wyoming Housing Database Partnership 2004). Similar surveys for Larimer and Weld Counties in eastern Colorado indicate substantially improved availability, with vacancy rates of over 11.0 percent. (Colorado Department of Local Affairs 2004). Vacancy rates for rental housing are not reported for rural Colorado, but anecdotal reports suggest limited availability in many communities, although housing is reportedly more available in the Craig area following the recent completion of a major retrofit project at the nearby powerplant. Anecdotal information also indicates limited

Table 3.9-4
Estimated Temporary Housing Inventories

	RV Spaces	Motel/Hotel Rooms	Mobile Home Spaces	Total	Temporary Housing Availability
Albany, WY	181	1,074	1,237	2,492	Fair
Carbon, WY	395	1,367	2,583	4,345	Limited
Laramie, WY	490	2,407	2,297	5,194	Fair
Sweetwater, WY	215	1,718	3,696	5,629	Limited
Garfield, CO	196	>1,000	NA	>1,196	Very Limited
Larimer, CO	375	1,877	NA	2,252	Good
Moffat, CO	221	600	858	1,679	Fair to Good
Rio Blanco, CO	108	143	153	404	Very Limited
Routt, CO	105	>1,000	NA	>1,105	Good
Weld, CO	115	678	614	1,407	Good
Totals	**2,401**	**11,864**	**11,438**	**25,703**	

Note: RV spaces exclude some or all spaces in national forest and state park campgrounds. Only some, unknown number, of the mobile home spaces are available at any one time and may not be available for short-term use.

Sources: Appendix 5A – EPP, Pedersen Planning Consultants 2004; various community/tourism promotion websites; T.L. Enterprises 2004.

availability of short-term lodging across most of the western portion of the study area, particularly in Sweetwater and Rio Blanco Counties, due to ongoing energy resource development and seasonal tourism and hunting demand. Temporary housing availability is relatively better in the eastern counties which generally have larger inventories of rooms and spaces and are not experiencing the comparable levels of competing demand from ongoing energy resource development. Given the above, housing availability can be characterized as limited to very limited in the western counties and fair to good in the eastern counties.

The project construction period would be relatively short and most non-local workers likely would be unaccompanied during their work tenure on the project. Consequently, it is expected that most project workers would use temporary housing, such as hotels/motel, RV parks, and campgrounds. Some workers would likely resort to renting furnished apartments and homes, due to availability constraints of other accommodations, though this is generally less preferable due to landlord and property management company preferences for extended term commitments. Most of the temporary workers would seek housing in the more populated, service-oriented towns located within a reasonable commuting distance to the work site. As the more convenient options fill, workers would seek alternatives, driving further, looking at smaller communities, even using campgrounds on the national forests or at state parks despite the fact that those sites have 14-day stay limits. Furthermore, some individuals may desire to relocate during the term of the project as the active activity area in each spread moves along the corridor. The net effect of these factors is that the temporary housing demand would be dynamic. An assessment of the temporary housing demands, based on the local/nonlocal hiring assumptions outlined above, the locations and driving distances involved

and the availability of temporary housing yielded the temporary housing demand profile shown in **table 3.9-5**.

Table 3.9-5
Projected Peak Temporary Housing Requirements

	Projected Non-Resident Workers		Percent Distribution, By Month	
	Phase 1, Segment 1	Phase 1, Segment 2 and Phase 2	Phase 1, Segment 1	Phase 1, Segment 2 and Phase 2
Albany, WY	12	192	1	18
Carbon, WY	201	439	22	42
Laramie, WY	12	104	1	10
Sweetwater, WY	154	67	17	6
Garfield, CO	130	26	14	2
Moffat, CO	213	96	24	9
Rio Blanco, CO	141	43	16	4
Routt, CO	37	14	4	1
Larimer, CO	--	40	0	4
Weld, CO	--	20	0	2
Total	**900**	**1,041**	**100**	**100**

Source: Sammons/Dutton LLC. 2005.

Peak temporary housing demand for Segment 1, Phase 1 is projected at 900 units between September and November 2005, when construction of Spreads 1 and 2 and three metering stations is occurring. Demand would initially be heaviest in Moffat and Carbon Counties. Availability constraints in Rio Blanco and possibly Moffat Counties are likely to result in commuting from nearby locations in Routt and Garfield Counties. When construction activity on Segment 2, Phase 1 and the thee compressors (Phase 2) is occurring, strong housing demand would continue in Carbon County, however, temporary demand would increase to more than 190 units in Albany County. In Carbon County, demands for temporary housing are likely to spillover from Rawlins to smaller, outlying areas like Saratoga, Hanna, and Elk Mountain. The temporary housing demands associated with the project would compete with summer tourism and fall hunting demands across the region. Consequently, though for relatively short-duration, some smaller communities would experience extremely tight market conditions for temporary housing. The larger communities, particularly Laramie, Cheyenne, and Fort Collins have adequate capacity to meet the needs.

Housing requirements for the operation and maintenance of the pipeline would be minimal. Sufficient permanent housing is available within or near the project area for the estimated six to eight full-time Entrega employees.

3.9.4 Public Services and Facilities

Table 3.9-6 outlines selected public services and facilities serving the proposed project area. In general, the public services available are functions of the size and population of the county and the numbers of larger communities in the county. Law enforcement is provided by multiple providers including the respective state patrols, county sheriffs and local police departments. In many instances, mutual aid/cooperative agreements among agencies allow members of one agency to provide support or backup to the other agencies in emergency situations.

Table 3.9-6
Existing Public Services and Facilities

State/County	Police/Sheriff Departments[1]	Fire Departments[2]	Medical Facilities[3]
COLORADO			
Rio Blanco	3	2	2 Hospitals
Moffat	2	2	1 Hospital
Larimer	5	13	3 Hospitals
Weld	15	19	1 Hospital
WYOMING			
Sweetwater	4	9	1 Hospital
Carbon	7	8	1 Hospital
Albany	2	4	1 Hospital
Laramie	4	9	2 Hospitals

[1] Capitolimpact.com. http://www.captiolimpact.com, accessed 10/08/03. Does not include special law enforcement units for universities.
[2] Firehouse Network. http://www.fire-ems.net, accessed 10/13/03. Includes volunteer, district, city, and town departments, but does not include departments and services offered by the BLM or the Department of Defense.
[3] Colorado Health and Hospital Association. http://www.cha.com/Hospitals/hospitals.shtml, accessed 10/13/03. Wyoming Hospital Association. http://www.wyohospitals.com/find.html, accessed 10/13/03.

A network of fire departments and districts provide fire protection and suppression services across the region. Many of the fire districts across the region are staffed by volunteers and are housed in stations located in the larger communities. Together, these factors can increase response times to incidents. Federal land management agencies also maintain wild land and forest fire suppression capabilities in the region, though these capabilities are not generally staffed for quick response dispatch.

At least one acute care hospital is operating in each county crossed by the proposed route, providing emergency medical care and in several cases also serving as the base for local emergency medical response and transport services. As in the case of fire suppression, response times to highway or construction-related accidents in parts of the proposed route may be lengthy given communication, dispatch and travel time considerations.

Higher level trauma centers capable of treating serious injuries requiring more specialized or intensive care are located in Rock Springs and each of the four eastern counties in the study area; Albany, Laramie, Larimer, and Weld. The most serious injuries may require transport to regional trauma centers in Grand

Junction, Colorado and Casper, Wyoming or even to Denver or Salt Lake City. The regional trauma centers all provide emergency medical air transport, via either helicopter or fixed wing aircraft, with airports capable of accommodating fixed-wing aircraft located in Rifle, Meeker, Craig, Rawlins, and Rock Springs.

Construction of the pipeline could result in minor, temporary impacts on local facilities and services, including law enforcement, fire and medical services. As highlighted by the Rio Blanco Sheriff during public scoping, lengthy emergency medical response times are of particular concern in the more remote stretches of the proposed pipeline route. To address these concerns, Entrega has drafted an on-site ERP, which includes the formation of emergency response teams for the project (Entrega 2004g). The ERP would be provided to the BLM, Colorado and Wyoming Departments of Transportation and the FERC upon completion.

Other construction-related impacts on local services may include increased demand for permits for vehicle load and width limits and local police assistance during construction at road crossings to facilitate traffic flow. Entrega would work with the local law enforcement, fire departments, and emergency medical services to coordinate for effective emergency response. The degree of impact would vary from community to community depending on the number of non-local workers and accompanying family members that temporarily reside in each community, the duration of their stay, and the size of the community. Although these factors are too indeterminate and variable to accurately predict the magnitude of impact, the effects would be short term and therefore not expected to be significant.

The limited number of permanent employees associated with the proposed project would result in negligible long-term impacts on public services.

3.9.5 Public Sector Fiscal Resources

Local municipal governments, school districts and some other government-funded entities rely heavily on property and sales tax revenues to fund their ongoing operations. **Table 3.9-7** lists the 2003 total assessed valuation from all sources and estimated gross retail sales of all establishments. Note that the values for Wyoming and Colorado counties are not directly comparable due to differences in property assessment practices, but comparisons between counties within a state reflect differences in the scale of development and natural resource wealth. For instance, assessments on mineral production account for about 63 percent of the total assessed valuation in Carbon and Sweetwater Counties and 76 percent of Rio Blanco County's total. Other state-assessed property, including utilities and oil and gas transmission systems account for 48 percent of the total valuation in Moffat County and between 10 and 13 percent of the total in Albany, Carbon, Sweetwater, Rio Blanco, Routt and Weld Counties. Statewide total assessed valuation on gas transmission pipelines in 2003 was $121.7 million in Wyoming and $255.6 million in Colorado. Residential, commercial and industrial development are the primary constituents of the tax base in the more urban counties including Albany, Laramie, Larimer, Weld, and Routt Counties. The latter is included as a result of the extensive resort development in and around Steamboat Springs.

Table 3.9-7
County Property and Sales Tax Base

	Assessed Valuation 2003	Gross Retail Sales (Estimated)
Albany, WY	208,799,630	422,378,000
Carbon, WY	382,269,728	344,978,000
Laramie, WY	538,688,179	1,221,269,000
Sweetwater, WY	1,160,741,992	1,073,949,000
Garfield, CO	923,800,470	1,243,843,000
Larimer, CO	3,108,530,290	5,725,901,000
Moffat, CO	298,876,180	226,378,000
Rio Blanco, CO	304,607,460	169,443,000
Routt, CO	687,473,320	591,417,000
Weld, CO	2,487,423,740	4,061,799,000

Note: Retail sales for Wyoming are Fiscal year 2004, those for Colorado are for calendar year 2003.

Sources: Wyoming Department of Administration and Information 2004; Wyoming Taxpayers Association 2004; Colorado Division of Local Affairs 2004.

Gross annual retail sales reflect a locality's population, income, the level of travel and tourism in the region, the presence of special populations such as a college or university, and the economic stimulus provided by special activities such as construction projects and energy and mineral resource development. Both states, all of the counties but Weld, and many of the communities within the counties levy sales taxes on retail purchases. Based on total annual gross retail sales, Rio Blanco and Moffat Counties have the smallest trade and service sectors of all the counties crossed by the proposed project while Weld and Larimer Counties have the largest. As reflected in **table 3.9-7**, the range extends between $169.4 million (Rio Blanco County) and $5.7 billion (Larimer County).

During operation of the pipeline, Entrega would pay property/ad valorem taxes to local governments crossed by the proposed pipeline. In Wyoming, those payments would include taxes associated with a mandatory statewide levy to help support public education. Transmission lines are centrally assessed by the state, with the total valuation then allocated among the local counties based on their respective shares of the installed pipelines and facilities. Initially the cost of construction provides a reasonable proxy for the assessed valuation of gas transmission systems. Over time, the assessment focuses more on the respective facility's contribution to system-wide income and depreciated value, generally resulting in lower assessment. Hence, the aggregate assessed valuation of gas transmission systems (327.5 miles of pipeline and corresponding compressors and other equipment) in Colorado and Wyoming in 2003 was just over $377 million, with an corresponding pre-assessed value of $1.9 billion. For this analysis, it is assumed that the long-term assessment would decline to 40 percent of the initial construction cost. **Table 3.9-8** summarizes the projected assessed valuation and corresponding annual property taxes, by county, directly associated with Entrega's proposed pipeline.

Initially, the estimated aggregate assessed valuation would be about $102.9 million. Of that sum, 46 percent would be in Wyoming and 54 percent in Colorado. Total annual property taxes levied on those assessments

are projected at nearly $6.0 million. Over time, the total assessed value is anticipated to decline to $41.1 million and the annual property taxes paid to $2.4 million. The ongoing revenues, given the relatively low demands on public services and facilities would be a significant benefit associated with the project.

Table 3.9-8
Projected Assessed Value and Annual Property Taxes, by County

	Assessed Valuation			Annual Property Tax	
	Initial Construction[1]	Long-term[2]	Property Tax Mill Levy[3]	Initial Construction	Long-term
Albany, WY	9,790,000	3,916,000	63.750	624,090	249,640
Carbon, WY	18,531,000	7,412,000	60.313	1,117,660	447,060
Laramie, WY	3,597,000	1,439,000	66.000	237,400	94,960
Sweetwater, WY	15,108,000	6,043,000	61.823	934,010	373,600
Larimer, CO	47,000	19,000	73.438	3,430	1,370
Moffat, CO	35,169,000	14,068,000	60.720	2,135,480	854,190
Rio Blanco, CO	15,480,000	6,192,000	37.764	584,590	233,830
Weld, CO	5,224,000	2,090,000	67.291	351,520	140,610
Total	**102,946,000**	**41,179,000**	**NA**	**5,988,180**	**2,395,260**

[1] Initial valuations based on 11.5 percent assessment rate in Wyoming and 29 percent in Colorado.
[2] Assumes assessed valuation at 40 percent of construction cost after the pipeline has been operational for several years and is centrally assessed based on its contribution to annual corporate income.
[3] Average mill levies for real property in unincorporated areas of each county.

Source: ENSR, based on data from Entrega Gas Pipeline, Inc.; local county assessors; the Colorado Division of Property Taxation 2004; Wyoming Department of Revenue 2004.

Tax revenues are typically used by local and state governments for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community.

Retail sales, property, income (in Colorado) and other taxes from the permanent employees living in would have comparatively no effect on state, county, or local tax revenues.

3.9.6 Transportation

The major transportation routes that would be crossed by the proposed pipeline project include U.S. I-25 and I-80, U.S. Routes 40 and 85, Colorado State Routes 13 and 14, and Wyoming State Routes 430 and 789. Rio Blanco County, Colorado, has two Colorado State Routes traversing through it, as most of the county is unpopulated, contains largely public lands, has rugged terrain, and is not located between two major cities. In contrast, the counties of Carbon, Albany, and Laramie, Wyoming, have various routes of transportation including U.S. Interstates, U.S. Routes, and Wyoming State Routes.

Another significant transportation feature in the region is the Union Pacific mainline route across southern Wyoming. The railroad corridor and I-80 generally parallel each other across much of the project area, the two major points of divergence occur in Carbon and Albany Counties where the railroad alignment goes around mountainous areas while the interstate highway is routed over and through the mountains.

Construction across roads, highways, and railroads would result in short-term impacts on public transportation while construction activities pass through the project area. Entrega has developed a draft Traffic and Transportation Management Plan to assist in mitigating potential impacts of project-related road use and construction activity (Entrega 2004h).

Entrega has stated that major paved roads, highways, and railroads would generally be crossed by boring beneath the road or railroad. These crossings would require the approval and appropriate permits from railroad companies, as well as state and local agencies. Boring typically requires additional temporary workspace areas on both sides of the crossing for excavating bore pits to the depth of the pipeline while the roadway or railroad is allowed to remain open. There would be little or no disruption of traffic at road or railroad crossings that are bored.

Smaller or unpaved roads would typically be open cut where permitted by local authorities or landowners. The open-cut crossing method could require temporary closure of a road and establishment of detours. If no reasonable detour is feasible, at least one lane of a road would be kept open to traffic, except for brief periods when it is essential to close the road to install the pipeline. Entrega would avoid closing roads during peak traffic hours. Open-cut crossings would typically be completed and the road resurfaced in 2 to 10 days.

To maintain safe conditions, Entrega would direct its construction contractors to ensure enforcement of local weight restrictions and limitations by its vehicles and to remove any soil that is left on the road surface by the crossing of construction equipment. When it is necessary for equipment to cross roads, mats or other appropriate measures (e.g., sweeping) would be used to reduce deposition of mud.

Movement of construction equipment, materials, and crew members would result in an additional short-term impact on the transportation network. Much of the proposed project area is readily accessible by U.S. Interstates, state highways, secondary state highways, and county roads. Impacts on local traffic levels would be temporary given the linear and dispersed nature of the project as construction would move sequentially along the proposed pipeline route. Construction workers would commute to and from the project area from temporary housing in local towns and cities, although this would typically begin before sunrise and end after sunset, times of the day when daily local traffic tends to be light. Consequently, short duration congestion is likely to occur in some locations, affecting residents and other travelrs as well.

Minimal traffic is anticipated to be associated with operation and maintenance of the new pipeline as only six to eight permanent workers would be required to operate the pipeline. Therefore, no impacts on transportation networks would be expected to occur during operation of the proposed pipeline.

3.9.7 Property Values

Approximately 44 percent of the land affected by construction and operation of the proposed project would be on public lands; lands are managed by the BLM (32 percent), the State of Colorado (5 percent), the State of Wyoming (4 percent), the cities of Laramie and Cheyenne, Wyoming (3 percent), and the City of Fort Collins, Colorado (1 percent). The remainder of the land that would be affected (56 percent) is privately owned. A detailed description of land ownership is presented in chapter 3.0.

On both public and private lands, Entrega would acquire an easement for both the temporary (for construction) and permanent ROWs. The easement would provide Entrega the right to construct, operate, and maintain the pipeline, and establish a permanent ROW. In return, Entrega would compensate the landowner for use of the land and the temporary loss of crops or forage. Where the proposed pipeline route would cross federal land, Entrega would acquire a ROW grant for construction and operation of the proposed facilities. The ROW grant essentially allows Entrega to lease the land from the BLM.

The potential effect that a pipeline easement may have on private property values or property income is an issue that would be negotiated between the parties during the easement acquisition process. The easement acquisition process is designed to compensate a landowner for the right to use the property for pipeline construction and operation. The impact a pipeline may have on the value of a tract of land depends on many factors, including the size of the tract, the values of adjacent properties, the presence of other utilities, the current value of the land, and the current land use. Construction of the proposed pipeline would not change the general use of the land, but would preclude construction of aboveground structures on the permanent ROW and might interfere with other current uses, e.g., irrigation and raising crops, on a short-term or long-term basis, or the loss of non-renewable resources or destruction of other improvements such as fences.

Prior to initiating any construction activities on non-federal lands, an easement would be pursued by the pipeline company to convey ROW from the landowner to the pipeline company. The easement negotiations between the company and the landowner also would include compensation for loss of use during construction, loss of nonrenewable or other resources, damage done to property during construction, and allowable uses of the ROW after construction. Because the easement acquisition process is conducted with the landowner, it is possible that tenants or lessees could be adversely impacted, though it is not known whether any instances of such impacts would occur in conjunction with the Entrega pipeline.

If an easement cannot be negotiated with the landowner and the project has been certificated by the Commission, the company may use the right of eminent domain granted to it under Section 7(h) of the NGA to obtain the ROW and extra work areas identified in the Certificate. Section 7(h) implies that eminent domain is a remedy of last resort, to be used "when any holder of a certificate of public convenience and necessity cannot acquire by contract, or is unable to agree with the owner of property to the compensation to be paid for, the necessary right-of-way..." There are a number of options available, short of eminent domain, to secure the property:

- negotiate to buy the land;
- negotiate to lease the land; or
- negotiate a "restrictive easement" arrangement with the landowner.

The company would still be required to compensate the landowner for the ROW and for any damages incurred during construction. However, the level of compensation would be determined by a court according to state law. Special permits would be obtained as needed for pipeline ROW through town, state, or federal lands.

Entrega is currently working to obtain the necessary easements for the proposed facilities. Through the negotiations with landowners, Entrega would be able to make minor route adjustments to accommodate landowner needs and requirements as long as those changes would not affect any environmentally sensitive areas, or affect other landowners without their approval. If easements are acquired through the use of eminent domain, it is more difficult to make adjustments to the route.

3.9.8 Environmental Justice

EO 12898 on Environmental Justice recognized the importance of using the NEPA process to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The provisions of EO 12898 apply equally to Native American programs. The EPA provides guidance on determining whether there is a minority or low income community to be addressed in a NEPA analysis. Minority population issues must be addressed when they comprise over 50 percent of an affected area or when the minority population percentage of the affected area is substantially greater than the minority percentage in the larger area of the general population. Low income populations are those that fall within the annual statistical poverty thresholds from the U.S. Department of Commerce, Bureau of the Census Population Reports, Series P-60 on Income and Poverty.

A description of the population types (i.e., races) residing within the eight counties crossed by the proposed pipeline route based on U.S. Census Bureau data from 2000 is presented in **table 3.9-9**. In Colorado, the proposed pipeline route would cross counties that generally contain a smaller proportion of minorities than are found statewide in Colorado with the exception of Weld County. Demographics for Wyoming counties that would be crossed by the proposed pipeline show a slightly larger proportion of minorities compared to Wyoming's statewide average.

The percent of the population that earn incomes below the poverty level are summarized by county in **table 3.9-9**. In Colorado, Rio Blanco and Weld Counties have poverty rates higher than the statewide average. In Wyoming, Carbon and Albany Counties have a greater percentage of people living in poverty than the statewide average.

Entrega's proposed pipeline route effectively bypasses all concentrations or clusters of residential and commercial development, and for the most part is located on public lands or collocated with other utilities or near highway corridors. Furthermore no residential or commercial displacements are anticipated. Thus, the potential for adverse effects on minorities or low-income populations, much less disproportionately high effects is remote.

Table 3.9-9
Race and Poverty

State/ County	Race as a Percentage of Total Population[1]							Persons of Hispanic or Latino Origin, Percent (2000)[1]	Persons Below Poverty, Percent (1999)[2]
	White	Black or African American	Asian	American Indian and Alaska Native	Native Hawaiian and Other Pacific Islander	Persons Reporting Other Race/Two or More Races	Total		
COLORADO	82.8	3.8	2.2	1.0	0.1	10.0	99.9	17.1	9.3
Rio Blanco	95.0	0.2	0.3	0.8	0.0	3.7	100.0	4.9	9.6
Moffat	93.6	0.2	0.3	0.9	0.0	5.0	100.0	9.5	8.3
Larimer	91.4	0.7	1.6	0.7	0.1	5.6	100.1	8.3	9.2
Weld	81.7	0.6	0.8	0.9	0.1	16.0	100.1	27.0	12.5
WYOMING	92.1	0.8	0.6	2.3	0.1	4.3	100.1	6.4	11.4
Sweetwater	91.6	0.7	0.6	1.0	0.0	6.0	99.9	9.4	7.8
Carbon	90.1	0.7	0.7	1.3	0.1	7.3	100.2	13.8	12.9
Albany	91.3	1.1	1.7	1.0	0.1	4.8	100.0	7.5	21.0
Laramie	88.9	2.6	1.0	0.8	0.1	6.6	100.0	10.9	9.1

[1] U.S. Department of Commerce, Bureau of the Census, Census 2000a: Summary File 1 (SF 1) 100-Percent data; DP-1- Profile of general demographic characteristics.

[2] U.S. Department of Commerce, Bureau of the Census, Census 2000b: Summary File 3 (SF 3) – Sample Data; DP-3 - Profile of selected economic characteristics.

Note: 1) This table is based on U.S. Census Bureau figures that, due to rounding, may total slightly more or less than 100 percent.
2) People who identify their origin as Hispanic or Latino may be of any race. Thus, the percent Hispanic or Latino should not be added to the race as percentage of population categories.

3.10 Air and Noise Quality

3.10.1 Air Quality

Climate

The regional climate of the proposed project area is predominantly classified as continental with some areas in Wyoming classified as temperate semi-arid. Surface wind direction and precipitation vary in the proposed project area due to significant geographical features. However, the specific characterization of the local weather based on data from Meeker, Colorado indicates an average maximum temperature in July of 86 degrees Fahrenheit (°F) and an average minimum temperature in January of 7°F with an average annual precipitation of 16.4 inches.

The average annual snowfall in Meeker from January 1900 through December 2003 was 69.8 inches. A representative station in Cheyenne, Wyoming, with wind observations from 1930 to 1996 indicates an annual average wind speed of 13 miles per hour and a predominant wind direction of west-northwest.

The climate of the west slope in western Colorado is primarily influenced by Pacific air masses which flow over the Sierra Nevada and Cascade Mountains. As the air masses pass over these mountains they lose much of the moisture that is typical of maritime air. This produces the arid environment of the intermountain region. In fact, the overwhelming characteristic of the intermountain portion of the west slope climate at lower elevations is arid. Typically, lower elevations in this area receive less than 10 inches (25.5 centimeters) of precipitation annually. The higher elevations in the mountains receive much greater amounts of precipitation, often 4 to 5 times as much as the valleys.

Existing Air Quality

Federal and state air regulations are designed to ensure that ambient air quality, including background, existing, and new sources are in compliance with the ambient standards. The EPA has designated areas of the U.S. as “attainment,” “non-attainment,” or “unclassified” with respect to ambient air quality standards.

The EPA has established National Ambient Air Quality Standards (NAAQS) for seven pollutants: sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and lead. The NAAQS were set at levels the EPA believed were necessary to protect human health (primary standards) and human welfare (secondary standards). The Federal NAAQS for criteria pollutants are the same as the state standards established by the CDPHE and WDEQ, except the WDEQ regulates sulfur oxides (SO_x) instead of SO_2. All parts of Colorado and Wyoming through which the proposed project would be located are classified as attainment for all criteria pollutants.

Regulatory Requirements for Air Quality

The proposed pipeline project would generate air emissions through both short-term construction activities and long-term operation of the stationary emission units at the compressor stations. Emissions from all

phases of construction and operation of the emission units would be subject to applicable state and federal air regulations.

Air emission sources in Colorado and Wyoming are regulated at the federal level by the CAA, as amended, and at the state level by the Colorado Air Quality Control Commission (AQCC) Regulations and the Wyoming Air Quality Standards and Regulations (WAQS&R). The significant federal regulations established as a result of the CAA and incorporated in the AQCC Regulations and WAQS&R that are potentially applicable to the project include:

- New Source Performance Standards (NSPS);
- New Source Review/PSD review;
- Title V operating permits;
- National Emission Standards for Hazardous Air Pollutants (NESHAPs);
- Federal Class I area protection; and
- State regulations.

New Source Performance Standards

NSPS, codified in 40 CFR 60, establish pollutant emission limits and monitoring, reporting, and recordkeeping requirements for various emission sources based on source type and size. The NSPS apply to new, modified, or reconstructed sources. The federal NSPS have been incorporated into AQCC Regulation 6 and WAQS&R chapter 5.0. The potentially applicable NSPS are described below.

Subpart GG of the NSPS applies to new, modified, or reconstructed stationary gas turbines with a heat input at peak load of greater than or equal to 10 million British thermal units per hour (MMBtu/hr). The new turbines that would be installed as a part of the project are greater than 10 MMBtu/hr and are therefore subject to NSPS subpart GG. Subpart GG establishes oxides of nitrogen (NO_x) emission limits and fuel sulfur content limits. The gas turbines would meet the requirements of subpart GG by burning only pipeline quality natural gas.

NSPS subpart KKK applies to volatile organic compound (VOC) emissions from equipment leaks at onshore natural gas processing plants. Natural gas processing plants are defined under subpart KKK as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids, or both. The proposed Entrega compressor stations do not meet the definition of onshore natural gas processing plants; therefore, subpart KKK does not apply.

NSPS subpart LLL applies to sweetening units and sulfur recovery units at onshore natural gas processing plants. Sweetening units are defined by subpart LLL as process devices that separate the hydrogen sulfide (H_2S) and carbon dioxide (CO_2) contents from the sour natural gas. Sulfur recovery units are defined as process devices that recover elemental sulfur from the H_2S and CO_2 generated by a sweetening unit. No equipment would be installed at the proposed Entrega compressor stations to remove CO_2 or H_2S from the gas; therefore, subpart LLL does not apply.

Prevention of Significant Deterioration

Title I of the CAA establishes guidelines for the preconstruction/modification review of large air emission sources. Construction of sources in attainment areas must be reviewed in accordance with the PSD regulations. To be classified as a new major PSD source, the potential emissions from the source must either be greater than 100 tons per year (tpy) for any pollutant regulated by the EPA under the CAA for sources that are among the 28 source categories listed in section 169 of the CAA, or greater than 250 tpy for any pollutant regulated by the EPA under the CAA for sources that are not among the 28 source categories listed in section 169 of the CAA. Best Available Control Technology (BACT) analyses and detailed dispersion modeling are required if a new source is classified as a major PSD source.

Natural gas compressor stations are not identified in the list of 28 source categories in section 169 of the CAA; therefore, the applicability threshold for PSD review for the proposed compressor stations is 250 tpy.

Title V Operating Permits

Title V of the CAA requires states to establish an air operating permit program. The requirements of Title V are outlined in 40 CFR 70 and the permits required by these regulations are often referred to as Part 70 permits. Colorado and Wyoming have incorporated this program in Regulation 3 of the AQCC and chapter 6.0 of the WAQS&R.

If a facility's potential to emit exceeds the criteria pollutant or hazardous air pollutant (HAP) thresholds, the facility is considered a major source. The major source threshold level for an air emission source is 100 tpy for criteria pollutants.

The potential emissions for NO_x and CO at the proposed compressor stations would not exceed the Title V threshold of 100 tpy, with the exception of the Bighole Compressor Station. The Meeker Hub and Wamsutter Compressor Stations would be minor sources of air emissions and are therefore not required to obtain Title V operating permits. These stations would require state operating permits. The Bighole Compressor Station would be a major source of air emissions and would require a Part 70 permit. Entrega would apply for these permits from the CDPHE and WDEQ.

The major source HAP thresholds for a source are 10 tpy of any single HAP or 25 tpy of all HAPs in aggregate. Potential HAP emissions from each compressor station are less than 3 tpy. Therefore, the stations are not major sources of HAPs.

National Emission Standards for Hazardous Air Pollutants

The NESHAPs, codified in 40 CFR Parts 61 and 63, regulate HAP emissions. The proposed Entrega compressor stations are not one of the source categories regulated by Part 61. Therefore, the requirements of Part 61 are not applicable to the compressor stations. Part 63, also known as the Maximum Achievable Control Technology (MACT) standards, regulates HAP emissions from major sources of HAP emissions and specific source categories that emit HAPs. Part 63 defines a major source of HAPs as any source that has the potential to emit 10 tpy of any single HAP or 25 tpy of HAPs in aggregate. A MACT standard exists for

natural gas transmission and storage facilities (subpart HHH) and standards have been proposed for reciprocating engines (subpart YYYY), combustion turbines (subpart ZZZZ), and boilers (subpart DDDDD). All of these MACT standards apply to major sources of HAPs. The potential HAP emissions (in aggregate) from each of the proposed compressor stations are less than 3 tpy. Therefore, the compressor stations are not major sources of HAPs and would not be subject to NESHAP.

Federal Class I Area Protection

As determined previously, the proposed compressor stations are not anticipated to be subject to the PSD regulations. Therefore, the Federal Class I area protection provisions would not apply to this project.

State Regulations

Colorado air emissions are regulated by the AQCC per AQCC-1001. Regulation 1 of AQCC-1001 addresses emissions of particulates, smoke, CO, and SO_x. Specific requirements in this regulation can potentially apply to the operation and construction of the proposed Entrega compressor stations. The proposed compressor stations would require construction permits under Regulation 3 of the Colorado AQCC. Therefore, Entrega would be required to submit a fugitive particulate dust control plan as part of the construction permit application. Compliance with the emission limits set by the Colorado regulations for operational emissions would be demonstrated during the construction permitting process.

Wyoming air emissions are regulated by the WAQS&R. Chapter 2.0 of the WAQS&R establishes ambient air quality standards for H_2S, suspended sulfates, fluorides, and odor. There would be no quantifiable sulfates, fluoride, or odor emitted from the proposed compressor stations during normal operation. Emissions of H_2S would be extremely small and would only occur during unpredictable blowdown of pipeline sections for maintenance.

Chapter 3.0 of the WAQS&R mandates specific emissions requirements that can potentially apply to the operation and construction of the compressor stations. Such requirements address opacity emissions, PM_{10} and $PM_{2.5}$, NO_x, SO_x, CO, VOCs, and H_2S. The specific requirements and the limitations of these regulations would be addressed when obtaining all construction permits for the compressor stations.

Meeker Hub Compressor Station

Entrega would purchase up to 20 acres of land for the Meeker Hub Compressor Station site (MP 0.0). The Meeker location would require permanent use of private land.

The station would consist of a compressor building, utility building (including control room, utility room, and storage/shop room), and parking area. The compressors would be equipped with dry, low NO_x combusters in order to limit NO_x emissions. The station would be efficiently designed to move natural gas volumes through the pipeline while allowing for system flexibility. Primary facility components would include:

- filters and separators designed to accommodate the maximum total station gas volume;
- gas cooling equipment designed for use during normal operating conditions;
- an air compressor, appropriate for the turbine size, for use with required air hoisting equipment and tools;
- standby generator with automatic transfer switch, capable of operating at the maximum allowable station power load; and
- noise control equipment (i.e., mufflers) designed to meet the requirements for sound pressure levels at the nearest noise receptor.

The station would operate on locally purchased power and would be fully automated for remote controlled operation. Remote start/stop, setpoint controls, unit monitoring equipment, and station safety equipment would be installed at the location. The pipeline entering and exiting the compressor facilities would be below grade as practicable, but would be above ground prior to entering and exiting the buildings. The facility would not include any belowground vaults, basements, or crawl spaces. The station location would be fenced and contain external lighting.

Bighole Compressor Station

Entrega would require up to 20 acres of private land for the Bighole Compressor Station site (MP 76.3). The station would consist of a compressor building, utility building (including control room, utility room, and storage/shop room), and parking area. The compressors would be equipped with dry, low NO_x combusters in order to limit NO_x emissions. The station would be efficiently designed to move natural gas volumes through the pipeline while allowing for system flexibility. Primary facility components would include:

- a minimum of two unenclosed turbine-driven centrifugal compressor units outfitted with low-emission technology (although the compressor packages are designated as "unenclosed," they are wholly contained within a closed building);
- filters and separators designed to accommodate the maximum total station gas volume;
- gas cooling equipment designed for use during normal operating conditions;
- an air compressor, appropriate for the turbine size, for use with required air hoisting equipment and tools;
- a power generator with automatic transfer switch, capable of operating at the maximum allowable station power load (the Bighole Compressor Station would have two—one to provide power and one back-up); and

- noise control equipment (i.e., mufflers) designed to meet the requirements for sound pressure levels at the nearest noise receptor.

The station would operate from an on-site power generator and backup. The pipeline entering and exiting the compressor facilities would be below grade as practicable, but would be aboveground prior to entering and exiting the buildings. The facility would not include any belowground vaults, basements, or crawl spaces. The station location would be fenced and contain external lighting.

Wamsutter Compressor Station

Entrega would require up to 20 acres of federal land for the Wamsutter Compressor Station site (MP 135.5). The station would consist of a compressor building, utility building (including control room, utility room, and storage/shop room), and parking area. The compressors would be equipped with dry, low NO_x combusters in order to limit NO_x emissions. The station would be efficiently designed to move natural gas volumes through the pipeline while allowing for system flexibility. Primary facility components would include:

- a minimum of two unenclosed turbine-driven centrifugal compressor units outfitted with low-emission technology (although the compressor packages are designated as "unenclosed," they are wholly contained within a closed building);

- filters and separators designed to accommodate the maximum total station gas volume;

- gas cooling equipment designed for use during normal operating conditions;

- an air compressor, appropriate for the turbine size, for use with required air hoisting equipment and tools;

- standby generator with automatic transfer switch, capable of operating at the maximum allowable station power load; and

- noise control equipment (i.e., mufflers) designed to meet the requirements for sound pressure levels at the nearest noise receptor.

The station would operate on locally purchased power and would be fully automated for remote controlled operation. Remote start/stop, setpoint controls, unit monitoring equipment, and station safety equipment would be installed at the location. The pipeline entering and exiting the compressor facilities would be below grade as practicable, but would be above ground prior to entering and exiting the buildings. The facility would not include any belowground vaults, basements, or crawl spaces. The station location would be fenced and contain external lighting.

The compressor station at Wamsutter (MP 135.5) would be located on BLM-administered lands.

Construction Impacts

Construction of the proposed pipeline and compressor stations would result in intermittent and short-term fugitive emissions. These emissions would include dust from soil disruption and combustion emissions from the construction equipment. Emissions from construction are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard because the construction equipment would be operated on an as-needed basis during daylight hours only. Additionally, Entrega would implement a Traffic and Transportation Management Plan to prevent fugitive dust from becoming a public nuisance or compromising safety via the use of this plan. Entrega also would implement dust control requirements during certain construction activities such as blasting, transporting soil or rock, trenching, and use of access roads. To control fugitive dust, Entrega has committed to implement the following mitigation measures:

- An activity or activities creating a visible plume of dust that extends for more than 300 feet (100 yards) from the source and has a visible opacity of 20 percent or greater would be considered noncompliant.

- Using water obtained from wells or surface water sources to suppress dust is permitted, but written approval from the landowner or regulatory agency is required prior to appropriation.

- Use of salts as a suppressant would be limited to magnesium chloride, if allowed by local, state, and federal agencies for application.

- Soils tracked on to paved roads would be removed. Soil tracked onto paved roads that extends more that 50 feet from the point of origin would be removed within 1 hour of discovery.

Air pollutants from construction equipment internal combustion engines would be limited to the immediate vicinity of the project area and would be short-term, resulting in an insignificant impact on air quality

Operational Impacts

Air quality would be affected by operation of compressor stations. Entrega proposes to construct three new compressor stations, two in Colorado (Meeker and Bighole) and one in Wyoming (Wamsutter).

During operation, the compressor stations would emit varying quantities of regulated air pollutants, including NO_x, CO, PM_{10} and $PM_{2.5}$, VOCs, and SO_2. Of these, the pollutants emitted in greatest quantities would be CO and NO_x, the primary component of which is NO_2. Emissions of hydrocarbons, a type of VOC, would be below major source quantity thresholds established by the EPA. Emissions of SO_2 would be proportional to the amount of sulfur in the fuel. Because the fuel would be natural gas containing very little sulfur, the amount of SO_2 emitted would be low. Additionally, HAPs would not be emitted in amounts large enough to trigger a Major Source review. As stated previously, the Bighole Compressor Station is a major source of NO_x and would require a Title V permit although PSD major source thresholds are not exceeded. Detailed modeling under PSD review is therefore not required under the federal construction permitting program.

Table 3.10-1 provides the anticipated proposed emissions of NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, and HAPs from the new and modified compressor stations.

Table 3.10-1
Estimated Operational Compressor Station Emissions

Emission Units	NO_x (tpy)	CO (tpy)	SO_2 (tpy)	$PM_{10}/PM_{2.5}$ (tpy)	VOC (tpy)	HAPS (tpy)
			Meeker Hub Compressor Station			
Turbine (2)	25.1	25.6	1.5	2.8	0.9	0.22
APU (2)	2.7	4.6	0*	0.02	0.04	0.04
Blowdown	-	-	-	-	0.34	-
Total	**27.8**	**30.2**	**1.5**	**2.82**	**1.28**	**0.26**
			Bighole Compressor Station			
Turbine (2)	75.6	92.1	2.6	5.1	1.6	0.79
APU (2)	18.6	48.2	0.04	1.2	12.2	0.1
Blowdown	-	-	-	-	0.34	-
Generator	ND	ND	ND	ND	ND	1.8
Total	**94.2**	**140.3**	**2.64**	**6.3**	**14.14**	**2.69**
			Wamsutter Compressor Station			
Turbine (2)	50.4	61.4	1.7	3.4	1.1	0.53
APU (2)	2.7	4.6	0*	0.02	0.04	0.04
Blowdown	-	-	-	-	0.34	-
Total	**53.1**	**66.0**	**1.7**	**3.42**	**1.48**	**0.57**

tpy = tons per year.
*less than 10^{-2} tons per year.
ND = No data available.

Emissions from a blowdown of the pipeline or compressor station could occur on a very rare basis, in emergency or maintenance operations. Such a blowdown would generate emissions of VOCs, consisting primarily of propane. Due to the infrequent occurrence, we conclude that there would be no significant air quality impacts from blowdowns.

If Entrega complies with Colorado and Wyoming regulations concerning the mitigation of fugitive dust emissions, we believe that the proposed project would incorporate sufficient measures to ensure adequate levels of air quality during construction at the compressor stations. Operational impacts would be mitigated by the state permitting process, which may include mitigative measures and the compressor stations are not expected to have a significant adverse impacts on local or regional air quality.

The Meeker Hub, Bighole and Wamsutter Compressor Stations would incorporate sufficient measures to ensure that air quality standards would be met during construction and operation. Considering the attainment status of the region and the type of emissions, some degradation of the air quality would occur but no significant impact on regional air quality is expected.

3.10.2 Noise

Construction, modification, and operation of the proposed project facilities would impact the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment, and is usually comprised of sounds emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetation cover.

Two measurements commonly used by federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the L_{eq} and L_{dn}. The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Late night and early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 decibels, to account for people's greater sensitivity to sound during the nighttime hours.

In 1974, the EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and have used it to evaluate the potential noise impact from operation of the compressor facilities.

The state of Colorado regulates noise pollution at the state level under Colorado Statute Title 25, Article 12 (CS 25-12). An exemption exists under the state law for any facility that is permitted under a Federal action.

The State of Wyoming and the counties of Rio Blanco, Moffat, Sweetwater, and Carbon do not have any quantitative noise regulations.

Existing Noise Levels

The three proposed Entrega compressor stations would be located in rural areas with few noise sources in the immediate vicinity. All of the compressor stations would include new compression. Existing ambient noise measurements were taken at the nearest noise-sensitive area (NSA) and are summarized in **table 3.10-2**.

Construction Noise Impacts

The construction of the pipeline and compressor stations would cause temporary increases in the ambient sound environment in the immediate vicinity of the construction sites. Construction of the pipeline would last for approximately 6 months and subsequent construction of the compressor stations would last for about 3 months. During construction, Entrega would be required to comply with any local construction noise requirements. In addition, Entrega has agreed to limit construction activities primarily to daylight hours.

Nighttime noise levels would normally be unaffected by construction activities, as most construction is typically restricted to daylight hours. With construction restricted to daytime hours, and given the temporal and linear nature of construction, we do not believe that adjacent landowners would be adversely affected.

Table 3.10-2
Existing Noise Levels[1]

Location	Distance and Direction[2]	Daytime Equivalent Sound Level ($L_{eq}(d)$)	Nighttime Equivalent Sound Level ($L_{eq}(n)$)	24-Hour Equivalent Sound Level (L_{eq})	Day–Night Sound Level (L_{dn})[3]
Meeker Hub Compressor Station (MP 0.0)					
NSA #1	2,100 feet S	56.9	51.9	55.6	59.5
Bighole Compressor Station (MP 76.3)					
NSA #1	8,200 feet NW	45.6	39.9	44.2	47.8
Wamsutter Compressor Station (MP 135.5)					
NSA #1	8,390 feet NW	61.0	61.0	61.0	67.4

[1] All noise levels are in dBA.
[2] All distances are based on the NSAs location relative to closest boundary.
[3] L_{dn} noise levels are calculated assuming that the measured levels are representative of the day and night sound levels in the area.

Operational Noise Impacts

During operation of the pipeline the noise impact associated with the compressor stations would be limited to the vicinity of the facility. Primary operational noise sources at the proposed compressor stations would be the turbine intakes, turbine exhausts, oil coolers, gas aftercooler and turbine-compressor package. The auxiliary power units (APU) at Meeker Hub and Wamsutter are not included in the noise assessment due to the temporary and rare operation of these units. At the Bighole Compressor Station, electrical service is not available and the generator would run continuously.

The compressor stations would be constructed in a manner that would minimize potential impacts from noise. Entrega states that the new compressors would be installed within acoustically designed buildings with acoustically rated doors, acoustical insulation, silenced ventilation systems, muffler systems on exhaust systems of new turbines, and may include covering of exposed metal pipe supports and aboveground piping.

Entrega also proposes to install blowdowns at each of the compressor stations to evacuate natural gas from the facility in the event of an emergency, accident or maintenance. Noise from a typical unsilenced blowdown event can be upwards of 100 dBA at a distance of 50 feet. Entrega has stated that each blowdown stack would be equipped with an appropriately designed silencer to reduce this noise. While we do not have good data on the resultant noise from a blowdown event, due to the rarity and short duration of each blowdown (approximately 2 to 4 times yearly for maintenance) we do not expect the resultant noise to be a significant annoyance or impact to local residents.

Entrega performed a noise assessment for the three proposed compressor stations. The acoustical analysis estimated noise reduction over distance using the SPM 9613 noise modeling program. **Table 3.10-3** shows the estimated noise resulting from the operation of the compressor stations at the nearest NSAs.

Table 3.10-3
Estimated Noise Levels from Compressor Stations

NSA	Distance/ Direction	Current Ambient Noise, L_{dn} (dBA)[1]	Noise Attributable to New Station, L_{dn} (dBA)	Post-Construction Noise, L_{dn} (dBA)	Noise Increase at NSA (dBA)
Meeker Hub Compressor Station (MP 0.0)					
NSA #1	2,100 ft south	59.5	60.8	63.3	3.8
NSA #2	4,000 ft north-northwest	55.5	51.5	57.2	1.7
Bighole Compressor Station (MP 76.3)					
NSA #1	8,200 ft northwest	47.8	45.7	51.2	3.4
Wamsutter Compressor Station (MP 135.5)					
NSA #1	9,390 ft northwest	67.4	42.7	67.4	0

[1] dBA: decibels of the A-weighted scale.

We received comments about noise from the Bighole Compressor Station affecting sage grouse. A discussion regarding this can be found in section 3.6.2.

We received comments from the U.S. Department of the Interior regarding noise from the Bighole Compressor Station. The agency was concerned that noise impact from the compressor station would be excessive at adjacent BLM recreation land, and at the sage grouse habitat in the area. In response to these concerns, Entrega stated in a May 13, 2005, filing that it would maintain 55 dBA L_{dn} at the Bighole Compressor Station property lines. With this commitment, noise from the Bighole Compressor Station would be significantly reduced. This would decrease the area of noise impact to sage grouse as well as decreased any noise impact at the NSAs.

To confirm compliance after construction, **we recommend that Entrega file a noise survey with the Secretary no later than 60 days after placing the Bighole Compressor Station in service. If the noise attributable to the operation of the compressor station at full load exceeds 55 dBA L_{dn} at any station property line, Entrega shall install additional noise controls to meet that level within 1 year of the in-service date. Entrega shall confirm compliance with the L_{dn} of 55 dBA commitment by filing a second noise survey with the Secretary no later than 60 days after Entrega installs the additional noise controls.**

The Wamsutter Compressor Station is estimated to comply with our 55 dBA L_{dn} noise limit and should not have an adverse noise increase at any NSA. The Meeker Hub Compressor Station, however, is estimated

to exceed our 55 dBA criterion at NSA #1. Entrega has not yet finalized its equipment selection at either station. To ensure that the Meeker Hub Compressor Station design would not result in noise exceeding 55 dBA L_{dn} at the nearest NSAs and to ensure that the Meeker Hub and Wamsutter Compressor Station noise estimates are accurate, we recommend that prior to construction, Entrega file with the Secretary for review and written approval by the Director of OEP, an Acoustic Mitigation Plan for the Wamsutter and Meeker Hub Compressor Stations demonstrating how Entrega would comply with 55 dBA L_{dn} at the nearest NSAs. The plan should quantify the magnitude and frequency spectrum of principal noise sources associated with the operation of the station; identify and quantify mitigation measures (including specific noise control equipment and the resultant propagation of A-weighted noise [L_{eq} and L_{dn}] at the nearest NSAs); and include all data and calculations used to generate the noise estimates.

In addition, to confirm that noise from the compressor station operations do not adversely affect nearby NSAs, **we recommend that Entrega file a noise survey with the Secretary no later than 60 days after placing the authorized unit(s) at the Meeker Hub and Wamsutter Compressor Stations in service. If the noise attributable to the operation of the compressor stations at full load exceeds an L_{dn} of 55 dBA at any nearby NSA, Entrega shall install additional noise controls to meet that level within 1 year of the in-service date. Entrega shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary no later than 60 days after Entrega installs the additional noise controls.**

If Entrega verifies that noise impacts have been mitigated, as indicated by the recommendations, we believe that project-operation noise levels at the nearest NSAs would not be significant.

3.11 Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

Methane has an ignition temperature of 1,000˚F and is flammable at concentrations between 5.0 percent and 15.0 percent in air. Unconfined mixtures of methane in air are not explosive. However, a flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

3.11.1 Safety Standards

The DOT is mandated to provide pipeline safety under Title 49, U.S.C. Chapter 601. The Research and Special Programs Administration's (RSPA), Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. RSPA ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level. Section 5(a) of the NGA provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards, while section 5(b) permits a state agency that does not qualify under section 5(a) to perform certain inspection and monitoring functions. A state also may act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement action. The majority of the states have either 5(a) certifications or 5(b) agreements, while nine states act as interstate agents.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the DOT and the FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with federal safety standards and plans for maintenance and inspection, or shall certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with section 3(e) of the NGA. The FERC accepts this certification and does not impose additional safety standards other than the DOT standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert DOT. The Memorandum also provides for referring complaints and inquiries

made by state and local governments and the general public involving safety matters related to pipeline under the Commission's jurisdiction.

The FERC also participates as a member of the DOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the EPP must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Part 192 also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1 mile length of pipeline. The four area classifications are defined as follows:

Class 1 Location with 10 or fewer buildings intended for human occupancy.

Class 2 Location with more than 10 but less than 46 buildings intended for human occupancy.

Class 3 Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.

Class 4 Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock.

Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock. Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas.

With the exception of a small segment between MPs 305.5 to 306.6 which is a Class II location, Entrega's entire pipeline route would cross sparsely populated, open land that is designated as a Class 1 area.

If a subsequent increase in population density adjacent to the ROW indicates a change in class location for the pipeline, Entrega would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the DOT code of regulations for the new class location.

In 2002, congress passed an act to strengthen the Nation's pipeline safety laws. The Pipeline Safety Improvement Act of 2002 (HR 3609) was passed by Congress on November 15, 2002, and signed into law by the President in December 2002. No later than December 17, 2004, gas transmission operators must develop and follow a written integrity management program that contains all the elements described in §192.911 and addresses the risks on each covered transmission pipeline segment. Specifically, the law establishes an integrity management program which applies to all high consequence areas (HCAs). The DOT (68 FR 69778, 69 FR 18228, and 69 FR 29903) defines HCAs as they relate to the different class zones, potential impact circles, or areas containing an identified site as defined in §192.903 of the DOT regulations.

OPS published a series of rules from August 6, 2002, to May 26, 2004 (69 FR 29903), that defines HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate in 49 U.S.C. 60109 for OPS to prescribe standards that establish criteria for identifying each gas pipeline facility in a high density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes:

- current Class 3 and 4 locations;
- any area in Class 1 or 2 where the potential impact radius[5] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[6]; or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.[7]

In the second method an HCA includes any area within a potential impact circle which contains:

- 20 or more buildings intended for human occupancy; or
- an identified site.

Once a pipeline operator has determined the HCAs on its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The DOT regulations specify the requirements for the integrity management plan at § 192.911.

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[5] The potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in psi multiplied by the pipeline diameter in inches.

[6] The potential impact circle is a circle of radius equal to the potential impact radius.

[7] An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

Two potential HCAs would occur along the EPP route. The first is located at MP 15.3, near a recreational area associated with the Rio Blanco Lake SWA. The second location is the Wyoming State Penitentiary at MP 179.0. Upon obtaining the necessary permits for its project, finalizing the route, and prior to construction, Entrega would determine if its proposed pipeline could affect these locations. If appropriate, these locations would be incorporated into an Integrity Management Plan developed specific to the EPP as required by the DOT to ensure pipeline safety.

The pipeline integrity management rule for HCAs requires inspection of the entire pipeline in HCAs every 7 years.

Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Under section 192.615, each pipeline operator must also establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency shutdown of systems and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Entrega would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. No additional specialized local fire protection equipment would be required to handle pipeline emergencies.

Entrega intends to control and monitor the pipeline using a Supervisory Control and Data Acquisition (SCADA) system. The SCADA system's control center would be located at Entrega's main office in Denver, Colorado. The SCADA system would allow Entrega to monitor volumes, pressures, and temperatures as well as the operating status of its pipeline facilities using microwave, telephone, or communication satellites. The SCADA system also would provide Entrega with information on the volume of natural gas flowing into its pipeline system and the volume of gas delivered to its customers, and would allow Entrega to quickly identify and react to equipment malfunctions. The SCADA system also would provide Entrega with the

capability to remotely start or stop certain compressors, thereby changing flow volumes to meet changes in customer demand for natural gas.

3.11.2 Pipeline Accident Data

Since February 9, 1970, 49 CFR Part 191 has required all operators of transmission and gathering systems to notify the DOT of any reportable incident and to submit a report on form F7100.2 within 20 days. Reportable incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization;
- required taking any segment of transmission line out of service;
- resulted in gas ignition;
- caused estimated damage to the property of the operator, or others, or both, of a total of $5,000 or more;
- required immediate repair on a transmission line;
- occurred while testing with gas or another medium; or
- in the judgment of the operator was significant, even though it did not meet the above criteria.

The DOT changed reporting requirements after June 1984 to reduce the amount of data collected. Since that date, operators must only report incidents that involve property damage of more than $50,000, injury, death, release of gas, or that are otherwise considered significant by the operator. **Table 3.11-1** presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1986 through 2003, recognizing the difference in reporting requirements (DOT 2003). The 14.5-year period from 1970 through June 1984, which provides a larger universe of data and more basic report information than subsequent years, has been subject to detailed analysis, as discussed in the following sections (Jones et al. 1986).

During the 14.5-year period, 5,862 service incidents were reported over the more than 300,000 total miles of natural gas transmission and gathering systems nationwide. Service incidents, defined as failures that occur during pipeline operation, have remained fairly constant over this period with no clear upward or downward trend in annual totals. In addition, 2,013 test failures were reported. Correction of test failures removed defects from the pipeline before operation.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. **Table 3.11-1** provides a percentage distribution of the causal factors as well as the annual frequency of each factor per 1,000 miles of pipeline in service.

Table 3.11-1
Natural Gas Service Incidents by Cause

Cause	Incidents per 1,000 miles of Pipeline (percentage) 1970-1984	1986-2003
Outside force	0.70 (53.8)	0.10 (38.4)
Corrosion	0.22 (16.9)	0.06 (23.1)
Construction or material defect	0.27 (20.8)	0.04 (15.4)
Other	0.11 (8.5)	0.06 (23.1)
Total	**1.30 (100.0)**	**0.26 (100.0)**

The dominant incident cause is outside forces, constituting 53.8 percent of all service incidents. Outside forces incidents result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. **Table 3.11-2** shows that human error in equipment usage was responsible for approximately 75 percent of outside forces incidents. Since April 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts. The 1986 through 2003 data show that the portion of incidents caused by outside forces has decreased to 38.4 percent.

Table 3.11-2
Outside Forces Incidents by Cause (1970-1984)

Cause	Percent
Equipment operated by outside party	67.1
Equipment operated by or for operator	7.3
Earth movement	13.3
Weather	10.8
Other	1.5

The pipelines included in the data set in **table 3.11-1** vary widely in terms of age, pipe diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

The frequency of service incidents is strongly dependent on the year of pipeline construction. While pipelines installed since 1950 exhibit a fairly constant level of service incident frequency, pipelines installed before that time have a significantly higher rate, partially due to corrosion. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. Further, new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller diameter pipelines, which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movements.

Table 3.11-3 clearly demonstrates the effectiveness of corrosion control in reducing the incidence of failures caused by external corrosion. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the rate of failure compared to unprotected or partially protected pipe. The data shows that bare, cathodically protected pipe actually has a higher corrosion rate than unprotected pipe. This anomaly reflects the retrofitting of cathodic protection to actively corroding spots on pipes.

Table 3.11-3
External Corrosion by Level of Control (1970-1984)

Corrosion Control	Incidents per 1,000 miles per Year
None-bare pipe	0.42
Cathodic protection only	0.97
Coated only	0.40
Coated and cathodic protection	0.11

3.11.3 Impact on Public Safety

The service incident data summarized in **table 3.11-1** include pipeline failures of all magnitudes with widely varying consequences. Approximately two-thirds of the incidents were classified as leaks, and the remaining third classified as ruptures, implying a more serious failure.

Table 3.11-4 presents the average annual fatalities that occurred on natural gas transmission and gathering lines from 1970 to 2003. Fatalities between 1970 and June 1984 have been separated into employees and nonemployees, to better identify a fatality rate experienced by the general public. Of the total 5.0 nationwide average, fatalities among the public averaged 2.6 per year over this period. The simplified reporting requirements in effect after June 1984 do not differentiate between employees and nonemployees. However, the data show that the total annual average for the period 1984 through 2003 decreased to 3.8 fatalities per year. Subtracting two major offshore incidents in 1989, which do not reflect the risk to the onshore public, yields a total annual rate of 2.9 fatalities per year for this period.

The nationwide totals of accidental fatalities from various manmade and natural hazards are listed in **table 3.11-5** in order to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. Nevertheless, the average 2.6 public fatalities per year is relatively small considering the more than 300,000 miles of transmission and gathering lines in service nationwide. Furthermore, the fatality rate is approximately two orders of magnitude (100 times) lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

Table 3.11-4
Annual Average Fatalities - Natural Gas Transmission and Gathering Systems[1,2]

Year	Employees	Nonemployees	Total
1970-June 1984	2.4	2.6	5.0
1984-2003[3]	-	-	3.8
1984-2003[3]	-	-	2.9[4]

[1] 1970 through June 1984 - American Gas Association 1986.
[2] DOT Hazardous Materials Information System.
[3] Employee/nonemployee breakdown not available after June 1984.
[4] Without 18 offshore fatalities occurring in 1989 -- 11 fatalities resulted from a fishing vessel striking an offshore pipeline and 7 fatalities resulted from explosion on an offshore production platform.

Table 3.11-5
Nationwide Accidental Deaths[1]

Type of Accident	Fatalities
All accidents	90,523
Motor vehicles	43,649
Falls	14,985
Drowning	3,488
Poisoning	9,510
Fires and burns	3,791
Suffocation by ingested object	3,206
Tornado, flood, earthquake, etc. (1984 to 1993 average)	181
All liquid and gas pipelines (1978 to 1987 average)[2]	27
Gas transmission and gathering lines	2.6
Nonemployees only (1970 to 1984 average)[3]	

[1] All data, unless otherwise noted, reflects 1996 statistics from the U.S. Department of Commerce, Bureau of the Census, "Statistical Abstract of the United States 118th Edition."
[2] DOT, "Annual Report on Pipeline Safety - Calendar Year 1987."
[3] American Gas Association 1986.

The available data show that natural gas pipelines continue to be a safe, reliable means of energy transportation. Based on approximately 302,000 miles in service, the rate of public fatalities for the nationwide mix of transmission and gathering lines in service is 0.01 per year per 1,000 miles of pipeline. Using this rate, the EPP might result in a public fatality every 305 plus years. This would represent a slight increase in risk to the nearby public.

3.11.4 Terrorism

In the aftermath of the terrorist attacks that occurred on September 11, 2001, terrorism has become a very real issue for the facilities under the FERC's jurisdiction. The FERC, like other federal agencies, is faced with a dilemma in how much information can be offered to the public while still providing a significant level of

protection to energy facilities. The FERC has been involved with other federal agencies in developing a coordinated approach to protecting the energy facilities of the U.S., and continues to coordinate with these agencies to address this issue. A Security Task Force has been created and is addressing ways to improve pipeline security practices, strengthen communication within the industry and the interface with government, and extend public outreach efforts. Consequently, the FERC has removed energy facility design plans and location information from its internet website to ensure that sensitive information is not readily available (RM02-4-000 and PL02-1-000 issued February 20, 2003). Entrega has stated that they are committed to cooperating with the FERC, along with other federal, state, and local agencies, in order to protect its energy facilities.

3.12 Cumulative Impacts

NEPA requires federal agencies to consider the cumulative impacts of proposals under their review. Cumulative impacts are defined in the Council on Environmental Quality regulations 40 CFR 1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency... or person undertakes such other actions." These actions include current and projected area development (e.g., oil and gas); management activities and authorizations on public lands (e.g., range conversion and forestry programs); land use trends; and applicable industrial/infrastructure components (e.g., utility corridors). Although the individual impacts of each separate project might not be significant, the additive effects of multiple projects could be.

Existing projects were determined from review of Entrega photo-alignment sheets, Wyoming oil and gas facility maps (DeBruin 2002), field reconnaissance, and Entrega's FERC application. The proposed and reasonably foreseeable projects were based on ROW and well field development applications submitted to the BLM and FERC application information (WIC Piceance Basin Expansion Project [PBEP], EnCana Meeker Pipeline and Gas Plant Project). Construction timeframes for individual projects were compiled to estimate peak workforce numbers at various locations; however, the actual construction schedules for these projects will depend on factors such as economic conditions, the availability of financing, and the issuance of permits.

Projects and activities included in this analysis are generally those located within the same counties directly affected by construction of the EPP. Most effects of more distant projects are not assessed because their impact would generally be localized and not contribute significantly to cumulative impact in the proposed project area. However, the air quality study area consists of the regional air sheds.

The BLM (BLM 2005) addressed the cumulative effects of gas field development and gathering pipelines upstream of the proposed Meeker gas plant in its evaluation of the cumulative impacts for the proposed Encana Meeker Pipeline and Gas Plant Project. This discussion included existing and proposed pipelines (including the Entrega and Piceance Basin Expansion Pipeline projects), existing and foreseeable well development, and other industrial developments within the BLM White River Resource Area over a timeframe of about 5 years. The BLM estimated that the cumulative surface disturbance from existing, proposed and foreseeable project would be approximately 24,000 acres within this Resource Area. The analysis first examined the effects of the EnCana proposal, and then made a determination whether the proposed action would contribute to cumulative effects. The following is a synopsis of the findings of the Encana Meeker Pipeline and Gas Plant Project EA cumulative analysis:

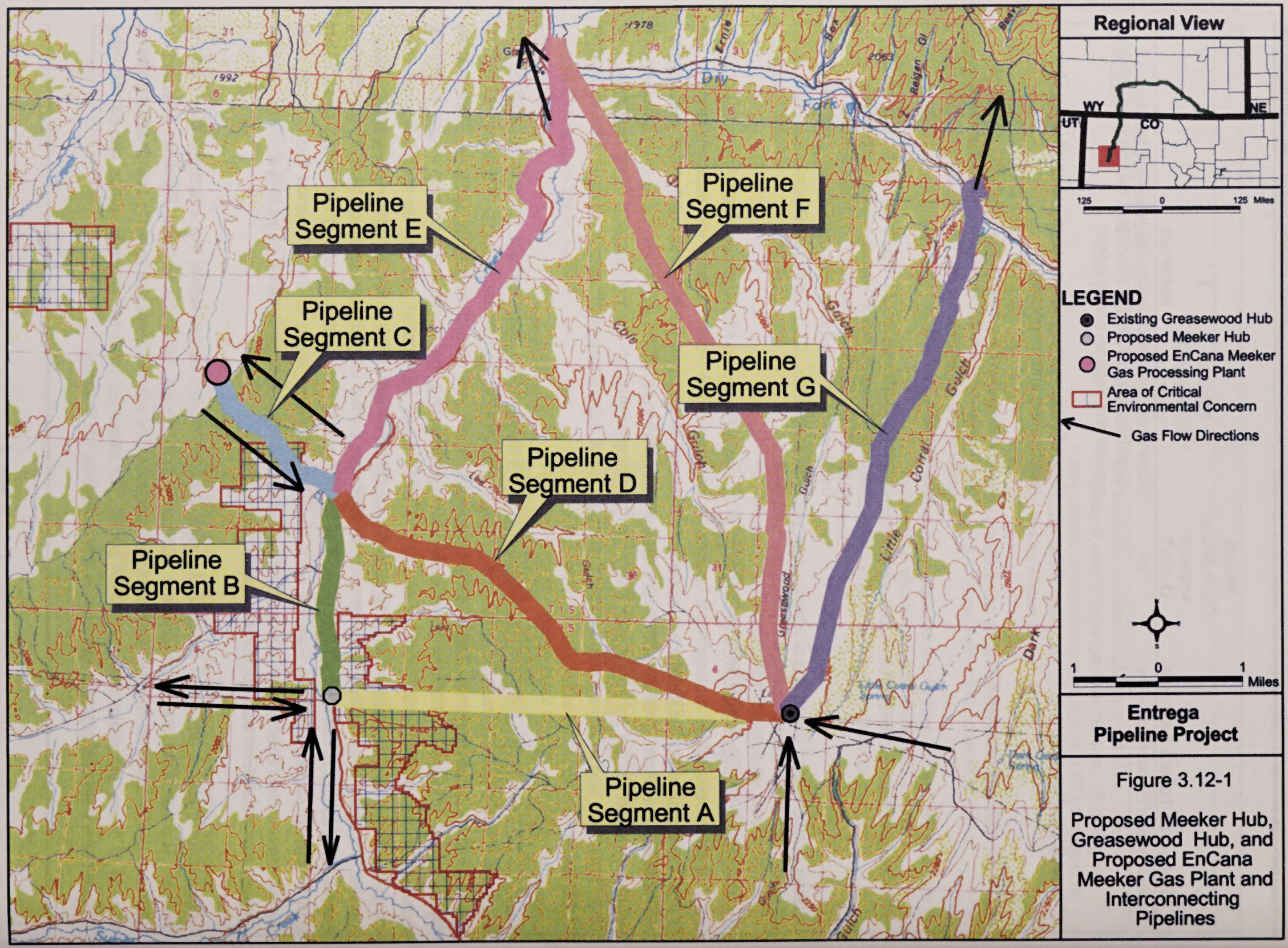
Resource Topics Analyzed	Would Cumulative Impacts Occur?	Rationale
Air Quality	No	Construction impacts would be short-term, widely dispersed over a large geographic area. Modeling of operational combustion sources within 25 kilometers of gas plant determined that criteria pollutant standards would not be exceeded.
Areas of Critical Environmental Concern	No	Future construction would be confined to existing disturbance footprint within individual ACECS.
Cultural Resources and Native American Concerns	Yes	Increased road access would increase the likelihood for trespass and vandalism, and increased surface disturbance from proposed and foreseeable projects would incrementally increase impacts to cultural resources.
Soils and Farmlands, Prime and Unique	Yes	Incremental increases in soil losses from wind and water erosion would occur, but these losses would be minimized by implementing measures for proper handling of topsoil and spoil, erosion control, and reclamation procedures.
Floodplains	Yes	Incremental increases in floodplain disturbance, but surface disturbance would not permanently alter or modify floodplains based on application of streambank stabilization and restoration measures.
Vegetation and Invasive, Non-native Species	Yes	Cumulative reductions in native plant communities and expansions of non-native plant species would occur, particularly where projects are constructed in the same location and during the same time period.
Migratory Birds	Yes	Cumulative habitat losses would occur, but habitat fragmentation would be unlikely by use of existing utility corridors.
Threatened, Endangered and Sensitive Animal Species	Yes	Cumulative habitat losses predicted for northern goshawk and greater sage grouse. Co-location of facilities in utility corridors, and off-site mitigation would compensate for habitat losses.
Threatened and Endangered Plant Species	No	Pre-construction surveys and avoidance measures for individual projects would avoid cumulative impacts.
Wastes, Solid	Yes	Project waste material would increase landfill disposal requirements.
Wastes, Hazardous	No	Storage and cleanup requirements would avoid cumulative impacts.

Resource Topics Analyzed	Would Cumulative Impacts Occur?	Rationale
Surface Water Resources	Yes	Incremental surface disturbances within the same watershed would increase short-term sediment loads from erosion and channel construction;
Ground Water Resources	No	Ground water recharge area would not be affected after recontouring and revegetation.
Wetlands and Riparian Zones	Yes	Surface disturbance would reduce wetland and riparian community extent in the short-term, particularly where projects are constructed in the same location and during the same time period
Wildlife, Aquatic and Terrestrial	Yes	Surface disturbance would reduce wildlife habitat area, but habitat fragmentation was assessed to be unlikely, cumulative projects would have "no measureable influence on the abundance or distribution of wildlife at the scale proposed."

The Glenwood Springs Field Office (BLM 2004) prepared a Resource Management Plan Amendment Draft EIS that addresses future management options for portions of the Roan Plateau and adjacent lands in the Grand Valley. That draft EIS addresses several levels of oil and gas development under the various plan alternatives. The Plan Amendment Final EIS is in preparation, and the decisions made may positively or negatively influence the volume of gas that could be shipped through the Entrega and other pipelines. The oil and gas well and pipeline infrastructure that could result from future RMP decisions cannot be estimated at this time.

Figure 3.12-1 provides a simplified representation of the existing and proposed gas processing facilities and interconnecting pipelines near the proposed Entrega Meeker Hub Compressor Station that were included in the EPP cumulative analysis. **Table 3.12-1** provides additional details about the facilities illustrated in **figure 3.12-1**. **Figure 3.12-2** is a schematic drawing illustrating the number of gas and liquids pipelines included in the existing utility corridor where the EPP would be located, as well as sensitive resources encountered along the entire route. The majority of the pipelines in this utility corridor were constructed in the last 30 years, and the revegetation of the ROW has varied with climate and soil type. From Rawlins eastward, grasslands have largely recovered to former cover; the shrub-scrublands consisting of saltbush and Wyoming sagebrush from Rawlins west to Wamsutter and south to the Piceance Basin have only partially recovered former shrub cover and height. We assumed that an average of 50 feet of ROW remains partially revegetated for each pipeline in the corridor.

Compressor stations are often located at major interconnection points within the interstate gas pipeline system. The following are major pipeline interconnection nodes along the Entrega Pipeline: Wamsutter, Sinclair, west of Laramie, and the Rockport Hub south of Cheyenne. There are existing compressor stations at each of these four major interconnection points. We assumed each compressor station site (which may include more than one pipeline operator) is a fenced area of 60 acres.


Pipeline Segment E
Pipeline Segment F
Pipeline Segment C
Pipeline Segment G
Pipeline Segment D
Pipeline Segment B
Pipeline Segment A
Regional View
WY
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125 0 125 Miles
LEGEND
Existing Greasewood Hub
Proposed Meeker Hub
Proposed EnCana Meeker Gas Processing Plant
Area of Critical Environmental Concern
Gas Flow Directions
1 0 1 Miles
Entrega Pipeline Project
Figure 3.12-1
Proposed Meeker Hub, Greasewood Hub, and Proposed EnCana Meeker Gas Plant and Interconnecting Pipelines

5/12/05

Table 3.12-1
Natural Gas Facilities Included in the EPP Cumulative Analysis Located Near the Proposed Meeker Hub

Facilities	Existing	Proposed
	ABOVEGROUND FACILITIES	
Greasewood Hub	Compressor Stations (CIG, Kinder Morgan, Questar) Pipeline interconnections, meters, pig launchers and receivers	TransColorado North Expansion Project (Additional Compression for WIC Piceance Expansion Project)
Meeker Hub	EnCana Compressor Station Pipeline interconnections, meters	Entrega Compressor Station Pipeline interconnections, meters
EnCana Meeker Gas Plant		Natural gas liquids separation from natural gas; natural gas dehydration; carbon dioxide reduction; gas compression (electrical).
	PIPELINES	
Pipeline Segment A (Meeker Hub to Greasewood)	Questar 14-inch natural gas CIG 20-inch natural gas (UBL) TransColorado 22-inch natural gas	
Pipeline Segment B (Meeker Hub to American Soda Corridor)	Kinder Morgan 4-inch natural gas Exxon Mobil 6-inch natural gas	Entrega 36-inch natural gas EnCana 36-inch natural gas; 30-inch natural gas
Pipeline Segment C (American Soda Corridor to Proposed EnCana Meeker Gas Plant)	EnCana (Former American Soda) two 12.75-inch pipelines (to be converted to natural gas or natural gas liquids service)	EnCana 36-inch natural gas; 30-inch natural gas
Pipeline Segment D (Greasewood Hub to Segment B)	EnCana (Former American Soda) two 12.75-inch pipelines (to be converted to natural gas or natural gas liquids service)	
Pipeline Segment E (American Soda Corridor to Segment F intersection)	Kinder Morgan 4-inch natural gas Exxon Mobil 6-inch natural gas	Entrega 36-inch natural gas
Pipeline Segment F (Greasewood Hub to Segment E Intersection)	CIG 20-inch natural gas (UBL) Northwest 10-inch natural gas	
Pipeline Segment G (Greasewood Hub to Dry Fork Piceance Creek)	PSCo 12-inch natural gas	WIC 24-inch natural gas (Piceance Basin Expansion Project)

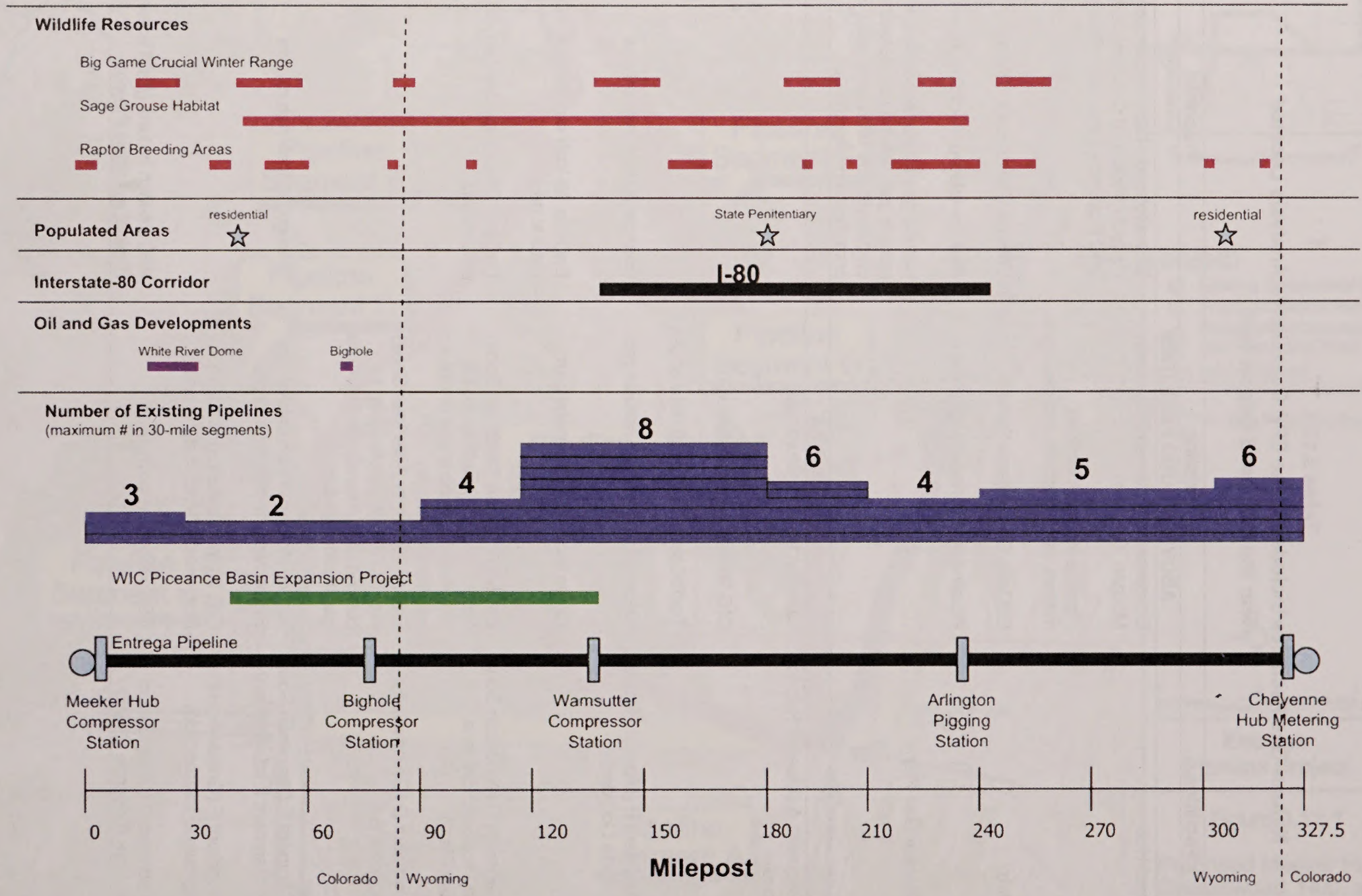


Figure 3.12-2. Location of the Entrega Pipeline in Relation to Existing and Proposed Parallel Pipelines and Sensitive Resources

Other linear facilities located within or adjacent to this large pipeline corridor include I-80, the Union Pacific Transcontinental Railroad, several fiber optic cables, and low voltage electrical transmission lines. Nearby communities served by I-80 include Wamsutter, Rawlins, Laramie, and Cheyenne.

3.12.1 Cumulative Impacts to Resources

Geology

Geologic Hazards. Regional seismic hazards, including earthquake ground shaking and subsidence and fault movement sufficient to cause damage, are very unlikely (see section 3.1.3). Several existing pipelines within the Entrega Pipeline corridor cross faults but none of these faults are active. Consequently, cumulative impacts related to fault movement and seismic activity are not anticipated.

Mineral Resources. Nearly all of the proposed EPP pipeline route, and those pipelines that parallel the proposed route, cross oil and gas producing reservoirs and/or oil shale-bearing formations. The EnCana Meeker Gas Plant site and associated pipelines overlie soda mineral and oil shale deposits. Exploitation of the soda mineral deposits has ceased, and the existing mine site would be converted to natural gas processing uses. Other mineral sources crossed by the pipelines include gravel, uranium in the Medicine Bow Mountains, and copper, gypsum, carbonates, and granite along the flanks of the Laramie Range (DOI 2002a). Although the presence of facilities within the corridor that would be occupied by the existing and proposed pipelines would preclude extraction of gravel and other minerals, oil and gas production could be accomplished through well pad offsets and directional drilling. Routing the EPP adjacent to the existing facilities in the established corridor would cause a very small increase in the amount of near-surface coal deposits precluded from future development. In fact, a recent study of the coal basins underlying the Rawlins Field Office jurisdictional area (BLM 2002) indicates that coal mining in this area is at a distinct economic disadvantage as compared to the Powder River Basin, and that no new mines are expected to open to exploit these coal deposits in the foreseeable future.

Paleontological Resources. The EPP would cross approximately 123 miles of BLM Condition 1 geologic units. Condition 1 is represented by "areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils." Assuming an average disturbance width of 500 feet caused by prior projects, we note that construction of pipelines, fiber optic lines, roads and highways (including I-80) has previously removed surficial paleontological resources within an area of approximately 12 square miles. Construction of the Entrega and WIC pipelines would contribute approximately 2.9 and 2.4 square miles, respectively, of surface and trench disturbance in Condition 1 units. Construction of the EnCana Meeker Gas Plant and associated pipelines would disturb less than 0.1 square mile of Condition 1 fossil formations. Pre-construction paleontological surveys have been, or will be completed for the three projects. Trench monitoring would be conducted in areas with high potential for important fossils. Fossil material would be recovered and recorded from sites that warrant these investigations. The EPP would contribute to the cumulative exposure and potential loss of scientifically valuable fossils, but construction monitoring would ensure that new scientific information would be collected and added to the existing body of knowledge.

Soils

Cumulative soil disturbance within the study area from existing utility projects is approximately 26.5 square miles; the proposed projects would disturb approximately 11.4 square miles. The existing pipeline projects have been installed for 10 years or more, and the construction ROWs have been partially or completely been restored to pre-existing conditions. Irrigated haylands and pasturelands have been returned to their prior uses. Thus, we do not expect these existing projects to contribute to the cumulative impact on soils. Potential cumulative erosion could occur where the EPP and PBEP construction disturbance areas overlap, or are located near each other between Entrega MPs 40 and 135. Best management practices for soil management and protection would be applied across all ownerships for both pipeline projects, as well as the EnCana Meeker Gas Plant. Revegetation mixtures would be applied that are appropriate to soil conditions and expected future uses (grazing, wildlife habitat). As a consequence, the potential for cumulative erosion increases caused by one or more of these projects is low.

The potential for cumulative impacts occurs in dissected drainages and on steep slopes where existing pipelines have already been located in the most favorable locations. Example areas where one or more new pipelines would be constructed are listed in **table 3.12-2**. The primary cumulative impact issue is that surface drainage controls (e.g., water bars) installed for the new pipelines could adversely affect the existing drainage controls on adjacent pipelines. The EPP would integrate its surface drainage system with that of any adjacent pipeline during final grading, thereby avoiding excessive stormwater runoff from cumulative pipeline sources in the same utility corridor.

Table 3.12-2
Steep Slope/Incised Channel Areas Crossed by Existing and Proposed Pipelines (Entrega and WIC)

Location	Existing Pipelines (Number)	Entrega	WIC Piceance Basin Expansion
Colorow Mountain (MPs 20 to 21)	3	X	
North Side Little Snake River (MPs 85 to 87)	2	X	X
Sand Creek and Willow Creek Drainages (MPs 95 to 99)	4	X	X

Sensitive Soils. The primary cumulative sensitive soils issue is the maintenance of agricultural soil productivity where these soils have been disturbed by multiple pipelines. Based on STATSGO soils data, Entrega estimates that the proposed pipeline would cross about 2 miles of hydric soils in Colorado and 4 miles in Wyoming. These areas generally equate to irrigated pasturelands where shallow water tables have been augmented by seasonal irrigation. The majority of these areas are located in Albany and Laramie counties, Wyoming. Construction of EnCana gathering and delivery pipelines across irrigated lands in the Piceance Creek floodplain (Pipeline Segment C, **figure 3.12-1**) would disturb about 5 acres. The Entrega pipeline is not collocated with the EnCana project at this crossing. The primary cumulative impact issue is to ensure that surface drainage is restored across the Entrega construction ROW as well as adjacent pipeline ROWs, and to ensure that soil compaction is relieved in haylands and pasture. The EPP and PBEP pipeline

construction ROWs would be adjacent to each other across irrigated pastures at the Yampa River crossing and across dry pasture at the Little Snake River crossing. Both projects propose to directionally drill the Yampa crossing; however, both projects would cause surface disturbance in the same irrigated pasture at this crossing. Both EPP and PBEP projects have prepared, or would be required to prepare plans to restore and monitor irrigated soils. Application of these plans would ensure that agricultural productivity would be maintained over the long term. EnCana's plans to restore irrigated lands within the Piceance Creek floodplain are unknown.

Soil mixing and compaction effects on other sensitive soils (shallow, rocky, saline) during construction would be addressed on a site specific basis by the EPP, PBEP, and EnCana projects, and would not represent cumulative impacts (see Erosion above).

Water Resources

Groundwater. Existing pipeline and other utility projects do not consume groundwater. The EPP and PBEP projects do not propose to consume groundwater for construction or operation. Both projects would implement spill containment and control plans as required by the BLM and state agencies. No cumulative impacts on groundwater volume or quality from the EPP and PBEP projects are expected. Potable and process water requirements and sources for EnCana Meeker Gas Plant are not currently known. Produced water associated with natural gas would be separated at the processing plant; a portion of this produced water may be treated to make it suitable for other project purposes.

Surface Water. Both the EPP and PBEP projects propose to directionally drill the White and Yampa Rivers, and consequently there would be no cumulative sediment increases at these crossings. Based on currently available schedules, the two projects would not simultaneously construct across the Little Snake River, resulting in no cumulative suspended sediment increase. The two projects would not cause cumulative water withdrawal volume reductions on the Yampa, White, and Little Snake Rivers because the two projects would withdraw hydrostatic test water at different times. If the schedules for both projects were to converge, water withdrawals could overlap, resulting in the cumulative withdrawal of 28, 39, and 39 acre-feet from the Yampa, White, and Little Snake Rivers, respectively. To reduce potential cumulative dewatering effects on the Little Snake River during low flows, **we recommend that Entrega coordinate their hydrostatic testing and dust control water withdrawals with WIC such that no EPP and PBEP water withdrawals occur simultaneously from the Little Snake River.**

EnCana has provided a preliminary estimate of 22 acre feet (a maximum of 12 acre feet in any one year) of water for hydrostatic testing of its entire Meeker pipeline project. The sources of this water are not presently known. As stated previously, potable and process water requirements for the Meeker Processing Plant are not currently known. Disposal of produced water could include evaporation ponds or injection into an approved deep geologic formation.

Both the EPP and PBEP projects would follow the FERC procedures for crossing smaller perennial streams and intermittently flowing waterbodies, and site specific erosion control and bank stabilization measures would be used to prevent cumulative sedimentation increases where both projects cross the same stream channel at the same location.

The proposed Entrega alignment parallels numerous pipelines and other linear features that cross alluvial floodplains and fans that are subject to periodic flooding and scour. Although Entrega has taken steps to avoid or limit the effects of scour, should an event occur it could affect one or more other pipelines, in addition to the Entrega Pipeline. Potential cumulative damage interactions among pipelines as the result of a major channel scouring event are not expected.

Vegetation

Invasive and Noxious Weeds. Invasive and noxious weed populations already exist, or potentially exist on the land adjacent to proposed construction ROWs for the EPP, PBEP, and EnCana projects, based on input from local NRCS offices and the BLM. The three projects would apply invasive and noxious weed controls prior to, and during construction, including pre-construction weed control and equipment cleaning. The three projects would be responsible for monitoring and controlling weed invasions on federal lands; comparable programs have been recommended on private lands, subject to landowner agreements. Based on proposed weed control measures, and equipment cleaning, the three projects would not cumulatively contribute to new weed infestations.

The total amount of vegetation that may be affected by all of the proposed projects is substantial but still relatively small compared to the abundance of similar habitat in the project area. While these projects could potentially fragment vegetation habitat, this effect would be minimal because no densely forested areas would be crossed by the proposed pipelines. This effect would be further reduced by the collocation of many of these projects with existing ROWs. All of the projects would involve mitigation measures designed to minimize the potential for long-term erosion, increase the stabilization of site conditions, and in many cases control the spread of noxious weeds, thereby minimizing the degree and duration of the cumulative impact of these projects.

Wetlands. The locations where cumulative impacts to wetlands would occur are where the EPP and PBEP would be collocated between EPP MPs 40 and 135 at Wamsutter. The majority of this disturbance would be in palustrine emergent wetlands and hayfields, dominated by grasses and sedges. The EPP would disturb 14.6 acres (14.3 acres of hayfields and 0.3 acre of PEM), and PBEP 8.7 acres (8.5 acres of wet meadow and marsh and 0.2 acre of scrub shrub wetlands), for a cumulative total of 23.3 acres. The majority of this cumulative disturbance would be located at the Yampa River crossing. The EnCana pipelines would disturb about 5 acres of wetlands (irrigated pasturelands) along Pipeline Segment C (**figure 3.12-1**). The EPP and PBEP projects would apply FERC wetland crossing procedures, and would be subject to conditions contained in COE 404 permits and state water quality permits. None of the wetlands crossed would be permanently filled or drained. Therefore, cumulative effects to wetlands would be minor and short-term because of rapid recovery by grasses, sedges, and other herbaceous species.

Fish and Wildlife

Fisheries. The locations where cumulative impacts to fisheries could occur from stream channel disturbance, and hydrostatic water withdrawals are crossings of the White, Yampa, and the Little Snake Rivers, where the EPP and the PBEP would cross these waterbodies in the same year (late 2005). Both the

EPP and PBEP would directionally drill the White and Yampa Rivers, which would avoid increased sedimentation and channel disturbance in these two rivers. Cumulative impacts from simultaneous construction by both projects across the Little Snake River are not expected because of differing construction schedules. Four EnCana pipelines would cross Piceance Creek at the same location (Pipeline Segment C, **figure 3.12-1**) resulting in increased sedimentation downstream of the open-cut crossings. The Entrega pipelines would not be collocated with the EnCana pipelines at this crossing location, and therefore would not incrementally add to the channel and aquatic habitat disturbance at this location.

Wildlife Habitat. The removal of woodland and shrubland would result in a long-term habitat reduction because the regeneration of woody species is slow in the project region. Construction and operation of the EPP would incrementally add to the width of habitat discontinuities within an existing utility corridor, which may affect the movement of species dependent on these habitats and would cumulatively reduce carrying capacity for woodland and shrubland dependent species.

Big Game. The EPP would cross elk, mule deer, and pronghorn critical or crucial winter habitats in both Colorado and Wyoming, respectively. Winter big game habitats that would be affected by the EPP, the proposed EnCana and PBEP Projects, and existing pipelines and other utilities are summarized in **table 3.12-3**. The incremental surface disturbance contributed by the EPP to the cumulative projects would represent a small fraction (less than 1 percent) of the individual big game ranges crossed. Both the EPP and PBEP projects have coordinated with the CDOW, BLM, and WGFD to develop revegetation seeding mixtures that include shrub, forb, and grass species that are used by big game, as well as other target species. The application of these mixtures, followed by ROW monitoring after construction (see appendix G) would ensure that there is a long-term effort to restore big game forage in designated critical (Colorado) and crucial (Wyoming) winter habitats. Big game habitat rehabilitation measures are being determined for the EnCana project by the BLM in consultation with the CDOW.

Table 3.12-3
Overall Big Game Habitat Disturbance (Square Miles) for Existing and Reasonably Foreseeable Projects within the Entrega Pipeline Cumulative Study Area

State/Habitat Type	Existing Pipe and Compressor Station Plus I-80	Proposed EPP	Proposed EnCana Meeker Pipeline and Gas Plant	Proposed PBEP
Colorado				
Elk, Mule Deer, and Pronghorn Critical Winter Habitat	**1.2**	0.7	**0.2**	0.3
Wyoming				
Mule Deer Crucial/Yearlong Habitat	3.3	0.8		0.1
Pronghorn Crucial/Yearlong Habitat	4.8	1.1		0.1
Elk Crucial Winter Habitat	0.7	0.1		0.0
Total	**10.0**	**2.7**	**0.2**	**0.5**

Both the EPP and PBEP project would cross big game winter ranges in relatively remote areas of Colorado and southern Wyoming. These projects would be subject to winter construction closures depending on severity of the early winter, so that wintering big game conflicts would be largely avoided during this season. Big game winter range closures are being determined for the EnCana project by the BLM in consultation with the CDOW.

Special Status Species

With the exception of occasional foraging by bald eagles (but no winter roost sites), none of the species discussed below would be affected by the portion of the EnCana Meeker Gas Plant and Pipeline Project within the EPP cumulative study area.

Bald Eagle. Bald eagles use winter roosts and occasionally nest along the White, Yampa, and Little Snake Rivers in Colorado. Both the EPP and PBEP would be subject to construction timing restrictions during critical bald eagle use seasons, and would be requested to implement measures to avoid the loss of roost or nest trees. No other known projects are scheduled for work locations at these crossings that might coincide with either of these pipeline projects. Therefore, the EPP and the PBEP would not contribute to cumulative impacts to bald eagle winter or nesting habitat, nor would construction activities coincide with bald eagle critical use periods along these rivers.

Black-footed ferret and other prairie dog colony inhabitants (burrowing owl, mountain plover). Both the EPP and PBEP alignments would cross prairie dog colonies between the Yampa River and Wamsutter. The construction of both projects would cumulatively cause surface disturbance in prairie dog colonies and potential loss of prairie dog individuals, which are black-footed ferret prey. Both projects would be subject to pre-construction surveys. If ferrets were sighted, construction would not be authorized until the FERC had completed any required consultation with the FWS. If mountain plovers or burrowing owls were sighted during pre-construction surveys, construction constraint periods would be established to insure that fledglings leave the areas before construction begins. Based on these measures, no cumulative impacts to these species are expected, with the exception of the short-term surface disturbance within prairie dog colonies during construction.

Sage grouse. The 2005 surveys conducted by Entrega indicated that 21 sage grouse lek (breeding) sites were active within 2 miles of the EPP pipeline route in Colorado and Wyoming. Entrega has committed to seasonal construction restrictions in the vicinity of these leks. The EPP and PBEP projects would be located parallel to each other where both routes cross important sage grouse habitat from the north side of the Yampa River to the vicinity of Wamsutter, a distance of about 85 miles. Both projects would be subject to seasonal construction restrictions to avoid critical sage grouse breeding and brooding periods. Both projects would contribute to incremental increases in the width of the existing pipeline corridor, which is currently about 150 feet wide in this area. The combined EPP and PBEP construction ROWs through this segment could be as much as 185 feet, which would more than double the pipeline corridor width in sagebrush habitats. While there has been natural sagebrush reestablishment on the existing UBL and Rocky Mountain Natural Gas Pipeline ROWs between the White River and Wamsutter, the sagebrush density and height in the existing corridor is not yet comparable to adjacent undisturbed areas. Between Wamsutter and Arlington (a distance of about 110 miles), the Entrega Pipeline would expand a large existing pipeline corridor through

Wyoming sagebrush habitats. Reduction in sagebrush cover exposes grouse to higher predation rates and may limit bird movement across these discontinuities. Reduction in sage grouse populations and reductions in use of traditional lek sites have been documented in oil and gas well fields in Alberta, Wyoming, and Colorado (Connelly et al. 2000). Other factors, such as wildfires, periodic drought, invasion by cheatgrass, and intensive livestock grazing also adversely affect sage grouse habitat suitability (Connelly et al. 2004). In summary, the EPP and PBEP would contribute to the cumulative long-term reduction in, and fragmentation of sage grouse habitat in Colorado and Wyoming by expanding an existing utility ROW. Both projects would adhere to seasonal restrictions during sage grouse breeding and brooding periods, and therefore cumulative indirect effects from increased human activity and noise during construction would not occur.

Colorado River Fish (Colorado Pikeminnow). Both the Entrega and WIC pipelines would be directionally drilled under the White and Yampa Rivers, which contain listed fish species. Both projects would be subject to hydrostatic test water volume and timing constraints for withdrawals from these rivers. Based on these construction requirements, no cumulative water quality or channel habitat impacts on populations to this listed fish are expected.

Dudley Bluffs twinpod and Dudley Bluffs bladderpod. These two plants occupy a very small area within the Piceance Basin near the Meeker Hub Compressor Station. Populations of both species are currently protected within the Dudley Bluffs ACEC, where no new surface occupancy by oil and gas facilities has been allowed by the BLM. Any future development activities on federal lands in the vicinity of the known populations would be subject to pre-construction surveys, avoidance requirements if plants are found, and FWS consultation. The EPP and PBEP would not contribute cumulative surface disturbance impacts to populations of these plants, based on the projects' location.

Land Use

Land Use Conversion and Construction Effects. The EPP, PBEP (via the TransColorado North Expansion), and EnCana projects would incrementally add to the acreage of aboveground oil and gas facilities in Colorado and Wyoming. Assuming that approximately 300 acres are already dedicated to compressor stations, mainline valves, meter stations, and pig launchers/receivers, Entrega proposes to add 52 acres in Colorado and 24 acres in Wyoming for aboveground facilities. WIC (via the TransColorado North Expansion Project) would require approximately 9 acres for new aboveground facilities (compressor station at Greasewood, mainline valves and interconnections), and EnCana would require approximately 50 acres for its Meeker Gas Plant.

While installation of new pipelines in an existing corridor would incrementally reduce the area available for future development, use of established utility corridors concentrates cumulative land use impacts. With the exception of a rural residential area between Cheyenne and Laramie (EPP only), the EPP, PBEP, and EnCana projects would not cumulatively affect residential land uses. The majority of rural residential lots between Cheyenne and Laramie are about 40 acres. The existing corridor contains 5 to 6 utilities (pipelines and fiber optic cables) in this area. Assuming that one more pipeline were added (EPP), the 50-foot permanent ROW for 7 utilities across the full width of a 40-acre parcel would be 10.6 acres, or approximately 25 percent of the parcel area. However, the existing pipeline corridor pre-dates the

subdivision of existing rangeland in this area, and owners and new buyers were informed of the pipeline easements in their deeds.

Special Management Areas. The EPP pipeline route would cross 5.2 miles of CDOWs Piceance Creek Wildlife Area in the irrigated meadows along Piceance Creek. The PBEP route would cross 3.3 miles of the same Wildlife Area in pinyon-juniper and sagebrush habitats between Greasewood and the White River. The two projects would cause cumulative habitat reductions on these state-owned lands. We anticipate that the irrigated meadow lands can be restored in the short term, and restoration in upland sagebrush and pinyon juniper dominated areas would be long term. Both projects would parallel each other across 2.9 miles of CDOWs Bitter Brush SWA south of the Yampa River. Both projects would coordinate with the CDOW to maintain access for recreational users (primarily hunters) during the construction period. Both pipeline routes would cross the Overland Trail at MP 118. This crossing is in a remote location, and has not been developed for public access and education about the trail.

Visual Resources

The route segments where the Entrega and El Paso pipelines would be collocated are classified as BLM VRM Class III (partial retention of existing characteristics of the landscape) by the Little Snake and Rawlins Field Offices. The areas where the cumulative contrast of the two pipeline construction ROWs would be most apparent to public observers would be along Moffat County Road 57 at MP 34.5, where the Entrega pipeline would ascend a steep ridge and the WIC pipeline would parallel the existing drainage channel, and again along County Road 57 between MPs 40 and 45 where the two ROWs would be approximately 0.25 mile west of the road on low sagebrush and grass slopes. The two ROWs would be briefly visible to travelers along U.S. Highway 40 where the pipelines would make a perpendicular crossing of the Yampa River. The remainder of the collocated pipeline segment between the Yampa River and Wamsutter is very remote, and accessible only by improved and unimproved secondary roads. Both pipelines would cross I-80 in Wyoming in an area that has already been highly modified by existing pipeline ROWs and commercial and industrial developments in the vicinity of Wamsutter.

New surface disturbance associated with the construction of the EnCana gathering pipelines and the Entrega pipeline would be most evident to public viewers driving along Rio Blanco County Road 5 between the Meeker Hub Compressor Station and the intersection with an existing pipeline ROW (Segment B, **figure 3.12-1**). Construction of additional pipelines in the Segment C existing pipeline corridor also would be viewed by travelers along County Road 5. These areas are classified as BLM VRM Class III. This classification would likely be maintained with post-construction slope recontouring and revegetation. The proposed EnCana Meeker Gas Plant probably could not be seen from County Road 5 because of setbacks from the bluff above the Piceance Creek drainage. No plant facility height information is available.

Cultural Resources

Surveys in Colorado located 73 cultural resource sites within the EPP construction corridor or area of potential effect (APE) (Redman et al. 2005). Forty of the sites are recommended or have been officially determined eligible for listing on the NRHP. The remaining 33 sites are recommended or have been officially determined not eligible for the NRHP. In the segment between the Wyoming state line and Wamsutter,

49 sites were located within the APE (Greiser et al. 2005). Thirteen of the sites are recommended or have been officially determined eligible for the NRHP, 6 sites are unevaluated, and 30 are recommended or have been officially determined not eligible for the NRHP.

To date, surveys in Colorado for the PBEP have located 114 sites in the PBEP construction corridor or APE (Metcalf and Slaughter 2005). Thirty-five of the sites are recommended are have been officially determined eligible for the NRHP, 45 are recommended or have been officially determined not eligible for the NRHP, 34 of the sites are presumed buried and will need additional evaluation. In the segment between the Wyoming state line and Wamsutter, 56 sites have been located within the APE. Sixteen of the sites are recommended or have been officially determined eligible for the NRHP, 39 are recommended or have been officially determined not eligible for the NRHP, and one site is listed in the SHPO database as not eligible, but has been recommended as eligible in past inventories.

It is anticipated that the PBEP would intercept many of the same sites crossed by the EPP. Both projects have completed cultural resource inventories that would be followed by treatment of sites that cannot be avoided. A currently unquantifiable number of both eligible and ineligible sites between Entrega MPs 40 and 135 may experience cumulative surface disturbance from these projects. A more specific number of affected sites will be determined upon analysis of both project proposals for site avoidance. Both routes intercept the Overland and Cherokee trails. A plan to mitigate impacts to any intact portions of the trails would be required for both projects.

The EnCana gathering pipelines (Segment B, **figure 3.12-1**) would be collocated with the Entrega Pipeline over a distance of about 2 miles along Piceance Creek. Insufficient information is currently available to evaluate potential cumulative project effects on eligible sites.

Socioeconomics

The socioeconomic discussion is focused on the potential interactions between the EPP and PBEP, since no other major construction project is expected to occur in the same timeframe and location as the EPP in the route segment between Wamsutter and the Cheyenne Hub. As discussed previously, the EnCana Meeker Processing Plant and pipeline project construction could overlap with the EPP and PBEP pipeline construction periods during the second half of 2005. Detailed EnCana construction timeframes have not been established. Consequently, this analysis acknowledges a risk of construction period overlaps during that period, but does not attempt to quantify the effects on labor force requirements, temporary housing availability, or fiscal costs and benefits. Given the dynamic nature of gas processing, pipeline, and ancillary development in the region, the potential exists for cumulative effects in late 2006/early 2007. However, scheduling and workforce data are not available for any specific projects in that timeframe.

Employment. Cumulative workforce impacts between the EPP and the PBEP could occur in Carbon and Sweetwater Counties, Wyoming and Moffat and Rio Blanco Counties, Colorado. Entrega proposes to construct its Meeker Hub Compressor Station – Wamsutter segment from north to south. El Paso proposes to construct the Greasewood – Wamsutter segment from south to north. A preliminary assessment of the EnCana project by the BLM suggests possible site preparation work for a compressor and pipeline construction moving west and south from the Meeker Hub during late 2005 (BLM 2005). As a consequence,

the potential for multiple worksites to coincide in time in the vicinity of Craig and Meeker. Smaller scale overlaps could occur in conjunction with the construction of additional compression other ancillary facilities, or in the event of changes in scheduling by one or the other of these projects. We examined the proposed schedules for EPP and PBEP projects to estimate the time and location of greatest workforce overlap between the two projects. **Figure 3.12-3** illustrates the construction activities, and the expected distribution of the workforce along both pipeline routes. We assumed that the workforce would consist of 15 percent local hires.

Housing. **Figure 3.12-4** illustrates the potential housing demands within various nearby communities for the combined EPP and PBEP workforces in late 2005. The majority of the available temporary housing to serve these spreads is located in Craig, Colorado, and Rawlins, Wyoming. The infrastructure to accommodate short-term worker increases in both Baggs and Wamsutter is limited. This region is currently experiencing oil and gas exploration and development, which increases the competition for temporary housing on an on-going basis. Over the years, a large inventory of temporary housing has developed in Sweetwater and Carbon Counties to meet demands from the oil and gas and mineral extraction industries. Thus, it is anticipated that the short-term influx of pipeline workers from both projects can be absorbed by the motels (3,085 rooms) and mobile home/RV spaces (6,889) in those counties. The availability of temporary housing is more limited in Moffat and Rio Blanco Counties. Because both projects would be active during the fall months, there could be short-term, potentially significant shortfalls in temporary housing and camp space availability in Meeker, Craig, and Rawlins during the hunting season months of October and November.

Public Services and Facilities. Oil and gas industry workforces typically consist of a large fraction of non-residents who leave the region as drilling and construction projects are completed, if other job opportunities in the oil and gas industry are not available. As a consequence, there may be short-term demands for public services from this population, but major investments in public infrastructure (e.g., new schools, hospitals) would not be required. The oil and gas workforce is dispersed over a wide area at long distances from emergency services (e.g., hospitals, fire fighting). During public scoping, Rio Blanco County law enforcement and public safety officials expressed concern about the long distances for emergency response (the nearest major hospital is in Grand Junction), and insufficient local staff to respond to simultaneous emergencies, should that eventuality arise. This input suggests that investment is needed at the county level to expand service capabilities, at least temporarily, or the oil and gas industry needs to provide short-term additional support for these services in the form of staff, equipment, service fees, and planning and communications with service providers to address the cumulative impacts of multiple projects occurring in the same timeframe.

Public Sector Fiscal Resources. Both the EPP and PBEP would cumulatively contribute revenues to Rio Blanco and Moffat Counties in Colorado, and Sweetwater and Carbon Counties in Wyoming during the construction period from local purchases by the companies and construction personnel, sales taxes on materials and equipment, and housing rentals. Long-term revenues would accrue to these counties from additional property taxes on improvements located within their respective boundaries, and shares of oil and gas severance taxes on local production. **Table 3.12-4** presents an estimate of the cumulative effects of the EPP and PBEP on ad valorem taxes in the counties where both projects would be constructed. The counties that would be most benefited are Rio Blanco and Moffat Counties (about a 6 percent and 9 percent increase in the assessed valuation, respectively). The effects in Carbon and Sweetwater Counties,

Wyoming would be relatively lower because of a relatively higher existing assessed property valuation on other improvements and natural resource production.

Entrega Schedule by Activity	2005 M	J	J	A	S	O	N	D	2006 J
Spread 1- Rio Blanco and Moffat									
Spread 2 - Moffat and Sweetwater									
Metering - Rio Blanco									
Metering - Sweetwater									
Pipe and Material Transport									

PBEP Schedule by Activity	2005 M	J	J	A	S	O	N	D	2006 J
Spread 1- Sweetwater and Carbon									
Spread 2 - Moffat and Rio Blanco									
Metering - Rio Blanco									
Metering - Sweetwater									
Greasewood Compressor - Rio Blanco									

Entrega Workforce by Activity	2005 M	J	J	A	S	O	N	D	2006 J
Spread 1			350	475	475	475	475	475	
Spread 2			325	425	425	425	425	425	
Metering 1				65					
Metering 2 thru 3					65	65			
Pipe and Material Transport			100	100	100	100	100	100	
Total			775	1,065	1,065	1,065	1,000	1,000	

PBEP Workforce by Activity	2005 M	J	J	A	S	O	N	D	2006 J
Spread 1- Sweetwater and Carbon						137	268	240	70
Spread 2 - Moffat and Rio Blanco						136	267	240	70
Metering - Rio Blanco							65		
Metering - Sweetwater						65			
Greasewood Compressor - Rio Blanco								50	50
Total						338	600	530	190

Combined Totals			775	1,065	1,065	1,403	1,600	1,530	190

Figure 3.12-3. Overlap between Currently Proposed Entrega and PBEP Construction Schedules and Workforce Estimates, 2005 through 2006

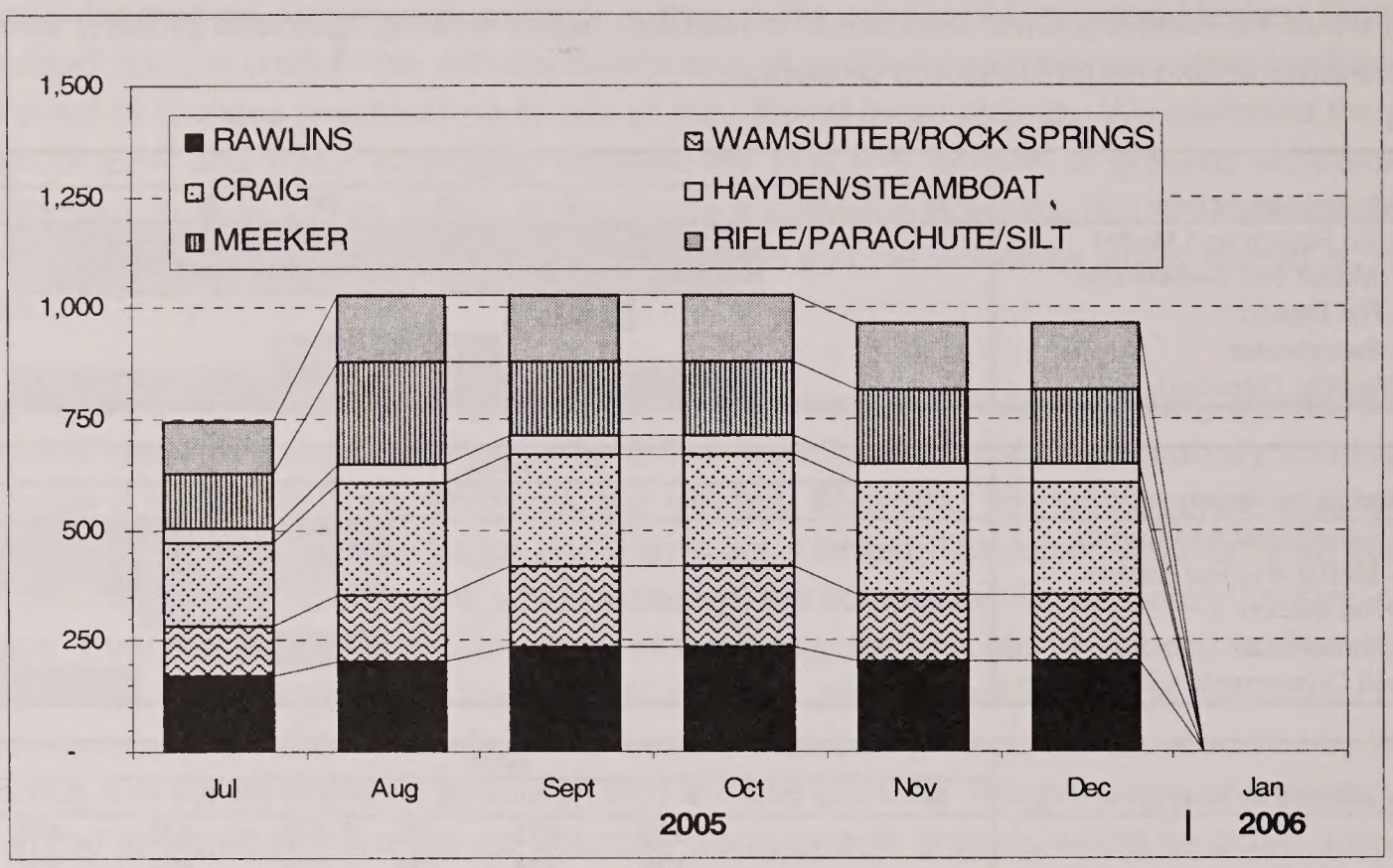


Figure 3.12-4. Combined Entrega and PBEP Workforce Estimates, Projected Place of Residence

Table 3.12-4
Cumulative County Ad Valorem Tax Increases - Entrega and El Paso Projects

		Entrega Pipeline	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	$7,412,000	1.94%
Sweetwater County	$11,607,419,952	$6,043,000	0.05%
Moffat County	$298,876,180	$14,068,000	4.71%
Rio Blanco County	$304,607,460	$6,192,000	2.03%

		WIC Pipeline	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	NA	NA
Sweetwater County	$11,607,419,952	$4,642,186	0.04%
Moffat County	$298,876,180	$12,445,476	4.16%
Rio Blanco County	$304,607,460	$10,672,096	3.50%

		Combined	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	$7,412,000	1.94%
Sweetwater County	$11,607,419,952	$10,685,186	0.09%
Moffat County	$298,876,180	$26,513,476	8.87%
Rio Blanco County	$304,607,460	$16,864,096	5.54%

Transportation. Entrega and WIC propose to construct portions of their projects in the same construction season (mid to late 2005) from Deception Creek in Moffat County to Wamsutter. If Entrega and WIC simultaneously construct in areas where the pipelines are closely parallel to each other, there would likely be substantial increases in construction traffic on Rio Blanco County Road 7 and Moffat County Road 57 between Meeker and Maybell; Colorado Highway 13 between I-70 and the state line south of Baggs; Wyoming Highway 789 between Baggs and Wamsutter; and U.S. Highway 40 between Craig and Maybell. Improved and unimproved BLM roads administered by the Little Snake and Rawlins Field Offices would provide access from Colorado Highway 13 and Wyoming Highway 789 to the pipeline ROWs between the Yampa River and Wamsutter. These secondary roads would experience short-term high increases in traffic while pipe is delivered and the pipelines are installed. These roads are currently experiencing daily traffic from well field drilling and operational activities west of Baggs. The accurate construction schedules of both pipeline projects are not currently known.

The EPP and PBEP would follow transportation plans to manage construction vehicles, and would follow standard measures for fence repair, provision of temporary gates, and provision of temporary crossings for livestock. Equipment turning onto and off state highways and access roads may require flagmen and other controls to limit the risk of accidents on public roads. Both projects would be required to obtain local crossing permits for county roads, which would define weight limits and maintenance standards. The BLM has defined minimum standards for maintenance of existing BLM roads, and construction and operation of any new permanent roads on BLM-administered land.

EnCana has stated that it expects to employ 250 workers to construct the initial phase of the Meeker Processing Plant over a period of 6 months. A proposed construction start date is not known. If construction were to begin in the third or fourth quarter of 2005, there is potential for overlap between the Entrega pipeline and EnCana workforces and material deliveries on Rio Blanco County Road 5 that parallels Piceance Creek. This county road also could be used by EnCana's gathering pipeline construction workforces during the same period.

In summary, the EPP and PBEP overlapping pipeline construction periods could result in short-term (1 to 2 months) cumulative increases in traffic on secondary BLM and county roads between U.S. Highway 40 in Colorado and I-80 in Wyoming. Roads used by construction equipment would be maintained, and any damage repaired after construction is completed. Consequently, long term cumulative impacts to roads and traffic flow are not expected. Potential overlaps between the Entrega pipeline and EnCana processing plant and gathering pipeline construction workforces in the second half of 2005 are possible along Rio Blanco County Road 5, but cannot be confirmed based on available information.

Air Quality and Noise

Cumulative fugitive dust (particulate) increases may occur where the EPP and PBEP are using the same access road system to construct their projects (see Transportation above). Both projects would follow state and local requirements for dust control on roads and excavated surfaces.

On a local scale, cumulative increases in air pollutant emissions could occur where new compressor stations are sited at or near existing stations. Entrega would collocate its new compressor near existing

compressor stations operated by other companies at the proposed Meeker Hub and Wamsutter. The remaining station (Bighole) is located individually in a rural area. A new natural gas-fired compressor (1,650 site-rated horsepower) would be installed within the existing Greasewood compressor station to provide compression for the WIC Piceance Basin Expansion pipeline. TransColorado's new Greasewood station would include three natural gas-fired compressors totaling 4,670 horsepower. EnCana would install several natural gas combustion heaters at its Meeker Processing Plant to remove carbon dioxide and water from the natural gas received from the gathering pipeline system. EnCana proposes to power its natural gas compressors with electricity provided from an existing transmission line. Each compressor station and gas processing plant is required to obtain a construction and operation permit from either Colorado and Wyoming, and potential interactions with nearby emission sources must be considered in these permit applications.

On a regional scale, the gas-fired combustion turbines at the three EPP compressor stations would emit criteria pollutants, and small quantities of hazardous air pollutants. Recent regional air cumulative studies have been completed that address multiple pollutant emission sources within the same regional air sheds where the EPP compressor stations would be located (BLM 2004a,b). The EPP compressor stations are included as a type of foreseeable source in these analyses. The following paragraphs summarize the major conclusions of these regional studies.

Ambient Air Quality and Air Quality Related Values. The CALPUFF model was applied to estimate the far-field (50 km to over 200 km) ambient air quality and Air Quality Related Values (AQRV) impacts from the Desolation Flats project (BLM 2004a). The far-field analysis estimates the total impacts due to the existing background and foreseeable project sources. Impacts on air quality were estimated at nearby Class I and Class II areas. The sensitive areas include:

- Bridger Wilderness (Class I);
- Fitzpatrick Wilderness (Class I);
- Popo Agie Wilderness (Class II);
- Wind River Roadless Area (Class II);
- Dinosaur National Monument (Class II);
- Savage Run Wilderness (Class I);
- Mount Zirkel Wilderness (Class I); and
- Rawah Wilderness (Class I).

The protocol for the Desolation Flats assessment was to perform a single impact analysis for Alternative A. Under Alternative A, 592 gas wells would be developed at 555 locations, with a forecasted success rate of 65 percent resulting in 385 producing wells. The producing wells would be supported with six compressor stations and two gas processing plants. Compression and processing requirements for Alternative A are estimated at 32,000 horsepower. The analysis of Alternative A represents the worst-case scenario. Potential air quality impacts resulting from the proposed action and the no action alternatives would be less than the impacts resulting from the implementation of Alternative A.

The CALPUFF model was used to estimate ambient NO_2, SO_2, PM_{10}, and $PM_{2.5}$ concentrations for comparison with federal and state ambient air quality standards and PSD Class I increments and to address potential AQRV impacts. The estimated concentrations for all pollutants are far below the applicable federal and state ambient air quality standards and are less than one percent of the Class I PSD increments (BLM 2004a).

The Roan Plateau CALPUFF studies (BLM 2004b) found similar results at Class I areas with respect to the Reasonably Foreseeable Development (RFD) in the region. The number of new wells in the maximum development scenario for the Roan Plateau was 3055. It was calculated that this level of development would require up to 67 new 1,000 hp compressors and 1 new glycol dehydrator per gas well.

National Ambient Air Quality Standards (NAAQS) were not exceeded for any pollutant or averaging period, and all concentrations include background. The PSD Increments were not exceeded for any pollutant or averaging period. Although these results are compared to the PSD increment consumption thresholds, they do not, nor are they intended to, represent a true PSD increment consumption analysis.

Visibility Impacts. There are two thresholds of visibility change that are used for determining the significance of potential impacts: the number of days in which the visibility is 1 deciview or greater; and the number of days in which the change is 0.5 deciview or greater. A deciview is a 10 percent reduction in visibility as compared to background concentrations of atmospheric haze components, as measured by a specialized instrument called a nepholometer. The FS uses the 0.5 deciview change as a threshold to protect visibility in sensitive areas. The 1.0 decivew change threshold is used in the Regional Haze Regulations as a small but just noticeable change in haziness and has been used by other agencies as a management threshold. The 0.5 and 1.0 deciview change thresholds are neither standards nor regulatory limits. Rather, they are used to alert the affected land managers that potential adverse visibility impacts may exist and the land manager may wish to look at the magnitude, duration, frequency, and source of the impacts in more detail in order to make a significance determination.

The Desolation Flats EIS analyzed far field impacts on visibility degradation at the sensitive receptor areas using the IWAQM/FLAG-recommended method (BLM 2004a) and found that visibility impacts do not exceed the thresholds of 0.5 or 1.0 deciview change levels. Therefore it is not expected that visibility impacts from the proposed pipeline compressors would cumulatively contribute to atmospheric conditions that would exceed these thresholds. The Roan Plateau study found that visibility at three Class I areas in Colorado may be reduced on a few days due to existing sources. However, construction and operation of the proposed pipeline would not materially contribute to cumulative visibility impacts because the RFD studied for the Roan Plateau EIS included future emissions estimates that encompass the proposed compression at the Meeker Hub and Wamsutter compressor stations required for this project.

Noise. The Wamsutter Compressor Station would be in an existing high-noise area in the vicinity of existing compressor stations and I-80. Entrega has demonstrated in its noise analysis that the proposed facilities would not increase the existing noise levels at the nearest occupied residence, even though the existing noise levels exceed the FERC standard of 55 dBA L_{dn}. The Entrega measurements account for existing noise sources (e.g., highway noise). El Paso does not currently propose to construct new compressor

stations for its project, but the proposed TransColorado compressor station at Greasewood would serve this purpose. No residences are located within 4 miles of the Greasewood site.

System Safety and Reliability

As discussed previously, we conclude that no cumulative operational safety impacts are expected among pipelines and other facilities located in the same general utility corridor because of the spacing between pipelines, the depth of soil cover, and requirements to meet DOT Minimum Federal Safety Standards in Title 49 CFR Part 192.

ALTERNATIVES

CHAPTER 4

4.0 ALTERNATIVES

Several project alternatives have been identified and evaluated to determine if they would be reasonable and provide environmental or benefits when compared to the proposed action. The range of alternatives includes the No Action or Postponed Action Alternative, System Alternatives, Route Alternatives, and Route Variations.

The evaluation criteria used for developing and reviewing alternatives were:

- technical feasibility and practicality;
- significant environmental advantage over the proposed action; and
- ability to meet the project's stated objectives.

The development and analysis of alternatives were shaped by the public and agency interactions with Entrega that occurred during the FERC's NEPA Pre-Filing and scoping processes. Entrega established a preliminary pipeline centerline prior to initiating the pre-filing process. This was followed by stakeholder meetings and agency field reviews to obtain feedback on the proposed routing. Entrega developed new route segments to respond to specific issues, and then followed up with landowners and agencies to confirm proposed changes. The route alignment that Entrega filed on September 18, 2004, represents the EIS proposed action.

The alternatives that are carried forward in this analysis are those that:

- offer potential environmental impact reduction benefits relative to the proposed action;
- address routing comments from landowners that have not been resolved by Entrega; and
- represent deviations from an existing pipeline corridor where we believe the potential environmental costs/benefits favor locating the proposed pipeline segment outside the corridor. Several short route variations have already been incorporated into the Entrega proposed action. The reasons for these changes are contained in Entrega's Resource Report 10 that is posted on the FERC website, and are not further discussed here.

4.1 No Action or Postponed Action

The actions triggering this environmental review were Entrega's applications to the FERC for a Certificate and to the BLM for new or amended ROW grants across public (federal) lands. The FERC and the BLM have three courses of action in processing these applications. They may:

1. grant the approvals with or without conditions;
2. deny the approvals; or
3. postpone action pending further study by denying the application without prejudice.

4.0 ALTERNATIVES

If the FERC and the BLM deny or postpone EPP's applications, the environmental impacts identified in this EIS would not occur. In addition, should the no action alternative be selected, the stated objectives of EPP's proposal would not be met. Specifically, customers in the Midwest and Central U.S. would not have access to the 1.5 Bcfd of natural gas that the EPP proposes to transport. Additionally, producers in the Piceance and neighboring production basins (as well as the Central Rocky Mountains supply region) would be denied up to 1.5 Bcfd of new regional transportation capacity which could potentially hinder further gas development in this region. If this denial or postponement happens, new and existing natural gas users would need to obtain natural gas from other sources, use alternative energy sources, or use alternative fuels.

In this instance, the first option would likely require the construction of additional and/or new pipeline facilities in other locations to transport natural gas supplies currently being developed in the Piceance Basin or planned for development/production in the near future. If other natural gas facilities are approved and constructed, each project would result in its own set of specific impacts that could be less or greater than those associated with the current proposal. The second option, use of alternative energy sources, is infeasible because the use of solar, hydroelectric, or other energy sources (e.g., geothermal, fuel cells) has not been developed to the point where they would be viable energy alternatives to the proposed project.

Denying or postponing authorization of the proposed project also could result in more expensive and less reliable natural gas supplies for the end-users and/or greater reliance on alternative fossil fuels, such as coal or fuel oil. Increased use of alternative fossil fuels would likely result in greater emissions of SO_2, NO_x, and PM_{10} compared to other fossil fuels (**table 4.1-1**). If coal were used in lieu of (1.5 Bcfd x 365d) of natural gas, annual emissions of SO_2, NO_x, and PM_{10} would be 48,800, 18,900, 1,200 tons higher, respectively.

Table 4.1-1
Comparison of Controlled Emission of Criteria Pollutants for Three Boiler Types
(Tons Per Year)

Boiler Type	SO_x[1]	NO_x[2]	PM_{10}
Coal-fired	49,000	39,700	1,700
Oil-fired[3]	31,300	31,900	8,000
Natural Gas-fired	200	20,800	500

Assumptions:

[1] Assumes 1.2 percent sulfur coal, 1 percent sulfur oil, pipeline quality gas.

[2] Assumes $LoNO_x$ burners on all units.

[3] Fuel oil-fired boiler assumes Number 5 oil, tangentially fired.

Source: Calculated from EPA Compilation of Air Pollutant Emission Factors AP42 Fifth Edition based on typical standard configurations and assumptions. Individual boiler performance may be significantly different from this example.

4.2 System Alternatives

System alternatives are those that use other pipeline systems to achieve the objectives of the proposed project. A system alternative would make it unnecessary to construct all or part of the EPP, although some modifications or additions to another existing pipeline system may be required to increase its capacity, or another entirely new system may need to be constructed. Such modifications or additions would result in some measure of environmental impact; however, the impact could be less than, similar to, or greater than that associated with construction of the proposed project.

4.2.1 Other Existing Pipeline Systems

The major interstate pipelines that pass through the proposed Meeker Hub, or are interconnected at the Greasewood Hub, are the Williams Northwest Pipeline Corporation (Northwest Pipeline) 26-inch-diameter line (including a lateral pipeline between the Piceance Basin and Rangely), the CIG UBL 20-inch-diameter line, Questar's 14-inch-diameter line, and the Kinder Morgan TransColorado 22-inch-diameter line. Entrega provided an estimate of the subscribed capacity of these pipelines in relation to actual volumes transported. **Table 4.2-1** summarizes this investigation.

Table 4.2-1
Capacity and Subscription Status of Existing Interstate Pipelines Serving the Piceance Basin

Pipeline	Capacity (MMcfd)	Recent Gas Flow (MMcfd)	Firm Subscriptions (MMcfd)
CIG Uinta Basin Lateral	222	198	222
CIG to Northwest Pipeline	290	190	290[1]
Northwest Pipeline Lateral	40	26	4.7
Questar 14-inch (Dragon Trail)	120	40	120
TransColorado	385	338	385
Total	**1,057**	**792**	**1,021.7**

[1] Entrega's estimate based on best available information.

This information was compiled and extrapolated from interstate pipeline public websites, contacts with pipeline personnel, and recent industry presentations on the subject matter. The table includes a "CIG to Northwest Pipeline" category because CIG delivers significant quantities of gas to Northwest Pipeline at this point. However, since the Northwest Pipeline system transports gas from Utah's Uinta Basin, not all of the capacity shown or the flows are necessarily from the Piceance basin. This observation also generally applies to the CIG UBL, which transports gas from both the Uinta and Piceance Basins.

Assuming for the immediate future that these pipelines continue to carry the gas volumes recently transported (rather than their firm subscription volumes), the existing systems combined would be unable to accommodate more than about 35 percent of Entrega's proposed Phase 1 volumes and less than 18 percent of Entrega's total proposal of 1.5 Bcfd. Given the diameters of these existing pipelines (the largest being the Northwest Pipeline at 26 inches), transport of Entrega's volumes would require either:

a) substantial looping and additional compression on multiple systems, or
b) looping one system in its entirety.

While option (a) might disperse the associated environmental impacts, it is unlikely to substantially reduce impacts when compared to the EPP. Further, the use of multiple pipeline systems would not meet Entrega's objective of gas deliveries to Wamsutter and the Cheyenne Hub.

The fact that both Entrega and WIC have signed agreements with new shippers sufficient to finance and construct entirely new, large-diameter pipelines (36 and 24 inches in diameter, respectively) indicates that the amount of capacity needed exceeds that which could be obtained economically by adding looping and/or compression to the existing pipeline systems. In other words, at least one existing system would have to be completely looped to accommodate the proposed Entrega volumes. This, in effect, is what Entrega proposes (i.e., to loop CIG's 20-inch-diameter UBL between the Piceance Basin and Wamsutter and the CIG/WIC systems between Wamsutter and the Cheyenne Hub). Given that the impacts associated with looping an entire pipeline system between the Piceance Basin and the Cheyenne Hub would be essentially equivalent to those associated with Entrega's proposal, the use of existing systems would not provide a significant environmental advantage over the proposed action and was eliminated from further consideration.

4.2.2 Proposed Pipeline Systems

WIC's PBEP represents a new pipeline alternative that could potentially convey Entrega's gas to Wamsutter by interconnecting with Entrega's supplier at the Greasewood Hub, increasing the diameter of its pipeline, and adding compression. The WIC project is not presently planned to extend between Wamsutter and the Cheyenne Hub. However, by modifying its current project, the PBEP represents an alternative pipeline system that could functionally meet Entrega's purpose and need.

Several commentors requested that we examine the alternative of transporting the PBEP's gas and the Entrega Project's gas in a single pipeline between the Piceance Basin and Wamsutter. **Table 4.2-2** presents the facilities proposed by WIC and Entrega individually, as well as the facilities required by a "one-pipe" alternative sized to carry the combined gas volumes (i.e., 1,850 MMcfd) to Wamsutter by either Entrega or WIC.

Each company approached the one-pipe alternative differently. Entrega would increase compression at its proposed Meeker Hub and Bighole Compressor Stations, but would leave the pipeline diameter at 36 inches. As a consequence, Entrega's total horsepower (97,000 ISO) for transporting gas for both projects would be 44,490 horsepower more than if the two projects were constructed independently. WIC would increase the diameter of the shared pipeline to 42 inches, and the estimated total horsepower (48,190 ISO) would be 4,320 horsepower less than if the two projects were constructed independently. Based on these design differences, WIC's one-pipe alternative approach would reduce environmental impacts since the surface disturbance requirements between construction of a 36-inch and a 42-inch-diameter would be nearly the same, but the compressor operational emissions for the WIC alternative would be about half as much as Entrega's, based on the relatively smaller horsepower requirements.

Table 4.2-2
Comparison of Facilities Required by Entrega and WIC
Proposed Actions and "One-Pipe" Alternative[1]

Facilities and Location	WIC Piceance Project Proposed Action	Entrega Project Proposed Action	WIC "One-Pipe" Alternative	Entrega "One-Pipe" Alternative
Pipeline (miles @ diameter)				
Pipeline to Wamsutter	141.7 @ 24"	136 @ 36"	141.7 @ 42"[2]	136 @ 36"[2]
Compression (horsepower)				
Meeker Hub	---	15,400 (ISO)[3]	15,400 (ISO)[4]	31,150 (ISO)[5] (15,400 + 15,750)
CIG Greasewood Hub	2,820 (ISO)	---	28,120 (ISO) (2,820 + 25,300)	---
TransColorado North Expansion	4,670 (ISO)		4,670 (ISO)	
Bighole	---	30,000 (ISO)[3]	---	65,850 (ISO) (30,000 + 35,850)
Total Compression	**7,490 (ISO)**	**45,020 (ISO)**	**48,190 (ISO)**	**97,000 (ISO)**
Metering and Pressure Regulation Requirements				
Meeker Hub	---	one receipt meter		one receipt meter
CIG Greasewood Hub	one receipt meter	---	one receipt meter	one receipt meter
Wamsutter	two delivery meters	two receipt/delivery meters	two receipt/delivery meters	two receipt/delivery meters
Pressure Regulation	---	---	one/two regulators	one/two regulators

[1] Facilities needed to deliver Piceance Project and Entrega Project proposed gas volumes from the Piceance Basin to Wamsutter, Wyoming. Additional compression required by Entrega to transport gas to the Cheyenne Hub is not included.
[2] This mileage does not account for a "linking" pipeline between the Greasewood and Meeker Hubs. Delivery of WIC's 341 MMcfd to Entrega's proposed Meeker Hub Compressor Station would require about 7 miles of 24-inch-diameter pipeline. Delivery of Entrega's 1,500 MMcfd to WIC at the Greasewood Hub would require about 7 miles of 36-inch-diameter pipeline.
[3] Entrega's estimate of ISO horsepower. Entrega will finalize compression requirements after price negotiations are completed in mid-2005.
[4] This figure represents total compression available at the Meeker Hub, which is designed to transport gas over a distance of approximately 76 miles. Less compression would be required to transport gas over a distance of 7 miles from the Meeker Hub to the Greasewood Hub.
[5] Includes 12,600 (ISO) horsepower required to bring gas received from WIC up to Entrega's system inlet pressure requirements (1,280 psig).

While attractive in concept, this alternative would present a number of challenges. From an engineering standpoint, both companies plan on receiving natural gas from different producers at different delivery pressures. Also, WIC and Entrega have commitments with their shippers to deliver volumes at different pressures at their respective interconnections. While not impossible, melding the various factors and

requirements together into a common system would be difficult. As evidence of this fact, we note that Entrega and WIC attempted to resolve these differences and negotiate a common pipeline for several months before deciding to go forward as individual pipelines. Further, we note that the Commission cannot compel either company to build facilities sufficient to carry the other company's gas. For these reasons, we eliminated the one-pipe system alternative from further consideration.

We also note that construction of two pipelines may actually minimize environmental impacts over the long-term. Given the drilling activity that has occurred over the last several years and the projections of increased gas production in the Uinta-Piceance Basin, construction of two pipelines would provide shippers with more flexibility in terms of options for future expansion when compared to one pipeline.

As presented in **table 4.2-2**, it would be physically possible for the volumes of gas associated with both projects to be transported by Entrega's 36-inch-diameter pipeline (with additional compression, as shown). At this state, the Entrega pipeline would be approaching its maximum allowable operating pressure (MAOP). Additional gas could only be transported by adding even more horsepower at intermediate compressor stations (midway between the Meeker Hub and Bighole, and between Bighole and Wamsutter). As the system approaches its MAOP, this scenario becomes uneconomic and a pipeline loop would be proposed. However, if both the Entrega and the Piceance Basin Expansion Pipelines are constructed, both could be economically expanded when and if future production becomes available.

4.3 Regional Route Alternatives

During its initial routing studies, Entrega identified and evaluated several "regional" route alternatives between the Piceance Basin and the Cheyenne Hub. Before selecting an alignment similar to what has now become its proposed route, Entrega considered several other regional alternatives.

1. the I-70 corridor from DeBeque to Denver, then north to Cheyenne;

2. a direct northeasterly route from the proposed Meeker Hub to the Cheyenne Hub following high voltage transmission lines over the Park Range in Colorado and the Medicine Bow Range in Wyoming; and

3. a shorter variation of the proposed alignment that would extend northeasterly from Baggs, Wyoming, to Arlington, Wyoming, and then follow the proposed route to the Cheyenne Hub.

Because of engineering and environmental constraints, Entrega discarded these three regional route alternatives for an alignment that parallels existing interstate pipeline facilities almost exclusively (the proposed route). When compared to the proposed alignment, Entrega's evaluation found that the three other alternatives would:

- require the acquisition of substantial amounts of new ROWs that would not be parallel to existing ROWs;

- cross difficult, high-elevation mountainous terrain that would result in higher construction costs, more waterbody and wetland crossings, and shorter construction seasons; and

- not meet Entrega's objective of including interconnections with existing interstate pipeline systems at Wamsutter.

We generally agree with Entrega's evaluation of these "regional" route alternatives and have therefore eliminated them from further consideration.

4.4 Route Alternatives

The route alternative is defined as a route deviation that extends over several miles and is designated to address a single major environmental constraint, or multiple environmental issues, associated with the proposed action. The following route alternatives were carried forward for further evaluation based on public scoping input and unresolved issues.

4.4.1 PBEP Route Alternative

The PBEP Route Alternative (**figure 4.4-1**) was considered to be a potential route alternative to the first 33 miles of the EPP because it would:

- avoid or minimize impacts to irrigated pastures and wetlands along Entrega's initial 14 miles of construction through the Piceance Creek drainage;

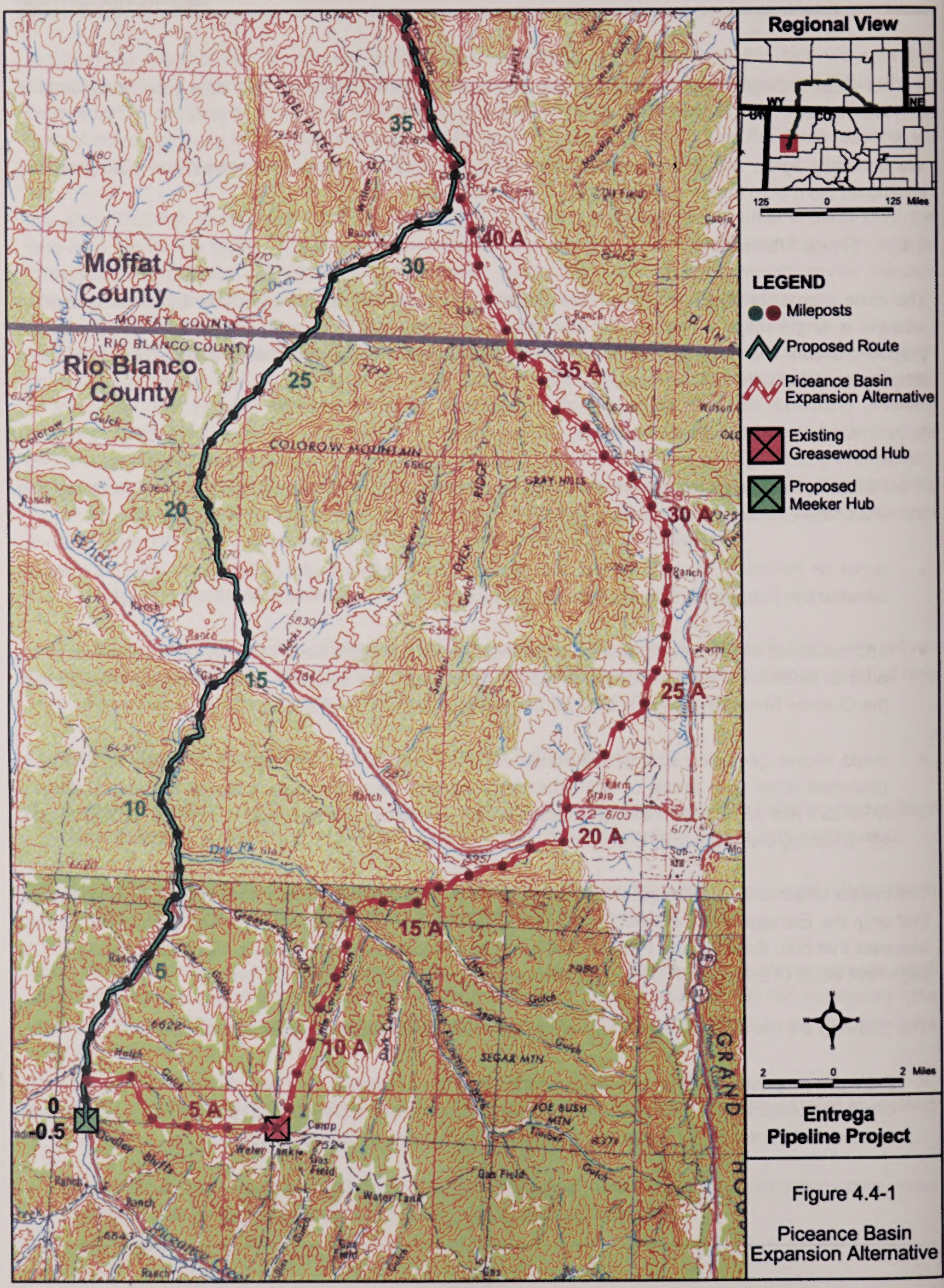
- address/avoid engineering issues along Entrega's proposed route north of the White River crossing (an area of pipeline congestion combined with steep slopes, rock outcrops, and a ravine associated with the Colorow Mountain crossing. MPs 19.5 to 20.6); and

- avoid known geologic hazards associated with the existing UBL immediately adjacent to Entrega's proposed route (two areas of soil subsidence hazards near channel crossings between Entrega's MPs 25.5 and 28, and an existing landslide area that caused local damage to the UBL near Entrega's MP 31 along Deep Channel Creek).

The results of our analysis are presented in **table 4.4-1**. This alternative was analyzed on the assumption that only the Entrega Pipeline would follow the PBEP route. A subsequent analysis was conducted that assumes that both the EPP and PBEP would either be collocated along Entrega's alignment or along WIC's alignment south of Entrega MP 33.2; (see section 4.4.2, Collocation Alternative, below).

The following are the most important environmental impact differences between the two routes:

- Entrega's proposed route is 10.5 miles shorter than the alternative, and would parallel 17.3 more miles of existing utilities. This greater degree of utility collocation generally indicates overall better access, and a reduced requirement for temporary roadways for proposed action construction.


Regional View
WY
NE
CO
125 0 125 Miles
LEGEND
Mileposts
Proposed Route
Piceance Basin Expansion Alternative
Existing Greasewood Hub
Proposed Meeker Hub
Moffat County
Rio Blanco County
MOFFAT COUNTY
RIO BLANCO COUNTY
COLOROW MOUNTAIN
GRAY HILLS
SEGAR MTN
JOE BUSH MTN
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2 0 2 Miles
Entrega Pipeline Project
Figure 4.4-1
Piceance Basin Expansion Alternative

5/12/05

Table 4.4-1
Comparison of Resources Crossed by Entrega's Proposed Action (MPs –0.5 to 33.2) and the PBEP Route Alternative

Analysis Parameter		Entrega Proposed Action	WIC PBEP Route
Miles Crossed			
TOTAL MILES PER ROUTE ALTERNATIVE		33.7	44.2
Utilities	Parallel to Existing Utilities (e.g., roads, pipelines, transmission lines).	27	9.7
Geology/ Soil	Slopes >15 percent	1.4	3.2
	Shallow Bedrock	16.7	21.0
	Potential Subsidence/landslide hazards	Yes	Unknown
Wetlands[1]	Delineated Wetlands Crossed	0.5	0.5
Vegetation	Tall Shrublands (sagebrush, greasewood, oak)	17.6	22.7
	Pinyon-Juniper Woodland	6.7	14.5
Wildlife	Critical Big Game Winter Habitat	12.9	18.8
	Sage Grouse Winter Range	0.0	2.4
Agriculture	Pasture and Hayland	10.0	6.8
Special Management Areas	CDOW State Wildlife Areas	5.6	3.3
Sensitive Species	Bald Eagle Nesting Site (within 1 mile)	0	3.6
	Bald Eagle Roost Site (within 0.5 mile)	2.3	5.7
Number of Crossings			
Surface water	Piceance Creek Crossings[2]	11	0
	Dry Fork Piceance Creek	0	1
	White River	1	1
	Listed Fish Critical Habitat (White River)[3]	1	0

[1] Wetlands do not include irrigated hayfields.
[2] Our recommended route realignments would avoid five of Entrega's eleven proposed crossings of Piceance Creek.
[3] The White River would be crossed using the HDD method; therefore, no impact on the river or the associated critical habitat is expected.

- The proposed route would cross 1.8 fewer miles of steeper slopes (greater than 15 percent), and 4.3 fewer miles of shallow bedrock construction than the alternative route. The reasons for these differences are that the alternative route would cross: 1) steep side slopes between the Meeker and Greasewood Hubs; 2) steep slopes on both sides of the Dry Fork of Piceance Creek; and 3) steep ascent/descent slopes just south of the White River.

- The proposed route would cross 5.1 fewer miles of tall shrublands (sagebrush, greasewood, oak), and 7.8 fewer miles of pinyon-juniper woodlands than the alternative. As a consequence, the long-term wildlife support functions of these shrubland and woodland communities would be reduced to a lesser extent than the alternative. The proposed action would cross 5.9 fewer miles of big game critical winter range (as defined by the CDOW), and would not cross sage grouse winter range as compared to 2.4 miles crossed by the alternative.

- The proposed route would cross Piceance Creek 11 times compared with no crossings for the alternative; would cross about 3.3 more miles of wetlands (consisting primarily of hay meadows and emergent wetlands); and would cross 2.3 more miles of CDOW Wildlife Area land.

In summary, the PBEP alternative route does not offer persuasive impact reduction advantages over the proposed route with respect to overall effects on wildlife habitat, particularly in upland areas where revegetation periods are very long (10 to 50+ years). Pipelines have previously been constructed within the Piceance Creek floodplain, and the construction areas for these pipelines are currently indistinguishable from adjacent undisturbed land where the pipelines cross pasturelands and emergent wetlands. Application of best management practices for soil management, stream crossings, and grading disturbed areas to maintain existing irrigation flow patterns would ensure that sediment increases in Piceance Creek would be very short term, and that vegetation productivity in irrigated pasturelands could be restored in 1 to 2 years. However, we also recognize the regional importance of the Piceance Creek floodplain for livestock grazing, winter use by big game, and the relatively greater wetland disturbance.

Because the two routes represent a trade-off between long-term wildlife habitat reduction along a predominately upland route and short-term water quality, aquatic life, and hayland/pasturelands impacts resulting from construction along (and multiple crossings of) the Piceance drainage, we specifically sought public comment on this issue in the draft EIS. We also requested any suggestions for additional mitigation that the public believes would be necessary for construction along both routes before we recommended a preferred route for the EPP. No commenter provided information that specifically focused on the trade-offs which the two routes represent (although the COE comment letter indicated a preference for an alternative that would follow the proposed PBEP route – see discussion in section 4.4.2).

After carefully considering the impacts associated with each route and all relevant mitigation (both proposed by Entrega and recommended in this EIS), we conclude that Entrega's proposed route is preferred. To further limit impact on the Piceance Creek drainage, we have recommended two route realignments in section 3.3.2 that would reduce the number of proposed creek crossings from 11 to 6.

4.4.2 Collocation Alternative

WIC proposes to construct and operate its PBEP along an alignment that would closely parallel the EPP over the majority of the distance between the PBEP origin at the Greasewood Hub to its terminus at Wamsutter, Wyoming. The purpose of this alternative is to examine the potential surface disturbance reduction advantages that could be obtained by collocating the Entrega and Piceance Basin Expansion pipelines within overlapping construction ROWs (to the extent practical, due to technical and topographical constraints), rather than constructing both pipelines as separate and discrete facilities within a broader utility corridor. For purposes of this analysis, "collocation" is defined as constructing the two pipeline projects in the same construction ROW, with an offset of 25 to 50 feet from each other, and from other parallel pipelines. For the purpose of this analysis, we assumed that both projects could be constructed within the same 150-foot-wide construction ROW.

The collocation analysis was conducted within two study areas. The first study area (Danforth Hills South) encompasses the Entrega Pipeline (and the equivalent segment of the proposed WIC pipeline) from the

origin of each pipeline to Entrega MP 33.2, where the two pipelines converge. The second study area (Danforth Hills North) extends from Entrega MP 33.2 north to Wamsutter, where the WIC pipeline terminates at an existing compressor station.

Danforth Hills South (MPs -0.5 to 33.2)

We compared selected resource effects for three construction alternatives:

1. EPP and PBEP proposed actions. Each project would be constructed along its proposed alignment between its origin and Entrega MP 33.2 (**figure 4.4-2**). The surface disturbance and resource effects for each proposed action were then added together and compared with the collocation of the two projects in the same 150-foot-wide construction ROW.

2. EPP and PBEP Collocation along the EPP route. WIC would construct a 7-mile-long linking pipeline between the Greasewood Hub and an intersection with the Entrega Pipeline along Piceance Creek. Both projects would be collocated from this point northward to MP 33.2 except where terrain or other obstacles make collocation infeasible (**figure 4.4-3**). Where the two projects would not be collocated, we assumed that the EPP and WIC construction ROWs would average 125 and 100 feet wide, respectively. We marginally increased each project's ROW width over its proposed construction ROW width to account for extra workspace needs.

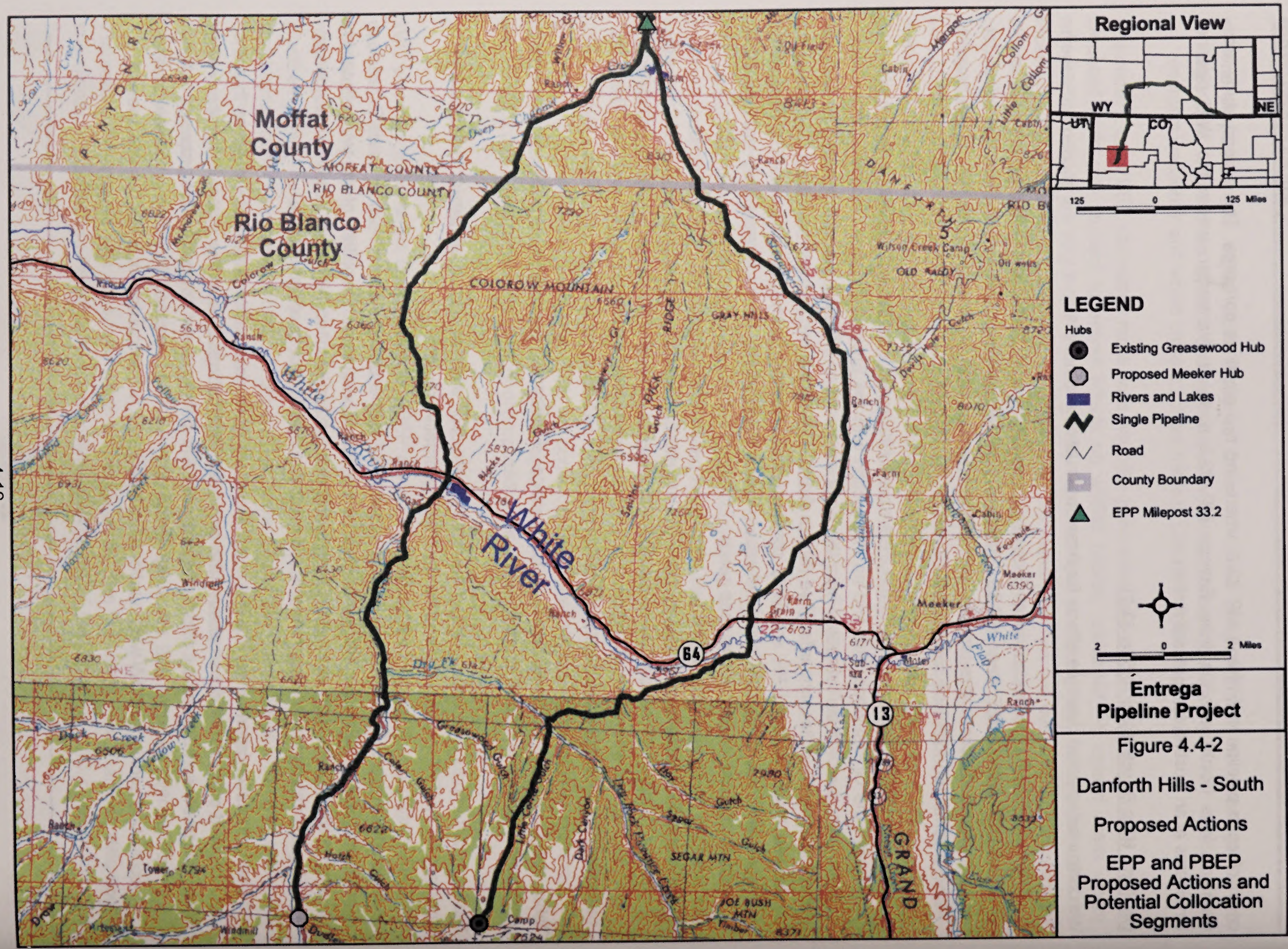
3. EPP and PBEP Collocation along the PBEP route. Entrega would construct a 7-mile-long linking pipeline between Piceance Creek and the Greasewood Hub. Both projects would be collocated to MP 33.2 except where terrain and other obstacles make collocation infeasible (**figure 4.4-4**). The same assumption for extra workspace was applied.

Table 4.4-2 provides a comparison of the surface disturbance associated with the three pipeline construction options described above.

The important impact differences among the three construction alternatives are the similar to those already described for the EPP proposed action vs. the PBEP alternative route.

- Overall surface disturbance resulting from constructing the Entrega and Piceance Basin Expansion pipelines along their individually proposed routes would be greater than either of the two collocation alternatives. Collocation along the Entrega alignment would result in 199 fewer acres of disturbance; collocation along the WIC alignment would result in 112 fewer acres of disturbance.

- Both collocation alternatives are estimated to require more construction across steep slopes than the combined proposed actions because the collocation alternatives cross steep slopes along the linking pipeline between Piceance Creek and Greasewood Hub that are not crossed by the proposed actions independently. We note that the steep terrain that would be crossed by the linking pipeline may necessitate additional ROW width and/or extra workspace not accounted for in our desktop analysis.



Entrega Pipeline Project

Figure 4.4-2

Danforth Hills - South

Proposed Actions

EPP and PBEP Proposed Actions and Potential Collocation Segments

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Entrega Pipeline Project

Figure 4.4-3

Danforth Hills - South

EPP and PBEP Collocation Along EPP Route

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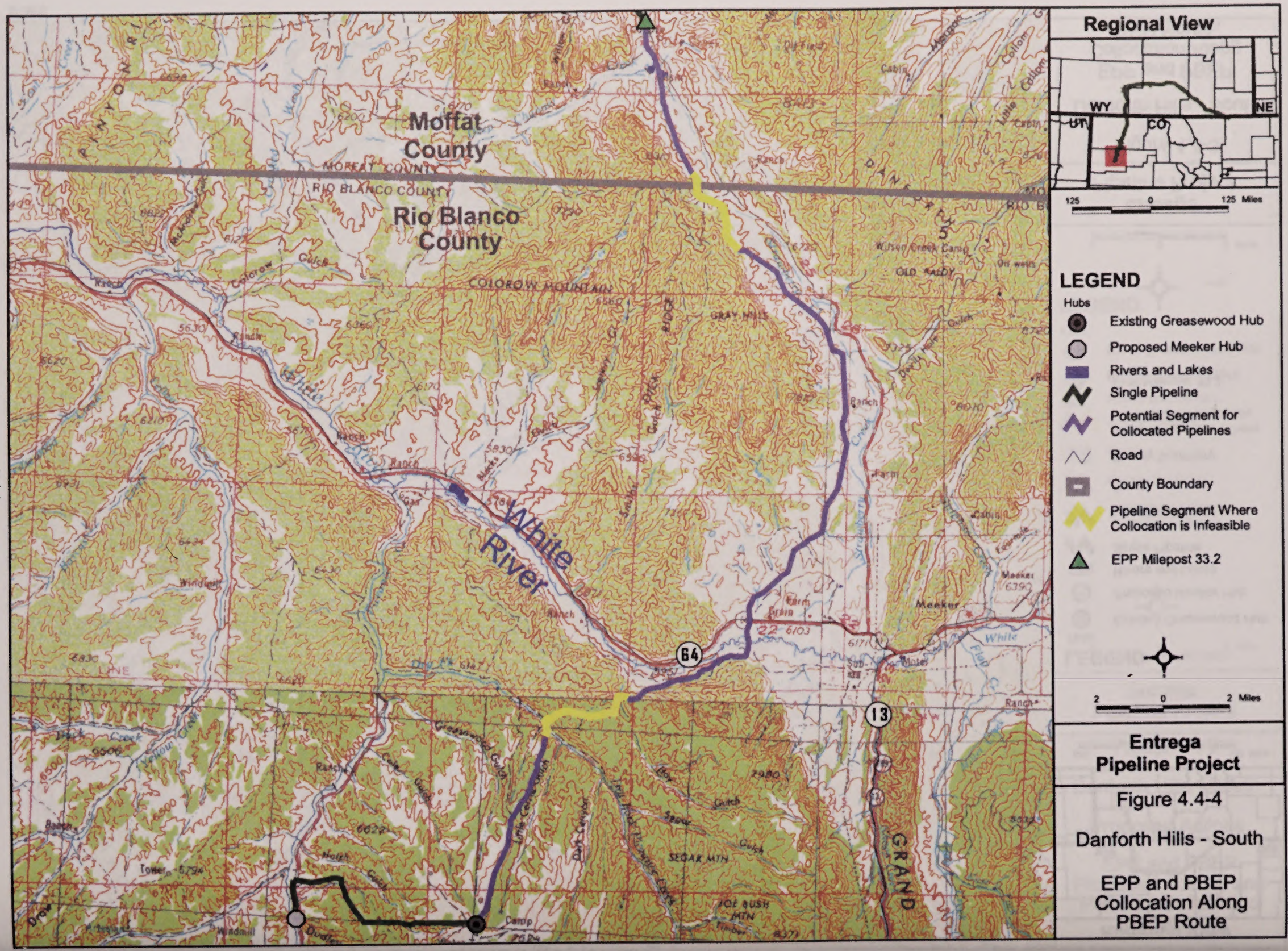


Entrega Pipeline Project

Figure 4.4-4

Danforth Hills - South

EPP and PBEP Collocation Along PBEP Route

5/3/05

Table 4.4-2
Surface Disturbance and Stream Crossing Comparisons between the EPP and PBEP Proposed Actions and Two Collocation Alternatives within the Danforth Hills South Study Area (MPs -0.5 to 33.2)

Resource	Analysis Parameter	EPP and PBEP Proposed Actions (Combined Surface Disturbance)	EPP and PBEP Collocated Along EPP's Proposed Route[1,2,3]	EPP and PBEP Collocated Along PBEP's Proposed Route[1,2,3]
Surface Disturbance (Acres)				
TOTAL SURFACE DISTURBANCE PER ALTERNATIVE		954	755	842
Geology/Soils	Slope > 15%	32	44	68
Wetlands	Wetlands	5.4[4]	1.9[4]	6.5
Vegetation	Tall Shrubland (sagebrush, greasewood, oak)	528	347	443
	Pinyon-Juniper Woodland	215	202	279
Wildlife	Critical Big Game Winter Habitat	385	273	368
	Sage Grouse Winter Range	21	9.1	42
Land Use	Agriculture (Pasture/Hayland)	221	210	111
	Special Management Areas (CDOW Wildlife Areas)	125	148	85
Number of Crossings				
Perennial Streams	Piceance Creek	11	20	0
	Dry Fork Piceance Creek	1	0	2
	White River	2	2	2
Listed Fish Critical Habitat	White River	1	2	0

[1] Assumes 150-foot-wide construction ROW where collocation is possible; otherwise 125-foot-wide Entrega and 100-foot-wide WIC construction ROW where projects would be constructed independently.
[2] Includes approximately 7 miles of connecting pipeline between Greasewood Hub and Piceance Creek. Construction ROW is assumed to be 100 feet for WIC and 125 feet for Entrega for this connecting pipeline segment, depending on which applicant constructs the segment.
[3] Includes approximately 1.2 miles of Entrega proposed route (Meeker Hub to connecting pipeline between Entrega and WIC routes). Construction ROW is assumed to be 125 feet for Entrega only.
[4] Based on miles of delineated wetlands from field surveys. Some hayfields along the EPP proposed route were not included in wetland field delineations and are included under agriculture.

- Collocation along the PBEP route would result in a decrease of upland shrubland and an increase of woodland wildlife habitat disturbance (85 and 64 acres, respectively) compared to constructing the two projects independently; collocation along the EPP route would result in about 194 fewer acres of shrubland and woodland habitat disturbance. Similarly, collocation along the PBEP route would result in nearly same level of disturbance to critical big game winter habitat as constructing the two projects independently; collocation along the EPP alignment would result in disturbance of about 112 acres less acres of crucial big game winter habitat than the proposed actions independently.

- Collocation along the PBEP alignment would require no crossings of Piceance Creek; construction of the projects independently would require 11 Piceance Creek open-cut crossings; collocation along the EPP alignment would require as many as 20 Piceance Creek open-cut crossings. Collocation along the EPP would result in approximately 11 acres less disturbance of agricultural (hayland/pastureland) compared to that of constructing the two projects independently; collocation along the PBEP alignment would result in about 110 acres less hayland/pastureland disturbance than constructing the projects independently.

As before, we specifically requested the public to comment on the various alternatives described. The only commenter to respond was the COE, which indicated a preference for the Collocation Alternative where the EPP and PBEP pipelines would be collocated along the PBEP's proposed route. This route would avoid all of the multiple Piceance Creek crossings, significantly reduce the amount of wetlands disturbed, and lessen the potential for cumulative impacts in the Piceance drainage.

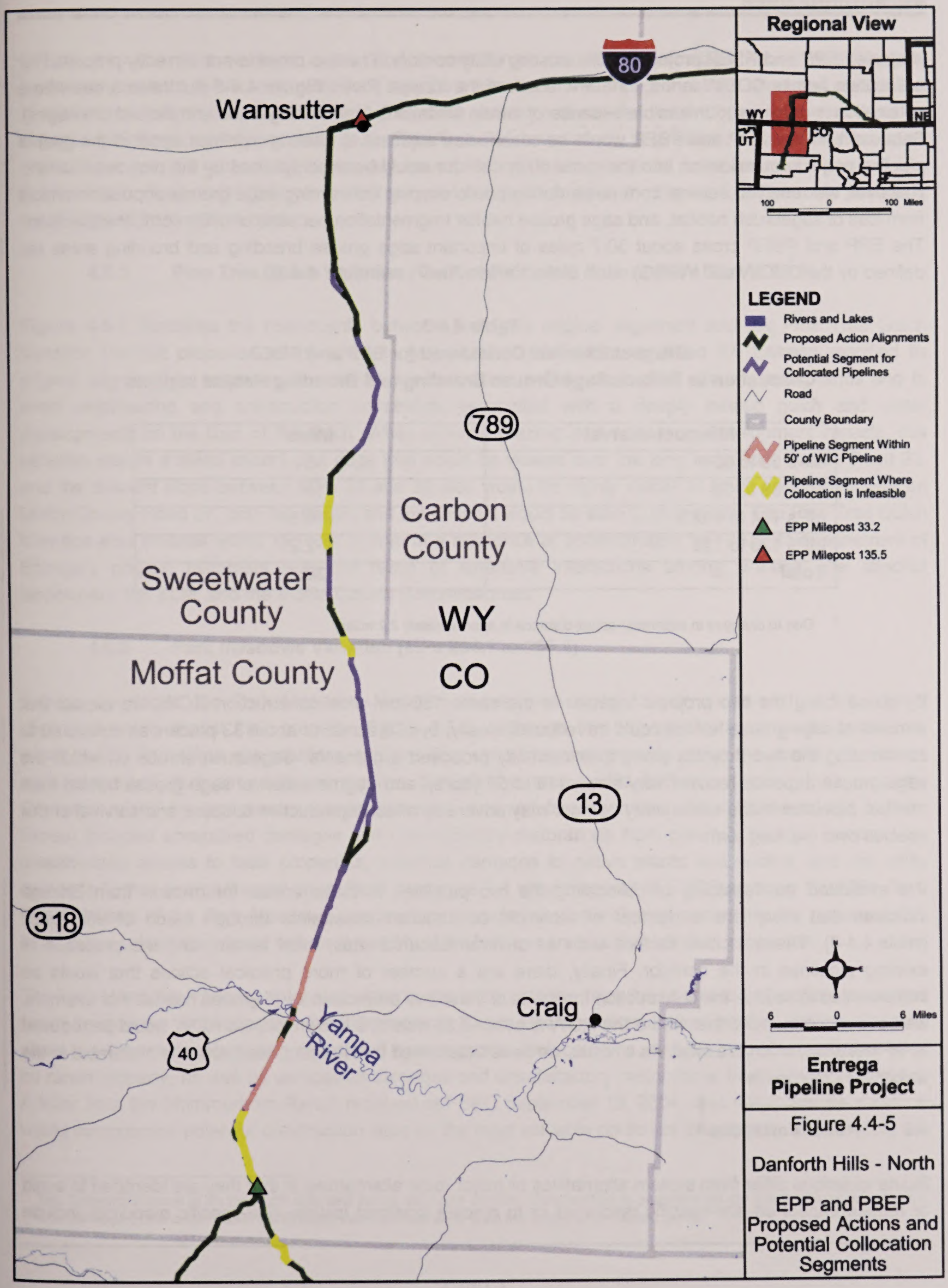
As previously discussed in section 4.4.2, these alternatives involve the long-term wildlife habitat reduction tradeoffs between following the predominantly upland route (PBEP) and the short-term water quality and aquatic life impacts of constructing across Piceance Creek multiple times, and restoring the associated irrigated hayland/pasturelands. Construction of a new 7-mile-long linking pipeline between the Greasewood Hub and the Piceance Creek Valley to accomplish either of the collocation alternatives would represent a new pipeline ROW in relatively steep terrain requiring long recovery times (pinyon juniper woodlands and sagebrush are the dominant cover types in this segment). Finally, an EPP collocation alternative along the PBEP alignment would require Entrega to expend additional materials and labor to construct an additional 11 miles of pipe as compared to its currently proposed alignment.

The two separate routes that Entrega and WIC have proposed between MPs -0.5 and 33.2 are a direct result of each project having a different starting point. Each applicant proposed a route that largely circumvents Colorow Mountain. We acknowledge that there may be advantages to each of the collocation alternatives when compared to construction of the EPP and PBEP proposed actions. However, there are disadvantages as well. And neither of the alternatives resolves the trade-offs discussed above.

There is the additional factor of project timing. Entrega has proposed to construct this portion of its route in the fall/early winter of 2005. WIC has proposed a similar construction schedule. Based on terrain, safety, and ROW constraints, the simultaneous construction of these projects within a 150-foot-wide ROW is not possible. Increasing the ROW width (not an option in all areas due to topography) would increase the impact on the resources used in our comparison, and reduce any advantages of the Danforth Hills South Collocation Alternative. In addition, requiring one applicant to delay construction while the other completed its work along the collocation corridor would compromise its projected in-service date, which is based on contractual obligations. Therefore, we are not recommending this alternative.

Danforth Hills North (MPs 33.2 to 135)

After crossing the Danforth Hills, where the Entrega and WIC pipelines would be located in separate ROWs because of terrain constraints, both pipelines would be constructed adjacent to the existing UBL and Kinder Morgan pipelines from Entrega MPs 40.9 to 135. **Figure 4.4-5** illustrates the relative locations of the


Regional View
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100 0 100 Miles
LEGEND
Rivers and Lakes
Proposed Action Alignments
Potential Segment for Collocated Pipelines
Road
County Boundary
Pipeline Segment Within 50' of WIC Pipeline
Pipeline Segment Where Collocation is Infeasible
EPP Milepost 33.2
EPP Milepost 135.5
Wamsutter
80
789
Carbon County
WY
Sweetwater County
Moffat County
CO
13
318
40
Craig
Yampa River
6 0 6 Miles
Entrega Pipeline Project
Figure 4.4-5
Danforth Hills - North
EPP and PBEP Proposed Actions and Potential Collocation Segments

proposed EPP and PBEP projects in this existing utility corridor. The two projects are currently proposed for collocation across CDOW lands north and south of the Yampa River. **Figure 4.4-5** illustrates areas where collocation is considered infeasible because of terrain limitations (narrow ridgelines and incised drainages). Because both the EPP and PBEP would be constructed adjacent to existing pipelines, most of the goal of pipeline project consolidation into the same utility corridor would be accomplished by the proposed actions. However, we received several comments during public scoping concerning sage grouse population effects from loss of sagebrush habitat, and sage grouse habitat fragmentation because of utility corridor expansion. The EPP and PBEP cross about 30.7 miles of important sage grouse breeding and brooding areas (as defined by the CDOW and WF&G) north of the Yampa River (see **table 4.4-3**).

Table 4.4-3
Milepost Intervals Considered for EPP and PBEP
Collocation to Reduce Sage Grouse Breeding and Brooding Habitat Impacts

Milepost Interval	Miles
MPs 59 to 65	6
MPs 69 to 83	14
MPs 104 to 112.5	8.5
MPs 120 to 122	2.2[1]
Total	**30.7**

[1] Due to changes in alignment actual distance is approximately 2.2 miles.

By constructing the two projects together in the same 150-foot-wide construction ROW, we expect that removal of sage grouse habitat could be reduced, ideally, by 279 acres, or about 33 percent as compared to constructing the two projects along their currently proposed alignments. Sagebrush shrubs on which the sage grouse depends recover very slowly (15 to 50 years), and fragmentation of sage grouse habitat from multiple pipelines in the same utility corridor may adversely affect reproductive success and survival of this species over the long term.

We evaluated the feasibility of collocating the two pipelines in these areas. Information from Entrega indicates that there are a number of technical construction constraints through much of this reach (**table 4.4-3**). These include factors such as cultural resource sites, local terrain, and the presence of existing pipelines in the corridor. Finally, there are a number of more practical actions that would be implemented to reduce the construction footprints of these two projects in sage grouse habitat. For example, we have recommended that where the ROW is within 0.25-mile of a known lek, the ROW would be reduced to 75 feet wide, when practical. As a result, we have determined that the proposed action is preferable to the collocation alternative.

4.5 Route Variations

Route variations differ from system alternatives or major route alternatives in that they are identified to avoid or reduce impact on site-specific resources or to resolve localized issues. Site-specific resources include

cultural resource sites, wetland areas, and severe terrain conditions. Localized issues might include landowner requests. While route variations may be a number of miles long, most are short and are located in relative proximity to the proposed route. The route variations discussed below document the rationale for changes in Entrega's proposed route (e.g., Pine Tree Gulch Variation), or provide comparative information where there are still unresolved landowner issues. Where these variations have been incorporated into Entrega's proposed route, they are part of our environmental analysis in chapter 3.0. The route variations are discussed from west to east.

4.5.1 Pine Tree Gulch Variation (Current Proposed Action) (MPs 32.1 to 39.9)

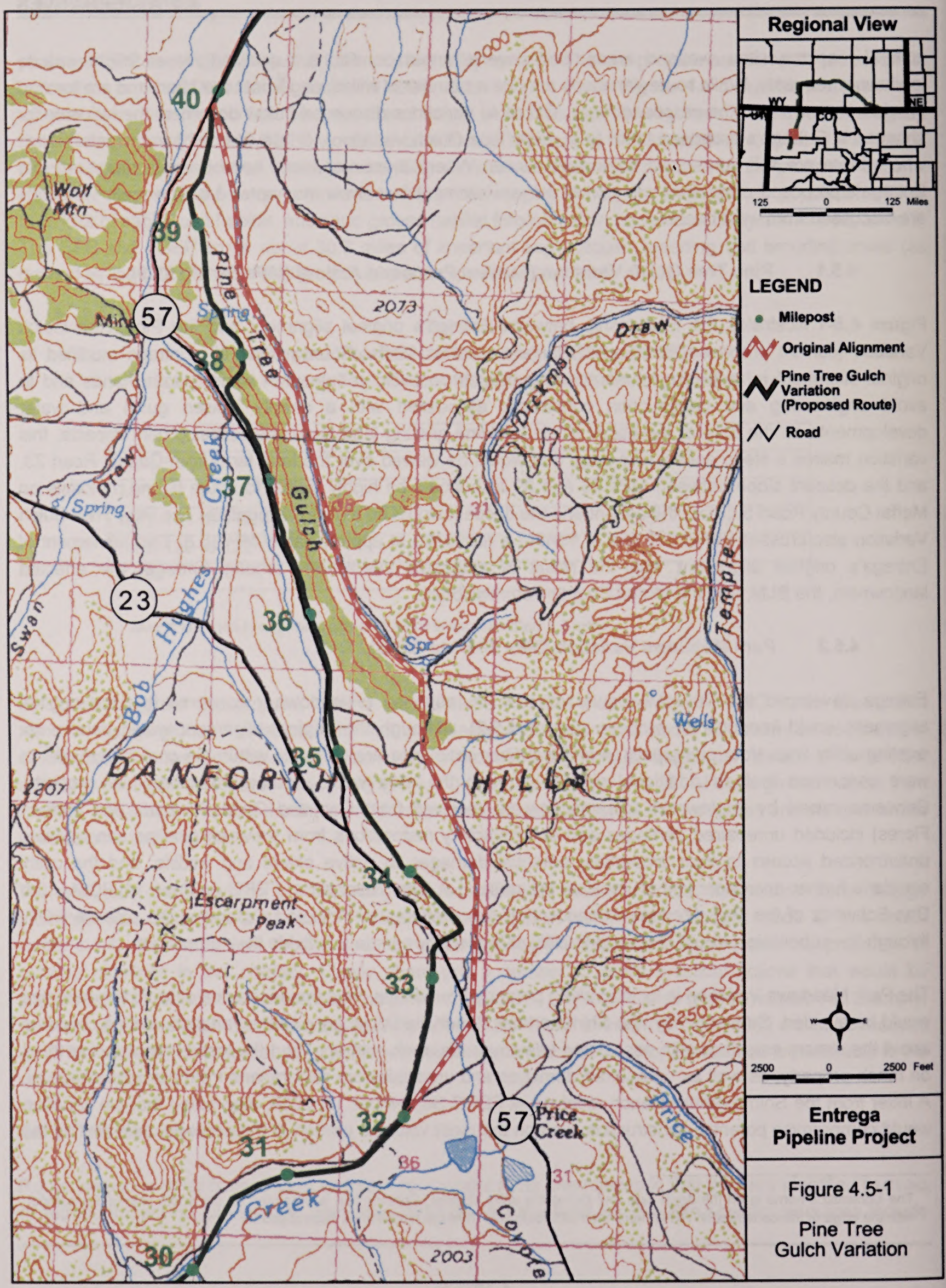
Figure 4.5-1 illustrates the relationship between Entrega's original alignment and the Pine Tree Gulch Variation (current proposed route) which largely parallels Moffat County Road 57. Entrega modified its original alignment in response to a landowner request to avoid construction within grazing lands and to avoid engineering and construction constraints associated with a deeply incised gulch and water developments on the floor of the gulch. While avoiding grazing land and water development impacts, this variation makes a steep ascent of a ridge that would be viewed over the long term from County Road 23, and the descent slope between MPs 38 and 39 also would be highly visible to south bound motorists on Moffat County Road 57; both the ascent and the descent would be slow to revegetate. The Pine Tree Gulch Variation also crosses within 150 feet in front of a residence at approximately MP 35.3. This refinement of Entrega's original alignment was the result of extensive interactions among Entrega, the affected landowners, the BLM, and the Moffat County Commissioners.

4.5.2 Park Meadows Variation (MPs 294.1 to 295.8)

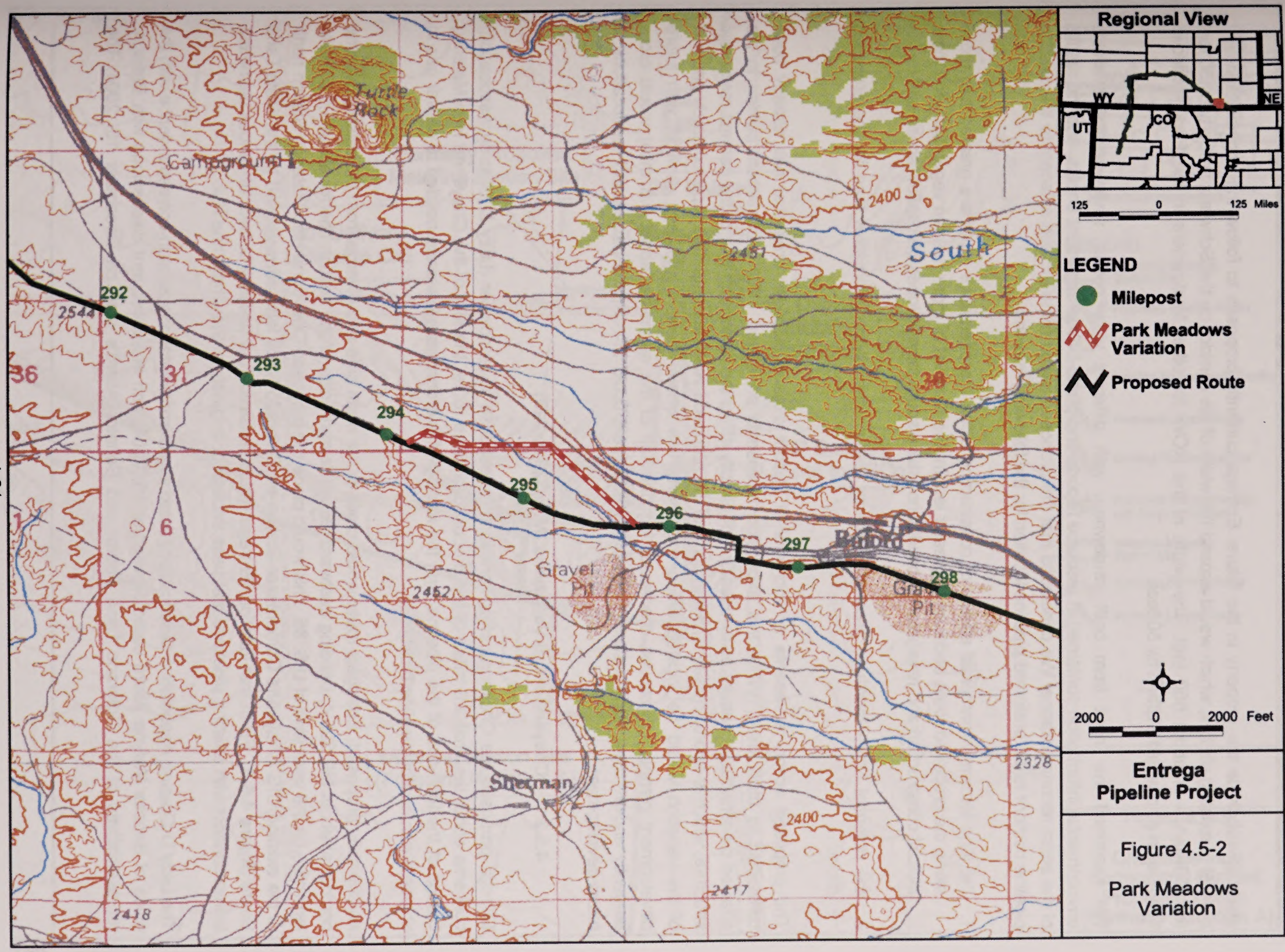
Entrega developed the Park Meadows Variation in response to landowner concerns that the original alignment would impact their property (**figure 4.5-2**). Although the original alignment would parallel six existing utility lines (four gas pipelines and two fiber optic lines are currently within the corridor), residents were concerned that an additional pipeline through the area would further encumber their property. Concerns raised by landowners (comments were received from Dan and Carol Schwartz and Lurleen Flores) included unrepaired damages and unsatisfactory restorations from previous pipeline construction, unauthorized access to their properties, potential damages to native plants and wildlife, and the utility corridor's further encroachment on multiple properties.[1] A letter received at FERC on June 14, 2004, from Dan Schwartz of the Park Meadows Landowners Association also indicated expanding the pipeline ROW through the subdivision would reduce the ability of the landowners to subdivide their properties.

The Park Meadows Variation is located along property boundaries, thus the severance of multiple properties would be avoided. Subsequently, the Shimmerhorn Ranch filed objections to the variation, stating concerns about the stream crossings with associated beaver ponds, rock outcrops, and the loss of mature pine trees on ranch property, as well as unrepaired damages and unsatisfactory restorations from previous pipelines. A letter from the Shimmerhorn Ranch received at FERC September 13, 2004, also noted that the variation would compromise potential construction sites on the most valuable portion of the property, thus limiting the

[1] The Schwartz's home is on the north side and facing the utility corridor. Construction is proposed on the south side of the corridor, with the edge of the construction ROW more than 325 feet away from the house at its closest point.


Regional View
WY
NE
CO
125 0 125 Miles
LEGEND
Milepost
Original Alignment
Pine Tree Gulch Variation (Proposed Route)
Road
2500 0 2500 Feet
Entrega Pipeline Project
Figure 4.5-1
Pine Tree Gulch Variation
40
39
38
37
36
35
34
33
32
31
30
57
23
Wolf Mtn
Pine Tree Gulch
Spring Draw
Bob Hughes Creek
Swan
DANFORTH HILLS
Escarpment Peak
Dickman Draw
Temple
Wells
Price Creek
Price
Coyote Creek
2073
2000
2250
2207
2003

5/12/05



Entrega Pipeline Project

Figure 4.5-2

Park Meadows Variation

5/12/05

ability to subdivide the property in the future. Entrega currently proposes to follow the original alignment parallel to existing utilities, which would expand the width of the corridor on the Schwartz property by 50 feet for a distance of about 660 feet. The width of the ROW for other landowners in the Park Meadows subdivision also would expand by 50 feet.

We examined the input from both landowners with different view points, reviewed the available environmental information contained in resource reports and photo-based alignment sheets, and the results of the aerial reconnaissance. We concluded that the proposed action route located adjacent to the existing pipeline corridor is the preferred pipeline location for the following reasons:

1. the long-term environmental effects of constructing along the alternative route are greater than those along the proposed route because of greater length, the removal of more riparian vegetation, and more difficult construction and revegetation conditions (steep south facing slopes on shallow soils); and

2. the potential future land use preclusion effects are greater for the alternative than for the proposed route.

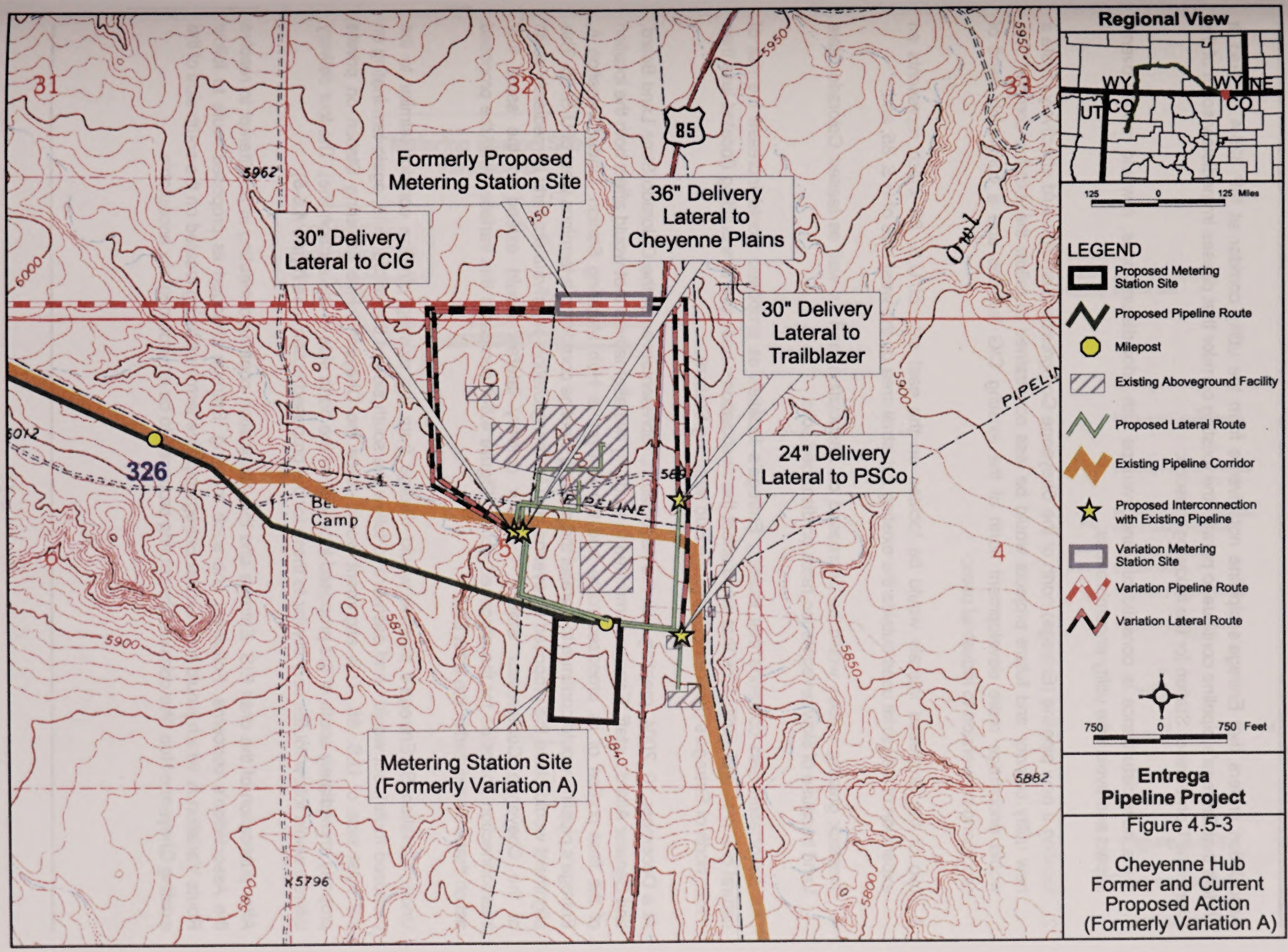
The proposed action represents an incremental 50-foot expansion of an area that has already been committed to utility uses. While this expansion represents an added utility commitment burden to the affected owners, these current utility uses do not directly affect the location or use of the nearest residential structure, which is approximately 375 feet north of the proposed pipeline center line. Approximately one-half of the variation would be located along a property line where there would less conflicts with future development planning. However, the remaining one-half of the segment (about 0.8 mile) would cross presently undeveloped areas where a new utility easement could affect parcel sizes and the locations of future development.

4.5.3 Cheyenne Hub Variations (MPs 325 to 327)

Entrega proposed the Cheyenne Hub Variations in response to landowner (Lazy D Grazing Association) concerns about the final 1.6 miles of the proposed pipeline route, the site of the Cheyenne Hub Metering Station at the terminus of the pipeline, and the routing of interconnecting laterals needed to deliver gas to shippers with nearby pipeline facilities.

As originally proposed, Entrega's route would cross to the north side and diverge from the existing pipeline corridor at about MP 325.4, bending eastward along the north side of the section line for about 1.6 miles to terminate on the west side of U.S. 85. This would place the proposed Cheyenne Hub Metering Station north of the existing CIG Cheyenne Compressor Station on Colorado State land administered by the State Land Board (**figure 4.5-3**). From that location, Entrega would construct four delivery laterals of various diameters to interconnect with existing pipelines that pass through or originate at the Cheyenne Hub.

The Lazy D Grazing Association (Association) listed its environmental concerns in correspondence with the office of Senator Wayne Allard dated November 18, 2004, and in subsequent discussions with Entrega, representatives of the Colorado Land Board, and Senator Allard's staff on December 10, 2004. The


Formerly Proposed Metering Station Site
30" Delivery Lateral to CIG
36" Delivery Lateral to Cheyenne Plains
30" Delivery Lateral to Trailblazer
24" Delivery Lateral to PSCo
Metering Station Site (Formerly Variation A)
Regional View
WY
NE
CO
UT
125 0 125 Miles
LEGEND
Proposed Metering Station Site
Proposed Pipeline Route
Milepost
Existing Aboveground Facility
Proposed Lateral Route
Existing Pipeline Corridor
Proposed Interconnection with Existing Pipeline
Variation Metering Station Site
Variation Pipeline Route
Variation Lateral Route
750 0 750 Feet
Entrega Pipeline Project
Figure 4.5-3
Cheyenne Hub Former and Current Proposed Action (Formerly Variation A)

6/6/05

Association prefers that Entrega's pipeline not diverge from the utility corridor at MP 325.4. Instead, it prefers that Entrega's pipeline continue to parallel the existing corridor that passes immediately south of the Cheyenne Compressor Station for the following reasons:

1. if the new disturbance is consolidated and overlaps with prior disturbances, it would reduce overall impact and avoid new utility encumbrances;

2. locating a new pipeline (Entrega) north of the Cheyenne Compressor Station would effectively create a new utility corridor and future projects would be less constrained to follow the existing corridor. This would encourage more development north of the existing CIG facilities and a continuing trend of rangeland conversion to industrial uses;

3. two of the proposed laterals would be located on the east side of U.S. 85 which represents an expansion of industrial uses outside the existing industrial area on the west side of U.S. 85; and

4. livestock grazing values would be decreased on Association land as well as leased Colorado State Land because of slow revegetation rates on disturbed soils.

The Association also contends that locating Entrega's facilities as proposed would increase the risk of natural gas fires and explosions that could affect the Association's headquarters building (located less than 1 mile north of Entrega's proposed Cheyenne Hub Metering Station).

At a December 10, 2004, meeting with the Association, representatives of the Colorado State Land Board, and Senator Allard's staff, Entrega committed to studying two alternatives that would affect both the location of the final portion of its proposed route and the Cheyenne Hub Metering Station. Under Variation A, Entrega's pipeline would continue to parallel the existing pipeline corridor to a terminus west of U.S. 85. This alignment would place the proposed Cheyenne Hub Metering Station on private property immediately south of the Cheyenne Compressor Station; the four delivery laterals would extend to the same four interconnection points as for the proposed action. **Figure 4.5-4** compares this variation with the proposed action that we analyzed in the draft EIS.

Under Variation B, Entrega's pipeline would diverge from the existing pipeline corridor (similar to the proposed route), but would bend eastward to follow the south side of the section line, again terminating on the west side of U.S. 85. This alignment would place the Cheyenne Hub Metering Station on private property immediately south of the proposed location (on the north side of the section line). The four delivery laterals would follow routes very similar to those for the proposed action (see **figure 4.5-5**).

After publication of the draft EIS, Entrega and the Association continued meeting in an attempt to resolve the Association's concerns. Following one such meeting, Entrega changed its proposed route to follow Route Variation A, which would result in the Entrega pipeline terminus being located on the south side of the existing Cheyenne Hub. We consider the routing proposed to be environmentally acceptable.

Metering Station Site Variation B

30" Delivery Lateral to CIG

36" Delivery Lateral to Cheyenne Plains

30" Delivery Lateral to Trailblazer

24" Delivery Lateral to PSCo

Regional View

WY NE

UT CO CO

125 0 125 Miles

Legend

- Proposed Metering Station Site
- Proposed Pipeline Route
- Milepost
- Existing Aboveground Facility
- Proposed Lateral Route
- Existing Pipeline Corridor
- Proposed Interconnection with Existing Pipeline
- Variation Metering Station Site
- Variation Pipeline Route
- Variation Lateral Route

750 0 750 Feet

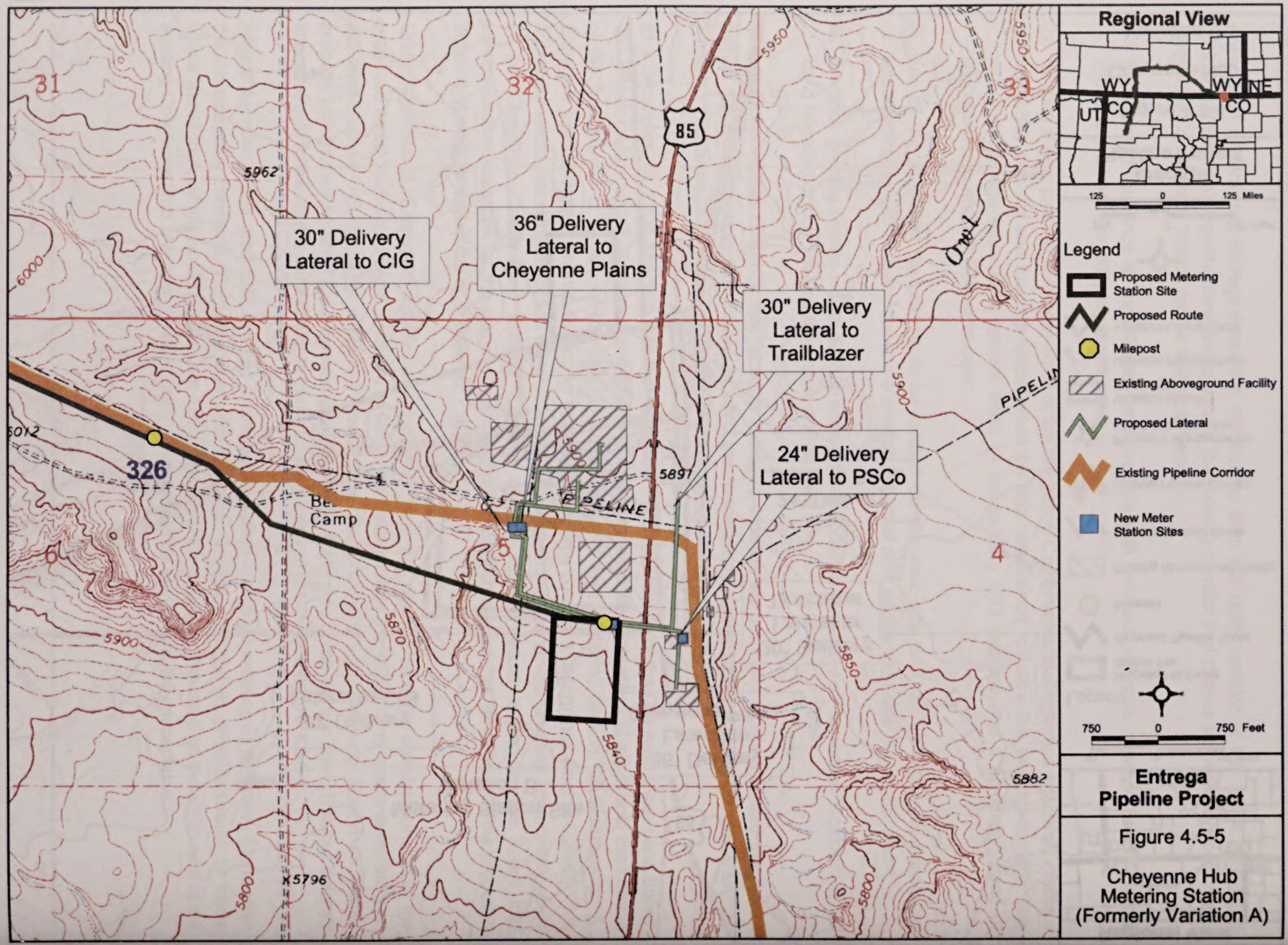
Entrega Pipeline Project

Figure 4.5-4

Cheyenne Hub

Variation B

6/6/05



Entrega Pipeline Project

Figure 4.5-5

Cheyenne Hub Metering Station (Formerly Variation A)

6/6/05

4.5.4 Piceance Creek Variations

In response to comments by the COE, we conducted a closer examination of the first 14 miles of the proposed route which follows the Piceance drainage immediately south of the White River crossing. The purpose of our examination was to determine if the number of Piceance Creek crossings could be reduced by minor realignments of the proposed route. As a result of our examination, we identified two locations where realignments could be implemented which would result in eliminating five of Entrega's proposed eleven crossings of the Piceance Creek (see **figures 3.3-3** and **3.3-4**). We have recommended that Entrega revise its proposed route to adopt these route realignments. See discussion in section 3.3.2.

4.6 Aboveground Facilities

Bighole Compressor Station (MP 76.3)

During public scoping, the CDOW requested that an alternative location for the Bighole Compressor Station be evaluated a) because of the proximity of the proposed site to sage grouse leks and associated brooding areas, and b) station operational noise. After further consultation with the CDOW and a review of areas along the proposed route both north and south of the site, we are satisfied that the proposed location represents the best compromise for minimizing impacts associated with siting a new compressor station. Our review found that high-quality sage grouse habitat lies both north and south of the proposed site. The selected site has the attribute of an existing road, therefore, no new access roads would be required, and year-round access would be available on the existing county road system. This would avoid the necessity for creating a new access road through high-quality habitat at another location. For these reasons, we are not recommending an alternative site for the Bighole Compressor.

Arlington Pigging and Cheyenne Hub Metering Stations (MPs 237 and 328)

Two of Entrega's proposed aboveground facility sites have undergone significant change in usage and size during the course of our review. Entrega's original application identified Arlington as the site of a 19.9-acre Arlington Compressor Station including compressors and appurtenant facilities, a mainline valve, and pig launching/receiving facilities. The application also proposed a 20.3-acre-site for four metering facilities, a mainline valve, and a pig receiver at the Cheyenne Hub Metering Station.

In a January 6, 2005 filing, Entrega revised its proposal such that compression is no longer proposed at the Arlington site. Currently, Entrega proposes to locate a mainline valve and pig launching/receiving facilities on the 3.2-acre Arlington Pigging Station site. The filing also downsized the Cheyenne Hub Metering Station to about 4.7 acres. However, a recent filing (May 20, 2005) indicated that the Cheyenne Hub site would be sized at 19.2 acres but contain only one of the original four meters, along with a mainline valve and pig receiver.

We believe that it is prudent for applicants to acquire large sites for compressor facilities, because larger sites help to mitigate operational noise impacts on nearby noise-sensitive areas (NSA) and provide a buffer between a large aboveground facility and nearby neighbors. However, because a FERC Certificate confers the right to acquire land by eminent domain, we do not believe that applicants should be in a position to

exercise this right to acquire parcels larger than that required for the facilities proposed. While an applicant may purchase as much land as it chooses to buy (and a landowner chooses to sell), we believe it would be inappropriate to enable Entrega to acquire more land than its facilities would require by exercising, or threatening to exercise, eminent domain. Therefore, **we recommend that at the Arlington and Cheyenne Hub sites, Entrega limit the land acquired by eminent domain under the NGA to an area no larger than that needed to construct and operate the proposed facilities. In this case, the Arlington Pigging Station and the Cheyenne Hub Metering Station would require no more than 1 and 2 acres, respectively. This does not place a limit on Entrega's ability to purchase land on the open market at these sites for future use. Prior to the start of construction, Entrega should file with the Secretary for review and written approval by the Director of OEP scaled plot plans for these sites.**

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 5

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions of the Environmental Analysis

The conclusions and recommendations presented in this section are those of the FERC environmental staff. While our conclusions and recommendations were developed with input from the BLM as a cooperating agency, the BLM will present its own conclusions and recommendations in its ROD for the EPP.

Review of the information provided by Entrega and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies, and individual members of the public indicates that the proposed project would result in limited adverse environmental impact during construction and operation. We conclude that if the project were constructed and operated in accordance with applicable laws and regulations, Entrega's proposed mitigation, and the additional mitigation recommendations presented below, it would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 94 percent of the proposed pipeline would be located within 300 feet of existing pipeline, utility, and road ROWs. Where Entrega's proposed pipeline would parallel existing pipelines, it would generally be installed at a 40-foot offset from the nearest pipeline centerline;

- the project would be consistent with or in conformance with federal resource management plans;

- Entrega would implement a number of resource- or activity-specific plans, procedures, and agreements to protect natural resources, avoid or limit environmental impact, and promote restoration of all disturbed areas during construction and operation of the project;

- the use of the HDD method would avoid disturbances to the beds and banks of the White and Yampa Rivers;

- the appropriate consultations with the FWS, the SHPOs, the BLM, other affected land management agencies, and any appropriate compliance actions resulting from these consultations, would be completed before Entrega would be allowed to begin construction in any given area; and

- an environmental inspection program would be implemented to ensure compliance with all mitigation measures, Certificate conditions, and requirements contained in the POD.

In addition, we have developed specific mitigation measures (including a compliance monitoring program) to further reduce the environmental impact that would otherwise result from construction of the project. The additional studies or field investigations which we recommend typically result in site-specific mitigation and further reduction of impact; therefore, we are recommending that these mitigation measures be attached as conditions to any Certificate issued by the Commission. These mitigation measures are presented in section 5.6. We believe that the recommended mitigation measures would reduce potential environmental impacts from Entrega's proposed action to less than significant levels.

5.2 Alternatives Considered

No Action or Postponed Action

The No Action and Postponed Action Alternative were considered. While the No Action or Postponed Action Alternative would eliminate the environmental impacts identified in this EIS, U.S. markets would be denied access to the 1.5 Bcfd of natural gas that Entrega proposes to transport to its system. Furthermore, natural gas development in the Piceance and neighboring basins could be hindered by a lack of interstate pipeline transportation capacity options available to ship gas to markets. Consequently, new and existing natural gas users would need to obtain natural gas from other sources, use alternative energy sources, or use alternative fuels.

In this instance, the first option would likely require the construction of additional and/or new pipeline facilities in other locations to transport natural gas supplies currently being developed in the Piceance Basin or planned for development/production in the near future. If other natural gas facilities are approved and constructed, each project would result in its own set of specific impacts that could be less or greater than those associated with the current proposal.

The second option (use of alternative energy sources) is infeasible because the use of solar, hydroelectric, or other energy sources (e.g., geothermal, fuel cells) has not been developed to the point where they would be viable energy supply alternatives to the proposed project.

The third option (applicable primarily to large industrial or commercial users) would require natural gas customers to apply for and seek regulatory approval to use other fuels. Assuming regulatory approval to use alternative fuels could be obtained within the required time frames, it could result in increased use of less clean-burning fuels (such as coal) and a corresponding increase in air pollutant emissions.

System Alternatives

Existing natural gas pipelines that pass through, or near the proposed Meeker Hub were evaluated for their ability to convey the proposed EPP volumes. We determined that none of the existing pipeline systems have sufficient remaining capacity to convey the volumes proposed by Entrega.

The potential for shipping Entrega's gas on WIC's proposed Piceance Basin Expansion Project (PBEP) pipeline that would originate at the Greasewood Hub (7 miles east of Entrega's origin) and terminate at Wamsutter, Wyoming also was evaluated. While the WIC design (pipeline diameter, compressor stations) could be modified to accommodate Entrega's gas volumes, the WIC project would not transport gas east of Wamsutter, and therefore would not meet Entrega's purpose and need. Further, the two projects have reached agreements with different shippers for gas receipt and delivery at different interconnection points at different pressures, under different terms and conditions, etc. We concluded that no existing or proposed pipeline system would meet Entrega's purpose and need.

Route Alternatives - Piceance Basin Expansion Route Alternative

We evaluated the option of routing the Entrega Pipeline along WIC's currently-proposed alignment between the Greasewood Hub and the area where the two proposed routes intersect near Entrega MP 33.2. The alternative would require a 7-mile-long linking pipeline between the Meeker and Greasewood Hubs, and would then follow the route proposed by WIC for its PBEP for another 36 miles. This alternative was evaluated to:

- avoid or minimize impact on sensitive resources (wetlands, wet meadows, and irrigated hayfields[1] along Entrega's initial 14 miles of construction through the Piceance Creek drainage); and

- address/avoid engineering issues (i.e., an area of pipeline congestion combined with steep slopes, rock outcrops, and a ravine associated with the Colorow Mountain crossing [MPs 19.5-20.6], and an area of soil instability and geologic hazards at the north end of the Indian Valley [MPs 25.5-28]).

In the draft EIS we solicited further input from the public, agencies, and the applicant regarding the Piceance Basin Route Alternative. We noted in the draft EIS that the proposed route would cross a larger number of stream crossings and cause more wetland and pasture disturbance, but vegetation recovery times in these areas would be short-term (less than 5 years). Since the draft EIS, however, Entrega has filed supplemental information regarding the wetlands crossed in the Piceance Creek area and the amount of wetlands crossed was substantially reduced. This difference is attributable to the fact that the draft EIS used NWI-maps to estimate wetland impacts, while the new information is based on field delineations conducted in 2004. We have reviewed Entrega's Plan, Procedures, and Incised Bank Stabilization Plan and believe that, when combined with the recommended route realignments that reduce the number of crossings of Piceance Creek, the procedures identified within these plans are sufficient to protect Piceance Creek.

In comparison, the alternative route (WIC's proposed route) would disturb a comparable amount of wetlands, much less pasture, but more shrubland and woodland wildlife habitat would be cleared. Shrubland and woodland recovery times would be long-term (10 to 50+ years). The alternative route would be almost 10 miles longer than Entrega's proposed route.

After reviewing the additional information from the public, agencies, and the applicant regarding the Piceance Basin Route alternative, we are recommending Entrega's proposal with the recommended Piceance Creek realignments as the preferred route.

Route Variations

Three minor route variations from Entrega's proposal were analyzed to determine whether the variations were environmentally preferable to the proposed route.

1) Pine Tree Gulch Variation. This variation is recommended because it minimizes livestock and water development impacts. This variation has been adopted by Entrega.

[1] Much of the hayfields are administered by the Colorado Division of Wildlife as the Piceance State Wildlife Area.

2) Park Meadows Variation. This variation is not recommended because predicted land use impacts would be reduced by routing the pipeline along an existing pipeline corridor rather than creating a new pipeline route that would affect new landowners. This variation has not been adopted by Entrega.

3) Cheyenne Hub Variations. Entrega has continued to negotiate with the Lazy D Grazing Association regarding landowner issues at this site. Based on these discussions, Entrega revised their route since the draft EIS and now has adopted Variation A as their proposed route. This is the recommended route at this location.

Aboveground Facilities

The possibility of relocating the Bighole Compressor Station was evaluated; however, no site offered a clear environmental advantage over the proposed site. Consequently, no alternative site was recommended.

In conclusion, we determined that the proposed project is environmentally preferable to any of the alternatives considered.

5.3 Significant Unavoidable Impacts

The project would result in limited adverse environmental impact. Effects on all environmental resources were evaluated to determine any significant impact that would remain so after application of the mitigation proposed by Entrega. We then considered practical, appropriate, and reasonable measures which would further reduce potential project-related impacts. As a result, we developed additional mitigation which we are recommending be included as specific conditions to any Certificate issued by the Commission. Our analysis indicates that with the application of Entrega's mitigation and implementation of our recommendations below, the proposal would result in no significant impact that is unavoidable. Further, we believe that all environmental impacts would be reduced to less than significant levels if the proposed and recommended mitigation is fully implemented.

5.4 Irreversible/Irretrievable Commitment of Resources; Short- and Long-Term Uses of the Environment

The major nonrenewable resources that would be consumed by the proposed project are fossil fuels used to power construction vehicles and, over the life of the project, fossil fuel and electricity to power the pipeline itself (the proposed compressor stations would be natural-gas powered). Theoretically, the pipeline components could be reclaimed at the end of the pipeline's operational life. However, there would be a number of irretrievable resources committed to the proposal if the necessary authorizations are granted. The primary resources irretrievably lost would include soils (resulting from water and wind erosion in disturbed areas); water (used for dust control); crop/rangeland production (lost or reduced for one season or more); land use (aboveground facilities would replace rangeland and agricultural land for the life of the project); and wildlife habitat (temporary to long-term loss). The loss of cultural and paleontological resources also would be irretrievable, if allowed to occur.

As discussed in section 3.11, the proposed project has been designed to meet or exceed all safety requirements, and the potential for irreversible damage to the environment during operation is slight.

The proposed project would transport significant volumes of natural gas to customers in the central U.S. Its operation would be consistent with federal policies encouraging competitive natural gas transportation services. For these reasons, the limited irreversible and irretrievable resource commitments are acceptable.

5.5 FERC Staff Recommended Mitigation

If the Commission approves the EPP, we recommend that the following measures be included as specific conditions of the Certificate. We believe that these measures would further mitigate the environmental impact associated with the construction and operation of the proposed project.

1. Entrega Gas Pipeline Inc. (Entrega) shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff data requests), and as identified in the environmental impact statement (EIS), unless modified by the Commission Order. Entrega must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of the Office of Energy Projects (Director of OEP) **before using that modification**.

2. The Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property and the environment during construction and operation of the project. This authority shall include:

    a. the modification of conditions of this Order; and
    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the conditions of this Order.

3. **Prior to any construction**, Entrega shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Entrega shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of

environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Entrega's exercise of eminent domain authority granted under Natural Gas Act (NGA) Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Entrega's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way (ROW) for a pipeline to transport a commodity other than natural gas.

5. Entrega shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to route variations required herein, additional areas allowed by Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan, or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;
   b. implementation of endangered, threatened, or special concern species mitigation measures;
   c. recommendations by state regulatory authorities; and
   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this Certificate and before construction** begins, Entrega shall file an initial Implementation Plan with the Secretary for the review and written approval of the Director of OEP describing how Entrega will implement the mitigation measures required by this Order. Entrega must file revisions to the plan as schedules change. The plan shall identify:

   a. how Entrega will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
   b. the number of EIs assigned per spread and a description of how Entrega will ensure that sufficient personnel are available to implement the environmental mitigation;

c. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
d. the training and instructions Entrega will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
e. the company personnel (if known) and specific portion of Entrega's organization having responsibility for compliance;
f. the procedures (including use of contract penalties) Entrega will follow if noncompliance occurs; and
g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

    i. the completion of all required surveys and reports;
    ii. the mitigation training of onsite personnel;
    iii. the start of construction; and
    iv. the start and completion of restoration.

7. Entrega shall employ a team of EIs (i.e., three or more) per construction spread. The EIs shall be:

    a. responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;
    b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;
    c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
    d. a full-time position, separate from all other activity inspectors;
    e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
    f. responsible for maintaining status reports.

8. Entrega shall file updated status reports prepared by the head EI with the Secretary on a weekly basis **until all construction-related activities, including restoration activities, are complete**. On request, these status reports also will be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

    a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
    b. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
    c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;
    d. the effectiveness of all corrective actions implemented;

e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Commission Order, and the measures taken to satisfy their concerns; and
f. copies of any correspondence received by Entrega from other federal, state, or local permitting agencies concerning instances of noncompliance, and Entrega's response.

9. Entrega must receive written authorization from the Director of OEP **before commencing service** from the project. Such authorization will only be granted following a determination that rehabilitation/restoration of the ROW and other areas of project-related disturbance are proceeding satisfactorily.

10. **Within 30 days of placing the certificated facilities in service**, Entrega shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the Certificate conditions Entrega has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

11. Entrega shall include the White River in its assessment of potential streambed scour depths, so that this information will be available for design purposes if an open-cut crossing is ultimately required at this location. (section 3.1.2)

12. If severe wind erosion occurs (as noted by exposed pipe, deflation, or dune formation), Entrega shall install and monitor erosion prevention devices (e.g., snow fences) to ensure soil stabilization as part of its ongoing maintenance program. Entrega shall notify the FERC of severe erosion and its mitigation in Entrega's quarterly activity reports to the FERC. (section 3.2.1)

13. **Prior to construction**, Entrega shall revise its Weed Management Plan to include:

    a. identification of the locations by milepost (MP) where noxious or invasive weeds are currently present either within or immediately adjacent to all areas of project-related disturbance; and
    b. a site-specific plan for each location where weeds are present which:

        i. describes options for pretreatment (including the month(s) of the year when pretreatment would be effective);
        ii. identifies who was consulted regarding possible pretreatment options; and
        iii. includes whether the landowner/administrator has approved of the pretreatment. (section 3.2.4)

14. Entrega shall conduct weed management surveys and control measures at least once every 3 years (following the initial 5 years of reclamation and weed control surveys) for the life of the project. Reports of these surveys would be sent to all appropriate conservation districts, local governments, weed

management areas, weed and pest councils, and affected BLM FOs. Measures for long-term weed control strategies shall be developed by consultations with the groups listed above, as well as the local Natural Resources Conservation Service, weed control board or officials, land management agencies, and landowners. Entrega's developed methods and comments from the various agencies shall be filed with the Secretary for the review and written approval of the Director of OEP before implementation. (section 3.2.4)

15. Entrega shall develop and implement an environmental complaint resolution procedure that remains active for at least 3 years following the completion of construction. The procedure shall provide landowners, local governments, and weed management agencies (affected parties) with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the ROW. **Prior to construction**, Entrega shall mail the complaint resolution procedure to each landowner whose property would be crossed by the project and to each affected agency.

    a. In its letter to affected parties, Entrega shall:

        i. provide a local contact and telephone number that the affected parties should call first with their concerns; the letter shall indicate how soon they should expect a response;
        ii. provide Entrega's Hotline phone number and instruct the affected parties that, if they are not satisfied with the response, they should call the Entrega Hotline; the letter shall indicate how soon to expect a response; and
        iii. instruct the affected parties that, if they were still not satisfied with the response from Entrega's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030 or at hotline@ferc.gov.

    b. In addition, Entrega shall include a table in its weekly status report containing the following information for each problem/concern:

        i. the identity of the caller and the date of the call;
        ii. the identification number from the certificated alignment sheet(s) of the affected property and approximate location by MP;
        iii. a description of the concern/problem; and
        iv. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. (section 3.2.4)

16. To minimize impact on water supply wells and systems, Entrega shall:

    a. file with the Secretary **prior to construction** the location by MP of all water supply wells or water supply systems within 200 feet of all construction work areas. For each, the filing shall identify the type of feature (well, pipeline conveyance, lined channel) and its use (domestic, municipal, industrial, agricultural, etc.);

b. revise its Blasting Plan to clarify that ground vibration monitoring would be conducted at all aboveground structures, water supply wells, and water supply systems within 200 feet of construction areas subject to blasting; and
c. provide an alternative source of water until any water supply well/system damaged during construction is repaired/replaced or the water rights owner is fairly compensated for the damage. (section 3.3.1)

17. Entrega shall revise its proposed route between MPs 6.7 to 8.2 and MPs 12.8 to 13.8 (as shown in **figures 3.3-3** and **3.3-4** of the final EIS, respectively) to reduce the number of crossings of Piceance Creek. Revised alignment sheets shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. (section 3.3.2)

18. Entrega shall consult with FWS, CDOW, and CDPHE to establish withdrawal and discharge rate guidelines and practices for water used in preliminary testing of the HDD crossings. (section 3.3.2)

19. Entrega shall file with the Secretary for the review and written approval of the Director of OEP **prior to construction**, revised Site-Specific Waterbody Crossing Plans (including contingency plans) that include a 50-foot setback for the Little Snake, White, and Yampa Rivers. (section 3.3.2)

20. Entrega shall coordinate with WIC regarding the crossings of the Yampa and Little Snake Rivers. This coordination shall attempt to minimize in-stream and bank disturbances and shall consider the use of a shared crossing bridge at each location. Entrega shall file the results of this coordination with the Secretary for the review and written approval of the Director of OEP prior to constructing these crossings. (section 3.3.2)

21. Entrega shall continue to consult with the water supply operators and the appropriate federal and state agencies regarding potential impacts on water supplies and the need for specific mitigation measures during pipeline construction. (section 3.3.2)

22. **Prior to construction**, Entrega shall finalize their Hydrostatic Test Plan in consultation with pertinent state and federal agencies (FWS, WGFD, WDEQ, CDOW, CDPHE) and appropriate conservation districts. Entrega also shall:

    a. provide additional descriptions of the discharge/erosion control structures that would be utilized at the discharge locations;
    b. document these agency consultations and file the finalized Hydrostatic Test Plan with the Secretary for review and written approval of the Director of OEP **prior to construction**; and
    c. consult and coordinate with the appropriate agencies and organizations immediately before and during the hydrostatic testing program (including the discharge phases) to account for changing site-specific conditions and to ensure that impacts are avoided or minimized in applicable agency jurisdictions. (section 3.3.2)

23. Entrega shall file with the Secretary its final Construction Mitigation and Revegetation Plan (including a line list by MP of proposed wetland mitigation measures) for review and written approval by the

Director of OEP **prior to commencing service**. Entrega shall include the comments of the land management and state agencies with whom it consulted during plan development and indicate whether reclaiming wetlands with native species was suggested by these agencies. (section 3.3.3)

24. To facilitate the restoration of riparian woodlands disturbed by project construction, Entrega shall:

    a. conduct pre-construction surveys in woody riparian areas to determine the existing vegetation community composition and density. Based on the results of these surveys, Entrega shall reseed and replant with these existing tree and shrub species at pre-construction densities, accounting for intact root masses; and
    b. file site-specific plans for each of the six riparian woodland crossings (North Platte River, Medicine Bow River [2], a tributary to Foote Creek, and Rock Creek [2] crossings) with the Secretary for review and written approval by the Director of OEP **prior to construction activities in these riparian woodland communities**. In developing these plans, Entrega shall locate temporary workspace areas to avoid riparian woodland to the maximum extent practicable. Entrega shall provide detailed justification for any temporary workspace area that is not sited to avoid disturbance of riparian woodland. At a minimum, each plan shall include:

        i. an inventory of the area of disturbance, based on the preconstruction survey;
        ii. site-specific measures to avoid or reduce the extent of riparian woodland disturbance;
        iii. site-specific measures to restore all riparian woodland disturbance to near-preconstruction conditions;
        iv. an aerial-photo based plot plan showing all areas of disturbance, environmental controls, and restoration measures (scale 1:1,200); and
        v. specific criteria for assessing restoration success. (section 3.4)

25. **Prior to construction at the Medicine Bow River**, Entrega shall prepare and file with the Secretary for review and written approval of the Director of OEP a report indicating whether an HDD crossing is feasible at the Medicine Bow River crossing, and evaluating another route(s) for crossing the river that would avoid or minimize the number of trees to be removed by construction. (section 3.4)

26. Entrega shall consult with the FWS and appropriate state agencies to determine appropriate mitigation for discharging hydrostatic test water within the brown trout spawning season. (section 3.5.1)

27. In order to reduce potential impacts on wildlife from pipeline construction, Entrega has committed to placing earthen ditch plugs, with ramps on either side, at 1-mile intervals along the trench and at well-defined livestock and wildlife trails intersected by the trench on federal lands. Entrega shall adhere to the following mitigation measures uniformly throughout the project.

    a. Entrega shall place earthen ditch plugs, with ramps on either side, at 1-mile intervals along the trench and at well-defined livestock and wildlife trails intersected by the trench. These plugs would provide a means for wildlife to escape if individuals fall into the trench and also would provide a bridge for other wildlife to cross the open trench.

b. Entrega also shall leave breaks in the strung and welded pipe, topsoil, and spoil piles at locations that correspond to the earthen trench plugs to allow movement of wildlife and livestock across the construction ROW.
c. The pipeline trench shall be inspected on a regular basis during construction and immediately prior to backfilling to identify entrapped animals. Wildlife found in trenches during construction shall be coaxed to the nearest ramp and either be encouraged to exit the trench, removed by hand, or trapped (if other methods are unsuccessful). If any animal in the trench is determined to be a sensitive species, only authorized individuals shall be allowed to remove it from the trench.
d. Entrega shall limit the duration that welded pipe would be left above the ditch by lowering the pipe no later than 7 days after pipe segments are joined. (section 3.5.2)

28. To facilitate wildlife crossover/escape from the ditch, Entrega's Els shall, as needed and in conjunction with the federal agencies' compliance monitors, modify the spacing of ditch-plug bridges/escape ramps and breaks in the strung and welded pipe at specific locations where the 1-mile spacing is found to be inappropriate. (section 3.5.2)

29. To minimize the impacts to big game species during winter, Entrega shall:

    a. avoid Wildlife Habitat Management Area lands during non-emergency maintenance activities from November 15 through April 30; and
    b. in addition to the winter constraint period, avoid construction in the Colorado Division of Wildlife's Bitter Brush State Wildlife Area from October 10 through November 21 to avoid heavy hunter concentration areas. (section 3.5.2)

30. Entrega shall coordinate with the BLM to obtain applicable historic raptor nest locations, **prior to conducting preconstruction surveys for raptors**. (section 3.5.2)

31. Entrega shall conduct pre-construction clearing of suitable habitat for shrub-nesting species for the proposed 2006 construction. Such clearing would be conducted in late fall 2005 or winter 2005/early 2006 (prior to the 2006 migratory bird nesting season), which would make the cleared areas unattractive to potential nesters and thus avoid destruction of active nests during actual construction. Suitable habitat (scrub-shrub) for shrub nesters is primarily located along the western portion of Phase 1, Spread 3 and 4 (between MP 135.5 to 236.68 and MP 285.2 to 286.9). Entrega shall file a preconstruction clearing plan with the Secretary for the review and written approval of the Director of OEP **prior to initiating clearing**. This plan shall identify mileposts to be cleared and provide results of consultations and any applicable permits and authorization from the BLM and/or WGFD that address the extent and method of clearing and fall/winter project activity in big game ranges, as applicable. (section 3.5.2)

32. **Prior to conducting blasting at any location along the EPP ROW**, Entrega shall file the results of its FWS consultation with the FERC for review and approval of the Director of OEP. The filing shall specify the specific locations (by MP) where blasting may occur, known raptor and other migratory bird nest locations within the general vicinity of the blasting, and mitigation measures that would be implemented to minimize impacts on nesting birds. (section 3.5.2)

33. Entrega shall conduct preconstruction field surveys for federally listed plant species (i.e., the Colorado butterfly plant, Dudley Bluffs bladderpod, blowout penstemon, Dudley Bluffs twinpod, and Ute ladies'-tresses) in areas subject to project-related disturbance in accordance with its Special Status Species Survey Plan. **Prior to construction**, Entrega shall file the following information with the Secretary:

    a. name(s) and qualifications of the person(s) conducting the survey;
    b. method(s) used to conduct the survey;
    c. date(s) of the survey;
    d. area surveyed (include the MPs surveyed); and
    e. results of the surveys, to indicate species presence or absence. (section 3.6.2)

34. If a federally listed plant species is found during the preconstruction surveys, Entrega must notify the Commission staff and the FWS before commencing any project construction activity. This notification shall contain Entrega's evaluation of whether or not the plant(s) could be avoided by reroute or by the use of a horizontal bore. Further, Entrega **shall not begin construction activities until**:

    a. the staff receives comments from the FWS regarding the proposed action;
    b. the staff completes formal consultation with the FWS, if required; and
    c. Entrega has received written notification from the Director of OEP that construction or use of mitigation may begin. (section 3.6.2)

35. Entrega **shall not begin construction of Phase 1, Spread 4 activities until**:

    a. Entrega files with the Secretary for review and written approval by the Director of OEP its evaluation of possible ROW re-alignments to avoid Preble's meadow jumping mouse habitat;
    b. the staff receives the Preble's meadow jumping mouse survey report as well as comments from the FWS on the survey report and the proposed action's effects on the Preble's meadow jumping mouse;
    c. the staff completes formal consultation with the FWS, if required; and
    d. Entrega has received written notification from the Director of OEP that construction or use of mitigation may begin. (section 3.6.3)

36. Entrega shall not construct within 0.5 mile of active bald eagle nest sites in Colorado or within 1 mile of active nests in Wyoming during the nesting season. In Colorado, bald eagles generally nest from November 15 through July 31. Bald eagles generally nest from February 1 through August 15 in Wyoming. (section 3.6.3)

37. If Entrega encounters a previously unidentified active bald eagle nest within 1 mile of the construction ROW in Wyoming or within 0.5 mile of the construction ROW in Colorado, Entrega shall concurrently notify the Commission staff, the BLM (if on federal land), and the FWS, and file such information with the Secretary. Entrega **shall not continue with construction** until the staff has reviewed the information, completed any necessary consultation with the FWS, and the Director of OEP notifies Entrega in writing that construction may proceed or use of mitigation may begin. (section 3.6.3)

38. In order to minimize impacts on roosting bald eagles, Entrega shall conduct surveys for roosting eagles within potential winter roost areas if construction occurs between November 15 and March 15 in Colorado (between November 1 and April 15 in Wyoming). In the event that occupied bald eagle winter roost sites are identified within 0.25 mile of construction areas in Colorado or within 1 mile of construction areas in Wyoming, Entrega shall coordinate with the BLM (if on federal land) and the FWS to determine if protection measures (e.g., timing restrictions and/or buffer areas) would be required. Entrega shall report the results of the coordination in a filing with the Secretary, and **shall not begin construction** until the staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies Entrega in writing that construction or use of mitigation may begin. (section 3.6.3)

39. Entrega shall identify all potential bald eagle roosting trees on or immediately adjacent to the ROW and assess measures to avoid any trees that could be damaged by construction. Any potential bald eagle roosting tree that Entrega believes could not be avoided shall be identified to the staff with a justification as to why the tree must be removed and what measures Entrega considered before determining that removal was necessary. This information shall be filed with the Secretary for the review and written approval of the Director of the OEP **before construction** or use of mitigation may begin. (section 3.6.3)

40. For areas where the construction ROW is within 0.25 mile of a sage grouse lek site (whether active or inactive), Entrega shall reduce its construction ROW width to 75 feet. (section 3.6.3)

41. In Colorado, if low intensity preconstruction (e.g., surveying and staking) work is necessary within 2 miles of known sage grouse leks between March 1 and June 30, activities shall occur only between 9:00 a.m. and 4:00 p.m. In Wyoming, if low intensity preconstruction work is necessary within 0.25 mile of known sage grouse leks between March 1 and May 15, activities shall occur only between 8:00 a.m. and 8:00 p.m. (section 3.6.3)

42. In the event that Entrega cannot complete an HDD crossing of the White or Yampa Rivers, Entrega shall not begin a non-HDD crossing until the staff completes any necessary Section 7 consultation with the FWS, and the Director of OEP notifies Entrega in writing that it may proceed with an alternate river crossing method. (section 3.6.4)

43. Entrega shall provide a detailed justification for any area where it proposes to use a 125-foot-wide construction ROW for more than 0.5 mile at a time. The justification shall be filed with the Secretary for review and written approval by the Director of OEP. (section 3.7.1)

44. **Prior to construction**, Entrega shall revise its Site-Specific Waterbody Crossing Plan for the North Platte River to include specific measures to avoid or minimize impacts on recreational boat users. If an open-cut crossing is ultimately necessary at the White or Yampa Rivers, Entrega shall similarly revise the site-specific crossing plans for these locations. All revised site-specific waterbody crossing plans shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. (section 3.7.2)

45. Entrega shall defer construction and use of facilities and staging, storage, and temporary work areas and new or to-be-improved access roads **until**:

    a. Entrega files with the Secretary all remaining cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans;
    b. Entrega files with the Secretary the BLM's and the Colorado and Wyoming State Historic Preservation Offices' comments, as applicable, on all reports and plans; and
    c. the Director of OEP reviews and approves all reports and plans and notifies Entrega in writing that it may proceed.

    All material filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: **"CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE."** (section 3.8.3)

46. To confirm compliance after construction, Entrega shall file a noise survey with the Secretary **no later than 60 days** after placing the Bighole Compressor Station in service. If the noise attributable to the operation of the compressor station at full load exceeds 55 dBA L_{dn} at any station property line, Entrega shall install additional noise controls to meet that level within 1 year of the in-service date. Entrega shall confirm compliance with the L_{dn} of 55 dBA commitment by filing a second noise survey with the Secretary no later than 60 days after Entrega installs the additional noise controls. (section 3.10.2)

47. Entrega shall file a noise survey with the Secretary **no later than 60 days** after placing the authorized unit(s) at the Meeker Hub and Wamsutter Compressor Stations in service. If the noise attributable to the operation of the compressor stations at full load exceeds an L_{dn} of 55 dBA at any nearby noise-sensitive area, Entrega shall install additional noise controls to meet that level **within 1 year** of the in-service date. Entrega shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after Entrega installs the additional noise controls. (section 3.10.2)

48. To reduce potential cumulative dewatering effects on the Little Snake River during low flows, Entrega shall coordinate their hydrostatic testing and dust control water withdrawals with WIC such that no EPP and PBEP water withdrawals occur simultaneously from the Little Snake River. (section 3.12)

49. At the Arlington and Cheyenne Hub sites, Entrega shall limit the land acquired by eminent domain under the NGA to an area no larger than that needed to construct and operate the proposed facilities. In this case, the Arlington Pigging Station and the Cheyenne Hub Metering Station would require no more than 1 and 2 acres, respectively. This does not place a limit on Entrega's ability to purchase land on the open market at these sites for future use. **Prior to the start of construction**, Entrega shall file with the Secretary for review and written approval by the Director of OEP scaled plot plans for these sites. (section 4.6)

PUBLIC COMMENTS AND RESPONSES

CHAPTER 6

Table 6-1
Oral Comments on the Entrega Pipeline Project Draft EIS

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
P1-O-1	Cheyenne / p. 6	The commentor is concerned about proper segregation of topsoil on the commentor's property. (*Maxine Weaver – Weaver Ranch*)	The landowner may specify the topsoil segregation procedures used on her property during easement negotiations.
P1-O-2	Cheyenne / pp. 6-7	The EIS correctly identifies the duration of construction impacts to vegetation on her property. If the dry cycle continues, revegetation could take even longer. (*Maxine Weaver – Weaver Ranch*)	Comment noted.
P1-O-3	Cheyenne / p. 7	The commentor is concerned about weed control on the commentor's property. Other pipelines have made similar promises to control weeds, but there has not been sufficient follow-through. (*Maxine Weaver – Weaver Ranch*)	FERC and the BLM recognize the importance of weed control along the pipeline ROW. As a result, Entrega has prepared a Weed Management Plan (see appendix D). To ensure Entrega's compliance, FERC and the BLM will monitor both reclamation and weed control efforts along the ROW following construction. Further, we have recommended a complaint resolution procedure to ensure weed problems are dealt with in a timely manner.
P1-O-4	Cheyenne / p. 7	Commentor does not want Entrega to use anything but water on the commentor's property for dust suppression. (*Maxine Weaver – Weaver Ranch*)	The landowner may specify that Entrega only use water for dust control on her property during easement negotiations.
P1-O-5	Cheyenne / p. 7	The draft EIS states that the pipeline is on an existing corridor, but the commentor's understanding of the application is that Entrega would expand the corridor against the existing corridor. Which is it? (*Maxine Weaver – Weaver Ranch*)	For most of the proposed route, Entrega's pipeline would parallel existing pipelines. Therefore, the pipeline would follow "corridors" established by the routing of previous utilities. Such corridors are defined by the cumulative width of the easements which parallel one another (rather than being designated as a specific width to accommodate multiple utility lines). Each new easement incrementally expands the width of the corridor. Entrega proposes to add a permanent easement of 50 feet to the width of the existing corridor across this property. For ranching, there would be a short-term loss of productivity until the pipeline ROW was reclaimed.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
L1-O-1	Cheyenne / p. 8	Commentor is concerned about the proper segregation of topsoil on the commentor's property. (*Karl Zucker – City of Cheyenne/Belvoir Ranch*)	See response to comment P1-O-1.
L1-O-2	Cheyenne / pp. 8-9	Weed control is a major issue. Commentor is concerned about the introduction and spread of noxious weeds on the Belvoir ranch, particularly species like dalmatian toadflax. (*Karl Zucker – City of Cheyenne/Belvoir Ranch*)	See response to comment P1-O-3.
L1-O-3	Cheyenne / pp. 9 & 13-15	The Belvoir ranch will contain about 1,800 yearling calves when construction is proposed. Commentor is worried about these calves becoming entrapped by the pipeline trench. As a result, the commentor would prefer that Entrega avoid construction from mid-July through October. Commentor is also concerned about the pipeline construction cutting through a waterline that provides water to livestock. (*Karl Zucker – City of Cheyenne/Belvoir Ranch*)	Entrega proposes to install soft plugs and escape ramps at intervals along the open trench to facilitate easy exit for any animals that fall into the trench. If construction occurs while the calves are present, another alternative is to require Entrega to fence the construction right-of-way across the ranch. These issues should be addressed in the easement negotiations between Entrega and the City of Cheyenne (for the Belvoir Ranch). Entrega would immediately repair the water line if it were damaged by construction during a critical usage period.
L1-O-4	Cheyenne / pp. 10-13	The proposed construction ROW encroaches upon a surface historical/archeological site on the south-side of the ROW. Commentor feels that Entrega should move its ROW to the north-side to avoid the site or, alternatively, should bore beneath the site to avoid impacts. (*Karl Zucker – City of Cheyenne/Belvoir Ranch*)	See revision(s) to section 3.8.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
N1-O-1	Cheyenne / pp. 15-18	The EIS states that the natural gas would be shipped beyond the Entrega pipeline to markets in the Midwest and Central US. Commentor would like to know specifically who would be purchasing the natural gas. (*Michele Barlow – Wyoming Outdoor Council*)	As an interstate transporter, Entrega would accept specific natural gas volumes at a location(s) designated by a shipper (EnCana Marketing [USA] Inc.) and deliver those volumes at a downstream location(s) specified by the shipper. Entrega would not own the gas it transports, nor would it contract for the sales of the gas transported on its system. As a result, its application for authorization to construct and operate new interstate natural gas transmission facilities does not specify who would purchase the gas transported on its system.
I1-O-1	Rawlins / pp. 5-6	How does Entrega propose to power the compressor stations? (*Dennis Barker – PacifiCorp*)	With the exception of the Bighole Compressor Station (which would generate its own power on-site), the stations would receive electrical power for lighting and other equipment from the White River Electric Association (Meeker Hub Compressor Station) and Pacific Power – Rawlins District (Wamsutter Compressor Station), . The compressors themselves would operate on natural gas.
L2-O-1	Rawlins / pp. 6-7	Commentor thanked Entrega for the several opportunities that the he's had to comment on, specifically, the weed management plan. Commentor believes that the Weed Plan is good. Commentor is available if there are any additional questions. (*Larry Justesen –Carbon County Weed and Pest Control*)	Comment noted.
L3-O-1	Rawlins / p. 7	Commentor believes there is a need for this project and supports the project. (*Bill Vasey – Wyoming Senate District II – Carbon County*)	Comment noted.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
L4-O-1	Rawlins / pp. 7-8	Commentor wants a balance between recreational and agricultural values with the need for extraction and development. Commentor stated that the EIS appears to address those issues appropriately and wants the project to move forward. (*Jay Grabow – Carbon County Economic Development Corporation*)	Comment noted.
L5-O-1	Rawlins / pp. 8-9	Commentor completely supports the project. The tax revenue from the pipeline will help Carbon County. (*Art Zieger – Carbon County Commissioner*)	Comment noted.
L6-O-1	Rawlins / p. 10	Commentor is concerned about water quality issues, particularly at the crossing of the North Platte. Commentor has access to water quality data if needed. Commentor can be of assistance if there are problems between landowners and the project, if desired. Commentor also offered his assistance for issues with private landowners and weeds. (*Larry Bentley – Saratoga Encampment – Rawlins Conservation District*)	Comment noted.
L6-O-2	Rawlins / p. 10	Commentor is interested in invasive weed species and their management. Commentor is involved with the Wyoming Department of Agriculture's Coordinated Resource Management for reclamation and weed control. Commentor would encourage [Entrega] to investigate that. (*Larry Bentley – Saratoga Encampment – Rawlins Conservation District*)	Comment noted.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
N2-O-1	Craig / pp. 5-6	Commentor believes that the scope of the EIS analysis is too limited. The analysis should include the related oil and gas field developments and other projects that are needed to provide the 2.0 Bcfd gas. There are three interstate pipelines being built to take gas from the same area. This suggests that there will be a lot of gas wells drilled. The EIS should discuss future well field development and account for those impacts within the analysis. (*Reed Morris – Colorado Wilderness Network*)	See response to written comment F4-1. During our review, Entrega revised its proposed project. It presently proposes to transport 1.5 Bcf of natural gas per day from the Meeker Hub.
L7-O-1	Craig / pp. 7-9	Commentor has met with Entrega, BLM, and FERC on a number of occasions regarding this project. Commentor believes that the impacts of the project are well accounted for within the EIS. Commentor has been pleased with Entrega's efforts and the company appears to be acting in good faith. Weeds were an issue, but the company has been very proactive in addressing this issue. (*Saed F-Tayyara – Moffat County Commissioner*)	Thank you for your comments. [Commentor's reference to meeting with the BLM and FERC refers to providing verbal comments at the public scoping and DEIS comment meetings held in Craig during June 2004 and April 2005]
L7-O-2	Craig / pp. 19-20	Commentor stated that public lands are intended for public use for everyone, not just oil & gas companies, recreationalists, or ranchers. Development needs to fulfill both aesthetic and economic needs. Natural gas is needed at both the national and state levels. There is a need to protect nature and man while still developing and maintaining the interests of all. Commentor feels like Entrega is a good "steward" of the land and they have been very responsive. Commentor supports the project as long as Entrega fulfills their agreements. (*Saed F-Tayyara – Moffat County Commissioner*)	Thank you for your comments.
L8-O-1	Craig / p. 10	Commentor feels that the company has been proactive and has worked with the county. (*Tom Gray – Moffat County Commissioner*)	Comment noted.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
L9-O-1	Craig / pp. 10-14	Initially, commentor had concerns regarding the reclamation plan and the weed management plan, but the commentor's concerns have since been addressed. Commentor appreciates Entrega's efforts in working with the community and particularly the private landowners. (*Jeff Comstock – Moffat County Commissioner*)	Comment noted.
L9-O-2	Craig / pp. 12-14	Commentor is concerned that weeds from surrounding areas would creep in, particularly on private lands. Entrega said they would work with the private landowners to control this. The wording is not in current EIS, but the commentor believes that it will be and appreciates their commitment to working with the private landowners. (*Jeff Comstock – Moffat County Commissioner*)	Entrega's Weed Management Plan (see appendix D) and our recommendations in section 3.2.4 of the EIS would be implemented along the entire pipeline ROW, including private property.
L9-O-3	Craig / p. 13	Emergency management may still be a concern for the community. There needs to be a plan in place. (*Jeff Comstock – Moffat County Commissioner*)	See response to comment L10-O-1.
P2-O-1	Craig / p. 14	Entrega has been responsive to commentor's questions. (*Paul Anderson - landowner*)	Comment noted.
P2-O-2	Craig / pp. 14-15	The combined effect of both Entrega and WIC's pipelines will have long-term effects. The county commissioners need to think long-term in their planning. (*Paul Anderson - landowner*)	We recognize the importance of the combined effects from the construction of both pipelines. Consequently, the combined impacts of the two pipelines are evaluated within the EIS. (See section 3.12)
P2-O-3	Craig / pp. 15-16	There will be exploration and production effects, so the scale of the EIS analysis should be expanded. There needs to be responsible development. (*Paul Anderson - landowner*)	See response to written comment F4-1.
P2-O-4	Craig / pp. 15-16	Development should avoid conflicts with traditional lifestyle values. The economic input is good. But there will be impacts on wildlife, recreation, and agriculture which are traditional industries of the area. (*Paul Anderson - landowner*)	When making its decision for whether to approve the Entrega Pipeline Project, the Commission will weigh many factors, including potential impacts on wildlife, recreation, agriculture, and socioeconomics. Potential impacts on these resources are addressed in this EIS.

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
L10-O-1	Craig / pp. 16-18	Commentor is concerned about providing adequate emergency services for Entrega, WIC, and the compressor stations (*sic* EnCana Gas Project??) during construction as well as into the future to maintain stations and future exploration. Entrega needs to address emergency services. Specifically, they need to provide: 1) emergency access routes to where the construction crews will be located; 2) a construction timetable so that emergency personnel know approximately where construction is occurring at any give time; 3) identify helicopter landing sites before construction occurs; and 4) funds for any additional emergency staff personnel or, alternatively, incorporate Entrega personnel into the county's emergency service staff. (*Larry Dalton – Emergency Manager; Moffat County*)	Entrega's Plan of Development includes an Emergency Response Plan. This plan includes identification and notification of local first responders along the Entrega route. Prior to construction, Entrega intends to meet with the local first responders in each county and provide them with a work schedule showing the approximate timing of construction crews in each county, the expected location of the construction crews under the proposed construction schedule, and contact information for the construction contractor's emergency and safety personnel that would be at the various construction sites. Further, Entrega would provide to the local first responders contact information for its own safety and inspection personnel at the various construction sites.
L11-O-1	Meeker / p. 5	Entrega has been in communication with the City of Meeker. (*Sharon Day – Town of Meeker*)	Comment noted.
L11-O-2	Meeker / p. 5	The town of Meeker has been trying to anticipate the impacts on local housing. Recently they were able to approve a recreational vehicle area so that there will be some area for pipeline workers. Entrega has kept the town apprised of potential impacts, and commentor is looking forward to the positive economic influence it will have on their community. (*Sharon Day – Town of Meeker*)	Comment noted.
L11-O-3	Meeker / p. 5	Entrega should use sound environmental practices when installing the pipeline. (*Sharon Day – Town of Meeker*)	We agree. Based on our analysis, we have included recommendations in this EIS which we believe would help ensure that Entrega implements sound environmental practices during construction and operation of the proposed project.

Table 6-1 (Continued)

ID #	Location / Transcript Page(s)	Comment Summary – *Commentor*	Response
L12-O-1	Meeker / pp. 6-7	Commentor has met with Entrega and has found them to be very forthright and cooperative. They have worked through access permit issues. There are still some socioeconomic (tax) issues that the county and Entrega are discussing. (*Mike Neumann – Land Use Director for Rio Blanco County*)	Comment noted.
L12-O-2	Meeker / p. 8	Commentor would like to know what the general timeline is for the remaining tasks. (*Mike Neumann – Land Use Director for Rio Blanco County*)	Once the final EIS is completed it will be released to the public. A Commission decision on whether to issue a Certificate authorizing construction and operation of the proposed project generally follows no sooner than 30 days after release of the final EIS in noticed by the EPA in the Federal Register. However, a Commission decision may occur sooner. The precise timeline for the Commission's decision and issuance of a Certificate is not known at this time.
P3-O-1	Meeker / p. 7	Same comments as Mike Neumann (*Dee Weiss*)	See response to comment L12-O-2.
N3-O-1	Meeker / pp. 7-8	Commentor wants to know if the pipeline is the result of current increases in oil and gas development or if the pipeline is the cause of future oil field development. (*Luke Schafer – Colorado Wilderness Network*)	The increasing nationwide demand for clean-burning natural gas has been the primary driving force behind the growing level of exploration and development in the Rocky Mountain region during the last several years. As existing pipeline systems have filled to capacity, new systems are proposed to accommodate the pace of development. We believe that the Entrega Pipeline Project is a response to current and projected development activities, not the cause.
P4-O-1	Meeker / p. 10	Commenter would like to know when the comment period ends. (*Anthony Weiss*)	The comment period for the Entrega draft EIS closed on April 18, 2005.

Table 6-2
Written Public Comment Letters

Federal Agencies
F-1 U.S. Department of the Interior – Bureau of Land Management; Fish and Wildlife Service
F-2 Department of the Army, Corps of Engineers, Sacramento District
F-3 U.S. Department of Commerce, National Oceanic and Atmospheric Administration
F-4 U.S. Environmental Protection Agency, Region 8

State Agencies
S-1 Wyoming Game and Fish Department

Local Governments
L-1 Saratoga-Encampment-Rawlins Conservation District
L-2 City of Cheyenne – Belvoir Ranch
L-3 Carbon County Commissioner – Aptlin Zeiger
L-4 Medicine Bow Conservation District
L-5 Sweetwater Economic Development Association
L-6 Moffat County Commissioners

Industry
I-1 Entrega Gas Pipeline Inc.
I-2 Petroleum Association of Wyoming

Non-Government Organizations
N-1 Wyoming Outdoor Council

Private Individuals
P-1 LeBeau Family Limited Partnership
P-2 Weaver Ranch

Letter F-1

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
Post Office Box 25007 (D-108)
Denver, Colorado 80225-0007

TAKE PRIDE IN AMERICA

April 15, 2005

ER 05/184

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

REFERENCE: OEP/DEER/Gas Group 1; Entrega Gas Pipeline Inc; Docket Nos. CP04-413-000, et.al.; BLM Reference No. WYW-158830

Dear Ms. Salas:

The Department of the Interior (Department) has reviewed Draft Environmental Impact Statement (DEIS) for the Entrega Pipeline Project (EPP), FERC/EIS-0175D, and offers the following comments.

GENERAL COMMENTS

As you are aware, the Bureau of Land Management (BLM) requested cooperating agency status and is participating with the Federal Energy Regulator Commission (FERC) in accordance with the terms of the Interagency Agreement (Agreement) on Early Coordination of Required Environmental and Historic Preservation Reviews Conducted in Conjunction with the Issuance of Authorizations to Construct and Operate Interstate Natural Gas Pipelines Certified by the Federal Energy Regulatory Commission, dated May 2002. Based on the Agreement, BLM has played an active role with FERC scoping issues and recommending routing alternatives. The U.S. Fish and Wildlife Service (USFWS) provided scoping comments for the subject project on June 15, 2004. BLM reviewed a preliminary Administrative DEIS prior to the release of the DEIS so that many of their initial concerns and comments have already been included in the analysis. Because both BLM and USFWS intend to adopt the Final EIS (FEIS) for their interrelated decisions, it is important that the document be fully adequate for their decisionmaking as well as FERC's. The following comments are directed to achieving that objective.

6-10

Letter F-1 Continued

Noise Impacts

Noise attributable to operations of compressor stations is a concern that has not been sufficiently addressed in the DEIS. This is particularly the case for noise attributable to the Big Hole compressor station in Moffat County, Colorado which is stated in section 3.6.2 to be 82 decibels (dBA) at the station fence. Noise levels of this magnitude could have significant impacts to sage grouse, other nesting bird species, and to recreational users on adjoining public land.

Entrega did not measure the current ambient noise levels at any of the three proposed compressor stations. The proposed Big Hole site is remote, and with the exception of vehicles traveling along CR 7, has limited human activity. Other projects have estimated that day-night existing ambient noise levels on similar rural public land sites range between 35 to 40 dBA.. Typical noise levels in more developed suburban sites range from 40 to 50 dBA. Noise impacts in rural areas on public land are predominantly natural, including insects, birds, wind and weather. Roadway traffic also contributes to overall levels. At Big Hole, with the exception of short term influences from traffic, existing noise levels (35dBA to 40dBA) are likely less than half what Entrega estimates will be created at the compressor site boundary (82dBA). The Meeker Hub compressor station is located next to one existing natural gas compressor station and along a heavily traveled paved road. Wamsutter compressor station is located adjacent to I-80 where ambient background noises are expected to be somewhat higher.

F1-1 FERC has established an operational noise limit of 55 dBA measured at the nearest noise-sensitive area (NSA). For the purpose of this analysis, the NSA was determined to be the closest residence to the noise source. Using FERC's guideline, if the closest NSA were many miles from a proposed compressor facility, FERC would likely place no limitations on noise emissions because the sound would theoretically diminish by the time it reached the NSA. We find this approach lacking when considering noise impacts to public lands, and believe that 82 dBA will have adverse affects to recreational users such as hunters on the public land adjoining the compressor site. Loud noise emissions negatively affect wildlife species causing wildlife in the area to be displaced or to relocate. We agree with the assessment of wildlife impacts for sage grouse in that noise from the Big Hole Compressor would likely affect at least 2000 acres of nesting and brood rearing habitat within one mile of the facility. However, the DEIS contains no recommended mitigation measures reducing noise levels because the nearest NSA is over 1.5 miles from the Big Hole compressor site.

At Big Hole, we recommend mitigation measures requiring Entrega to perform ambient background noise studies measured at the closest BLM boundary to the compressor station (consider public land the NSA). We also recommend mitigation reducing continuous noise levels to the 45 dBA range or less to protect wildlife habitat surrounding the Big Hole Compressor. This limit would be consistent with thresholds suggested to minimize impacts to nesting birds by sources cited in the DEIS. We further recommend that Entrega perform similar ambient background noise studies at Meeker Hub and Wamsutter and design those compressor facilities so as not to increase the noise level beyond what currently exists at each site.

Responses to Letter F-1

F1-1 Dept of Interior Noise at compressor stations

Existing noise levels were measured at NSA's in the vicinity of each of the compressor stations (see DEIS table 3.10-3). In response to concerns over compressor station noise impacts on BLM recreational land and sage grouse habitat, Entrega has agreed to implement the following measures relative to its proposed Bighole Compressor Station: (a) measure ambient background noise, and (b) limit noise attributable to compressor station operation to 55 dBA Ldn at the property line. See revisions to the text of section 3.10.2 and revised noise recommendations.

Letter F-1 Continued

Night Lighting

F1-2 The Department is also concerned about light pollution at Entrega's compressor facilities, particularly at the Big Hole facility where there are no current facilities. We recommend visual mitigation measures for all compressor stations requiring that external facility lighting be installed with motion sensors. Further, all external lighting would be low shield lighting so as not to be observed from surrounding areas. These measures would minimize lighting impacts to wildlife and to the public traveling near the compressor stations.

Water Resources

F1-3 The analysis of impacts on water resources does not contain information on estimated quantities of water that would be used for fugitive dust suppression during construction of the Entrega pipeline. Further, Entrega has not specified the sources of water that would be used to accomplish dust control activities. We recommend that Entrega be required to prepare a plan estimating both volumes of water required for dust suppression and the sources for this water. As in the case of water withdrawals for hydrostatic testing, any water needed for dust suppression obtained from surface water sources could have direct impacts to fisheries, and water depletions need to be addressed in the FEIS.

Endangered Species

F1-4 Although FERC is the lead agency consulting with the FWS on T&E species, all species on the FWS lists of T&E species need to be addressed in this document to satisfy consultation requirements since the DEIS is being used as the Biological Assessment. Even if there may be no chance of a species existing within the project area, the DEIS needs to contain disclaimer statements explaining why a species did not need to be considered further.

F1-5 We are concerned with FERC's "may affect" determination for bald eagles. The DEIS does not contain specific information on which trees will be damaged or removed from construction activities in bald eagle roosting habitat. When potential bald eagle roosting trees are removed, we believe this is an "adverse affect" that will have to be mitigated. In order to avoid an "adverse affect", Entrega needs to specify which roosting trees will be removed. Once these trees are identified, Entrega may be able to mitigate for this loss by placing artificial roosting structures in place before the next roosting season.

F1-6 Habitats, species composition, and species status pursuant to the Endangered Species Act (ESA) vary considerably over the 327.5 mile corridor. The affected lands are variously managed by state, Federal and private entities in western Colorado and southern Wyoming. As such, to ensure a streamlined review, FERC and their non-federal representatives should continue to work with the USFWS in developing site-specific surveys, impact minimization measures, and conservation measures for all USFWS resources, including those listed pursuant to the ESA. FERC should incorporate avoidance and minimization measures into the project design for the conservation of these environmental resources. If any portion of the proposed project may affect a listed species, consultation with the USFWS pursuant to section 7(a)(2) of the ESA will be required.

Responses to Letter F-1

F1-2 Dept of Interior Night Lighting

Entrega has committed to using motion sensors at its compressor stations and to using shielding on lights.

F1-3 Dept of Interior Water for dust suppression

Section 3.3.2 has been revised to discuss water impacts from dust suppression. Entrega's plan is to purchase water from private sources and there would be no surface water withdrawals.

F1-4 Dept of Interior Include all T&E species in analysis

Please see section 3.6 of the EIS and appendix O for special status species including federally listed species that were eliminated from further detailed analysis based on the lack of suitable habitat along the project route or that the species is not known to occur within the project area.

F1-5 Dept of Interior Bald eagle "may affect" finding

Please see the FERC's recommendation within section 3.6.3 that would not allow the removal of a potential bald eagle roost tree until specific justification and any further consultation with the FWS has been completed.

F1-6 Dept of Interior Coordinate with FWS

The FERC will continue to consult with the FWS in order to prevent or minimize impacts to special status species.

Letter F-1 Continued

F1-7 F1-8 F1-9 F1-10 F1-11

Based on their review of the DEIS, the USFWS has identified additional information that would be necessary in order to complete section 7 consultation for this project, including: (1) complete analysis of Platte River species that may be affected by depletions to the North Platte River; (2) commitment to horizontal directional drilling for all river crossings where possible and clarification of effects to Colorado River species if river crossing occurs in designated critical habitat; (3) documentation of permits required for live trapping of listed species (e.g., Preble's Meadow Jumping Mouse); (4) a more in-depth discussion of how stated conservation measures would avoid take of the Preble's Meadow Jumping Mouse where presence has been determined within the ROW; and (5) clarification of how bald eagle nests would be provided protection outside of the stated February 15 to August 15 dates for early or late nesting birds.

F1-12 F1-13 F1-14

Additional information that the USFWS has requested to ensure protection of fish and wildlife resources includes: (1) a discussion of why boring under Preble's meadow jumping mouse habitat is not feasible; (2) a commitment to ensure that the status of burrowing owls within the project area is determined through appropriate surveys for this species; (3) a commitment to protect important habitats of migratory birds (e.g., leaving root systems and seed banks intact within the ROW).

If the scope of the project is changed or the project is modified in a manner that FERC determines may affect a listed species, the USFWS Cheyenne Ecological Services Field Office should be contacted to discuss consultation requirements pursuant to ESA section 7(a)(2).

State Wildlife Management Areas

F1-15

The FEIS should note that the Piceance State Wildlife Area (SWA) in Rio Blanco County, Colorado was purchased to provide hunting opportunities and winter range for deer and elk by the Colorado Division of Wildlife (CDOW), and that the Wick/Beumee Wildlife Habitat Management Area (WHMA) in Carbon County, Wyoming was purchased for elk management by the Wyoming Game and Fish Department (WGFD), both with Federal Aid in Wildlife Restoration Act grant funds. The CDOW and WGFD will need to obtain the approval of the Regional Director, Region 6, USFWS, through grant amendments, prior to their approval of easements for the construction of the pipeline through these areas.

F1-16

In addition, the FEIS should be modified to include a detailed description of the affected resources, including federally-listed and candidate species, which occur at the Piceance SWA; impacts on the affected resources; and list the measures, including alternative routes, which could or will be utilized to avoid, minimize, and mitigate impacts to affected resources at the both the Piceance SWA and the Wick/Beumee WHMA.

SPECIFIC COMMENTS

F1-17

1. Executive Summary, Project Impacts: Paragraph 5, Line 4: This sentence should be revised in the FEIS to state that with the exception of compressor stations and certain above ground facilities, all of the 5,064 acres of land disturbed by construction would be reclaimed and restored and former uses would continue to occur on the ROW. On

Responses to Letter F-1

F1-7 Dept of Interior Analysis of N. Platte River species

Appendix O was revised to indicate that the Platte River federally listed species (i.e., bald eagle, whooping crane, piping plover, Eskimo curlew, interior least tern, pallid sturgeon, and western fringed orchid) are not eliminated from further detailed analysis based on potential effects from water withdrawals within the Platte River Drainage. The text also was revised to include analysis of impacts to Platte River Threatened and Endangered Species from water withdrawals within the Platte River Drainage (section 3.6.1).

F1-8 Dept of Interior HDD all river crossings and clarify Colorado R. impacts

We do not agree that a project's typical approach should be to directionally drill or bore all waterbodies. Other crossing methods, such as open cutting (which is often the fastest method), or dry-ditch methods such as fluming or dam-and-pump, may be preferred, given site-specific conditions and concerns. Our *Procedures*, upon which Entrega has based its waterbody crossing plans, were developed using measures that would help minimize in-stream and bank impacts for various crossing methods.

We agree that a horizontal direction drill (HDD) or bore may be preferred in certain circumstances. Entrega has proposed to cross the Yampa and White Rivers with an HDD, thus avoiding or minimizing instream impacts. Further, our recommendation in section 3.6.3 would ensure that Entrega could not deviate from its proposed HDD crossing of the White and Yampa Rivers without providing site-specific justification and receiving written approval from the Director of OEP. This additional step would allow us to complete any further Section 7 consultation brought about by a non-HDD crossing.

F1-9 Dept of Interior Live trapping permit for Preble's meadow jumping mouse

The text has been revised. See section 3.6.3 of the FEIS.

F1-10 Dept of Interior How measures avoid take of Preble's meadow jumping mouse

Entrega will follow the survey plan and conservation measures plan that have been reviewed and approved by the FWS. Conservation measures were designed to prevent or minimize impacts to special status species.

F1-11 Dept of Interior Protect bald eagle nests outside of closure period dates

Preconstruction surveys to identify active nesting bald eagles will be conducted in accordance with the Entrega's approved Special Status Species Survey Plan. Bald eagle nests would be monitored to ensure protection of late nesting eagles in accordance with Entrega's Conservation Measure Plans (appendix O).

F1-12 Dept of Interior Why not bore Preble habitat

See response to comment F1-10.

F1-13 Dept of Interior Survey for burrowing owls

Entrega will follow survey plans and conservation measures plan that have been reviewed and approved by the FWS and BLM.

Responses to Letter F-1

F1-14 Dept of Interior **Protect important habitats of migratory birds**

As discussed in the Draft EIS, several plans have been developed that would reduce the extent and duration of impacts on habitats along the project ROW, which includes Entrega's Procedures, Entrega's Construction, Mitigation, and Reclamation Plan (CM&R Plan), and the Riparian Woodland Plan. These plans would actively and naturally allow a majority of the construction ROW to return to preconstruction conditions. As indicated in the CM&R Plan, Entrega will implement general and site-specific restoration measures that would maximize restoration measures (e.g., preservation of topsoil, native seed sources, and root stock). See also response to comment F1-42.

F1-15 Dept of Interior **Note that Piceance SWA and Wick/Beumee WHMA were purchased for hunting and big game**

Text in section 3.5.2 has been revised to reflect the purpose of these areas. Approval of the Regional Director would need to be obtained by Entrega through the easement agreements that would be negotiated with the CDOW and WGFD.

F1-16 Dept of Interior **Identify sensitive species and impacts in Piceance SWA and Wick/Beumee WHMA**

Text was revised to describe affected resources (e.g., special status species) that occur at the Piceance SWA and Wick/Beumee WHMA.

F1-17 Dept of Interior **Revise/expand text – acres impacted**

The text has been revised. See Executive Summary.

Letter F-1 Continued

F1-17 Federal land, the ROW would continue to be used for livestock grazing, wildlife habitat and other uses that would not interfere with the operation of the pipeline.

2. Executive Summary, Special Status Species: FERC requests that the USFWS consider the DEIS as the Biological Assessment (BA) for the proposed project, although a request for concurrence or to initiate formal consultation was not included. Based on their review of the DEIS, additional information would be necessary in order to complete ESA section 7 consultation, including: (1) complete analysis of Platte River species that may be affected by depletions to the North Platte River; (2) commitment to horizontal directional drilling for all river crossings where possible and clarification of effects to Colorado River species if river crossing occurs in designated critical habitat; (3) documentation of permits required for live trapping of listed species (e.g., Preble's Meadow Jumping Mouse); (4) a more in-depth discussion of how stated conservation measures would avoid take of the Preble's Meadow Jumping Mouse where presence has been determined within the right-of-way (ROW); (5) clarification of how bald eagle nests would be provided protection outside of the stated February 15 to August 15 dates for early or late nesting birds; and (6) clarification of how a 0.5-mile buffer would provide adequate protection for bald eagle roosts.

F1-18

F1-19

F1-20 3. Executive Summary, Socioeconomics and Transportation: Revise text in FEIS to state there would be two spreads between Greasewood Hub and Wamsutter Compressor station and two spreads between Wamsutter Compressor Station and Cheyenne Hub.

4. Section 2.1.1, Pipeline Facilities: The DEIS states that the project proponent (Entrega) is considering the use of a higher grade pipe that would allow for a reduction of the pipe wall thickness while still meeting Federal safety standards. FERC should require that any pipe selected meet or exceed the standard for water crossings to ensure that leakages are avoided. In addition, FERC should consider requiring emergency shutoff valves at river crossings (e.g., White River and Yampa River) where condensate may exceed acute toxicity levels, especially in areas of designated critical habitat for endangered Colorado River fishes (see enclosed information regarding areas of designated critical habitat for Colorado River fishes).

F1-21

F1-22

F1-23 In potential spawning habitat for Colorado River fishes (e.g., backwater areas), the project proponent should assess the risk of bank destabilization or increased sedimentation resulting from this project. For sites where habitat loss is a risk, remedial actions (e.g., limit vehicle use, restore bank stability, noxious vegetation control) should be implemented to ensure that habitat suitability is maintained or enhanced.

F1-24 Any actions that effect critical habitat or other occupied habitat of Colorado River fishes (e.g., White River and Yampa River crossings) should only occur from October to March. This would minimize effects to fish during the pre-spawning (May to June) and spawning periods (July to September). Also any modifications to river backwater areas should be returned to previous contour.

Responses to Letter F-1

F1-18 Dept of Interior EIS as the BA

See responses to comments F1-7 through F1-11.
FERC will include a cover letter summarizing the effect determinations of federally listed species and official request for concurrence and formal consultation, as necessary.

F1-19 Dept of Interior Clarify how 0.5 mile buffer protects bald eagle roosts

Based on the May 11, 2005 letter from the FWS, the FERC has recommended that protective measures for raptors including bald eagle will follow the Colorado Division of Wildlife's (CDOW) Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors (Craig 2002) in Colorado and the Wyoming FWS protection measures for raptors (including bald eagle) in Wyoming. As a result, a 0.25 buffer zone for roosting eagles will be applied in Colorado and a 1 mile buffer zone for roosting eagles will be applied in Wyoming.

F1-20 Dept of Interior Revise text – construction spreads

Text has been revised. See Executive Summary.

F1-21 Dept of Interior FERC should require certain pipe at water crossings

DOT regulations at Part 192 govern the design, construction, and operation of natural gas pipelines. These regulations dictate pipe wall thickness based on a number of factors. The pipeline would be required to meet or exceed current DOT standards.

F1-22 Dept of Interior FERC should consider emergency shutoff valves at river crossings

There are several reasons why emergency shut-off valves at river crossings are not necessary. First, the natural gas transported by the pipeline would be dry, processed gas; the amount of condensate would be negligible. Secondly, the pipeline would be cleaned (pigged) routinely. If condensate is present, this process would remove it from the pipe. Third, even under low water flow conditions, the amount of condensate anticipated to be in the pipeline would be insufficient to cause acute toxicity to aquatic organisms. Fourth, if a leak occurred, the material would need to penetrate the thick layer of overlying streambed material. To achieve this, it would likely require a major rupture of the pipeline, which would cause any condensate to be expelled along with the natural gas, and, again, would not pose a toxicological threat to the environment. Finally, while the installation of a valve at the river crossing would stop the flow of natural gas entering the affected area if a rupture occurred, it would have no affect on limiting the condensate that, if present, would be located at the lowest point on the river crossing. For all the above reasons, we believe that there is no reason to require emergency shut-off valves at river crossings.

F1-23 Dept of Interior Bank stability for fish

Restrictions on activities in the vicinity of waterbodies are discussed in section 3.3.2, and Entrega's approaches to these considerations are presented in appendices F and I. Appendix I has been revised to depict current plans.

Responses to Letter F-1

F1-24 Dept of Interior Timing restrictions

Entrega's commitment to cross the White and Yampa Rivers with an HDD would avoid direct effects to critical or occupied habitat at these locations. As such, seasonal timing restrictions are not necessary.

Letter F-1 Continued

F1-25

5. Section 2.2.1, Pipeline ROW: All ROW areas should only be cleared and graded to the extent necessary for safe construction of the facility. As an alternative to completely scalping a site (grading all topsoil and vegetation), root systems and seed banks of natural vegetation should be left intact in order to expedite the reclamation process and reduce the invasion of non-native species.

F1-26

6. Section 2.2.1, Table 2.2-1: This table contains 15 acres of land for lateral lines in CO and 7 acres for lateral lines on WY. A footnote should be added stating what these lateral lines will do. Lateral lines are not found elsewhere in the applicants proposed action except on Figures 2.3-3 to 2.3-7. These lines need to be described and their location and function specified.

F1-27

7. Section 2.3.1, General Pipeline Construction Procedures, Waterbody Crossing: FERC should require horizontal directional drilling (HDD), or boring under all waterbodies, especially those that may contain habitat for listed or proposed species. Justification should be provided in circumstances where HDD is not required.

F1-28

8. Section 2.3.2, Special Construction Procedures, Blasting: In areas where blasting is proposed, blasting effects to nesting birds should be analyzed (including modification to protective buffers). FERC should contact the USFWS Ecological Field Office in Cheyenne for guidance on protective buffers in areas where blasting may occur.

F1-29

9. Section 2.3.3, Aboveground Facility Construction Procedures: Please refer to comment 5, above, regarding alternatives to scalping the ROW.

F1-30

10. Section 2.3.3, Aboveground Facility Construction Procedures, Paragraph 4: The DEIS states that each compressor station will require electricity and telephone facilities which are referenced in Table 2.3-1. To minimize electrocutions to raptors, all above ground power and/or telephone lines should be constructed pursuant to the Suggested Practices for Raptor Protection on Power Lines-The State of the Art in 1996 (published by the Edison Electric Institute/Raptor Research Foundation).

F1-31

11. Section 2.5.1, Environmental Inspection: The DEIS states that at least two environmental inspectors (EIs) will be assigned to each individual construction spread. EIs will oversee cultural resource monitors and/or biological monitors that may be required to monitor and evaluate construction impacts on resources as specified. When biological monitors are not present, the EIs should be sufficiently qualified to evaluate construction impacts on fish and wildlife resources. These qualifications should include knowledge of the ecology of the particular species that may be observed within the action area.

F1-32

12. Section 2.6.1 ROW Monitoring and Maintenance: The DEIS states that in order to maintain accessibility along the ROW, it will be periodically cleared of vegetation and obstacles. Please refer to comment 5, above, regarding alternatives to scalping the ROW. Leaving roots systems and seed banks intact may expedite reclamation and reduce non-native vegetation from invading the ROW.

Responses to Letter F-1

F1-25 Dept of Interior ROW Clearing procedure – Scalping

Section 2.3.1 states that "where the ground is relatively flat and does not require grading, rootstock would be left in the ground." Retaining existing topsoil, shrub roots, and seed bank on the working (pipelaying equipment) side is the standard construction method wherever possible for the entire project. Areas where this method cannot be applied include steep side slopes, where all soil will be stripped and stockpiled. Another exception to minimum grading on the working side is under working conditions when there is a risk of excessive rutting, or loss of pulverized soil from wind erosion (See appendix G, page 2).

F1-26 Dept of Interior Lateral line purpose

Lateral lines are associated with interconnections. These interconnections are discussed in section 2.1.2. The text has been clarified.

F1-27 Dept of Interior HDD at all crossings

See response to comment F1-8.

F1-28 Dept of Interior Blasting effects on birds

Entrega has committed to consulting with the FWS to develop mitigation measures to avoid or minimize blasting impacts to nesting birds. A recommendation has been added that Entrega should file its FWS consultation with FERC prior to any blasting.

F1-29 Dept of Interior Scalping ROW

See response to comment F1-25.

F1-30 Dept of Interior Raptor protection for power lines

Entrega has committed to minimizing potential collision and electrocution impacts to migrating and foraging bird species (project wide) by implementing APLIC 1996 and 1994 standard practices. The text includes information regarding Entrega's commitments and protection measures that will be followed by the electrical service provider to minimize potential collision and electrocution impacts to migrating and foraging bird species project wide.

F1-31 Dept of Interior Qualifications of EIs

Text will be revised to indicate "EIs would be sufficiently qualified to evaluate construction impacts on fish and wildlife resource when biological monitors are not present. These qualifications would include knowledge of the ecology of the particular species that may be observed within the project area."

F1-32 Dept of Interior Scalping of ROW

See response to comment F1-25.

Letter F-1 Continued

F1-33 13. Table 2.8-1: In the FEIS add: Under the BLM permit column, 'Paleontological Resources Use Permit' . Under the Agency Action column, add 'Consider issuance of palcontological permit to excavate or remove significant paleontological resources on public lands.' similar to the archeological permit notation.

F1-34 14. Section 3.1.4 Paleontological Resources, p. 3-15 last paragraph: When it is necessary to reopen a trench for maintenance to the pipe the area opened up is considerably wider - up to five feet either side of the pipeline, - than thc original trench to allow worker access to work on the pipe. This could adversely affect Paleontological condition I formations and thc fossils that may be contained therein. We recommend monitoring of these areas during maintenance activities requiring excavation of the pipeline.

F1-35 15. Section 3.3.1 Groundwater: Thc DEIS states that blasting would likely be required along segments of the pipeline and discusses measures that would be implemented to reduce impacts to groundwater and the surrounding communities. Please refer to comment 10, above, regarding blasting in sensitive wildlife habitats and during the nesting season.

F1-36 16. Section 3.3.1 Groundwater, Page 3-31: The DEIS states that procedures require that refueling activities and hazardous material storage occur at least 100 feet from a wetland, waterbody, or designated municipal watershed. However, the DEIS also states that the BLM recommends that these activities occur at least 500 feet from such resources. A 500-foot setback from wetlands and riparian areas or other sensitive resources should be required to avoid contamination or degradation of such resources.

F1-37 17. Section 3.3.2 Surface Water , Site-Specific Waterbody Crossing Plan: The DEIS discusses concern for the lack of information regarding portions of the plan and the need for justification of certain workspaces. The USFWS looks forward to the revised waterbody plan. Please refer to our previous comments regarding critical habitat for Colorado River fishes. The location of critical habitat should be should be considered during the planning process.

F1-38 18. Section 3.4.1, Vegetation Communities: The DEIS states that the majority of the project area is encompassed by grass and shrub communities. It describes the Construction, Mitigation and Reclamation Plan to stabilizc and reseed areas. Alternative methods, as described in our previous comments, should be used to expedite the reclamation process and ensure native vegetation remains dominant within the ROW.

F1-39 19. Section 3.5.1, Fishery Resources, Paragraph 8: The DEIS states that clearing and grading vegetation within the construction ROW and additional temporary workspaces would increase erosion along streambanks and turbidity levels in waterbodies; however, these impacts would only be temporary and relatively minor due to the limited amount of total stream bank area. Additionally, please refer to previous comments regarding complete scalping (clearing) of areas required for this project.

F1-40 20. Section 3.5.2, Wildlife Resources: The DEIS states that habitat fragmentation is frequently a concern when clearing ROWs; however, fragmentation is not expected as

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F1-33 Dept of Interior Add Paleo Resource Permit to table

The table has been modified to include this permit.

F1-34 Dept of Interior Monitoring for paleo during monitoring

While reopening of the trench for maintenance activities would not be anticipated at most locations for a number of years, Entrega has committed to paleontological monitoring in areas where maintenance activities require trenching that would be wider than the original trench.

F1-35 Dept of Interior Blasting effects on wildlife

Entrega would minimize potential blasting impacts on wildlife by adhering to sensitive big game habitat timing restrictions and constructing a portion of the project outside of sensitive breeding periods for bird species. Also please see response to comment F1-28 regarding Entrega's commitment to develop mitigation measures that would avoid or minimize blasting impacts to nesting birds, in consultation with to FWS.

F1-36 Dept of Interior 100 vs 500 ft setback

BLM recommended that Entrega restrict refueling, lubricating and hazardous material storage to at least 500 feet away for the edge of any stream, wetland, ditch or other water body or municipal watershed, unless written approval from the BLM is received. Since commenting, BLM has agreed that Entrega must ensure that all equipment is parked overnight and or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland on federal land, provided that hazardous material storage remains 500 feet back from these areas. Entrega would be required to provide a detailed plan to the BLM disclosing the types and quantities of materials to be stored and the spill prevention and containment measures in place for any hazardous material storage site on federal land.

F1-37 Dept of Interior Lack of information in waterbody crossing plan

See response to comment F1-8 and F1-24 regarding waterbody crossing within critical habitat for Colorado River fishes. – Section 3.3.2 has been updated to include supplemental information provided by Entrega and the new plans have been presented in appendix J.

F1-38 Dept of Interior Scalping of ROW

See response to comment F1-25.

F1-39 Dept of Interior Streambank stabilization and scalping of ROW

See response to comment F1-14, F1-23, and F1-25.

F1-40 Dept of Interior Habitat fragmentation

Entrega's co-location of ROW in many areas, a reduction of ROW width in woodland areas, and post-construction restoration and reclamation of habitat are examples of practices that would minimize effect from habitat fragmentation. Several plans have been developed that would reduce the extent and duration of impacts on habitats along the project ROW include Entrega's Procedures, CM&R Plan, and the Riparian Woodland Plan. These plans would actively and naturally allow a majority of the construction ROW to return to preconstruction conditions.

Letter F-1 Continued

F1-40 the Entrega pipeline would be built in or would overlap an existing ROW. The USFWS commends FERC for using an existing ROW for this project. However, the cumulative expansion of the continuously cleared ROW may result in increased negative effects to wildlife. Therefore, FERC should: (1) minimize the ROW width wherever possible, especially in important wildlife habitats; (2) avoid completely scalping vegetation from the ROW (i.e., leave root systems, seed banks and vegetation patches intact); and (3) although human safety is paramount along ROWs, wherever possible, have maintenance vehicles travel over vegetation along two-track roads as an alternative to completely clearing the ROW. In addition, the FEIS should specify the acres that are adjacent to an existing pipeline versus the number of acres that would be new disturbance in order to accurately determine and quantify new habitat fragmentation effects.

F1-41 21. Section 3.5.2, Wildlife Resources, Raptors and other Migratory Birds: The DEIS states that raptor surveys were conducted in April-May 2004, but did not concentrate on cavity nesters and subterranean nesters. The DEIS states that surveys for these species would be conducted during habitat surveys for mountain plovers, prairie dogs and black-footed ferrets. Please ensure that surveys that are meant to capture cavity and subterranean nesters coincide with the period when nests would be most visible.

F1-42 22. Section 3.5.2, Wildlife Resources, Raptors and other Migratory Birds: The DEIS states that the construction schedule would overlap with the breeding season thus causing direct and indirect effects to raptors and migratory birds with the greatest chance for "take" occurring for ground-nesting and shrub–nesting species. The DEIS also indicates that there would be no long-term effects from this project to non-sensitive bird species due to their population stability and abundance of available habitat outside of the ROW. Although local populations may be stable as you have indicated and take of individuals from this project may not result in appreciable declines, we remind you that take of any migratory bird is prohibited under the Migratory Bird Treaty Act (MBTA). The project plan should include specific measures to avoid take of migratory birds, including: (1) Working outside of the nesting season in grassland and shrub habitats important to migratory birds; (2) conducting habitat surveys for species known to occur in the area and reducing ROW width and vegetation removal in those areas; (3) maintaining root systems and seed banks of native vegetation within the ROW to expedite repair of nesting and/or foraging habitats.

F1-43 Finally, this section should list the amount (acres) and type(s) of habitat that will be removed/modified (e.g., mature pinyon-juniper, immature pinyon-juniper, sage, oak) by the construction of this pipeline. This information is necessary to assess impacts of construction on migratory bird species. For example, what percent of habitat(s) will be removed compared with what is available.

F1-44 23. Section 3.6.1, Plant Species: The DEIS states that six plant species were removed from detailed analysis based on the unlikelihood of occurrence within the project area. One of those species is the western prairie fringed orchid (Platanthera praeclara) which is one of seven species that may be affected by depletions to the North Platte River Basin. According to Table 3.3-3, water for hydrostatic testing may be taken from the North

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F1-41 Dept of Interior Cavity and subterranean nester surveys

Based on Entrega's proposed construction schedule, Segments 3 and 4 of the project (MPs 135.5 to 327) would be constructed during the raptor breeding season. As such, raptor survey will be conducted for cavity and subterranean nesters during periods when the nests, or activity at these nests, would be most visible. For specifics, please see the survey plans and Conservation Measure Plans that were approved by the FWS and BLM (appendix O). Also, please see response to comment F1-19.

F1-42 Dept of Interior Take of MBTA species

The FERC is aware of and gives serious consideration to the provisions of the Migratory Bird Treaty Act. As indicated in section 3.5, we have used Executive Order (EO) 13186 as a guide for strategies to avoid take of migratory birds to the greatest extent practicable. As stated in the EO, we have focused our analysis on species of concern, priority habitats, and key risk factors while at the same time developing principles, standards, and practices in order to lessen the amount of unintentional take. The EO also charges federal agencies to identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations. This is also discussed in section 3.5.

Entrega's co-location of ROW in many areas, a reduction of ROW width in woodland areas, adherence buffer zones around raptor nests, and post-construction restoration and reclamation of habitat are examples of practices that would minimize disruption of migratory birds and their habitats. Entrega would maintain root systems as much as possible, and topsoil segregation would help maintain seed banks of native vegetation within the ROW. See also response to comment F1-14.

Also, Entrega developed its survey plans and conservation measures with the input of the FWS. In its approval of Entrega's Special Status Species Survey Plan on June 23, 2004, the FWS stated that the plan "meets with the [FWS'] recommendations for determining presence/absence of…migratory birds." See also response to comment F1-19.

We note that Entrega's proposed schedule for 2005-2006 indicates that construction would start in July 2005. However, given the status of the NEPA review and overall time frame (which would involve the time associated with the Commission's deliberations on Entrega's request for a Certificate and our review and approval of an Implementation Plan filed subsequent to any Certificate issued **prior** to the authorization of any construction), we estimate that construction could not commence before fall at the earliest. This would largely avoid the migratory bird nesting season. In addition, we have added a recommendation that Entrega conduct pre-construction clearing of suitable habitat for shrub-nesting species for the proposed 2006 construction. Such clearing would be done prior to the migratory bird nesting season, thus making the cleared areas unattractive to would-be nesters and avoiding destruction of active nests during actual construction.

Because of these measures, we have concluded that the Entrega Pipeline Project would not likely cause long-term or significant population-level effects to migratory birds.

F1-43 Dept of Interior Acres of habitat

The text has been revised regarding acres of habitat that would be removed for migratory bird species.

Letter F-1 Continued

F1-44 Platte River in Rawlins Wyoming. Therefore, your analysis should include effects to Platte River species. (See also comment number 28.)

F1-45 Based on the field survey forms, there were four sensitive species surveyed for and found between MP 10 and MP 11.2. However, the DEIS says these species were not found and were eliminated from detailed analysis. The four are: Astragalus detritalis, Gilia stenthysra, Lesquerella parviflora, and Oreocarya rollinsii. One or more of these species should have been carried forward into the analysis unless the survey form is in error. The FEIS needs to clearly describe which plants occur in this area.

F1-46 24. Section 3.6.1, Plant Species, Federally Listed Plants: The DEIS states that Dudley Bluffs twinpod (*Physaria obcordata*) was identified adjacent to, but outside of the project ROW. To clarify the distance from the project area to the plant that was identified (regarding potential disturbance to the plant or its habitat), we reviewed the 2004 Entrega Species Survey Report. According to that report (Special Status Plant Species, page 7, Figure 1) the single plant was located 200-feet east and on the opposite side of a highway from the project ROW. Based on the available suitable habitat within the ROW, we agree that pre-construction surveys should be conducted and the results presented to the USFWS prior to construction. Additionally, the final EIS should include an overall map of the surveyed area with legal descriptions.

F1-47 25. Section 3.6.2, Terrestrial Animal Species: The DEIS states that seven of 28 terrestrial species were removed from detailed analysis based on the unlikelihood of occurrence within the project area. Among those seven species are the Eskimo curlew, interior least tern, whooping crane, and piping plover.

Water depletions to the Platte River system may affect not only the federally listed western prairie fringed orchid (see comment 26, above) but also the federally listed whooping crane (Grus americana), interior least tern (Sterna antillarum), piping plover (Charadrius melodus), pallid sturgeon (Scaphirhynchus albus), bald eagle (Haliaeetus leucocephalus), and Eskimo curlew (Numenius borealis). Depletions may also contribute to the destruction or adverse modification of designated critical habitat for the whooping crane and the northern Great Plains breeding population of the piping plover. Depletions include evaporative losses and/or consumptive use, often characterized as diversions from the Platte River or its tributaries reduced return flows. Project elements that could be associated with depletions to the Platte River system include, but are not limited to, ponds (detention/recreation/irrigation storage/stock watering), lakes (recreation/irrigation storage/municipal storage/power generation), reservoirs (recreation/irrigation storage/municipal storage/power generation), created or enhanced wetlands, hydrostatic testing of pipelines, wells, diversion structures, dust abatement, and water treatment facilities.

Any actions that may result in a water depletion to the Platte River system should be identified and formal ESA consultation should be initiated with the USFWS. The document should include: (1) An estimate of the amount and timing of average annual water use (both historic and new uses) and methods of arriving at such estimates; (2) the

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F1-44 Dept of Interior — Fringed orchid should be analyzed

See response to comment F1-4.

F1-45 Dept of Interior — Four species eliminated from analysis should be included

Entrega's survey forms were determined to be incorrect. No change in the EIS was necessary for these species.

F1-46 Dept of Interior — Need for Dudley Bluffs twinpod surveys

Entrega has committed to additional surveys for Dudley Bluffs twinpod in 2005. The results from 2005 surveys, including maps of the survey area and plant locations, will be provided to the BLM and FWS by FERC.

F1-47 Dept of Interior — Elimination of federally listed species located downstream on the North Platte River

See response to comment F1-4.

F1-47 location of water use or diversion as specifically as possible; (3) if and when the water will be returned to the system; and (4) purpose of the water use. Note that if the project has peculiarities or oddities, the USFWS may have more specific questions regarding the potential consumptive water use.

F1-48 26. Section 3.6.2, Terrestrial Animal Species, Federally Listed Animal Species, Black-footed Ferret: The DEIS states that there are no reintroduced populations of black-footed ferrets (*Mustela nigripes*) within the project area although the area is within the historic range of the ferret. A nonessential/experimental population of black-footed ferrets occurs within the Shirley Basin/Medicine Bow management area in southeastern Wyoming (70 FR 41473). Populations listed as non-essential/experimental remain federally-protected although additional flexibility is provided for their management under the provisions of the special regulations promulgated for this alternate status. Requirements for interagency consultation pursuant to ESA section 7 differ based on land ownership and/or management responsibility where the animals occur. On any unit of National Park System or National Wildlife Refuge System lands, species that are part of the experimental population are considered a threatened species and the full provisions of ESA section 7 apply. Additional management flexibility is provided for managing species which exist outside of the National Park or National Wildlife Refuge System (e.g., Bureau of Land Management and/or Forest Service lands). Species designated as nonessential experimental in these areas are treated as proposed rather than listed. If prairie dog towns near the reintroduction area may be affected by this project, the USFWS Cheyenne Ecological Services Field Office should be contacted so that we may work together to ensure protection of the reintroduced ferret population.

F1-49 The DEIS states that white-tailed prairie dog towns meeting 200 acres and 8 burrows per acre require surveys for black-footed ferrets. The final EIS should mention that, in Wyoming, the USFWS has made the decision to block-clear all black-tailed prairie dog towns and several white-tailed prairie dog towns (letter of February 2, 2004, enclosed). If white-tailed prairie dog towns or complexes greater than 200 acres would be disturbed, surveys for ferrets may be recommended in order to determine if the action would result in an adverse effect to black-footed ferrets. Surveys are recommended even if only a portion of the white-tailed prairie dog town or complex, as identified in the enclosed February 2004, letter, would be disturbed. According to the Black-Footed Ferret Survey Guidelines (USFWS 1989), a prairie dog complex consists of two or more neighboring prairie dog towns less than 7 km (4.3 miles) from each other. If a field check indicates that prairie dog towns may be affected, you should contact the USFWS Cheyenne Ecological Services Field Office for guidance on ferret surveys.

Despite the USFWS decision to block-clear particular prairie dog towns, they continue to encourage Federal entities to protect prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them. We further encourage you to analyze potentially disturbed prairie dog towns for their value to future black-footed ferret reintroduction.

F1-48 Dept of Interior Black-footed ferret

Through personal communications with Martin Grenier of the Wyoming Game and Fish Department, the FWS does not recommend additional ferret surveys along that portion of the pipeline north of I80 and southwest of the Shirley Basin/Med Bow Management Area in Carbon County, due to the unlikelihood of these towns to support ferrets.

F1-49 Dept of Interior Prairie dogs and surveys

The text has been revised to indicate that in addition to block-clearing all black-tailed prairie dog colonies in Wyoming, the FWS also has block-cleared several white-tailed prairie dog colonies that would not require black-footed ferret surveys. Black-footed ferret surveys were conducted in all appropriate white-tailed prairie dog colonies during 2004 surveys in coordination with the FWS, and a survey report was filed with the FERC on March 17, 2005.

Letter F-1 Continued

F1-50

27. Section 3.6.2, Terrestrial Animal Species, Federally Listed Animal Species, Preble's Meadow Jumping Mouse: The DEIS states that direct impacts could occur to this species while construction activities occur within suitable habitat. It also indicates that live trapping surveys would be conducted to determine presence/absence within the project area. The DEIS does not indicate whether a permit for live trapping of a listed species has been obtained. If a permit has not been obtained we recommend you initiate a request for a "recovery permit" prior to initiating the survey. You can obtain a permit form by accessing the USFWS's website http://forms.fws.gov/ and downloading Form 3-200-55. The final EIS should include information regarding any such permit. To avoid direct impacts to Preble's meadow jumping mouse and its habitat, FERC should require boring under riparian areas where suitable habitat has been delineated. The USFWS understands that in all cases boring may not be feasible; however, if boring is determined not to be an option, written justification should be provided. Although the conservation measures indicated in the DEIS may serve to minimize effects to local Preble's populations, adverse effects may still occur to the species in habitats where Preble's is present. In the event that take of any individual may occur, you should initiate formal ESA consultation to obtain an incidental take statement.

F1-51

28. Section 3.6.2, Terrestrial Animal Species, Federally Listed Animal Species, Bald Eagle: We are concerned with FERC's "may affect" determination for bald eagles. The FEIS should contain specific information on which trees would be damaged or removed from construction activities in bald eagle roosting habitat. Although removing a roost tree during the non-roosting period may have limited effects, the construction of a ROW through or near a known roost may greatly affect bald eagle use of the area given increases in vehicle traffic and other human caused disturbances. There should be a 1-mile buffer around all bald eagle nests and roost sites where site specific information is not available. In the event that the ROW may be within 1-mile of any known roost or if roost trees are considered for removal, ESA consultation should be initiated with the USFWS Cheyenne Ecological Services Field Office so that they may work together with FERC to minimize effects to bald eagles. The USFWS should be provided site specific information (e.g., vegetation, existing disturbance, topography) during ESA consultations to better assess potential effects. Surveys for roost should be conducted during the appropriate time of the year and day to determine if roost would be affected

F1-52

29. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, White-tailed Prairie Dog: For all prairie dog towns crossed by the pipeline, please include the length (miles) of ROW that intersects the town and the number of burrows affected.

F1-53

30. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, Burrowing Owl: The DEIS states that site specific surveys for burrowing owls have not been implemented and that any observations would be by default during other species' survey efforts. The DEIS also states that burrowing owls may be impacted, but not to the level that would trend towards listing or loss of viability of the species. Burrowing owls are protected under the MBTA which prohibits take. As such, surveys that are specific to burrowing owl ecology should be conducted within and near the project area prior to

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F1-50 Dept of Interior Live trapping of Preble's meadow jumping mouse

See response to comments F1-9 and F1-10.

F1-51 Dept of Interior Bald eagle "may affect" determination

See response to comments F1-5 and F1-19.

F1-52 Dept of Interior Include prairie dog colony data

Prairie dog survey information including burrow density and mapped locations of the prairie dog colonies along the proposed ROW and ancillary facilities is provided in Entrega's 2004 survey report.

F1-53 Dept of Interior Survey for burrowing owls

See response to comment F1-13.

Letter F-1 Continued

F1-53 active construction in order to minimize potential effects. Burrowing owl active nests should be protected with a 0.5-mile disturbance-free buffer.

F1-54 31. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, Greater Sage-Grouse: The DEIS discusses the recent listing decision and measures to minimize impacts to sage-grouse (e.g., timing and spatial buffers, reclamation commitments). Although the USFWS has determined that the greater sage-grouse is unwarranted for listing at this time, we continue to have concerns regarding sage-grouse population status, trends and threats, as well as concerns for other sagebrush obligates. In Wyoming, information suggests that greater sage-grouse populations are negatively affected by energy development activities, especially those that degrade important sagebrush habitat, even when mitigative measures are implemented (Braun 1998, Lyon 2000). Greater sage-grouse populations can repopulate areas developed for resource extraction after habitat reclamation for the species (Braun 1987). However, there is no evidence that populations attain their previous levels and reestablishment of sage-grouse in a reclaimed area may take 20-30 years, or longer (Braun 1998). Therefore, this project should be carefully evaluated for long-term and cumulative effects on the greater sage-grouse. FERC should ensure this activity does not exacerbate greater sage-grouse declines on either a local, or range-wide level.

F1-55 32. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, Greater Sage-Grouse, page 3-76: The DEIS contains discrepancies in language between wording of active vs. occupied leks, and the definition of "historic" sage grouse leks. The FEIS should clarify these definitions. Also, the final sentence of the 4th paragraph of this section should be revised in the FEIS to read: "In addition, young sage-grouse could be injured or killed by construction activities in brood rearing habitat."

F1-56 33. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, Greater Sage-Grouse, p. 3-76, 2d full paragraph: There are four leks within 0.25 miles of the EPP alignment in Colorado in the Little Snake Field Office (LSFO). The LSFO land use plan recommends no surface disturbance within 0.25 miles of any active lek. These three leks have not been very active in recent years and BLM recommends that EPP follow the proposed alignment along existing pipelines with the provision that there be no surface structures allowed. No construction or surface disturbing activities would be allowed between March 1 and June 30 each year. The construction ROW width should be limited to a 75 foot width within 0.25 miles of the leks. Routing EPP closer than 40 feet from the existing pipeline would also minimize disturbance near leks. Entrega should transplant sage brush plants on 5 foot intervals back on the ROW through the 0.25 mile lek buffer to re-establish shrub cover adjoining the lek. If transplants are deemed unsuccessful during monitoring, intensify sagebrush seeding efforts. Also, instead of the wording "begin construction after June 30th", we recommend mitigation stating, "No construction between March 1st and June 30th."

F1-57 34. Section 3.6.2, Terrestrial Animal Species, BLM Sensitive Animal Species, Mountain Plover: The DEIS states that mountain plover survey procedures would be based on the USFWS' March 2002 written guidelines for large scale/long term linear projects and

Responses to Letter F-1

F1-54 Dept of Interior Effects on sage grouse

Please see Greater Sage Grouse within section 3.6.3 regarding impacts to sage grouse and its habitat. Also please see "Sage Grouse" within section 3.12 regarding cumulative impacts to sage grouse. Also see response to comment S1-13 below. In order to reduce potential habitat effects at known sage grouse leks, the FERC has recommended that Entrega reduce the ROW width to 75 feet when the ROW is within 0.25 mile of a known lek site, which would be applied throughout the project. In order to minimize potential indirect impacts to breeding and nesting sage grouse, Entrega has committed to minimizing noise effects at the Bighole Compressor Station to the FERC Standard of 55 dBA (Ldn) at the property boundary.

F1-55 Dept of Interior Revise wording for sage grouse

The text has been revised. See section 3.6.3.

F1-56 Dept of Interior Construction around leks

Entrega has committed to avoiding construction between March 1 and June 30, avoiding siting of surface structures, and minimizing the ROW as practical in areas within 0.25-mile from any active lek. Entrega is continuing consultation with the BLM regarding the transplanting of mature sagebrush plants under the BLM Plan of Development on BLM lands. In order to reduce potential habitat effects at known sage grouse leks, the FERC has recommended that Entrega follow the BLMs Planting Requirements for lek sites that are directly impacted by the project.

F1-57 Dept of Interior Mountain plover

The text has been revised to indicate that mountain plover surveys would be conducted from May 1 to June 15.

Letter F-1 Continued

F1-57 would be conducted from April 10 to July 10. The USFWS' 2002 guidelines state that surveys for large scale/long term projects should be conducted from May 1 to June 15 throughout the breeding range (refer to the enclosed guidelines for specific survey techniques).

F1-58 35. Section 3.6.3, Fish Species, Federal Listed Species and Appendix I: The DEIS discusses the potential effects that could occur to the four listed fish species from the withdrawal of 81.6 acre-feet of water from the Colorado River System (Yampa, White, and Little Snake rivers) for hydrostatic testing. The DEIS also states that as water is returned to the source within a certain amount of time, the threshold triggering formal ESA consultation may not be reached. Appendix I of the DEIS provides information to help in the determination as to whether formal consultation for Colorado River depletions is necessary or not. It states that water would be discharged to an upland location near the appropriation point and allowed to flow back to the waterbody. To better assist in determining potential effects, please discuss whether the discharged water would be placed in an ephemeral draw or perennial tributary to the source water or held in an evaporation pond. This information would help to determine whether formal ESA consultation is required.

F1-59 36. Section 3.6.3, Fish Species, Federally Listed Species: The DEIS does not adequately address potential impacts to fisheries in the Little Snake River resulting from hydrostatic test water withdrawals and depletions. Section 3.3.2 (Surface Water) refers the reader to Sections 3.5.1 (Fishery Resources) and 3.6.3 (Special Status Fish Species) for impacts to fisherics from depletions. Section 3.5.1 mentions hydrostatic test depletions in the Little Snake only by referring the reader back to Section 3.3.2. Section 3.6.3 discusses depletion impacts on listed species of fish but not fisheries in general. We recommend that mitigation measures limiting withdrawals of water to minimize fishery impacts in the Little Snake River be developed in consultation with the Colorado Division of Wildlife.

F1-60 37. Section 3.6.3, Fish Species, Federal Listed Species: The DEIS states that occupied or critical habitat for the four listed fishes is located downstream from the proposed crossings of the White, Yampa and Little Snake rivers, but that the Colorado pikeminnow may occur at the proposed Yampa River crossing. Further in this section, the DEIS states that river crossings would be located in designated critical habitat for the Colorado pikeminnow, but that horizontal directional drilling would minimize instream impacts. To minimize effects in critical habitat, actions should only occur from October to March. This would minimize effects during the pre-spawning period (May to June) and spawning periods (July to September). Additionally, work areas should be set back from the water's edge a minimum of 500 feet to minimize erosion and loss of bank-stabilizing vegetation. Your stated 50 foot setback is not sufficient for such a large scale project in such important habitat. The final EIS should clarify whether horizontal directional drilling or open-cut would be used for water crossings, and should include the appropriate effects analysis for Colorado River fishes.

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F1-58 Dept of Interior Colorado River depletions

As directed by the FWS for water sources within Colorado, hydrostatic test water would be returned directly to the water source. Entrega currently is participating in ongoing consultations with the FWS and Colorado COE.

Further description of hydrostatic test water discharge is presented in appendix M and section VII-D of appendix F. Water quality testing would be done in accordance with permit requirements prior to discharge. Discharge would be done using controlled rates and energy dissipaters to minimize the potential for erosion and sedimentation. We are requiring additional agency consultation for the preparation of the final Hydrostatic Test Plan.

F1-59 Dept of Interior Impacts to the Little Snake fishery

The text has been revised to clarify impact to fisheries from hydrostatic test water withdrawals at the Little Snake River.

F1-60 Dept of Interior HDD in critical habitat

See response to comments F1-8 and F1-24 for potential impacts to Colorado River fishes and critical habitat from waterbody crossings at the White and Yampa Rivers.

Letter F-1 Continued

F1-61 38. Section 3.7.1, Land Use, Recreational and Public Interest Areas, Items 2 & 3,Titles: Correct typos: "...Red Rim-Daley Wildlife Habitat Management Area..." and "Overland Trail and Continental Divide National Scenic Trail.

F1-62 39. Section 3.7.1, Land Use, Recreational and Public Interest Areas, Item2: We suggest that you add the following at the end of item 2:"The Piceance SWA was purchased by the Colorado Division of Wildlife (CDOW) and the Wick/Beumee Wildlife Habitat Management Area was purchased by the Wyoming Game and Fish Department (WGFD) with Federal Aid in Wildlife Restoration Act grants funds administered by the USFWS's Division of Federal Assistance. The CDOW and WGFD will need to obtain the approval of the Regional Director, Region 6, USFWS, through grant amendments, prior to their approval of easements for the construction of the pipeline through these areas."

F1-63 40. Section 3.7.1, Land Use, Visual Resources, Paragraph 3, last line: Text should state "VRM Class IV lands may undergo management activities that significantly alter the characteristic landscape and dominate the view." Class IV lands are not always dominated by land disturbing structures and activities.

F1-64 41. Section 3.7.1, Land Use, Visual Resources, Wamsutter Compressor Station: Wamsutter Compressor Station is located on BLM land adjacent to I-80. Wamsutter Compressor facilities should be painted non-reflective Shale green or other color approved by the BLM. All other above ground features including block valves and metering stations should also be painted the same non-reflective shale green.

F1-65 42. Section 3.8.1, Cultural Resources, Results of Cultural Resources Survey.: The FEIS needs to incorporate the most current numbers of cultural sites based on approved survey results. The final version should account for all reroutes and sites that were avoided and make it clear how many sites are eligible, not eligible and buried and the basis for these determinations.

F1-66 43. Section 3.8.1, Cultural Resources, Results of Cultural Resources Survey, p. 3-96, paragraph 3: BLM has not determined the extent of open trench inspection that will be required because the full extent of cultural occurrences or culturally sensitive soils has not been determined. We recommend that the entire paragraph be deleted.

F1-67 44. Section 3.10.1, Air and Noise Quality, Big Hole Compressor Station, paragraph 1, line 1: Big Hole compressor is located on private land not BLM land.

F1-68 45. Section 3.12, Cumulative Impacts, Table 3.12-1: In table 3.12-1, Pipeline segment F, the Exxon Mobile 6-inch natural gas pipeline is in Pipeline segment E.

F1-69 46. Section 3.12, Cumulative Impacts, Figure 3.12-2: Figure 3.12-2 does not match the Big Game Winter Range descriptions contained in Table 3.5.2. We are also concerned about the source of the winter range data since the mileages of pipeline located in crucial winter range may not match the information contained in BLM's GIS data base. These winter

Responses to Letter F-1

F1-61 Dept of Interior — Names of recreational areas

The text has been revised. See section 3.7.2.

F1-62 Dept of Interior — Purpose of recreation areas and approval

See response to comment F1-15

F1-63 Dept of Interior — Revise text regarding visual resources

The text has been revised. See section 3.7.3.

F1-64 Dept of Interior — Color of compressor stations

The specific paint colors used for aboveground facilities on BLM properties have been identified in the BLM's POD.

F1-65 Dept of Interior — Revise cultural resource numbers

Numbers have been revised based on recent cultural reports.

F1-66 Dept of Interior — Delete paragraph regarding open trench inspection for cultural resources

Paragraph deleted per comment.

F1-67 Dept of Interior — Bighole compressor on private land

The text has been revised to indicate the Bighole Compressor Station is located on private land.

F1-68 Dept of Interior — Exxon pipe in Segment E

The table has been corrected.

F1-69 Dept of Interior — Big game ranges

Critical winter habitat for big game in Colorado was determined by CDOW, and crucial winter habitats in Wyoming were determined by Wyoming Game and Fish Department.

Letter F-1 Continued

F1-69 ranges should be verified prior to the FEIS to be sure the most current and accurate data are being used.

F1-70 47. Section 3.12.1, Cumulative Impacts to Resources, Surface Water, paragraph 4: Surface Water. The WIC PBEP project also intends to HDD the Little Snake River in addition to the White and Yampa Rivers. Revise paragraph accordingly in the FEIS . The reference to HDD for the WIC project should also be changed on page 3-143 under Fisheries. The cumulative analysis should also include hydrostatic test water amounts for WIC PBEP(10.7 million gal, 33 ac ft) and EPP (56 Million gallons) projects, not just the 19 acre feet estimate from EnCana Gathering pipeline project. Water for dust suppression should be quantified and water depletions analyzed cumulatively with the WIC and EnCana projects.

F1-71 48. Section 3.12.1, Cumulative Impacts to Resources, Wetlands : Of the total 98 acres of affected wetlands by the EPP, it seems unlikely that only 2.3 acres are located cumulatively with 4.5 acres of PBEP. EPP disturbances to wetlands in Piceance Creek have not been factored into the cumulative wetland analysis. EnCana's 5 acres of affected wetlands located along Segment C (figure 3.12-1) are mentioned but there are more wetlands in segment B that need to be added to the cumulative analysis.

F1-72 49. Section 3.12.1, Cumulative Impacts to Resources, Cultural Resources, paragraph 1: This paragraph refers to a 125 foot construction corridor that was reduced to a 100 foot construction corridor. Also, both routes intercept The Overland and Cherokee Trail. Mitigation measures would need to be formulated for both trails.

F1-73 50. Section 3.12.1, Cumulative Impacts to Resources, Fig. 3.12-3: EnCana should be mentioned in this table at least as a footnote recognizing that construction of their proposed Meeker gas plant will also entail a sizeable workforce, the majority of which would likely be staying in Meeker or Rifle. The EnCana project is discussed in the Transportation impacts and should also be included in Housing impacts.

F1-74 51. Section 3.12.1, Cumulative Impacts to Resources, Noise, paragraph 4: El Paso (should be WIC) does propose to construct a new compressor station at Greasewood. The WIC compressor is in addition to the TransColorado compressor mentioned in the text.

F1-75 52. Section 5.0, Conclusions and Recommendations: The DEIS states that the use of horizontal directional drilling would avoid disturbances to the beds and banks of the White and Yampa rivers. Please refer to our previous comments regarding setbacks from water's edge. Setbacks as discussed in our comments would support the above statement.

F1-76 53. Section 5.1, Conclusions of the Environmental Analysis, p. 5-1, 5th bullet: Consultation with BLM is not the appropriate term. Entrega must obtain a ROW grant from the BLM. BLM is bound by the same FWS and SHPO consultations as FERC. Further, consultation with FWS and SHPO's must be completed prior to BLM approving a ROD for the project.

Responses to Letter F-1

F1-70 Dept of Interior — Cumulative impacts on Little Snake from water depletion

The cumulative depletions from the Little Snake and other sources for both the Entrega and WIC projects are summarized in section 3.12.

F1-71 Dept of Interior — Cumulative impacts to wetlands

The total wetland impacts of the three projects (Entrega, WIC, EnCana), plus the wetland disturbance where the Entrega and WIC projects overlap (Yampa River) are summarized in the EIS. The EnCana pipeline would be located in uplands in Segment B shown on Figure 3.12-1, and therefore additional wetland impacts do not need to be added to the Piceance Creek crossing impacts that would occur along Segment C. The text has been updated to reflect revised acreages based on Entrega's Wetland Survey (WEST, Inc. 2005)

F1-72 Dept of Interior — Cumulative impacts to cultural resources - Mitigation for Cherokee and Overland Trails

Section 3.12 has been revised based on reduced corridor and current survey reports. Additionally, text has been revised to include both the Overland and Cherokee Trails.

F1-73 Dept of Interior — Cumulative socio impacts should include EnCana's impacts

The Environmental Assessment for EnCana's Meeker Pipeline and Gas Plant has been reviewed. The workforce effects have been addressed in section 3.12.1, Socioeconomics. EnCana's proposed construction schedule and construction workforce have been incorporated into the cumulative socioeconomic analysis.

F1-74 Dept of Interior — Cumulative noise impacts

Text revised to include the WIC compressor at CIG's existing station at Greasewood.

F1-75 Dept of Interior — HDD setbacks (see comment F1-60)

See response to comment F1-8.

F1-76 Dept of Interior — Rewording for BLM interaction

The text has been revised to clarify the interaction between FERC and the BLM.

Letter F-1 Continued

F1-77 54. Section 5.5, FERC Staff Recommended Mitigation, Item 20: The DEIS recommends that on federal lands, all potentially hazardous material storage shall be placed 500 feet from the edge of a stream and/or wetland. Such a setback should be required from all wetland related areas regardless of the land ownership.

F1-78 55. Section 5.5, FERC Staff Recommended Mitigation, Item 34: The DEIS states that a 0.5-mile buffer would be placed around bald eagle roost sites. In the absence of site-specific information, a 1-mile buffer should be required around bald eagle roosts. We recommend that you contact the USFWS Cheyenne Ecological Services Field Office to discuss any modifications to our recommended protective measures.

F1-79 56. Appendix L, Maps Showing Pipeline Route and Aboveground Facilities: These maps need to be revised in the FEIS to show the latest reroutes made to avoid cultural and/or paleontological sites etc.

If you have questions concerning these comments, please contact Tom Hurshman, BLM Project Manager, for the Entrega Pipeline Project at (970) 240-5345, or Kathleen Erwin in the USFWS Cheyenne Office at 307-772-2374 extension 28.

Sincerely,

Robert F. Stewart
Regional Environmental Officer

Enclosures

Responses to Letter F-1

F1-77 Dept of Interior 100 vs 500 feet setback

See response to comment F1-36.

F1-78 Dept of Interior Buffer around bald eagle roosts

See response to comment F1-19.

F1-79 Dept of Interior Show new reroutes

The maps presented throughout the EIS, including appendix B, show Entrega's proposed route, including realignments that have occurred since the draft EIS and that have been reviewed within this EIS.

Letter F-1 Continued

References

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Edison Electric Institute and the Raptor Research Foundation. 1996. Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1996. Washington, D.C.

Lyon, A.G. 2000. The potential effects of natural gas development on sage grouse (*Centrocercus urophasianus*) near Pinedale, Wyoming. Thesis, University of Wyoming, Laramie, USA.

U.S. Fish and Wildlife Service. 1989. Black-footed ferret survey guidelines for compliance with the Endangered Species Act, April 1989. U. S. Fish and Wildlife Service, Denver, Colorado and Albuquerque, New Mexico. 15pp.

Enclosure 1

Colorado River Fishes Designated Critical Habitat within/near the Project Area

Colorado pikeminnow (*Ptychocheilus lucius*): Critical habitat has been designated within the 100-year floodplain of the Colorado pikeminnow's historical range in the following sections of the Upper Basin (59 F.R. 13374).

1. Colorado, Moffat County. The Yampa River and its 100-year floodplain from the State Highway 394 bridge in T. 6 N., R. 91 W., section 1 (6th Principal Meridian) to the confluence with the Green River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian).

2. Colorado, Moffat County. The Green River and its 100-year floodplain from the confluence with the Yampa River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian) to the confluence with the Colorado River in T. 30 S., R. 19 E., section 7 (Salt Lake Meridian).

3. Colorado, Rio Blanco County; and Utah, Uintah County. The White River and its 100-year floodplain from Rio Blanco Lake Dam in T. 1 N., R. 96 W., section 6 (6th Principal Meridian) to the confluence with the Green River in T. 9 S., R. 20 E., section 4 (Salt Lake Meridian).

Humpback chub (*Gila cypha*): Critical habitat has been designated within the humpback chub's historical range in the following sections of the Upper Basin (59 F.R. 13374).

1. Colorado, Moffat County. The Yampa River from the boundary of Dinosaur National Monument in T. 6 N., R. 99 W., section 27 (6th Principal Meridian) to the confluence with the Green River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian).

2. Colorado, Moffat County. The Green River from the confluence with the Yampa River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian) to the southern boundary of Dinosaur National Monument in T. 6 N., R. 24 E., section 30 (Salt Lake Meridian).

3. Colorado, Mesa County. The Colorado River from Black Rocks in T. 10 S., R. 104 W., section 25 (6th Principal Meridian) to Fish Ford (river mile 106) in T. 21 S., R. 24 E., section 35 (Salt Lake Meridian).

Bonytail (*Gila elegans*): Critical habitat has been designated within the bonytail's historical range in the following sections of the Upper Basin (59 F.R. 13374).

1. Colorado, Moffat County. The Yampa River from the boundary of Dinosaur National Monument in T. 6 N., R. 99 W., section 27 (6th Principal Meridian) to the confluence with the Green River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian).

Letter F-1 Continued

2. Colorado, Moffat County. The Green River from the confluence with the Yampa River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian) to the boundary of Dinosaur National Monument in T. 6 N., R. 24 E., section 30 (Salt Lake Meridian).

Razorback sucker (*Xyrauchen texanus*): Critical habitat has been designated within the 100-year floodplain of the razorback sucker's historical range in the following sections of the Upper Basin (59 F.R. 13374).

1. Colorado, Moffat County. The Yampa River and its 100-year floodplain from the mouth of Cross Mountain Canyon in T. 6 N., R. 98 W., section 23 (6th Principal Meridian) to the confluence with the Green River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian).

2. Colorado, Moffat County. The Green River and its 100-year floodplain from the confluence with the Yampa River in T. 7 N., R. 103 W., section 28 (6th Principal Meridian) to Sand Wash at river mile 96 in T. 11 S., R. 18 E., section 20 (6th Principal Meridian).

3. Colorado, Delta and Mesa Counties. The Gunnison River and its 100-year floodplain from the confluence with the Uncompahgre River in T. 15 S., R. 96 W., section 11 (6th Principal Meridian) to Redlands Diversion Dam in T. 1 S., R. 1 W., section 27 (Ute Meridian).

Colorado, Mesa and Garfield Counties. The Colorado River and its 100-year floodplain from Colorado River Bridge at exit 90 north off Interstate 70 in T. 6 S., R. 93 W., section 16 (6th Principal Meridian) to Westwater Canyon in T. 20 S., R. 25 E., section 12 (Salt Lake Meridian) including the Gunnison River and its 100-year floodplain from the Redlands Diversion Dam in T. 1 S., R. 1 W., section 27 (Ute Meridian) to the confluence with the Colorado River in T. 1 S., R. 1 W., section 22 (Ute Meridian).

Letter F-1 Continued

Enclosure 2

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001

In Reply Refer To:
ES-61411/BFF/WY7746

February 2, 2004

Dear Interested Party:

This letter is to inform you that black-footed ferret (*Mustela nigripes*) surveys are no longer necessary in black-tailed prairie dog colonies statewide or in white-tailed prairie dog towns except those noted in the attachment. In response to requests from numerous entities and our own review of the situation regarding ferret surveys, the U.S. Fish and Wildlife Service (Service) and others have been evaluating the potential for a previously unidentified black-footed ferret population to occur in Wyoming and the need for conducting black-footed ferret surveys across the entire state. This issue has been especially pertinent when evaluating various activities for compliance with the Endangered Species Act of 1973 (Act), as amended (16 USC 1531 *et seq*).

The black-footed ferret was listed as an endangered species in 1967, prior to the Act (under the Endangered Species Preservation Act of 1966). The Act prohibits the take of listed species without proper permits and places an additional requirement on activities funded, authorized or carried out by Federal agencies to ensure that such actions will not jeopardize the continued existence of any listed species. The latter process is known as interagency consultation and is outlined in section 7(a)(2) of the Act (50 C.F.R. § 402.13) .

The Service developed the 1989 *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (Survey Guidelines) to assist with section 7 consultations for ferrets. The Survey Guidelines provide a mechanism to evaluate the possibility of locating existing ferrets in prairie dog colonies by examination of the size, density, and juxtaposition of existing prairie dog colonies. The key points of the strategy are to determine the existence of ferrets or an area's potential for ferret recovery and either may be used in section 7 consultations when determining whether an action may affect the black-footed ferret. The Survey Guidelines can be followed by interested parties (federal agencies and their partners) during the section 7 consultation process to make determinations on whether an activity may adversely affect ferrets. However, an unintended drawback to the Survey Guidelines is that repetitive surveys may be undertaken to evaluate possible impacts to ferrets on prairie dog colonies that have already been searched or that didn't present any realistic opportunities for ferret reintroduction.

6-30

Letter F-1 Continued

The Service has been coordinating with the Wyoming Game and Fish Department in reviewing information about the current and historic status of prairie dog towns throughout Wyoming. In addition to the status review, we have also been reviewing the history of black-footed ferret surveys to determine whether the survey guidelines should continue to be applied across the entire state. Through this process, the Service has developed an initial list of blocks of habitat that are not likely to be inhabited by black-footed ferrets. In these areas, take of individual ferrets and effects to a wild population are not an issue and surveys for ferrets are no longer recommended. The term "block clearance" has often been used to describe this type of approach. This initial list is based largely on the quality of the habitat today, as well as information regarding past population bottlenecks that may have resulted from plague and poisoning events in particular areas and may have led to the loss of ferrets in the area.

Additional information regarding the survey effort on the specific areas not yet block-cleared is currently being reviewed by the Service. Based on this review, the Service will likely add several blocks of habitat to the list in the future. The Service will continue to collect and review information on any remaining areas to determine if they should be added to the list of areas cleared from the survey recommendation. Therefore, prior to conducting surveys, you should coordinate with the Service to determine which specific areas are recommended for surveys. We have attached our initial list of areas cleared from the ferret survey recommendation. We believe this approach is not only biologically defensible, but also allows all parties involved to focus survey effort and resources on those areas where the likelihood of discovering wild ferrets is greatest.

Please note that "block clearance" must not be interpreted to mean that the area is free of all value to black-footed ferrets. These areas, or blocks, are merely being cleared from the need for ferret surveys. Therefore, this clearance from the survey recommendations reflects only the negligible likelihood of a wild population of ferrets occurring in an area. It does not provide insight into an area's value for survival and recovery of the species through future reintroduction efforts. Nor does this clearance relieve a Federal agency of its responsibility to evaluate the effects of its actions on the survival and recovery of the species. For example, while an action proposed in a cleared area needs no survey and is not likely to result in take of individuals, the action could have an adverse effect upon the value of a prairie dog town as a future reintroduction site and should be evaluated to determine the significance of that effect. Consultation with the Service is appropriate for any agency action resulting in an effect significant enough to diminish a site's value as a future reintroduction site. Additionally, block clearance of an area does not imply that other values of maintaining the integrity of the prairie dog ecosystem are unimportant.

We appreciate your efforts to conserve listed species. Without the valuable information collected to date in association with black-footed ferret surveys, we would not be able to undertake this effort to focus ferret surveys on the most promising habitat.

If you have any questions regarding this letter or your responsibilities under the Act, please contact Mary Jennings of my staff at the letterhead address or phone (307) 772-2374, extension 32.

Sincerely,

/s/ Brian T. Kelly

Brian T. Kelly
Field Supervisor
Wyoming Field Office

Enclosure (1)

cc: WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)
FWS, BFF Recovery Coordinator, Laramie, WY (M. Lockhart)

Enclosure 3

MOUNTAIN PLOVER SURVEY GUIDELINES
U.S. Fish and Wildlife Service
March 2002

The mountain plover (*Charadrius montanus*) is a small bird (17.5 cm, 7 in.) about the size of a killdeer (*C. vociferus*). It is light brown above with a lighter colored breast, but lacks the contrasting dark breast-belt common to many other plovers. During the breeding season it has a white forehead and a dark line between the beak and eye, which contrasts with the dark crown.

Mountain plover breeding habitat includes short-grass prairie and shrub-steppe landscapes; dryland, cultivated farms; and prairie dog towns. Plovers usually nest on sites where vegetation is sparse or absent, conditions that can be created by herbivores, including domestic livestock and prairie dogs. Vegetation in shortgrass prairie sites is typically less than 4 inches tall. Nest sites within the shrub-steppe landscape are also confined to areas of little to no vegetation, although surrounded by areas visually dominated by shrubs. Commonly, nest sites within shrub-steppe areas are on active prairie dog towns. Nests are commonly located near a manure pile or rock. In addition to disturbance by prairie dogs or livestock, nests have also been found on bare ground created by oil and gas development activities, and on dryland, cultivated agriculture in the southern part of their breeding range. Mountain plovers are rarely found near water. Positive indicators for mountain plovers therefore include level terrain, prairie dogs, bare ground, *Opuntia* pads, cattle, widely spaced plants, and horned larks. It would be unusual to find mountain plovers on sites characterized by irregular or rolling terrain; dense, matted vegetation; grass taller than 4 inches, wet soils, or the presence of killdeer.

These guidelines were developed by Service biologists and Dr. Fritz Knopf, USGS-BRD. Keep in mind these are guidelines - please call the local Fish and Wildlife Service, Ecological Services office, if you have any suggestions.

GENERAL GUIDELINES FOR SURVEYS

On February 16, 1999, the Service proposed the mountain plover for federal listing as threatened. Because listing of this species is proposed, the Service may recommend surveys for mountain plovers to better define nesting areas, and minimize potential negative impacts. The Service may recommend surveys for mountain plovers in all suitable habitat, as well as avoidance of nesting areas, to minimize impact to plovers in a site planned for development. While the Service believes that plover surveys, avoidance of nesting and brood rearing areas, and timing restrictions (avoidance of important areas during nesting) will lessen the chance of direct impacts to and mortality of individual mountain plovers in the area, these restrictions do nothing to mitigate indirect effects, including changes in habitat suitability and habitat loss. Surveys are, however, a necessary starting point. The Service has developed the following 3 survey

Letter F-1 Continued

guidelines, depending on whether the intent is to determine the presence or absence of plovers at a site during the nesting season for permanent and short term projects, or to determine the density of nesting plovers at known nesting sites.

Survey Protocol

Surveys for mountain plovers are conducted during the period where the highest numbers of plovers are likely to be tending nests and territories, and therefore are most likely to be detected. Throughout their range, these dates are generally from May 01 through June 15. However, seasonal restrictions for ground disturbing activities in suitable mountain plover nesting habitats are usually longer than the survey dates. The longer seasonal restrictions allow for protection of early nesting birds, and very young chicks which tend to sit still to avoid detection during the first week post-hatch. Since specific nesting dates across the breeding range of the plover vary according to latitude and local weather, the project proponent or the land management agency should contact the local U.S. Fish and Wildlife Service Office to determine what seasonal restrictions apply for specific projects.

Two types of surveys may be conducted: 1) surveys to determine the presence/absence of breeding plovers (i.e., displaying males and foraging adults), or 2) surveys to determine nest density. The survey type chosen for a project and the extent of the survey area (i.e., beyond the edge of the construction or operational ROW) will depend on the type of project activity being analyzed (e.g., construction, operation) and the users intent. One methodology outlines a breeding survey that was used in northeastern Colorado to establish the density of occupied territories, based on displaying male plovers or foraging adults. The other was developed to only determine whether plovers occupy an area.

Techniques Common to Each Survey Method

- Conduct surveys during early courtship and territorial establishment. Throughout the breeding range, this period extends from approximately mid-April through early July. However, the specific breeding period, and therefore peak survey days, depends on latitude, elevation, and weather.
- Conduct surveys between local sunrise and 1000 and from 1730 to sunset (periods of horizontal light to facilitate spotting the white breast of the adult plovers).
- Drive transects within the project area to minimize early flushing. Flushing distances for mountain plovers may be within 3 meters for vehicles, but plovers often flush at 50 to 100 meters when approached by humans on foot.
- Use of a 4-wheel drive vehicle is preferable where allowed. Use of ATVs has proven highly successful in observing and recording displaying males.

Always seek guidance from land management agencies regarding use of vehicles on public lands, and always obtain permission of private landowners before entering their lands.

- Stay in or close to the vehicle when scanning. Use binoculars to scan and spotting scopes to confirm sightings. Do not use scopes to scan.
- Do not conduct surveys in poor weather (i.e., high wind, precipitation, etc.).
- Surveys conducted during the courtship period should focus on identifying displaying or calling males, which would signify breeding territories.
- For all breeding birds observed, conduct additional surveys immediately prior to construction activities to search for active nest sites.
- If an active nest is located, an appropriate buffer area should be established to prevent direct loss of the nest or indirect impacts from human-related disturbance. The appropriate buffer distance will vary, depending on topography, type of activity proposed, and duration of disturbance. For disturbances including pedestrian foot traffic and continual equipment operations, a 1/4 mile buffer is recommended.

SURVEY TO DETERMINE PRESENCE/ABSENCE

Large scale/long term projects

1. Conduct the survey between May 1 and June 15, throughout the breeding range.

2. Visual observation of the area should be made within 1/4 mile of the proposed action to detect the presence of plovers. All plovers located should be observed long enough to determine if a nest is present. These observations should be made from within a stationary vehicle, as plovers do not appear to be wary of vehicles. Because this survey is to determine presence/absence only, and not calculate statistical confidence, there is no recommended distance interval for stopping the vehicle to scan for birds. Obviously numerous stops will be required to conduct a thorough survey, but number of stops should be determined on a project and site-specific basis.

3. If no visual observations are made from vehicles, the area should be surveyed on ATV's. Extreme care should be exercised in locating plovers due to their highly secretive and quiet nature. Surveys by foot are not recommended because plovers tend to flush at greater distances when approached using this method. Finding nests during foot surveys is more difficult because of the greater flushing distance.

4. A site must be surveyed 3 times during the survey window, with each survey separated by at least 14 days. The need for 3 surveys is to capture the entire nesting period, with the intent of reducing the risk of concluding the site is not nesting habitat by an absence of nesting birds during a single survey.

5. Initiation of the project should occur as near to completion of the survey as possible. For example, seismic exploration should begin within 2 days of survey completion. A 14 day period may be appropriate for other projects.

6. 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.

Short-term, linear projects

The Service recognizes that many projects have minimal, if any impact on mountain plover nesting habitat, and that these projects may only be present in suitable habitat for a day or less. In order to address concerns from project proponents about delays associated with mountain plover surveys for these projects, the Service has developed the following guidelines. However, the Service encourages the project proponent to plan these projects so that all work occurs outside the plover nesting season.

Short-term linear projects are defined as projects which move through an area within the course of a day and result in no permanent habitat alteration (e.g., vegetative/topographic changes), and no permanent project-related above ground features. Short-term, linear projects may include activities such as pipelines (4 inch diameter or less), fiber optic cables, and seismic exploration. For these projects, all ROW surveying/staking activities should be completed before April 1 to avoid discouraging plovers from nesting in suitable habitat. If ROW surveying cannot be completed before April 1, surveyors will need to coordinate with the lead Federal agency before entering these areas, and a plover survey may be required prior to ROW demarcation. For these projects, the presence/absence guidelines above should adhere to the dates below.

1. **April 10 through July 10 -** a plover survey will need to be completed 1- 3 days prior to any construction activity, including initial brush clearing, to avoid direct take of mountain plovers. The survey should include the route and a 1/4 mile buffer on either of the project corridor. If there is a break in construction activity in these areas of more than 3 days (e.g., between pipe stringing, trenching, or welding), an additional plover survey is necessary before construction activity can resume after that break in

activity. Generally, mountain plovers are either establishing territories and nests in April, and from late June to early July young chicks commonly freeze in place to avoid detection, increasing their vulnerability to direct take. After July 10, most mountain plover chicks are sufficiently mobile to reduce the risk of direct take.

2. 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.

SURVEY TO DETERMINE DENSITY OF NESTING MOUNTAIN PLOVERS

We are assuming people will have received training on point counts in general before using this specialized point count technique adapted to mountain plovers.

Establishing Transects

1. Identify appropriate habitat and habitat of interest within geographic areas of interest.

2. Upon arriving in appropriate habitat, drive to a previously determined random starting point.

3. For subsequent points, drive a previously determined random distance of 0.3, 0.4 or 0.5 miles.

4. Each transect of point counts should contain a minimum of 20 points.

Conducting The Point Counts

1. Conduct counts between last week in June to July 4th at elevations equivalent to the eastern plains of Colorado (i.e., about 5,000 feet). Timing of counts at other elevations should be coordinated with the local FWS office.

2. Only 1 counter is used. Do not use a counter and recorder or other combinations of field help. Drivers are okay as long as they don't help spot plovers.

3. If an adult mountain plover is observed, plot occupied territories on a minimum of 1:24,000 scale map and on a ROW diagram or site grid (see attached). The ROW diagram will be at a greater level of detail, depicting the location of breeding birds (and possible nest sites) relative to ROW centerline, construction boundary, and applicable access roads.

Letter F-1 Continued

4. Estimate or measure distances (in meters) to all mountain plovers. Method used should be noted, e.g., estimates w/distance training, estimates w/o distance training, rangefinder or measured with tape measure, etc.

5. Record "fly-overs" as "FO" in the distance column of the data sheet.

6. If you disturb a mountain plover while approaching the point, estimate the distance from point-center to the spot from which the bird was flushed.

7. Conduct counts for 5 minutes with a 3 minute subsample to standardize with BBS.

8. Stay close to your vehicle while scanning.

Recording Data

Record the following information AT EVERY POINT, EVERY DAY.

- start time
- unique point code (don't duplicate within a field crew or across dates)
- number of mountain plovers and distance to each
- land use and/or habitat type (e.g., fallow wheat, plowed, shortgrass)
- temperature, Beaufort wind, and sky conditions (clear, partly cloudy, overcast)
- Information on the data sheet somewhere.
- your name and address
- date
- Record for each point at some point during the census.
- detailed location description of each point count including road number, distance to important intersections.
- record transect and point locations on USGS county maps.
- Universal Transverse Mercator from maps or GPS are useful.

Letter F-1 Continued

GENERAL HABITAT INDICATORS

Positive habitat images

Stock tank (non-leaking, leaking tanks often attract killdeer)

Flat (level or "tilted") terrain

Burned field/prairie/pasture

Bare ground (minimum of 30 percent)

"Spaced" grass plants

Prairie dog colonies

Horned larks

Cattle

Heavily grazed pastures

Opuntia pads visible

Negative habitat images

Killdeer present (indicating less than optimal habitat)

Hillsides or steep slope

Prominent, obvious low ridge

Leaky stock tanks

Vegetation greater than 4 inches in height in short-grass prairie habitat

Increasing presence of tall shrubs

Matted grass (i.e., minimal bare ground)

Lark buntings

Letter F-2

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

April 15, 2005

Regulatory Branch (200575199)

Mr. Larry Sauter
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington DC 20426

Dear Mr. Sauter:

The Corps of Engineers has reviewed your draft Environmental Impact Statement for Entrega Pipeline Project, Docket Numbers CP04-413-000, et. al. The proposed pipeline runs from the Meeker Hub in Rio Blanco County, through Moffat County, to the Wamsutter Compressor Station in Wamsutter, Wyoming.

F2-1 Section 404 of the Clean Water Act requires the applicant to demonstrate that all impacts to waters of the United States, and special aquatic sites, have been avoided and minimized to the maximum extent practicable. The applicant's preferred alternative crosses Piceance Creek ten times. In the DEIS there is no mention of actions taken to avoid and/or minimize the number of Piceance Creek crossings, or wetland crossings.

F2-2 We are in favor of alternative 4.4.2, the Collocation Alternative, where the EPP and PBEP pipelines are collocated along PBEP's Proposed Route. This alternative is preferred because it avoids all ten crossings of Piceance Creek and only has ten acres of wetland impacts as opposed to 61 acres (within the Danforth Hills South Study Area) under the applicant's preferred alternative. Additionally, there is a great potential for cumulative impacts as future pipelines will be more likely to be located within this same right-of-way.

F2-3 The calculation of wetlands used in the DEIS was based on the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) maps. These maps are compiled using aerial photo interpretation along with some ground truthing, and should only be used as a rough guide. Entrega hired Natural Resource Group, Incorporated to conduct a wetland delineation covering the entire proposed route of the pipeline. The report, entitled "Entrega Gas Pipeline Wetland Survey 2004", was finalized on February 2, 2005. We believe that this delineation should be used to evaluate wetland impacts, rather than the NWI maps.

Responses to Letter F-2

F2-1 US Army Corps of Engineers # of Piceance Creek crossings

In an effort to avoid numerous crossings of Piceance Creek and other problem areas, we assessed the environmental impact of routing the proposed pipeline facilities along a 44-mile-long alternative route to the east (to Greasewood Hub, then following the proposed WIC natural gas pipeline route along the Strawberry Creek drainage – see section 4.4.2, Collocation Alternative, Danforth Hills South, option 3). While the alternative route would eliminate the Piceance Creek crossings, it would involve far more impact on tall shrublands (sagebrush, greasewood, oak), Pinion-Juniper woodlands, and critical big game winter habitat. As a result, use of the alternative would have a long-term impact on wildlife support functions (10-50+ years). Based on previous experience with pipelines constructed in the Piceance Creek floodplain, impact on water quality and vegetation (wet meadow hay, irrigated pasture, and emergent wetland vegetation) would be short-term. The alternative would also add about 11 miles to the proposed route, much of which would involve construction across difficult terrain between the Greasewood and proposed Meeker Hubs. In short, we concluded that the use of this collocation alternative would result in greater overall environmental impact than the proposed route through the Piceance Creek drainage.
We also examined Entrega's proposed routing within the Piceance drainage and have recommended two route modifications which would reduce the number of creek crossings from eleven to six. See additional discussion in section 3.3.2.
In addition, our analysis of Entrega's Procedures (based on the FERC staff's Procedures) concluded that their proper implementation would minimize impact on wetlands and waterbodies to the maximum extent practicable during construction of the proposed facilities. We also note that the area of the Piceance Creek affected by the proposed project has not been designated as a special aquatic site.

F2-2 US Army Corps of Engineers Collocation Alternative is preferred

Thank you for responding to our request for comments on this issue. The rationale provided was considered during our evaluation of the pros and cons associated with each of the routes.

F2-3 US Army Corps of Engineers Use wetland survey data

Survey data were not available at the time that the draft EIS was assembled. The survey data has now been incorporated into the EIS. Section 3.3.3 of EIS has been revised to reflect the wetland delineations conducted for the project.

Letter F-2 Continued

We appreciate the opportunity to comment on this Draft EIS. Please refer to identification number 200575199 in correspondence concerning this project. If you have any questions, please contact Nathan Green by email at Nathan.J.Green@usace.army.mil, telephone 970-243-1199, extension 12, or at the address below. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Ken Jacobson
Acting Chief, Intermountain Section
Colorado/Gunnison Basin Regulatory Office
400 Rood Avenue, Room 142
Grand Junction, Colorado 81501-2563

Letter F-3

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

Magalie R. Salas
Secretary, FERC
888 First St., NE
Room 1A
Washington, D.C. 20426

Dear Ms. Salas:

Enclosed are comments on the Draft Environmental Impact Statement for the Entrega Pipeline Project, Docket Number CP04-413-000, et al. We hope our comments will assist you. Thank you for giving us the opportunity to review this document.

Sincerely,

Susan A. Kennedy
Acting NEPA Coordinator

Enclosure

Printed on Recycled Paper

Letter F-3 Continued

MEMORANDUM FOR: Susan A. Kennedy
Acting NEPA Coordinator

FROM: Charles W. Challstrom
Director, National Geodetic Survey

SUBJECT: Entrega Pipeline Project DEIS

The subject statement has been reviewed within the areas of the National Ocean Service (NOS) responsibility and expertise and in terms of the impact of the proposed actions on NOS activities and projects.

All available geodetic control information about horizontal and vertical geodetic control monuments in the subject area is contained on the National Geodetic Survey's home page at the following Internet World Wide Web address: http://www.ngs.noaa.gov After entering the this home page, please access the topic "Products and Services" and then access the menu item "Data Sheet." This menu item will allow you to directly access geodetic control monument information from the National Geodetic Survey data base for the subject area project. This information should be reviewed for identifying the location and designation of any geodetic control monuments that may be affected by the proposed project.

F3-1 If there are any planned activities which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activities in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation(s) required.

For further information about geodetic control monuments, please contact:

Brett Howe
SSMC3 8712, NOAA, N/NGS
1315 East West Highway
Silver Spring, Maryland 20910

Voice: (301) 713-3197 ext. 115
Fax: (301) 713-4175
Email: Brett.Howe@noaa.gov

Responses to Letter F-3

F3-1 NOAA Warning of monument disturbance

Entrega would be responsible for coordinating with the National Ocean Service regarding the potential disturbance of geodetic control monuments.

Letter F-4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET- SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

APR 14 2005

Ref: 8EPR-N

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, D.C. 20426

Re: Entrega Pipeline Project , DEIS Review 20050082
FERC Docket No. CP04-413-000

Dear Ms. Salas:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, Region 8 of the Environmental Protection Agency (EPA) has reviewed and rated the *Draft Environmental Impact Statement (DEIS) for the Entrega Pipeline Project*, dated February 2005. The project is a 327 mile long natural gas pipeline from Meeker, Colorado north to Wamsutter, Wyoming and east along I-80 to the Cheyenne Hub. The 36- and 42-inch diameter pipeline will include three new compressor stations, valve and metering facilities, and associated access roads and power lines.

Based on the procedures EPA uses to evaluate the potential effects of proposed actions and the adequacy of the information in the DEIS, the project will be listed in the Federal Register in the category EC-2 (EC - Environmental Concerns, 2 - Insufficient Information). This rating means that the review identified environmental impacts that should be avoided in order to fully protect the environment and the DEIS does not contain sufficient information to thoroughly assess environmental impacts that should be avoided to fully protect the environment.

F4-1

EPA's concerns with the project are the impacts to ecosystems in northwestern Colorado and northeastern Utah (Piceance and Uinta Basins) from actions connected to or induced by the Entrega Pipeline. Of particular concern are:

- loss of wildlife habitat,
- habitat fragmentation,
- erosion reducing water quality,
- soil loss
- invasive and noxious weeds and
- air quality (regionally).

Increased gas transportation capacity will facilitate increased density and intensity of gas development. Increased transportation capacity will also increase the rate of gas development. The FEIS should examine the indirect environmental impacts associated with increasing capacity for natural gas transportation and identify mitigation that will be implemented to reduce these impacts. Although the Entrega DEIS did include a section on the cumulative impacts of oil and

Responses to Letter F-4

F4-1 EPA **Impacts to ecosystem caused by increasing region wide supply of natural gas**

Our rationale for the overall scope of the EIS is explained in section 1.6 (Non-jurisdictional Facilities). For the reasons listed therein, we do not believe that the scope of this EIS is improperly segmented. The scope of the cumulative analysis was also carefully considered, and the boundaries of the analysis are once again explained in section 3.12. It is unreasonable to expect the EIS to include analyses of impact associated with speculative oil and gas development.

We believe that an increasing nationwide demand for clean-burning natural gas is the primary driving force behind the growing level of exploration and development evident in the Rocky Mountain region during the last several years. Additional infrastructure to transport the gas into the interstate pipeline grid is a result, not a cause, of development.

The proposed project is an interstate natural gas pipeline project that originates at the proposed Meeker Hub and terminates at the Cheyenne Hub. We have addressed those other projects that have, or would, interact directly or indirectly with the proposed project. We have defined geographic study areas where the direct or indirect cumulative effects of nearby projects can be specifically evaluated in relation to the Entrega project. The regional oil and gas field developments occur upstream from the pipeline origin, do not overlap with the existing pipeline utility corridor in Colorado and Wyoming, and are outside the Entrega Pipeline Project cumulative analysis scope because they are geographically distant from the proposed project.

Letter F-4 Continued

F4-1 gas in the Piceance Basin, the analysis did not identify the indirect impacts that will be induced by increasing gas transportation capacity nor was any mitigation identified for impacts other than the impacts directly resulting from construction of the pipeline. Information is available on some of the indirect impacts from BLM's environmental analysis of oil and gas development. However, it appears that the environmental impacts from oil and gas development have not been analyzed in a holistic manner for the area resulting in segmentation of the environmental analysis. The Roan Plateau DEIS is the most recent BLM environmental analysis for gas development. Unfortunately the Roan Plateau analysis only covers a small area that will be feeding into the proposed Entrega pipeline and does not include increased leasing resulting from additional pipeline capacity. Similarly, the Vernal Utah Field office is completing a Resource Management Plan which will look at some of the impacts of gas development in the Uinta Basin.

F4-2 We recommend that the FEIS be revised to include the proposed Wyoming Interstate Gas (WIG) pipeline from Meeker to Wamsetter as a stand-alone alternative. In this manner, FERC could take a more direct approach in evaluating whether or not it is beneficial to the public to have one or two pipelines in the same corridor. It would also appear to be more efficient for the federal government (BLM and FERC) to rely on one EIS. Little to no additional environmental

F4-3 analysis would be needed in the FEIS for a stand-alone WIG alternative, as the pipeline corridors are almost exactly the same and an alternative has been developed in the DEIS for constructing both pipelines in the same corridor. With these few additions, the FEIS could evaluate which alternative has the least environmental impacts and best meets the public need for natural gas (Entrega pipeline, WIG pipeline or both pipelines).

F4-4 We are also concerned by the segmenting of several pipeline projects currently proposed in the Piceance Basin. Many of these pipelines and other facilities appear to be "interdependent parts of a larger action and depend on the larger action for their justification" as discussed in the CEQ regulations regarding connected actions at 40 CFR 1508.25 (a)(1)(iii). The overall need for the project appears to be to construct facilities to increase natural gas production and transportation from northeastern Utah and northwestern Colorado to national markets.

F4-5 In addition to the Wyoming Interstate Gas pipeline from Meeker to Wasmsutter (mentioned above), there is a proposal by Entrega parent company EnCana to build a 205 mile long pipeline from the Utah/Colorado border and southwest of the proposed Roan Plateau development to a new gas plant in Meeker near the termini of the Entrega pipeline (the Meeker Hub compression station). The BLM is currently seeking public comment on an Environmental Assessment for the "Meeker Pipeline and Gas Plant Project". Encana/Entrega also have other pipeline proposals as described in Figure 3.12-1 and Table 3.12-1 in the DEIS on pages 3-137 and 3-138 of the EIS connecting the last few miles between the Meeker gas plant and the Meeker Hub compression station. It appears that the federal government has a major role in permitting/approving these pipelines. EnCana/Entrega pipelines are being routed through the Meeker area to use the additional capacity that will be provided by the proposed Entrega and Wyoming Interstate Gas pipelines and to market gas from EnCana's recently acquired gas development properties (page 1-3, DEIS). We recommend that the EIS be revised to look at all the interconnected natural gas transportation projects in the area and the additional natural gas development that will be induced by increasing pipeline capacity.

Responses to Letter F-4

F4-2 EPA Revise Final EIS to include proposed WIC pipeline

We have placed additional information regarding a WIC Piceance Basin Expansion "one-pipe" alternative in the discussion of alternative pipeline systems in section 4.2.2 (see revised table 4.2-2). However, we do not consider the WIC Piceance Basin Expansion to be reasonable alternative to the Entrega proposal for the following reasons:

1. WIC's proposed pipeline ends at Wamsutter and therefore would not satisfy Entrega's objective of transporting gas to the Cheyenne Hub;
2. both projects were designed to transport volumes of gas which were committed by marketers/shippers during each project's respective open season, rather than overbuilding to accommodate speculative volumes that may become available at some future date;
3. WIC's proposed facilities could not physically carry the additional gas volumes associated with the Entrega proposal without extensive and substantial changes (i.e., almost doubling the pipeline diameter and installation of additional compression); and
4. Entrega and WIC are independent proposals by independent, unrelated applicants. As noted in section 4.2.2, WIC and Entrega attempted to resolve their differences and negotiate a common pipeline for several months to no avail before filing individual applications. The Commission cannot compel either applicant to build facilities sufficient to carry the other applicant's gas.

In the draft EIS, we explored the option of modifying the Entrega and WIC proposals to accommodate one another's gas and concluded that combining two independent pipeline projects with different owners, suppliers, and delivery points into a single pipeline system would be extremely difficult (see draft EIS pages 4-4 and 4-5). While attractive in concept, we consider a WIC "stand-alone alternative" to be an unrealistic alternative to Entrega's proposal. Further analysis indicates that construction of two separate pipelines would actually provide more flexibility and a broader array of options for future expansion, should such expansion be warranted. See revised discussion in section 4.2.2.

F4-3 EPA Consider one Final EIS for WIC and Entrega lines

Our rationale for deciding against the option of including both projects in a single EIS remains valid. Although the construction schedules now appear to be converging, to combine the projects into one EIS still poses an unacceptable risk that one project would be penalized for any delays or major changes that affected the other project (see discussion in final EIS section 1). However, the FERC and BLM have tracked the scope of the two projects' construction plans to ensure similarity in construction methods and mitigation, ensuring common procedures where the two projects overlap in space and time. Further, the cumulative impact analysis (section 3.12) discusses potential impacts that would be incurred if both projects are ultimately constructed.

F4-4 EPA Concerned about segmenting of pipeline projects

As discussed in final EIS section 1, we do not believe that the Entrega Pipeline Project is an interdependent part of any large action or that we have segmented a larger action in any way. Further, the draft EIS disclosed all of the information available at the time the draft was issued regarding other pipeline projects proposed for the Piceance Basin. To the extent that additional information has become available since February 2005, we have included it in the cumulative impact discussion (see section 3.12).

Responses to Letter F-4

F4-5 EPA **Revise EIS to look at all proposed natural gas transportation projects**

The projects identified by the commentor are included in the Cumulative Impacts discussion in section 3.12 of the EIS.

- The pipelines discussed in EIS figure 3.12-1, table 3.12-1, and section 3.12 are all part of either the EnCana Meeker Pipeline and Gas Plant Project (addressed in the BLM's environmental assessment), the WIC Piceance Basin Expansion Project (addressed in a separate FERC EIS), or Entrega's proposal.
- For the reasons explained previously (see response to comment F4-3), we will not hold up our review of the Entrega proposal to include WIC's Piceance Basin Expansion in a single, combined EIS. Further, integration of the EnCana proposal would be duplicative, of the analysis performed by another federal agency.

See our response to comment F4-1 regarding the contention that constructing pipeline capacity would induce additional natural gas development.

If you have any questions about these comments, please contact Dana Allen at (303) 312-6870. We appreciate your interest in our comments.

Sincerely,

Larry Svoboda, Director
NEPA Program
Ecosystem Protection and Remediation

Enclosure

cc: Gas Branch1, JPJ11.1, FERC
Cliff Rader, EPA HQ

Letter F-4 Continued

Environmental Protection Agency Rating System for Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonaby available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Letter S-1

WYOMING
GAME AND FISH DEPARTMENT

Dave Freudenthal, Governor — Terry Cleveland, Director

"Conserving Wildlife - Serving People"

April 15, 2005

WER 10736
Federal Energy Regulatory Commission
Draft Environmental Impact Statement
Executive Summary
Docket No. CP04-413-000
BLM Reference Nos. CP04-413-000, et.al.
Entrega Gas Pipeline Project
Albany, Carbon Laramie, and Sweetwater Counties

Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, D.C. 20426

Dear Ms. Salas:

The staff of the Wyoming Game and Fish Department has reviewed the Draft Environmental Impact Statement – Executive Summary for the Entrega Gas Pipeline Project. We offer the following comments.

Terrestrial Considerations:

The following wildlife resources and habitats occur in the vicinity of the proposed ROW of the pipeline:

- crucial winter/yearlong ranges for pronghorn, mule deer and elk,
- winter/yearlong ranges for pronghorn, mule deer, elk and moose,
- spring/summer/fall range for elk, and white-tailed deer,
- sage grouse strutting, brood rearing, and nesting habitat. Active sage-grouse leks include Red Lakers (T18N, R94W, Section 9, ~2 miles from the project), Shallow Creek (T16N, R95W, Section 24, ~4 miles from the project), and North Barrels Springs (T17N, R94W, Section 2, ~4 miles from the project),
- nest sites for several species of raptors,
- habitat for mountain plovers, burrowing owls, and white-tailed prairie dogs, and
- wetland and riparian habitats.

Headquarters: 5400 Bishop Boulevard, Cheyenne, WY 82006-0001
Fax: (307) 777-4610 Web Site: http://gf.state.wy.us

Letter S-1 Continued

We commend FERC for their efforts to address wildlife concerns, however, there are a number of places where the DEIS should be strengthened and clarified. For example, the executive summary refers to an "adequate level" of wetland protection (p. ES-4) and "appropriate buffer zones and seasonal construction restrictions" (p. ES-5) that are generally undefined in the document. S1-1

The document presents recommendations and suggestions in bold type, however, the measures should be required and implemented. Entrega should commit up front to accepting those recommendations as requirements. Additionally, the DEIS references critical sections of the Plan of Development (POD) for the BLM which are not presented in the DEIS (e.g., Appendix C and references to Section 1 and Tables 4.3.3 and 4.3.4, pages 24-26 of Appendix C). "Appropriate measures" for raptors (Appendix C page 26) are not presented for review. S1-2 S1-3

Proposed Action

2.2.1 Pipeline ROW (p. 2-5): We recommend that the pipeline be restricted as much as possible to existing pipelines using the narrowest ROW width. We prefer a route that places the pipeline within an existing pipeline corridor closest to highways and other existing disturbances as opposed to more interior routes that increase habitat disturb and. For example, we recommend using the southernmost existing pipeline corridor though our Wick Wildlife Habitat Management Area (WHMA), as opposed to the suggested route (Figure 2.3-6, p. 2-30). S1-4

Table 2.8-1 (p 2-41): The table omits required Special Use Permits from the Wyoming Game and Fish Commission for activities on WHMAs in Wyoming. S1-5

Environmental Analysis

Big Game (p. 3-57): The discussion regarding the relatively small acreages impacted on WHMAs fails to recognize the disproportionate importance of these areas for recreation, as well as habitat. S1-6

Raptors (p. 3-60 – 3-61): The "inventory procedures" mentioned in the discussion of aerial breeding raptor surveys provides little information on whether surveys were conducted with appropriate procedures during accepted species-specific time frames. The DEIS should note that seasonal restrictions are species–specific. S1-7

Sage Grouse (p. 3-76): Human disturbance should be avoided from 8:00 PM until 8:00 AM within 1/4 mile of the perimeter of leks from March 1–May 15. S1-8

Sage Grouse (Appendix C, p. 25): The sage grouse March 1-May 31 timing limitations refer to the breeding and nesting season, not winter. S1-9

Land Use, Recreation and Visual Resources (p. 3-84ff): Special Use Permits would be required for activities within our WHMAs. The pipeline should be as narrow as possible, minimize S1-10

Responses to Letter S-1

S1-1 Wyoming Game and Fish Department — Define "adequate" and appropriate"

The text has been clarified. See Executive Summary.

S1-2 Wyoming Game and Fish Department — Entrega should commit to recommendations

Entrega has already committed to a number of the recommendations identified in the draft EIS. Recommendations in the final EIS will be reviewed by the Commission and, if the project is approved, may be included as conditions (i.e., required measures) attached to the FERC Certificate.

S1-3 Wyoming Game and Fish Department — All of POD is not presented

The entire POD is not included in the EIS due to its size. Section 1 of the POD broadly corresponds to the EIS, including project description, affected environment, and construction procedures. Section 2 of the POD focuses on Entrega's reclamation and mitigation and this section is included as appendix G of the EIS. For the final EIS, we have also included Entrega's newly revised BLM-specific and general Conservation Measures Plans which identifies Entrega's committed measures (see appendix O).

S1-4 Wyoming Game and Fish Department — Pipeline route in existing corridors

The proposed route is located adjacent to existing pipelines along nearly its entire length. Where the Entrega pipeline would be within a multiple-pipeline corridor, the route has been located next to the pipeline that offers the most favorable construction conditions and best crossings of rivers and other utilities.

S1-5 Wyoming Game and Fish Department — Special Use Permit

The table has been revised. However, we note that Entrega has reported that its consultation with the WGFD indicates that no Special Use Permit would be required for the project.

S1-6 Wyoming Game and Fish Department — Big game

The text has been revised to recognize important habitat for big game species.

S1-7 Wyoming Game and Fish Department — Raptors

Please see section 3.5.2 that presents the result of raptor surveys that were conducted in 2004. In order to minimize impacts to nesting raptors along the project route, Entrega will follow raptor survey plans and conservation measure plans that were approved by the FWS and BLM (appendix O).

S1-8 Wyoming Game and Fish Department — Sage Grouse time restrictions

The text has been revised. See section 3.6.3.

S1-9 Wyoming Game and Fish Department — Sage grouse restrictions on seasons

The text has been revised. See section 3.6.3.

Letter S-1 Continued

S1-10 disturbance, and be located as much as possible within existing pipeline corridors on the periphery of the WHMAs.

S1-11 Recreational Areas (p. 3-88 – 3-89): The statement that Entrega would coordinate with wildlife managers on WHMAs and Hunter Management Areas to insure access should be expanded to consider that the construction activities may reduce hunting opportunities on these units. Provisions should be made to minimize activities during the established hunting seasons on these areas.

S1-12 Cumulative Impacts Analysis (p. 3-144): This section does not include gas field impacts in the Continental Divide/Wamsutter II, Mulligan Draw, South Baggs, Desolation Flats, and other natural gas projects between I-80 and the Colorado state line. These projects are significant and should be included in the cumulative impacts analysis.

S1-13 Cumulative Impacts (3-12 ff): The cumulative impacts discussion is rather incomplete and disjunct. Sage brush control, Coal Bed Methane development, coal mining, highways and associated fences, vegetative stand condition, wind power development, and the potential for additional development with increased pipeline capacity, are some areas that have not been disclosed in detail.

Recommendations

Conclusions and Recommendations (p. 5-1ff): We feel Entrega's proposed mitigation should be reinforced. We offer the following recommendations:

S1-14
- Remove vegetation only where trenching will occur, since this will reduce reclamation costs, make reclamation easier because less vegetation will be removed, and minimize habitat loss.

S1-15
- All topsoil should be saved and spread over disturbed areas as soon as possible after disturbance to accelerate natural and artificial re-vegetation.

S1-16
- Plant vegetation that is most suitable for wildlife, dependent upon the disturbed site. Reclamation contractors should investigate and plant species that are beneficial to sage grouse and/or big game (Contact local Wyoming Game and Fish Offices for specific recommendations).

S1-17
- Pipeline construction should be synchronized with seasonal wildlife needs to minimize disturbance. When appropriate, seasonal stipulations should be applied:

S1-18
- Listed below are recommended dates that raptor nest sites should be free of disturbance. A ½-mile buffer around each nest should be maintained. Exceptions may be granted based on topography or other site-specific factors.

Responses to Letter S-1

S1-10 Wyoming Game and Fish Department — Special Use Permits

Section 3.7 has been revised. Table 2.8-1 has been updated to include the special use permit. The pipeline route has been evaluated to minimize surface disturbance, including collocation with pipeline corridors to the extent possible.

S1-11 Wyoming Game and Fish Department — Recreational Areas

Section 3.7 has been revised. Entrega's Winter Construction Plan would need further revision since Entrega would be required to address potential conflicts with hunting seasons in WHMAs if construction was delayed.

S1-12 Wyoming Game and Fish Department — Cumulative – gas fields

See the response to comment F4-1.

S1-13 Wyoming Game and Fish Department — Cumulative – other development

The cumulative projects and activities that could be discerned from BLM and state databases and from aerial photography interpretation were included in the cumulative analysis. Areas of recent sagebrush control intercepted by the proposed right of way were not observed. Coal bed methane and coal mines could be developed in the future, but no specific existing or foreseeable projects in the vicinity of the Entrega project were identified. Highways were acknowledged as a cumulative impact factor, and the surface disturbance was estimated. Because the Entrega pipeline would be constructed underground and would not be fenced, the project would not interfere with wildlife movements caused by fences. The pipeline would be located in the project area for the Seawest Arlington Wind Farm in Wyoming, with the centerline passing within a few hundred feet from wind farm facilities. The project would not cross foreseeable wind power projects, and would not prevent the installation of future wind facilities except within the permanent pipeline right-of-way. It would be speculative to estimate the potential for additional development as pipeline capacity increases over time.

S1-14 Wyoming Game and Fish Department — ROW clearing

See response to comment F1-25.

S1-15 Wyoming Geme and Fish Department — Topsoil preservation

As stipulated in the EIS, Entrega would be required to segregate topsoil. Following installation of the pipe and backfilling, topsoil would be spread over the disturbed area within 20 days after construction (as stipulated in appendix E). It is in Entrega's best interest to replace topsoil effectively and as quickly as possible because Entrega would be responsible for restoration of the ROW.

S1-16 Wyoming Game and Fish Department — Revegetation for wildlife

Entrega identified seed mixtures that would be beneficial to wildlife by including appropriate grasses, forbs, and shrub species in the mixes. Further, the BLM has identified planting patterns for sagebrush plugs in areas where the pipeline ROW directly impacts a sage grouse lek, and has identified a seeding contingency should the plugs not survive. The POD has been modified accordingly.

S1-17 Wyoming Game and Fish Department — Wildlife construction timing restrictions

Entrega has committed to minimizing impacts on wildlife by adhering to sensitive wildlife timing restrictions and buffer zones.

Letter S-1 Continued

S1-18

SPECIES	DISTURBANCE-FREE DATES
Osprey	April 15 - August 1
Bald eagle	February 15 - August 15
Northern harrier	April 1 - July 31
Sharp-shinned hawk	May 1 - August 31
Cooper's hawk	April 15 - August 15
Northern goshawk	April 1 - August 15
Swainson's hawk	May 1 - August 31
Red-tailed hawk	March 15 - July 31
Ferruginous hawk	April 1 - July 31
Golden eagle	February 1 - July 31
American kestrel	April 1 - August 15
Merlin	April 1 - August 15
Peregrine falcon	March 15 - August 15
Prairie falcon	March 1 - August 15

S1-19

- Big game winter range; November 15 - April 30

S1-20

- Vegetation within disturbed areas should consist of a mixture of warm and cool season grasses, forbs and shrubs. Non-native plant species should be avoided. We encourage Entrega to contact the local Natural Resources Conservation Services offices (Laramie 307-721-0072, Cheyenne 307-772-2314) for native plant species recommendations.

S1-21

- Avoid disturbance and contamination of wetlands and riparian habitats. Any wetland impacted by this project must be restored to pre-project condition or mitigated in-kind.

S1-22

- If hay or straw is used as mulch, only weed-free material should be used.

S1-23

- Pipeline ditches should remain open for no longer than a day, if possible, since they can entrap big game and block movements of animals, especially during winter when larger numbers of animals may be moving. We also request notification of any losses that occur from the pipeline.

S1-24

- To increase safety, workers on foot away from the major construction areas should wear blaze-orange vests or shirts from September 20 to November 30, during the big game rifle seasons.

S1-25

- Weeds along rights-of-way continue to be a concern, especially within the Red Rim WHMA. We recommend Entrega commit to periodic inspection of this right-of-way approximately every three years and treat weeds following initial re-vegetation efforts.

Responses to Letter S-1

S1-18 Wyoming Game and Fish Department — Timing restrictions for raptors

See response to comment F1-19.

S1-19 Wyoming Game and Fish Department — Timing restriction for big game

As discussed in section 3.5.3, Entrega has committed to avoiding construction and non-emergency maintenance activities in designated crucial winter/yearlong big game ranges between November 15 and April 30 in Wyoming.

S1-20 Wyoming Game and Fish Department — Revegetation mixtures

Three Colorado and four Wyoming reclamation seed mixtures are described in Entrega's CM&R Plan (appendix G). These seed mixtures are representative of various vegetation communities and include a mixture of warm and cool season grass, forb, and shrub species. These mixes were based on recommendations provided by the NRCS; BLM Rawlins, Little Snake, and White River Field Offices; CDOW, and the Colorado State Land Board.

S1-21 Wyoming Game and Fish Department — Wetland avoidance

As indicated in section 3.3.3, over 90 percent of the wetland disturbances associated with the project would occur in emergent wetlands, which would be allowed to revert to pre-project conditions following construction. No wetlands would be lost due to construction or operation of the project.

S1-22 Wyoming Game and Fish Department — Weed-free straw

The Contractor would ensure that certified weed-free straw/hay bales and mulches would be used. This has been noted throughout the text.

S1-23 Wyoming Game and Fish Department — Trench plugs

FERC recognizes that the open trench can be an obstacle to wildlife movement (section 3.5.3). Entrega has committed to spacing escape ramps and plugs at 1-mile intervals on federal lands. We have recommended that this mitigation be uniformly applied throughout the project, unless site-specific conditions suggest otherwise. In our recommendation, EIs will have the ability to petition for a variance to this recommendation to account for site-specific conditions.

S1-24 Wyoming Game and Fish Department — Blaze orange

FERC agrees that this is an important protection measure for construction workers. We have forwarded this suggestion to Entrega.

S1-25 Wyoming Game and Fish Department — Weeds in WHMA

See response to comment L1-1. The EIS recommends that Entrega develop long-term strategies for weed control, including monitoring, with the appropriate authorities and landowners. We have forwarded your comments to Entrega.

Letter S-1 Continued

Aquatic Considerations:

To minimize impacts to the aquatic resources, we recommend the following:

S1-26
- Where pipeline crossings of streams (perennial or intermittent) will be done by trenching, stream banks should be restabilized with large angular rock (greater than 2 feet in one dimension). Riprap should be placed from the channel bottom to the top of the normal high water line on the bank.

S1-27
- We recommend that the applicant utilize double-ditching techniques to separate the top one-foot of stream bottom substrate from deeper soil layers. Substrate layers should be replaced in the same order that they are removed from the stream.

S1-28
- Riparian canopy or stabilizing vegetation should not be removed if possible. Crushing or shearing streamside woody vegetation is preferable to complete removal. Any such vegetation that is removed in conjunction with stream crossings should be reestablished immediately following completion of the crossing.

S1-29
- Any riparian canopy or bank stabilizing vegetation removed as result of construction activities should be re-established.

S1-30
- Riparian areas and floodplains should not be used as staging or refueling areas. All chemicals, solvents and fuels should be kept at least 150 feet away from streams and riparian areas.

S1-31
- Any pipelines that parallel drainages should be located outside the 100-year floodplain. Pipeline crossings of riparian areas and streams should be at right angles to minimize the area of disturbance.

S1-32
- Right-of-way widths should be minimized where the pipeline crosses riparian areas and streams.

S1-33
- Instream construction activities should be minimized to the greatest extent possible to minimize sedimentation and channel instability impacts to fish habitat.

S1-34
We are concerned with the following statement from the executive summary: "In order to hydrostatically test the proposed pipeline, Entrega would use approximately 56.2 millions gallons of water from four different rivers; just over half of the water would be obtained from the North Platte River under a purchase agreement with Bureau of Reclamation." The release of hydrostatic test waters during pipeline construction could result in alterations of stream channels, increased sediment loads, and additions of potentially toxic chemicals into drainages, thereby resulting in adverse impacts to aquatic biota. Furthermore, release of water into drainages other

Responses to Letter S-1

S1-26 Wyoming Game and Fish Department — Stream bank stabilization

See response to comment F1-23, and appendix I. Entrega does not intend to use rip-rap to restore stream banks because it is not consistent with existing practices in the area, and the use of rip-rap creates visual aesthetics contrary to existing conditions. To reduce bottom scour, however, clean gravel or native cobble would be placed in the upper 1 foot of trench backfill. Introductory text has been updated to reflect Entrega's Incised Bank Stabilization and Restoration Plan (appendix I).

S1-27 Wyoming Game and Fish Department — Double-ditch in streams

We believe that the construction procedures presented in appendix F offer appropriate protection to the waterbodies and serve to minimize the length of time each waterbody is disturbed.

S1-28 Wyoming Game and Fish Department — Removal of riparian canopy

Entrega has already agreed to reduce its ROW width to 75 feet in riparian woodlands. Our recommendation in section 3.4.1 would require Entrega to provide additional measures to avoid or minimize impacts to riparian woodlands. Rootstock would be left intact when possible. Reclamation would be required as soon as practical and would be required to meet specific reclamation success criteria.
This issue is also addressed in Appendix K.

S1-29 Wyoming Game and Fish Department — Reestablish riparian canopy if disturbed

See response to comment S1-28.

S1-30 Wyoming Game and Fish Department — Refueling in riparian areas

Entrega's Procedures and SPCC Plan require a 100-foot setback from streams and wetlands. This distance is consistent with the FERC's Procedures and we believe this will provide protection to these resource areas.

S1-31 Wyoming Game and Fish Department — No pipelines paralleling 100-year floodplain

Comments noted. The protective measures mentioned are discussed in section 2.3.2 and appendix F and would be implemented as feasible based on site-specific conditions.

S1-32 Wyoming Game and Fish Department — Reduced ROW width in riparian areas and streams

See response to comments S1-28 and S1-31.

S1-33 Wyoming Game and Fish Department — Minimize instream construction

See response to comment S1-31.

Letter S-1 Continued

S1-34 than the source drainage can result in an unacceptable risk of introducing aquatic nuisance species (New Zealand mud snail, European ear snail, whirling disease spores, etc.). Introduction of aquatic nuisance species can be devastating to the ecosystems of vast basins in the receiving waters.

S1-35 The hydrostatic test plan summary states, "The water will be discharged to an upland location near the surface water from which it was appropriated, and allowed to flow back into the water body." From the map found in this section it appears that the water will be discharged at least 300 feet from the North Platte River at an elevation of approximately 20 feet above the river. In the highly erosive soils found at this site, there is the potential for a head cut to form and for sediment to reach the river. We found no mention in the hydrostatic test plan summary of measures taken to prevent this from happening.

S1-36 The DEIS states water will be discharged three separate times into the North Platte River, between October 10 and November 3, which happen to coincide with brown trout spawning. The North Platte River is managed as a wild trout fishery, with brown trout constituting 80% of the salmonid population in this portion of the river (Laramie Fisheries Management Crew fish population estimate, 8/14/2000, Pass Creek to I-80). Flow fluctuations could potentially affect spawning and increased sediment input into the North Platte River could affect spawning success.

S1-37 To minimize impacts, we recommend the direct discharge of hydrostatic test waters to streams other than the source water be avoided. Discharge should occur into the source drainage in a manner that does not increase erosion or alter stream channels. Discharge should occur into temporary sedimentation basins and the dewatering of the temporary sedimentation basins should then be done in a manner that precludes erosion.

S1-38 Another concern is the potential to spread aquatic nuisance species via construction equipment used to construct in-stream trenches. The EIS states that wide stream crossings will necessitate heavy equipment operating in the stream channel. If this same equipment is then going to be used in another stream, all mud, vegetation, etc. should be cleaned from the machine before leaving the site. The potential to spread aquatic nuisance species from one drainage basin to another is a real threat that should be addressed in the DEIS.

Responses to Letter S-1

S1-34 Wyoming Game and Fish Department — Impacts of hydrostatic water releases

Based on FWS recommendations, Entrega intends to discharge hydrostatic test water directly into the waterbody from which it was withdrawn. Further discussion and recommendations pertaining to this issue are presented in section 3.3.2. Entrega would use energy-dissipating devises to minimize stream scour and turbidity (appendix M). The discharge of hydrostatic test water would not release toxic constituents because 1) the pipeline would be constructed from new internally-coated pipe, and 2) Entrega would test the hydrostatic test water prior to discharge to ensure compliance with its NPDES permit (appendix M). To avoid the inadvertent transport of invasive aquatic species, Entrega would withdraw and discharge hydrostatic test water from the same river. Section 3.3.2 and table 3.3.3 have been revised to clarify this point.

S1-35 Wyoming Game and Fish Department — Discharge of hydrostatic test water onto highly erosive soils near N. Platte

See response to comment S1-34.

S1-36 Wyoming Game and Fish Department — Hydrostatic discharge during trout spawning

Based on the current schedule, hydrostatic testing would avoid the brown trout spawning period. However, in the event that the schedule is delayed or modified, the FERC has recommended that Entrega consult with the FWS and appropriate state agencies to determine appropriate mitigation for hydrostatic testing that would avoid or minimize impacts to fish species during the spawning period. Also see response for comment S1-34.

S1-37 Wyoming Game and Fish Department — Do not discharge into a different waterbody

See response to comment S1-34.

S1-38 Wyoming Game and Fish Department — Transport of aquatic nuisance species

Section 3.3 has been revised in response to this comment.

Letter S-1 Continued

Thank you for the opportunity to comment.

Sincerely,

BILL WICHERS
DEPUTY DIRECTOR

BW:VS:as
cc: Mary Flanderka-Governor's Planning Office
USFWS

Letter L-1

Date: March 21, 2005

To: Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426;
Reference: Docket Nos. CP04-413-000,et al.

From: Saratoga-Encampment-Rawlins Conservation District
P.O. Box 633
101 Cypress Avenue
Saratoga, Wyoming 82331

:Dear Ms. Salas:

The Saratoga-Encampment-Rawlins Conservation District (SERCD) appreciates the opportunity to provide input concerning the Draft Environmental Statement for the Entrega Pipeline Project. The SERCD operates under, and is guided by Legislative declarations and policies of the Wyoming State Legislature W.S. 11-16-103 et al. The SERCD Board of Supervisors, locally elected individuals, have reviewed the DEIS of the Entrega Pipeline Project. SERCD wishes to comment on the following specific items found in the DEIS that SERCD believes may/will affect our constituents or land located within SERCD's legal boundaries.

EXECUTIVE SUMMARY

L1-1 Page ES-4. Soils and Invasive Plant Species
A large portion of the proposed pipeline crosses a part of Carbon County, Wyoming where a noxious weed infestation already exists and is being addressed by Wyoming Department of Ag sponsored CRM. SERCD believes Entrega should contact the CRM for Best management Practices (BMP's) already established by that group for rehab of well pads and pipelines. SERCD strongly supports that those same BMP's be used across the area within our legal boundaries.

L1-2 Page ES-4 Water Resources
SERCD does not believe that the proposed plan for stream crossings, rehab of wetlands and stream banks properly address those issues. SERCD believes its experience in dealing with Watersheds and rehab work gives SERCD special expertise in those areas of monitoring stream crossings, and stream bank and wetland rehab BMP's. SERCD would like to review Entrega's rehab plans for all stream crossings, stream banks and wetlands.

L1-3 Page ES-5 Vegetation
SERCD believes that it has the necessary expertise to recommend the BMP's involved in rehab and monitoring of rangeland inside the District boundaries. SERCD recommends that Entrega. contact SERCD when dealing with landowners for aid in developing proper seed mixes and monitoring guidelines. SERCD believes that Entrega should in all monitoring use the Wyoming Rangeland Monitoring Guide approved by Wyoming Department of Ag, the BLM. The USFS, the U of WY and the NRCS.

Responses to Letter L-1

L1-1 Saratoga Encampment - Rawlins Conservation District — BMP use for Noxious Weeds

To minimize the spread of noxious and invasive weeds, FERC has included a recommendation that would require Entrega to control weeds along the pipeline ROW for the life of the project. The EIS presents Entrega's ongoing consultations with the local NRCS, weed control board or officials, land management agencies, and landowners with regard to the development of its Weed Management Plan and related mitigation procedures. In order to accomplish weed prevention and control in the most appropriate and effective manner, the EIS text (section 3.2) has been modified to encompass consultations with Conservation Districts (e.g. Saratoga-Encampment-Rawlins, White River, Colorado First Soil, West Greeley, and Medicine Bow), local governments (e.g. Wyoming Department of Agriculture, Division of Natural Resources sponsored Great Divide Reclamation and Weed Cooperative Resource Management [CRM]), Weed Management Areas (e.g. Southeast Carbon County Weed Management Area [WMA]), and the Wyoming Weed and Pest Council. Thank you for your comments and additional information.

L1-2 Saratoga Encampment – Rawlins Conservation District — Rehab plans for streams & wetlands

Entrega consulted with federal land, state and local authorities (e.g., BLM, NRCS) regarding the development of Entrega's Plan and Procedures, Site-Specific Waterbody Crossing Plans ,CM&R Plan, and their mitigation procedures. Entrega will continue to work with these agencies to implement the Plans' protective measures.
The text has been added to section 3.3 that addresses sediment loading concerns as well as the need to consult with specific conservation districts.

L1-3 Saratoga Encampment – Rawlins Conservation District — BMP use for rangeland

See response to comment S1-20. If the SERCD has specific recommendations for seed mixes (other than the mixtures described in appendix G – the CM&R Plan), these should be discussed directly with Entrega.

Letter L-1 Continued

L1-4 Page ES-5 Fish and Wildlife
SERCD believes that the public support for Sage Grouse requires that Sage Grouse be addressed in any rehab or wildlife plans. Native forbs should be a part of any seed mixtures used on Public lands and introduced forbs be available for Private Landowners to use, if desired, in private land rehab.

L1-5 Chapter 2 Proposed Action
Page 2-20 Waterbody Crossings
Water quality is an issue of major concern in the North Platte watershed. SERCD believes that its experience in water quality testing has given the District expertise in testing instream water for its ability to meet WY.DEQ standards. Entrega should contact SERCD for BMP's used in testing water inside the district legal boundaries. SERCD believes that testing should be done before construction start for a control. Then test should be conducted during and after construction as well as a test following run off the following year to monitor success of rehab practice.

L1-6 Chapter 3 Environmental Analysis
Page 3-32 3.3.2 Surface water
SERCD concerns addressed in previous comments..

L1-7 Page 3-38 3.3.3 Wetlands
SERCD believes that wetlands are a valuable Wyoming resource and that any disturbance must be kept to a minimum. Rehab of a wetland must be protected from further disturbance by both wildlife and livestock until plants have re-established and wetland meets pre-construction conditions. SERCD believes that that protection must be a part of any rehab plan.

Appendices
L1-8 Section 2 Entrega's Construction, Mitigation, and Reclamation Plan
Page 2 2.1.1 Topsoil Segregation
SERCD believes that private land practices should be the same as practices used on state and federal lands. SERCD is willing to work with Entrega in contacting Landowners to establish guidelines for reclamation planning.

L1-9 Page11 2.1.11 Revegetation
SERCD believes that all seed mixes should include Sage Grouse habitat for Landowners to select if desired. SERCD encourages Entrega to contact us for help in getting Landowners together for mitigating rehab practices.

L1-10 Section 3 Reclamation Monitoring Plan
SERCD believes that in general Entrega's monitoring plan is a good concept and encourage other pipeline companies to follow Entrega's example.

L1-11 Page 23 3.3.1 Vegetation Monitoring
SERCD believes that the Wyoming Monitoring Rangeland Monitoring Guide should be use to establish monitoring methods on all of the Wyoming lands, but would require it to be used on all land within SERCD boundaries.

L1-12 Appendix D Entrega's Weed Management Plan Rev. 3 January 2005

Responses to Letter L-1

L1-4 Saratoga Encampment – Rawlins Conservation District — Sage Grouse and native forb rehab

See response to comment S1-16.

L1-5 Saratoga Encampment – Rawlins Conservation District — Recommend BMPs for water testing

The text has been modified to address this comment. See section 3.3.2.

L1-6 Saratoga Encampment – Rawlins Conservation District — Surface water

The text has been modified to address this comment. See section 3.3.2.

L1-7 Saratoga Encampment – Rawlins Conservation District — Wetland rehab

Entrega would be required to monitor for successful restoration and to protect resources in accordance with the certificate issued for the project. This would include all plans and the results of consultations on file for the project and evaluated in the EDS. See also the landowner consultations and other provisions in the appendices (particularly appendix G).

L1-8 Saratoga Encampment – Rawlins Conservation District — Establishing reclamation guidelines

As stated in the EIS, reclamation procedures would be the same on federal, state, and private lands, unless the landowner makes specific agreements with Entrega. SERCD is encouraged to communicate directly with Entrega and landowners to consult with them on proper reclamation procedures.

L1-9 Saratoga Encampment – Rawlins Conservation District — Seed mixes for Sage Grouse habitat

Entrega has committed to continue consultations with conservation districts and has added the SERCD to its correspondence and notification list. If the SERCD has specific recommendations for landowners who desire sagebrush plantings (other than the sagebrush mixture described in appendix G – the CM&R Plan), these should be discussed directly with Entrega.

L1-10 Saratoga Encampment – Rawlins Conservation District — Approval of Entrega's monitoring plan

Thank you for your comment.

L1-11 Saratoga Encampment – Rawlins Conservation District — Use of Wyoming Rangeland Monitoring Guide

See response to comment L1-9.

Letter L-1 Continued

L1-12 *SERCD believes that Entrega should contact the Great Divide Weed CRM for guidance* in BMP's being used in rehab work inside the CRM's boundaries. The Great Divide CRM includes the Rawlins BLM and SERCD in its membership.

L1-13 Attachment A
MP 192.7 North Platte River Crossing Notes
SERCD believes that its name should be added to the contact list to be notified one week (7 days) prior to construction start on North Platte River crossing.

SERCD believes that overall the proposed DEIS is good and in general most of the proposed actions meet our standards. SERCD would encourage Entrega to involve the local Conservation Districts in helping with private Landowners cooperation and involvement in the implementation of BMP's on private land.

Sincerely,

Larry Bentley
District Coordinator
Saratoga-Encampment_Rawlins Conservation District
P.O. Box 633
101 Cypress Avenue
Saratoga, Wyoming 82331
E-mail: larry.bentley@wy.nacdnet.net.net
Phone: (307) 326-8156
Fax: (307) 326-8572

Responses to Letter L-1

L1-12 Saratoga Encampment – Rawlins Conservation District — **Use of BMPs for CRM rehab**

See response for comment L1-1.

L1-13 Saratoga Encampment - Rawlins Conservation District — **SERCD should be added to the contact list**

See response for comments L1-1 and L1-9.

Letter L-2

Public Comment on the Entrega Pipeline Project Draft EIS

Name (Please print legibly): City of Cheyenne - Belvoir Ranch
Address, City, State, Zip: 2101 O'Neil Avenue, Cheyenne, WY 82001

L2-1 T13N R69W S33 NE^4 - there is a State Recorded Cultural Site which must be avoided both with the pipeline and construction equipment. The site should be marked off prior to excavation.

L2-2 Because the existing lines and easements make a jog around this sit to the north, a new line south of these easements will make the operations extremely close to this historic site.

L2-3 The city is also concerned about existing ranch water lines and a proposed new road that will cross the line going to a new landfill.

CHARLES LANHAM
Preservation Planner
(307)637-6283

(Use additional sheets of paper, if necessary)

To ensure that your written comments are timely and properly recorded, please mail your comments so that they will be received in Washington, DC **on or before April 18, 2005**, and carefully follow these instructions:

- Send an **original and two copies** of your letter to:
  Magalie R. Salas, Secretary
  Federal Energy Regulatory Commission
  888 First Street, NE, Room 1A
  Washington, DC 20426
- Label one copy of your comments for the attention of **Gas Branch 1, PJ-11.1**, and
- Reference **Docket Nos. CP04-413-000, et al.** on the original and both copies.

Comments may also be submitted electronically. See the instructions on the Commission's web site at http://www.ferc.gov under the "e-Filing" link (Documents and Filing tab) and the link to the User's Guide.

Responses to Letter L-2

L2-1 City of Cheyenne Avoidance of State Recorded Cultural Site

See revised text in EIS, section 3.8.

L2-2 City of Cheyenne Concerns of impact on historic site

See revised text in EIS, section 3.8.
Text added to address this comment.

L2-3 City of Cheyenne Avoidance of existing water lines

See response to oral comment L1-0-3. Also, Entrega plans to lower its pipeline at a location identified by the City of Cheyenne for a new road to provide cover sufficient for safe operation of the pipeline similar to other road crossings.

Letter L-3

Public Comment on the Entrega Pipeline Project Draft EIS

Name (Please print legibly): Aptlin Zeiger
Address, City, State, Zip: PO Box 246 Saratoga WYO 82331

L3-1 I am a Carbon County Commissioner
I want you to know that I support the Pipe
line project and I like the way you do business
If I can be of any help please don't be bashfull

(Use additional sheets of paper, if necessary)

To ensure that your written comments are timely and properly recorded, please mail your comments so that they will be received in Washington, DC **on or before April 18, 2005**, and carefully follow these instructions:

- Send an **original and two copies** of your letter to:
  Magalie R. Salas, Secretary
  Federal Energy Regulatory Commission
  888 First Street, NE, Room 1A
  Washington, DC 20426

- Label one copy of your comments for the attention of **Gas Branch 1, PJ-11.1**, and

- Reference **Docket Nos. CP04-413-000, et al.** on the original and both copies.

Comments may also be submitted electronically. See the instructions on the Commission's web site at http://www.ferc.gov under the "e-Filing" link (Documents and Filing tab) and the link to the User's Guide.

Responses to Letter L-3

L3-1 Carbon County Commissioner **Expressed support for project**

Comment noted.

Letter L-4

April 11, 2005

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

Dear Magalie,

The Medicine Bow Conservation District (MBCD) appreciates the opportunity to provide input concerning the Draft Environmental Impact Statement (DEIS) for the Entrega Pipeline Project. The Medicine Bow Conservation District operates under, and is guided by, legislative declarations and policy of the Wyoming State Legislature W.S. 11-16-103 et al. The Board of Supervisors, a group of locally elected individuals, has reviewed and held discussion concerning the DEIS.

Our involvement in the proposed pipeline construction is twofold. The first is our legislative charge and responsibility to the citizens within the district to conserve our natural resources, and the second is our involvement with the Southeast Carbon County Integrated Weed Management Committee (SECCIWMC), which oversees the Rock Creek Weed CRM (RCWCRM). After reviewing the DEIS, the Medicine Bow Conservation District would like to present the following concerns and requests:

L4-1 **Section 3.2.4 Noxious Weeds and Other Invasive Plants,** beginning on page 3-21. We agree with the recommendations for revisions to the Weed Management plan as presented with the following exceptions: We recommend that Entrega, or their designated contractor, work in a cooperative and cohesive manner with Local Governments and Weed Management Areas that are already active in weed control and management in areas within the proposed pipeline. While these entities are mentioned in the DEIS no mention is made as to a collaborative working effort with them. These agencies and WMA's have a familiarity and working knowledge of the weed control efforts and intricacies in the areas of concern that cannot be replaced with an out side contractor regardless of expertise. We further fear that the efforts and work already applied and short term management plans will be derailed if there is not this cooperation.

L4-2 Our second concern in this section concerns the recommendation for an environmental complaint resolution procedure. This recommendation should be expanded to include Local Governments and Weed Management Areas. The Medicine Bow Conservation District strongly supports the right of individual land owners to act on their own behalf, however the spread of noxious weeds is not limited to individual property lines. The potential spread of noxious weeds to areas outside of the project area, and beyond affected landowners' property lines, dictates the ability of local agencies and entities such as the Medicine Bow Conservation District and Southeast Carbon County Weed Management Area to have a specific avenue for resolving any concerns.

L4-3 MBCD would like to request that a District employee, or SECCIWMC representative, be included in the ROW surveys (prior and post construction), within the respective district and WMA areas of concern, to help with identification and any other weed or pest issues concerning the

Responses to Letter L-4

L4-1 Medicine Bow Conservation District — Collaborate on noxious weeds

Please refer to the response to comment L1-1. A collaborative effort is encouraged per FERC's recommendations in section 3.2.4.

L4-2 Medicine Bow Conservation District — Complaint resolution procedure

Thank you for your comments and additional information. The complaint resolution recommendation in section 3.2.4 has been modified to encompass landowners, local governments, and Weed Management Areas.

L4-3 Medicine Bow Conservation District — Include District employee

Thank you for your comment. We have forwarded these requests to Entrega.

Letter L-4 Continued

proposed ROW. We would also like to be periodically informed regarding the post-construction survey data, so that the District: has information about what control efforts are taking place, can provide expertise or information, and can be aware of any "noxious weeds of immediate concern" to the county (e.g. houndstounge, leafy spurge, etc.).

L4-3 The Medicine Bow Conservation District specific policy supporting these concerns and requests is Section F, 28 in the MBCD Natural Resource and Land Use Plan: *"The Medicine Bow Conservation District agrees to cooperate, encourage and provide assistance in the cooperative planning of surface management of natural resources where impact from energy development will be or has occurred."*, and Section F, 30 *"The Medicine Bow Conservation District requires that all owners of Easements and or rights-of-way for power lines, above or below ground transmission lines, road ways, oil and gas exploration, pipeline and development sites, wind farms and mineral exploration and extraction sites shall be solely responsible for all control of noxious weeds until full establishment of perennial grass cover is established meeting the satisfaction of the private landowner, lessee or federal manager."*

L4-4 **Section 3.3.2 Surface Water, specifically Water Quality,** beginning on page 3-36. MBCD would like to request that in addition to the procedures outlined in Appendix B that the Wyoming Department of Environmental Quality be consulted concerning total sediment load that enters the Medicine Bow River and Rock Creek during construction and reclamation, and that the MBCD office staff is made aware and kept advised concerning water quality issues. We feel that this is necessary in order to maintain the integrity of our existing Water Quality Program with in the District.

Specific policy in the MBCD Natural Resource and Land Use Plan is as follows: Section A, 2 *"The Medicine Bow Conservation District will only recognize the collection of chemical, physical, biological, and historical constituents as credible scientific data in regards to water quality."* and Section A, 5 *"The Medicine Bow Conservation District recognizes the importance of energy development in Wyoming. The District will work to protect the soils and water resources, evaluating any discharged waters from the production of Coal Bed Methane (CBM) or other oil and gas development or mining operation to ensure they will only enhance domestic uses, not degrade the existing quality of water used for domestic, recreation, and irrigation uses."*

Thank you for allowing us to provide comments regarding the Draft Environmental Impact Statement for the Entrega Pipeline Project. Should you have any questions or need additional information, please call the Medicine Bow Conservation District at 307-379-2221.

Sincerely,

Brad Holliday
District Manager,
Medicine Bow Conservation District
PO Box 6
510 Utah
Medicine Bow, WY 82329
Email: mbcd@trib.com
Phone: (307) 379-2221
Fax: (307) 379-2224

Responses to Letter L-4

L4-4 Medicine Bow Conservation District Water quality

The text in section 3.3.2 has been revised to reflect this comment.

Letter L-5

SWEDA

SWEETWATER ECONOMIC DEVELOPMENT ASSOCIATION

1400 Dewar Drive, Suite 205A
Rock Springs, Wyoming 82901
(307) 352-6874
Fax (307) 352-6876
www.sweda.net

March 8, 2005

Magalie Roman Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Room 1A
Washington, DC 20426

RE: Entrega Gas Pipeline Inc., Docket Nos. CP04-413, CP04-414, and CP04-415

Dear Secretary Salas:

We are writing to you today in support of the proposed Entrega Gas Pipeline Inc. pipeline project from Rio County, Colorado north to Wamsutter in Sweetwater County, Wyoming and then east to the Cheyenne Hub in Weld County, Colorado. This project will be constructed and operated in our county of Sweetwater County, Wyoming.

Entrega's investment in this project will provide a variety of economic benefits to Sweetwater County and the State of Wyoming, including additional high paying skilled operating positions in our county and more than 600 temporary construction jobs. Entrega is also expected to contribute substantial amount of tax revenue to the state, county and local school districts.

L5-1

The Entrega team has been very proactive in their outreach to the landowners and the state and county agencies on this project. Their desire and actions to involve the community early in the process has helped us understand the project and its impact on our area.

We believe the Entrega Gas Pipeline Inc. project creates an opportunity that will not only help our national economy but also will have a positive impact on the community and the economy of Sweetwater County, Wyoming.

Sincerely,

Kent Porenta
President

WYOMING High Desert COUNTRY

6-59

Responses to Letter L-5

L5-1 Sweetwater County Economic Development Association Supports the project

Comment noted.

Letter L-6

MOFFAT COUNTY

March 29, 2005

Magalie Roman Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Room 1A
Washington, DC 20426

RE: Entrega Gas Pipeline Inc., Docket Nos. CP04-413, CP04-414 and CP04-415

Dear Secretary Salas:

We are writing to you today in support of the proposed Entrega Gas Pipeline Inc. (Entrega) pipeline project from Rio Blanco County Colorado north to Warnsutter in Sweetwater County Wyoming and then east to the Cheyenne Hub in Weld County, Colorado. This project will be constructed and operated in our county of Moffat County, Colorado.

Entrega's investment in this project will provide a variety of economic benefits to Moffat County and the State of Colorado, including additional high paying skilled operating positions in our county and more than 600 temporary construction jobs. Entrega is also expected to contribute substantial amount of tax revenues to the state, county and local school districts. L6-1

The Entrega team has been very proactive in their outreach to the landowners and the state and county agencies on this project. Their desire and actions to involve the community early in the siting process has helped us understand the project and its impacts on our area. Entrega has contributed up front funds to help Moffat County mitigate impacts such as roads and emergency medical services.

We believe the Entrega Gas Pipeline Inc. project creates an opportunity that will not only help our national economy but also will have a positive impact on the community and the economy of Moffat County, Colorado.

Sincerely,

Tom Gray

Saed F. Tayyara

Darryl Steele

COMMISSIONERS

221 West Victory Way, Suite 130
Craig, Colorado 81625
(970) 824-5517
(970) 824-9191 Fax

Tom Gray
District 1

Saed F. Tayyara
District 2

Darryl L. Steele
District 3

Responses to Letter L-6

L6-1 Moffat County Board of Commissioners Supports the project

Comment noted.

Letter I-1

Entrega Gas Pipeline Inc.

April 18, 2005

Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re: Entrega Gas Pipeline Inc., Docket Nos. CP04-413, et al.
Comments on Draft Environmental Impact Statement

Dear Ms. Salas:

On February 25, 2005, the environmental staff of the Federal Energy Regulatory Commission ("FERC" or the "Commission") issued a "Notice of Availability, Route Inspection, and Public Comment Meetings on the Draft Environmental Impact Statement for the Entrega Pipeline Project" ("Notice of Availability") in the above-captioned dockets. Pursuant to the Notice of Availability, Entrega Gas Pipeline Inc. ("Entrega") submits the attached comments on certain of the recommended mitigation measures and other items contained in the DEIS.

Entrega submitted an application for a certificate of public convenience and necessity to the FERC on September 17, 2004, proposing to construct a new interstate natural gas pipeline from the Meeker Hub in western Colorado, north to Wamsutter, Wyoming, and then southeast to the Cheyenne Hub, in Weld County, Colorado. Entrega proposes to construct its pipeline in two phases: Phase I will consist of 136 miles of 36-inch diameter pipeline and 191.5 miles of 42-inch diameter pipeline. Phase II will consist of three new compressor stations. The entire project will be capable of transporting approximately 1.5 billion cubic feet of natural gas per day.

I1-1 Enclosed are Entrega's comments on those items that Entrega believes require clarification or further explanation. Any mitigation measure or matter on which Entrega does not comment may be deemed acceptable to Entrega. In addition, Entrega affirmatively accepts and will implement those recommended mitigation measures regarding which Entrega does not comment herein.

Republic Plaza • 370 17th Street, Suite 1700 • Denver, Colorado 80202
Ph: (303) 623-2300 • Toll Free: (866) 305-3830

6-61

Responses to Letter I-1

I1-1 Entrega Recommendations accepted

Thank you for your comment. The final EIS will be revised to indicate the specific recommendations that Entrega has now agreed to implement.

Letter I-1 Continued

Entrega's comments are divided into three sections: (1) Comments on the specific conclusions and recommendations of FERC Staff; (2) Comments on other items discussed in the DEIS; and (3) discussion of areas in which the DEIS differs from the Plan of Development ("POD") that Entrega is preparing in consultation with the Bureau of Land Management.

Entrega hopes that these comments will assist Commission Staff in preparing the final EIS regarding the Entrega Project and looks forward to receiving its certificate of public convenience and necessity, and constructing this important infrastructure, soon.

Sincerely,

Keith M. Sappenfield, II

Enclosure

cc: Scott Ellis (ENSR)
Tom Hurshman (BLM)
Larry Sauter (FERC)

DSMDB.1914286.1

I-1

COMMENTS REGARDING SPECIFIC CONCLUSIONS AND RECOMMENDATIONS OF FERC STAFF

Recommendation 8. Entrega shall file updated status reports prepared by the head El with the Secretary on a weekly basis **until all construction-related activities, including restoration activities, are comp**lete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
b. a listing of all problems encountered and each instance of noncompliance observed by the Els during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;
d. the effectiveness of all corrective actions implemented;
e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Commission Order, and the measures taken to satisfy their concerns; and
f. copies of any correspondence received by Entrega from other federal, state, or local permitting agencies concerning instances of noncompliance, and Entrega's response.

Entrega Comment:

I1-2 Entrega believes a clarification is required regarding the timing of the updated status reports. Because the project will be constructed over several construction seasons in 2005, 2006 and 2007, Entrega believes that weekly status reports should be required only during those months in which construction and restoration activities are being performed. For instance, Entrega proposes that weekly status reports be filed for Segment 1 from Meeker Hub to Wamsutter during 2005 from the commencement of construction-related activities until restoration activities related to Segment 1 are complete or suspended due to winter weather. During the months that construction or restorations activities are suspended, Entrega recommends filing monthly status

I1-2 Entrega Timing of updated status reports

The timing of the status reports will be modified within the recommendation.

Letter I-1 Continued

I1-2 reports. Entrega intends to detail the weekly and/or monthly status report filing requirements in its implementation plans.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
Docket Nos. CP04-413, et al.
Entrega's DEIS Comments

Recommendation 12. **Prior to construction,** Entrega shall confirm that the location of all aboveground facilities at the Meeker Hub Compressor Station would be outside of the 100-year floodplain. If any aboveground facility would be located within the 100-year floodplain, Entrega should identify what design measures, site modifications, or other protection measures it would adopt to ensure the safety of the facility from flood and debris flow events.

Entrega Comment:

I1-3 Entrega has reviewed the most recent FEMA maps depicting the 100-year floodplain and confirmed that all facilities at the Meeker Hub Compressor Station are located outside that floodplain area.

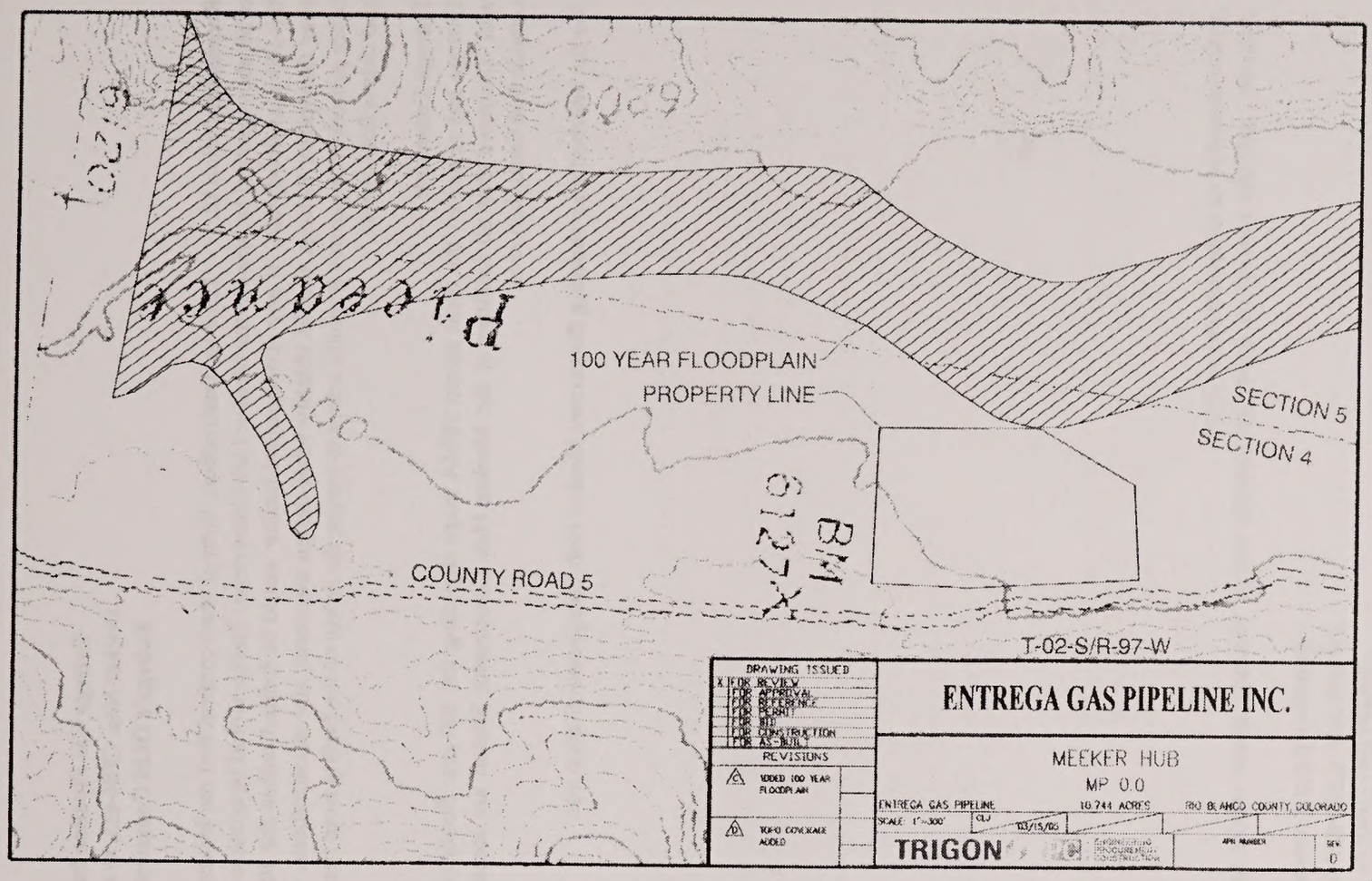
See the attached map showing the current Meeker Hub Compressor Station site.

Responses to Letter I-1

I1-3 Entrega **Confirmation that Meeker Compressor Station is located outside of Floodplain**

The text has been revised to reflect this finding.

Non-Internet Public



Letter I-1 Continued

Recommendation 21. Entrega shall file with the Secretary, **within the comment period for the draft EIS**, revised Site- Specific Waterbody Crossing Plans for each horizontal directionally drilled (HDD) crossing which clearly indicate:

a. the location of the pipe stringing area for pullback;
b. the dimensions for the entry and exit holes and areas used for spoil and drilling mud storage;
c. the volume and source of water needed for drilling;
d. whether drilling mud would be stored in excavated and lined pits or in portable tanks; and
e. where drilling mud and cuttings would be disposed.

Each plan for an HDD crossing should be accompanied by a scaled diagram (scale not smaller than 1:2,400) showing the location and dimension of all temporary workspaces, the arrangement of equipment on the site, and all environmental controls. Each revised plan should clearly justify the size and extent of all temporary workspaces associated with the waterbody crossing.

Entrega Comment:

I1-4 Entrega filed revised Site-Specific Waterbody Crossing Plans for each HDD crossing on April 6, 2005. Items a-d were addressed in the Site-Specific Plans or within the notes.

Item e refers the contractor to the contract documents for the approved locations where drilling mud and cuttings could be disposed. More specifically, the locations listed below were suggested to the contractors as possible waste disposal sites. The disposal sites include sanitary landfills, demolition landfills or hazardous waste landfills. Other disposal locations would be considered by Entrega on a case-by-case, and prior approval would be required by Entrega before the contractor would be allowed to use another facility.

I1-5 Municipal Solid Waste Landfill
1850 CR 107
Craig, CO

Solid Waste Disposal District
Baggs, Wyoming

City of Rawlins Landfill
1 mile N on 287
(303) 328-4566

I1-4 Entrega Revised Waterbody Crossing Plan

The EIS has been revised to reflect this new information.

I1-5 Entrega Possible waste disposal sites

The EIS has been revised to reflect this information.

Letter I-1 Continued

City of Laramie Solid Waste Division
N 9th 1 mi of City
Laramie, WY

OES – Henderson Hazardous Waste Landfill
9131 E. 96th Avenue
I1-5 Henderson, Colorado
(303) 289-4827

OES – North Salt Lake Hazardous Waste Landfill
709 N. Taylor Way, Suite 1
North Salt Lake, UT
(801) 294-7111

Entrega Gas Pipeline Inc.
Docket Nos. CP04-413, et al.
Entrega's DEIS Comments

Recommendation 22. Entrega shall file with the Secretary, **within the comment period for the draft EIS**, an explanation for the decision to place the drill entry site and a large extra workspace on the north side of the White River, and a description of the measures it would take to protect wet areas on the south side of the river during HDD activities.

Entrega Comment:

I1-6 Entrega filed a comment on the above recommendation on April 6, 2005.

I1-6 Entrega Confirmation of filed comment

The EIS has been revised to reflect this information.

Recommendation 23. Entrega shall file with the Secretary, **within the comment period for the draft EIS**, revised Site- Specific Waterbody Crossing Plans that clearly indicate the location and justification for any extra workspace that would be located less than 50 feet from the water's edge.

Entrega Comment:
The following table describes the location and justification for any extra workspace that would be located less than 50 feet from the water's edge. Revised Site-Specific Waterbody Crossing Plans for the White and Yampa Rivers were filed on April 6, 2005. No revisions are necessary for the other crossings listed below.

Additional Temporary Workspace Areas Located Within 50 Feet of Site-Specific Waterbody Crossings Plans

State/ Approximate Milepost of Workspace	Wetland / Waterbody	Workspace Requirement/Justification
COLORADO (RIO BLANCO AND MOFFAT COUNTIES)		
15.1	White River PEM/PSS Wetlands	Extra workspaces are located more than 50 feet from the water's edge of the White River, as depicted in the April 6, 2005 filing. Workspaces are located, however, within 50 feet of wetlands at this crossing. For the planned HDD crossing of the White River, extra workspaces are required near the entry and exit points to allow for the operation to be completed. Because of the geometry of the drill, the terrain in the surrounding areas and the location of wetlands, the workspaces have been situated with minimum impacts to wetlands. With the exception of one wetland on the exit side within the temporary use area, a 10-foot minimum setback has been achieved from the wetland and a 50-foot minimum setback has been achieved from the waterbody.
50.5	Yampa River PEM Wetland	For the planned HDD crossing of the Yampa River, extra workspaces are required near the entry and exit points to allow for safe and efficient operation of the equipment. The extra workspaces have been relocated more than 50 feet from the water's edge of the Yampa River and the riparian wetlands, as depicted in the April 6, 2005 filing. In the event of the necessity to install an open cut crossing, Entrega will file a revised open-cut crossing plan in accordance with Recommendation Number 38.
84.5	Little Snake River PEM Wetland	Entrega requests authorization to locate extra workspaces less than 50 feet from the edge of the Little Snake River to reduce the duration of in-stream construction activities and to minimize impacts on a PEM wetland located north of the Little Snake River. No trees will be removed and the land use will remain unchanged. A 10-foot minimum setback will be maintained from the Little Snake River and wetland.

6-70

I1-7

I1-7 Entrega Justification for extra workspace

The EIS has been revised to reflect this information.

I1-7

Additional Temporary Workspace Areas Located Within 50 Feet of Site-Specific Waterbody Crossings Plans		
State/ Approximate Milepost of Workspace	Wetland / Waterbody	Workspace Requirement/Justification
WYOMING		
192.7	North Platte River	The extra workspaces are situated 50 feet from the water's edge of the North Platte River as depicted in the DEIS.
225.5	Medicine Bow River PSS Wetland	The extra workspace are 50 feet from the water's edge of the Medicine Bow River as shown in the DEIS, however, the proposed span bridge is located within this workspace. Entrega requests authorization to locate extra workspaces within the wetland on the south side of the Medicine Bow River crossing to reduce the duration of in-stream construction activities. An extra workspace is necessary at this location to facilitate installing the river crossing without encroaching on other parallel pipelines' rights-of-way and to reduce the duration of in-stream construction activities, which will minimize vehicular traffic across PSS wetlands.
237.3	Rock Creek	The extra workspaces are depicted 50 feet from the water's edge of Rock Creek; however, the proposed span bridge is located within this workspace. No wetlands will be affected by the placement of the span bridge.

Letter I-1 Continued

Recommendation 25. Entrega shall use a commercial hybrid (sterile) cover crop for temporary stabilization and reclaim wetlands with native species. Additionally, Entrega shall file with the Secretary its project-specific Wetland Restoration Plan, indicating by MP how wetlands disturbed by project activities would be restored to pre-construction conditions, for review and written approval by the Director of OEP **prior to commencing service.** Entrega shall include the comments of the land management and state agencies with whom it consulted during plan development.

Entrega Comment:

I1-8 During construction through non-saturated wetlands, Entrega will strip and segregate topsoil from the ditchline only. Vegetation within the remainder of the wetland within the construction right-of-way would only be cut off at ground level and grading would not occur within wetlands. The segregated ditch topsoil, containing seed bank of the native plants, will be returned to cover the ditchline after the trench has been backfilled. Restoration measures such as ditch plugs would be implemented to ensure hydrology within each wetland is returned to preconstruction condition. As recommended by the BLM, Entrega has proposed to reseed non-saturated wetlands with a commercial hybrid (sterile) cover crop for temporary stabilization. However, following temporary stabilization, Entrega intends to allow wetlands to revegetate naturally rather than use active planting methods. Many of the common species found in wetlands delineated along the project corridor can regenerate from the existing rootstock or seedbank present in the soil, and effectively revegetate these wetlands. Thus, by returning the wetland hydrology following construction and retention of the existing seedbank by segregating topsoil, native wetland vegetation is expected to reestablish throughout the construction corridor following the temporary stabilization of the soils by the commercial hybrid (sterile) cover crop.

I1-9 During 2004 biological surveys, Entrega delineated wetlands throughout the project corridor, along access roads and at other off-line facilities (i.e., aboveground facilities, pipe and contractor yards and rail sidings). Entrega's 2004 Wetland Survey Report was filed as a part of the March 17, 2005 supplemental filing to Entrega's FERC application. This report identified all wetlands (by milepost) that would be disturbed by project activities. To minimize impacts on wetland during construction and to facilitate restoration of wetland areas to pre-construction conditions, Entrega has adopted the FERC's Wetland and Waterbody Construction and Mitigation Procedures for the project. In addition, Entrega has worked with the BLM Field Offices to create its Construction Mitigation and Revegetation Plan, which covers general construction procedures as well as site-specific measures for certain areas, including wetlands. In following measures identified in its Wetland and Waterbody Construction and

Responses to Letter I-1

I1-8 Entrega Construction through non-saturated wetlands

The EIS has been revised to reflect the use of a commercial hybrid cover crop for temporary stabilization of wetlands disturbed by project-related activities. See also response to comment I1-9.

I1-9 Entrega Wetland mitigation procedures

Comment noted. The recommendation that Entrega file a project-specific Wetland Restoration Plan is retained in the EIS. Further interactions with other agencies remain to be conducted for approval processes. This requirement is consistent with Entrega's revised Procedures, filed May 17, 2005,

I1-9 Mitigation Procedures and its Construction Mitigation and Revegetation Plan, Entrega has minimized impacts on wetlands and has developed a project-specific plan for restoration of wetlands. Entrega has supplemented its BLM Construction Mitigation and Revegetation Plan to include a line list by MP of wetlands affected by construction and operation of the pipeline. Thus, development of an additional project-specific Wetland Restoration Plan would be redundant with the revised plans described above.

Recommendation 26. To facilitate the restoration of riparian woodlands disturbed by project construction, Entrega shall:

a. conduct pre-construction surveys in woody riparian areas to determine the existing vegetation community composition and density. Based on the results of these surveys, Entrega shall reseed and replant with these existing tree and shrub species at pre-construction densities, accounting for intact root masses; and
b. file site-specific plans for each of the six riparian woodland crossings with the Secretary for review and written approval by the Director of OEP **prior to construction**. In developing these plans, Entrega shall locate temporary workspace areas to avoid riparian woodland to the maximum extent practicable. Entrega must provide detailed justification for any temporary workspace area that is not sited to avoid disturbance of riparian woodland. At a minimum, each plan should include:

   i. an inventory of the area of disturbance, based on the preconstruction survey;
   ii. site-specific measures to avoid or reduce the extent of riparian woodland disturbance;
   iii. site-specific measures to restore all riparian woodland disturbance to near-preconstruction conditions;
   iv. an aerial-photo based plot plan showing all areas of disturbance, environmental controls, and restoration measures (scale 1:1,200); and
   v. specific criteria for assessing restoration success.

Entrega Comment:

I1-10 Riparian woodlands communities crossed by the Entrega Gas Pipeline Project are associated with crossings of the North Platte River, Medicine Bow River, a tributary to Foote Creek and Rock Creek. All four of these waterbodies occur in Segment 2 of the project, between mileposts 192.8 and 237.9. Entrega has proposed construction of Segment 2 (Wamsutter to Cheyenne Hub) to occur during 2006, as identified in the schedule update filed with FERC on March 15, 2005. Therefore, construction of the Segment 1 portion of the project, which is proposed to occur during 2005, will have no effect on riparian woodland communities. As such, Entrega requests that FERC's recommendation be modified to specify that Entrega shall not begin construction activities *in riparian woodland communities* on Segment 2 (Wamsutter to Cheyenne Hub) until the identified measures are addressed.

I1-10 Entrega Riparian woodlands communities

The recommendation will be modified to reflect Entrega's phased construction schedule.

Recommendation 28. To minimize the impacts on big game species during winter, Entrega shall:

a. avoid Wildlife Habitat Management Area lands during non-emergency maintenance activities from November 15 through April 30; and
b. in addition to the winter constraint period, avoid construction in the Colorado Division of Wildlife's Bitter Brush State Wildlife Area from October 1 through December 31 to avoid heavy hunter concentration areas.

Entrega Comment:

I1-11

Entrega representatives met with the Colorado Division of Wildlife (CDOW) on March 22, 2005, to review the areas in which the project crosses state lands managed by the CDOW. During this meeting, CDOW biologists emphasized the importance of Entrega avoiding construction activity within the Bitter Brush State Wildlife Area only during the time period from October 10th through November 21st due to heavy hunter concentrations. Furthermore, the CDOW informed Entrega that no construction activity should occur from January 1st through April 30th to avoid big game crucial wintering range. CDOW has agreed to relax and waive their requirements for restoration activities in the Bitter Brush area (MP 46.2 to 49.1) between November 21st and December 31st in the year following construction of the pipeline through this area. These construction limitations and waivers are incorporated into the Reclamation Plans agreed to by Entrega and CDOW with respect to Entrega's easements crossing CDOW lands. Entrega believes that this recommendation should be revised to incorporate the CDOW limitations and waivers noted above.

I1-11 Entrega **Crossing state lands managed by CDOW**

Text has been revised.

Letter I-1 Continued

Recommendation 32. Entrega **shall not begin construction activities until:**

a. Entrega files with the Secretary for review and written approval by the Director of the OEP its evaluation of possible ROW re-alignments to avoid Preble's meadow jumping mouse habitat;
b. the staff receives the Preble's meadow jumping mouse survey report as well as comments from the FWS on the survey report and the proposed action's effects on the Preble's meadow jumping mouse;
c. the staff completes formal consultation with the FWS, if required; and
d. Entrega has received written notification from the Director of OEP that construction or use of mitigation may begin.

Entrega Comment:

I1-12 During 2004 biological field surveys, suitable Preble's meadow jumping mouse habitat was identified within the project area and the resulting survey report, entitled "Preble's Meadow Jumping Mouse Habitat Survey 2004," was filed as part of the March 17, 2005 supplemental filing for Entrega's FERC application. As identified in the survey report, six areas of potential habitat were identified within the project area and two areas were identified adjacent to the project area. All eight of these areas of potential habitat occur in Segment 2 of the project, between MPs 289.7 and 320.3. Entrega has proposed construction of Segment 2 (Wamsutter to Cheyenne Hub) to occur during 2006, as identified in the schedule update filed with FERC on March 15, 2005. Therefore, construction of the Segment 1 portion of the project, which is proposed to occur during 2005, will be completed prior to initiation of Preble's meadow jumping mouse surveys along Segment 2, and will have no effect on Preble's meadow jumping mouse habitat. As such, Entrega requests that the FERC's recommendation be modified to specify that Entrega shall not begin construction activities *in areas of suitable Preble's meadow jumping mouse habitat* along Segment 2 (Wamsutter to Cheyenne) until the identified measures are addressed.

Responses to Letter I-1

I1-12 Entrega **Prebles meadow jumping mouse habitat**

Text has been revised.

COMMENTS ON ADDITIONAL ITEMS
(DEIS Section-Page, Heading, **Entrega comments**)

ES-11, Alternatives Considered: We evaluated the differences in environmental impacts if the PBEP route were substituted for the initial 33.2 miles of Entrega's pipeline (PBEP Route Alternative). The alternative would require construction of a 7-mile-long linking pipeline between Piceance Basin Creek and the Greasewood Hub. Entrega's proposed pipeline would then follow the PBEP route to Entrega MP 33.2. We determined that pipeline construction along the PBEP route as compared to Entrega's proposed route would result in more overall surface disturbance because of the greater length of the PBEP, more disturbance in shrublands and woodlands that recover slowly, and more disturbance to big game and sage grouse winter ranges. However, following the PBEP route would not require any crossing s of Piceance Creek and associated irrigated pastures and wetlands. **We are requesting additional public and agency input on the PBEP route alternative before making a routing recommendation in the Final EIS.**

Entrega Comment:

Entrega agrees with FERC's findings that the PBEP route would result in more disturbance to shrublands and woodlands, which recover slowly, and more disturbance to big game and sage grouse winter ranges. Entrega believes that there are additional environmental impacts associated with the longer PBEP route compared to Entrega's initial route.

I1-13

1. The PBEP route crosses 10.3 more miles of private lands and affects 9 more private landowners compared to Entrega's initial route. Entrega has not conducted any interviews or contacts with any of the 18 private landowners along the PBEP route and thus is not aware of private landowner concerns or other mitigation measures that may be required by the landowners. For Entrega's initial route, Entrega has completed easement agreements with all 9 private landowners, representing 100% of the EPP route on private lands. Entrega's private landowner easement agreements on its initial route include several route changes and construction-related measures that were requested by the private landowners to mitigate impacts to their property and business activities. Entrega expects that private landowners along the PBEP route would have similar routing and construction mitigation requests. Entrega believes that the time required for Entrega to negotiate and assimilate the private landowners' route changes and construction mitigation measures

I1-13 Entrega Private landowner concerns

Thank you for your comments and additional information. These comments have been considered in our recommendations for the agency-preferred route in the EIS.

Letter I-1 Continued

I1-13

would severely impact Entrega's construction timing and would delay the project and cause completion of construction and in-service of the pipeline to slip until at least the summer of 2006.

I1-14

2. Entrega has received local agency office approval from the Colorado Department of Wildlife ("CDOW") and Entrega executed the easement agreements on April 7, 2005, regarding CDOW-owned lands, including those between MPs -0.5 and 33.2. These easement agreements include Entrega's proposed routing of pipeline and specific reclamation measures for CDOW land leased to the Square S lessee in the Piceance Creek. These executed easements were forwarded to CDOW headquarters in Denver to be reviewed and approved by CDOW's Board of Directors. After review and approval by CDOW's board, Entrega will finalize these easements with the local CDOW officials.

I1-15

3. The PBEP route crosses sixteen additional potential eligible cultural sites that have been identified but not inventoried or studied prior to the filing of Entrega's certificate application. This route also includes a nearby Area of Critical Environmental Concern ("ACEC") identified by the BLM for Dudley Bluffs bladderpod, a protected plant species. This ACEC location indicates that after a full survey for this plant along Entrega's route from Meeker to Greasewood, Entrega may be required to implement additional reroutes in this area. Investigation and analysis of these environmental impacts and cultural resources would probably significantly delay the construction of the project and cause completion of construction and in-service of the pipeline to slip until at least the summer of 2006.

I1-16

4. Following the field survey work along the proposed Entrega route for which wetland delineation work was completed, the impact to wetlands is significantly less than originally thought. Originally, based on NWI maps, the anticipated wetland impact occurred along approximately 4.6 miles of the route. However, following the recent field surveys, the actual wetlands impact is approximately 0.4 mile on Entrega's EPP route, similar to what would be impacted along the alternate PBEP route.

Responses to Letter I-1

I1-14 Entrega — CDOW easements

See response to comment I1-13.

I1-15 Entrega — Cultural sites

See response to comment I1-13.

I1-16 Entrega — Actual wetlands impact

See response to comment I1-13.

ES-11, Alternatives Considered: As an extension of the PBEP route alternative analysis, we examined two alternatives for collocating the proposed Entrega and WIC projects in the same 150-foot-wide construction ROW between the origin of each project and Entrega MP 33.2 (Collocation Alternative - Danforth Hills South). One alternative would collocate both projects along the EPP route; the second alternative would collocate both projects along the PBEP route. Both alternatives would require construction of a 7-mile-long linking pipeline between the proposed Greasewood and existing Meeker Hub. We determined that collocation would reduce overall surface disturbance relative to constructing the two projects separately along the respective proposed routes. As described for the PBEP route alternative, we found that resource effects differed when the two collocation alternatives were compared. Following the EPP route along the Piceance Creek valley would result in multiple crossings of Piceance Creek, and a larger disturbance in irrigated pasture and haylands, which are expected to recover quickly. Constructing along the PBEP route would avoid impacts on Piceance Creek and the associated floodplain, but would remove much larger areas of shrublands and woodlands, which recover slowly. Use of the PBEP route would also affect a larger area of winter big game and sage grouse ranges. **Again, we are requesting additional public and agency input on the collocation alternatives before making a recommendation in the Final EIS.**

6-79

Entrega Comment:

I1-17

Entrega agrees with FERC's findings regarding the EPP route along Piceance Creek, the associated floodplains, irrigated pasture and haylands – that these resources are expected to recover quickly from Entrega's construction activities. Further, Entrega has completed easements with 100% of the private landowners along the Piceance Creek and executed the easement with the Colorado Department of Wildlife (CDOW). Under these easements Entrega agreed to employ construction methods that will mitigate impacts on the private landowners' property, CDOW's lessee and their business activities. These measures include, but are not limited to:

1. Reroute of Entrega's proposed route to avoid key resources on private lands or afford private landowners better use of their property during construction activities.
2. Optional damage payments in the event Entrega's construction activities reduce the landowner's normal business activities along Entrega's route.
3. Additional mitigation measures that exceed the standard requirements of FERC's Practice and Procedures in hay meadows and grazing lands.

I1-17 Entrega Construction mitigation along Piceance Creek

Thank you for your comments and additional information. These comments have been considered, along with others, in our recommendations for the agency-preferred route in the Final EIS.

Letter I-1 Continued

I1-17 Entrega has also agreed to implement several construction measures with the BLM, Colorado State Land Board, CDOW and other cooperating agencies that will mitigate the impact of construction activities on the EPP route along Piceance Creek. Entrega intends and expects to include these construction mitigation measures in the BLM's Plan of Development and related reclamation plans with the CDOW.

I1-18 Entrega notes that the longer PBEP route also crosses 33.3 miles of greenfield route that are not adjacent to existing utility corridors, which is 28.7 miles more than the 4.6 miles of greenfield route crossed by Entrega's EPP route.

Responses to Letter I-1

I1-18 Entrega EPP route crosses less Greenfield than PBEB

See response to comment I1-13.

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ES-12, Alternatives Considered: Based on a landowner request, Entrega developed two Cheyenne Hub Variations (A and B). Variation A would terminate the EPP on the south side of the existing Cheyenne Compressor Station rather than the north side, as proposed. Variation B would parallel the proposed route and terminate on the north side of the existing compressor station, but at a slightly more southerly location compared to the proposed route. The primary considerations involve land ownership (private versus public); expansion of utility uses north of the Hub; new surface *disturbance* versus use of the existing pipeline corridor, end construction issues (the number of existing utilities that would be crossed by delivery laterals associated with the EPP). **We are requesting additional public and agency input on the Cheyenne Hub Variations before making a routing recommendation in the Final EIS.**

Entrega Comment:
Entrega met with the Lazy D Grazing Association (Lazy D) on March 9, 2005, and advised that Entrega has revised its preferred routing at the Cheyenne Hub south of the existing pipeline corridor, which has been previously identified as "Alternative Route A." Entrega advised that since the previous meetings with the Lazy D in December 2004 and the filing of additional information with the FERC on Entrega's prior preferred routing, Entrega has met with the interconnecting pipeline operators (Colorado Interstate Gas Company (El Paso), Cheyenne Plains Gas Pipeline (El Paso), Trailblazer Pipeline (Kinder Morgan) and Public Service Company of Colorado) and reached agreement in principal on the location of meter stations, connecting laterals and related land use at the Cheyenne Hub between the facilities of Entrega and such pipeline operators.

I1-19 Based on the latest location of the meter stations and connecting laterals with the connecting pipelines, Entrega revised its preferred route and selected a route south of and adjacent to the existing pipeline corridor previously identified as Alternative Route A in Entrega's discussions with Lazy D. Lazy D advised that this route would be acceptable, provided there were Entrega property set backs between the existing Highway 85 on the east end of the property and the existing facilities of Trailblazer on the north side of the property to permit movement of cattle and possible future expansion of Trailblazer's facilities. Entrega and Lazy D's final agreement on the Alternative A preferred route is subject to final agreement on the above setbacks and on the size and location of Entrega's Cheyenne Meter Station site. Entrega has proposed to limit the meter station site to 20 acres (approximately 500 feet by 1700 feet). Lazy D's preference on the meter station site is for the long side of the meter station to run east to west along the route of Entrega's mainline transmission pipeline, and Entrega's

1-19 Entrega Alternative Route A negotiations

Thank you for your comments, and additional information. These comments have been considered, along with others, in our recommendations for the agency- preferred route in the Final EIS.

Letter I-1 Continued

commitment to fence only that area needed to reasonably enclose its above-ground facilities.

Entrega also met with Lazy D on April 7, 2005 at its ranch headquarter facilities near the Cheyenne Hub to continue the discussions noted above. At this meeting, Entrega received survey permission from Lazy D to lay out and prepare engineering drawings and easement exhibits for the Alternative A routing.

I1-19 As of April 18, 2005, there are no final agreements on outstanding conditions to Entrega's Alternative A routing. Entrega continues to negotiate with Lazy D for an easement for its 42-inch mainline underground pipeline, the acquisition of the property for Entrega's meter station site based on Entrega's Alternative A routing, necessary access roads and related location conditions, valuations for easement and property acquisition and related preconstruction damages. Entrega believes the Alternative A routing, as originally suggested by Lazy D in its correspondence filed at FERC, will satisfy Lazy D's concerns on the routing of Entrega's facilities at the Cheyenne Hub, subject to final agreements on location of above-ground facilities and definitive easement and property purchase agreements.

Entrega Gas Pipeline Inc.
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1-1, Introduction: Description of Entrega and its proposed project.

Entrega Comment:

I1-20 The first paragraph of the introduction describes Entrega as a "subsidiary of EnCana Oil and Gas USA." This is incorrect. Entrega is an indirect affiliate of EnCana Oil & Gas (USA) Inc., as described in Exhibit D of Entrega's certificate application.

I1-20 Entrega Clarification of Entrega's relationship w/ EnCana

The EIS has been modified to clarify the relationship between Entrega and EnCana.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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2-4, Table 2.1-2, Proposed Receipt and Delivery Laterals for the Entrega Pipeline Project

Entrega Comment:
Entrega has met with representatives of the owners/operators at the various interconnects with third party pipelines and gathering systems. As a result of these meetings, the engineering information on the location of meter stations and interconnecting laterals is more precisely known. Entrega hereby revises Table 2.1-2 to reflect these locations and lateral information as of April 18, 2005. Entrega's revisions to the lateral lengths and lateral diameters are noted in **bold underlined text** in the table below.

I1-21

Table 2.1-2
Proposed Receipt and Delivery Laterals for the Entrega Pipeline Project

Station/Interconnection With	Lateral Length[1] (feet)	Lateral diameter (inches)
Meeker Hub Compressor Station		
EnCana	2,640	36
Wamsutter Compressor Station		
CIG	**500**	**30**
WIC	**500**	**30**
Cheyenne Hub Metering Station		
CIG	**1,500**	**24**
Cheyenne Plains	**1,500**	**30**
Trailblazer	**1,500**	**30**
PSCo	**600**	16

[1] Lateral lengths are approximate **and reflect engineering updates as of April 18, 2005**.

6-84

Responses to Letter I-1

I1-21 Entrega — Location of meter stations and interconnecting laterals

Thank you for the additional information. The EIS has been revised to incorporate this new information.

Entrega Gas Pipeline Inc.
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Entrega's DEIS Comments

2-6, Table 2.2-1, Summary of Land Requirements Associated with the Entrega Pipeline Project

Entrega Comment:
The following table lists the land use affected during construction and operation of the proposed pipeline laterals identified in Entrega's comments to page 2-4, Table 2.1-1, and supplements Entrega's revised land use information filed with the FERC on April 6, 2005.

I1-22

Land Use Affected by the Proposed Pipeline Laterals

Station/Lateral Interconnect	Length	Land Use	Area Affected	
			Construction [a]	Operation [b]
Meeker Hub Compressor Station				
EnCana	2,640	Rangeland (shrubland)	6.1	3.0
Wamsutter Compressor Station				
CIG	500	Rangeland (grassland)	1.1	0.6
WIC	500	Rangeland (grassland)	1.1	0.6
Cheyenne Hub Compressor Station				
CIG	1,500	Rangeland (grassland/prairie)	3.4	1.7
Cheyenne Plains	1,500	Rangeland (grassland/prairie)	3.4	1.7
Trailblazer	1,500	Rangeland (grassland/prairie)	3.4	1.7
PSCo	600	Rangeland (grassland/prairie)	1.4	0.7

[a] Assumes a 100-foot-wide construction right-of-way
[b] Assumes a 50-foot-wide permanent right-of-way.

I1-22 Entrega **Land use affected by pipeline laterals**

Thank you for the additional information. The EIS has been revised to incorporate this new information.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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2-9 & 2-10, Pipe Storage and Contractor Yards: Off-ROW extra workspace areas that would be used during the construction phase of the project include pipe storage yards and contractor yards. Entrega proposes to use six pipe storage and three contractor yards during construction.

Entrega Comment:

I1-23 Entrega filed supplemental information updating its list of proposed pipe storage and contractor yards on April 6, 2005.

Responses to Letter I-1

I1-23 Entrega **Pipe storage and contractor yards**

Thank you for the additional information. The EIS has been revised to incorporate this new information.

Entrega Gas Pipeline Inc.
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Entrega's DEIS Comments

2-33, Construction Workforce and Schedule, Table 2.4-1

Entrega Comment:
On March 15, 2005, Entrega filed with FERC an update to its construction schedule for the project. Entrega's revises Table 2.4-1 to reflect this update to the construction schedule for the final EIS. Below is a revised Table 2.4-1 that reflects such updated construction schedule information. Entrega's revisions are noted in **bold underlined text**.

I1-24

Table 2.4-1
Pipeline Construction Workforce and Proposed Schedule

Phase/Spread	Associated Aboveground Facilities	Begin MP	End MP	Estimated Workforce	Proposed Schedule	County and State
Phase I						
1	Meeker Hub metering facilities	-0.5	**51.0**	475 to 550	**July to Dec. 31, 2005**	Rio Blanco & Moffat, CO
2	Wamsutter metering facilities	**51.0**	136.0	425 to 475	**July to Dec. 31, 2005**	Moffat, CO & Sweetwater, WY
3	N/A	135.5	231.0	475 to 550	**June to Dec. 15, 2006**	Sweetwater & Carbon, WY
4	Arlington Pigging Station; Cheyenne Hub Metering Station	231.0	327.0	475 to 550	**June to Dec. 15, 2006**	Carbon, Albany, Laramie, WY; & Weld, CO
Phase II						
	Compressor Stations (Meeker Hub, Bighole, and Wamsutter)	0.0, 76.3, and 135.5		300 to 400	**Sept 2006 to April 2007**	Rio Blanco and Moffat, CO Sweetwater, WY

6-87

I1-24 Entrega **Update to construction schedule**

Thank you for the additional information. The EIS has been revised to incorporate this new information.

3-126, Table 3.10-3, Estimated Noise Levels from Compressor Stations: The table shows the noise level at the Bighole Compressor Station to be 51.2 dBA. Table 3.6-1 on Page 3-77 shows the noise level at the Bighole Compressor Station to be 82 dBA.

Entrega Comment:

I1-25 Table 3.6-1, page 3-77 of the DEIS, correctly lists an anticipated noise level of 82 dBA at the Bighole Compressor Station. This maximum noise level would be expected to occur at the compressor building enclosure within the station site as discussed in Entrega's FERC application, Resource Report 9 (table 9.3.3-1). The DEIS table and discussion relates to impacts on sage grouse leks, not the nearest noise-sensitive areas (NSA) or FERC or other agency noise permit thresholds. As discussed in Entrega's FERC application, Resource Report 3, Entrega is aware of only two sage grouse leks near the Bighole Compressor Station, approximately 1.9 miles and 2.0 miles from the compressor station site. As stated in the DEIS, page 3-77, "there are currently no data on the range of frequency or noise impact thresholds applicable to sage grouse. Studies suggest a noise level of approximately 47 dBA to be the threshold of effect for bird species in grassland and woodland habitat. Looking at the table and the projections for noise levels between 1.5 miles and 2.0 miles, noise from the Bighole Compressor Station would be reduced to 45.6 dBA and 43.9 dBA, respectively, at these distances. Because the nearest sage grouse lek (1.9 miles away) falls within this range (between 1.5 miles and 2.0 miles), based on engineering analysis it can be assumed that noise resulting from the Bighole Compressor Station would be less than the 47 dBA threshold suggested by the DEIS as having impacts on sage grouse.

I1-26 Table 3.10-3, page 3-126, while slightly different from the information Entrega provided in Resource Report 9 (table 9.3.3-1), accurately reflects the noise impacts at the nearest NSA which is 8,200 feet from the compressor station. FERC requirements and practice for similar projects and most agency standards require that noise impacts be at or less than 55 dBA at the nearest NSA. Table 3.10-3 shows that expected noise impacts attributable to the new station and post-construction noise (45.7 dBA and 51.2 dBA, respectively) are both under the 55 dBA FERC limit. It is anticipated that these impacts will be even less as Entrega provided data in Resource Report 9 on a conservative case scenario. In any event, Entrega will comply with DEIS Recommendation 42 regarding the proposed noise levels at the various compressor stations and make changes to the compressor and ancillary facilities necessary to comply with the requirements of Recommendation 42.

I1-25 Entrega **Noise level at Bighole Compressor Station**

The EIS correctly lists anticipated noise levels as indicated by Entrega's comment.

I1-26 Entrega **Noise impacts at the nearest NSA**

Thank you for your comment.

Entrega Gas Pipeline Inc.
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Page 4-17, Table 4.4-3, Milepost Intervals Considered for EPP and PBEP Collocation to Reduce Sage Grouse Breeding and Brooding Habitat Impacts: This table shows 28 miles where collocation would reduce sage grouse breeding and brooding impacts. FERC Staff has requested more detailed information regarding why Entrega and WIC cannot collocate in the identified areas to reduce acreage of impact on sage grouse.

Entrega Comment:

Table of Route Deviations between Entrega and WIC

Entrega Begin MP	Entrega End MP	Distance	Description/Reason for Deviation	Impact to Historic Sage Grouse Leks
47.7	49.8	2.1	Entrega's route deviates west from the existing CIG UBL and Kinder Morgan RMNG pipelines, primarily to avoid several archeological sites. The reroute also avoids impacts to Deception Creek through this area and associated wetlands.	N/A. There are no identified leks in this area.
48.2	50.0	1.8	WIC's route deviates west from the existing CIG UBL and Kinder Morgan RMNG pipelines.	N/A. There are no identified leks in this area.
54.6	54.8	0.2	Entrega's route deviates east from the existing CIG UBL and Kinder Morgan RMNG pipelines to avoid an existing Durango meter facility.	N/A. There are no identified leks in this area.
60.6	61.1	0.5	WIC's route deviates east from the existing CIG UBL and Kinder Morgan RMNG pipelines.	The centerline is within the 2-mile buffer of a historic lek between MPs 61.0-61.1.[a] The centerline is within the 2-mile buffer of an inactive historic lek between MPs 60.6-61.1, and within the 0.25-mile buffer between MPs 60.7-61.1.[b]
63.8	65.5	1.7	WIC's route deviates east from the existing CIG UBL and Kinder Morgan RMNG pipelines.	The centerline is within the 2-mile buffer of a historic lek between MPs 63.8-64.8.[a]

I1-27

I1-27 Entrega Route deviations between Entrega & WIC

Thank you for your comments and additional information. These comments have been considered in our recommendations for the agency-preferred route in the final EIS.

Letter I-1 Continued

Table of Route Deviations between Entrega and WIC

Entrega Begin MP	Entrega End MP	Distance	Description/Reason for Deviation	Impact to Historic Sage Grouse Leks
65.5	72.3	7.2 (miles along WIC Route)	WIC's route stays with the existing CIG UBL pipeline along the less direct route to the east.	The centerline is within the 2-mile buffer of a historic lek between MPs 69.2-72.3, and within the 0.25-mile buffer between MPs 71.0-71.5.[c]
65.2	72.3	7.1	Entrega's route remains with the existing Kinder Morgan RMNG pipeline through this area, the existing CIG UBL pipeline follows a less direct route to the east.	The centerline is within the 2-mile buffer of a historic lek between MPs 69.2-72.3, and within the 0.25-mile buffer between MPs 71.0-71.5.[c]
78.0	78.1	0.1	Entrega's route deviates west from the existing CIG UBL pipeline to avoid an existing well head.	The centerline is within the 2-mile buffer of a historic lek between MPs 78.0-78.1.[a]
80.7	81.1	0.4	Entrega's route deviates west from the existing CIG UBL pipeline to avoid Moffat County Road 92 in this area.	The centerline is within the 2-mile buffer of a historic lek between MPs 80.7-81.1, and within the 0.25-mile buffer between MPs 80.5-80.9.[d] Additionally, the centerline is within the 2-mile buffer of a lek identified during 2004 surveys between MPs 80.8-81.1.
81.4	82.0	0.6	WIC's route deviates east from the existing CIG UBL pipeline.	The centerline is within the 2-mile buffer of a historic lek and a lek identified during 2004 biological surveys between MPs 81.4-82.0.

I1-27

Table of Route Deviations between Entrega and WIC

Entrega Begin MP	Entrega End MP	Distance	Description/Reason for Deviation	Impact to Historic Sage Grouse Leks
83.5	83.8	0.3	Entrega's route deviates west from the existing CIG UBL pipeline because of terrain, a down slope in this area dictated an adjustment in the route.	N/A. There are no identified leks in this area.
84.1	85.0	0.9	Entrega's route deviates west from the existing CIG UBL pipeline because of terrain and to be able to safely construct across the Little Snake River.	N/A. There are no identified leks in this area.
94.6	96.6	2.0	Entrega's route deviates west from the existing CIG UBL and Questar pipelines (in separate corridors) at the direction of the BLM. The BLM concerns were with the terrain and the ability to restore certain areas when collocated.	N/A. There are no identified leks in this area.
94.6	97.8	3.2	WIC's route deviates east from the existing CIG UBL and Questar pipelines (in separate corridors).	N/A. There are no identified leks in this area.
98.5	99.0	0.5	WIC's route deviates east from the existing CIG UBL pipeline.	N/A. There are no identified leks in this area.
99.0	99.6	0.6	Entrega's route deviates west from the existing CIG UBL pipeline in order to avoid a paleontological site.	N/A. There are no identified leks in this area.
109.5	110.0	0.5	WIC's route deviates east from the existing CIG UBL pipeline.	The centerline is within the 2-mile buffer of a historic lek between MPs 109.5-110.0.
111.5	112.8	1.3	Entrega's route deviates west from the existing CIG UBL pipeline in order to avoid an archeological site.	The centerline is within the 2-mile buffer of a historic lek between MPs 111.5-112.6.
115.6	116.5	0.9	WIC's route deviates east from the existing CIG UBL pipeline.	N/A. There are no identified leks in this area.
116.3	116.5	0.2	Entrega's route deviates west from the existing CIG UBL and 3 other pipelines because of terrain, a steep down slope in this area dictated an adjustment in the route.	N/A. There are no identified leks in this area.
119.2	122.4	3.2	Entrega's route deviates west from the existing CIG UBL pipeline, primarily to avoid several archeological sites. The reroute also reduces the number of landowners impacted.	N/A. There are no identified leks in this area.
122.0	122.6	0.6	WIC's route deviates east from the existing CIG UBL pipeline.	N/A. There are no identified leks in this area.

Letter I-1 Continued

I1-27

Table of Route Deviations between Entrega and WIC

Entrega Begin MP	Entrega End MP	Distance	Description/Reason for Deviation	Impact to Historic Sage Grouse Leks
123.2	123.5	0.3	WIC's route deviates east from the existing CIG UBL pipeline.	N/A. There are no identified leks in this area.
126.4	127.0	0.6	Entrega's route deviates west from the existing CIG UBL pipeline in order to avoid an archeological site.	N/A. There are no identified leks in this area.
128.6	129.3	0.7	Entrega's route deviates west from the existing CIG UBL pipeline in order to avoid an archeological site.	N/A. There are no identified leks in this area.
130.3	130.6	0.3	Entrega's route deviates west from the existing CIG UBL and 3 other pipelines to avoid existing well heads and production facilities.	N/A. There are no identified leks in this area.

[a] The CDOW has identified this lek as active.
[b] The CDOW has identified this lek as inactive.
[c] This lek is a recent addition to the CDOW data. It was active in 2002 and 2003.
[d] This lek was active in 2001 with 5 birds and has not been active since then.

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Page 2-13, reference to Appendix E, Incised Bank Stabilization Plan:

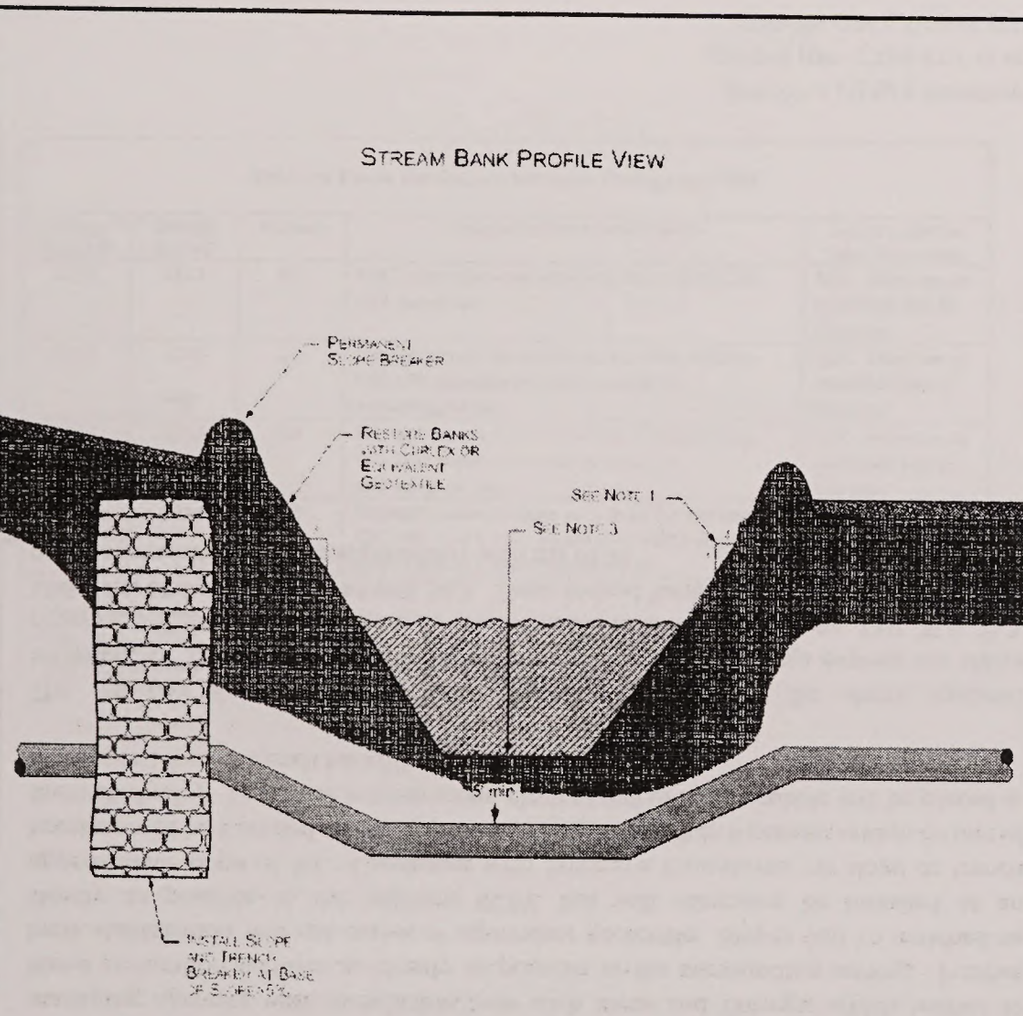
Entrega Comment:

I1-28 Entrega has revised its *Typical Incised Bank Stabilization Restoration Plan* to be consistent with restoration methods used on existing adjacent pipelines. Waterbody banks will be restored with present native soil material. Rip rap will not be used because it is not consistent with existing practices in the area and the use of rip rap for incised bank stabilization creates visual aesthetics contrary to the objectives of both the land managing agencies with jurisdiction over such areas and Entrega, which wishes to blend restoration features as closely as possible to the surrounding setting. Further bank stabilization will use curlex or equivalent geotextile. Slopes will be matched as closely as possible to the adjacent ROW, but will otherwise be installed at an approximate slope of 3:1. Consistent with Entrega's Procedures, no slope or trench breakers will be installed on flat approaches (slopes less than 5 percent within 50 feet of the waterbody). To reduce bottom scour, clean gravel or native cobble will be placed in the upper 1 foot of trench backfill.

The attached Revised Incised Bank Plan drawing reflects the above updated information. Based on Entrega's engineering field surveys, Entrega expects the above drawing will apply to incised banks located at the following mileposts: 13.0, 25.5, 26.3, 27.5, 27.6, 27.8, 53.2, 53.5, 54.1 and 54.2. These incised banks locations were determined based upon criteria of and stipulations with the BLM.

I1-28 Entrega **Revised Bank Stabilization Restoration Plan**

Thank you for the additional information. The EIS has been revised to incorporate this new information.



NOTES:

1. MATCH SLOPES AS CLOSE AS POSSIBLE TO ADJACENT ROW.
2. ROW WILL BE REQUIRED TO BE WHEN INCISED BANKS HAVE A DEPTH GREATER THAN 20'.
3. TO REDUCE BOTTOM SCOUR, CLEAN GRAVEL OR NATIVE COBBLE WILL BE PLACED IN THE UPPER 1 FOOT OF INCISED SECTION.

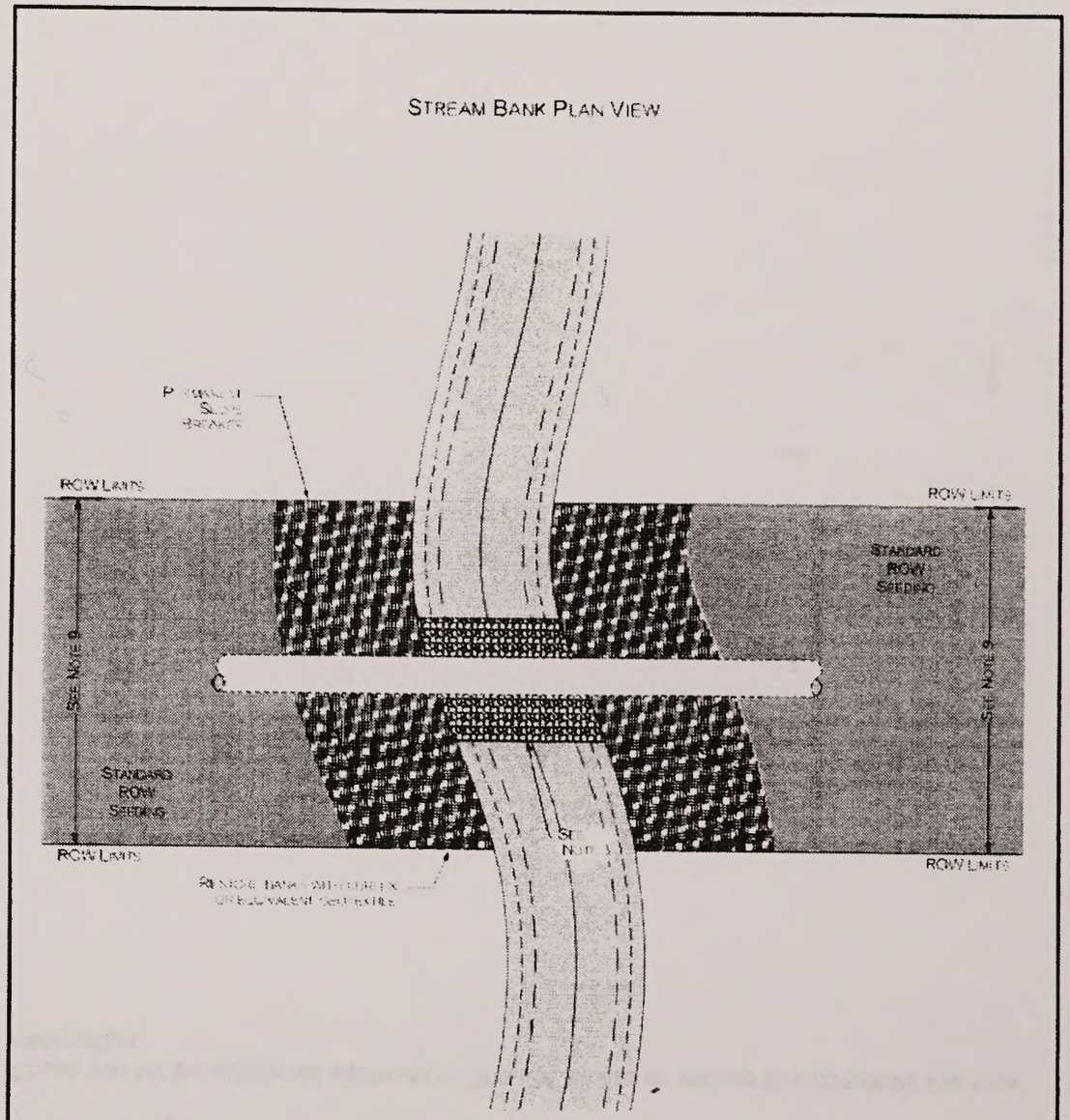
Revisions							
No.	Description	Date	By	Chk	App		
						Drawn By:	
						Checked By:	
						Reviewed By:	
						Approved By:	
						Project Manager:	
						Scale: None	

ENTREGA GAS PIPELINE INC.

Typical Incised Bank Stabilization Restoration Plan

Project Number	Drawing Number	Rev.
1900-05	ENT-STD-800	0

Letter I-1 Continued



Revisions							
No.	Description	Date	By	Chk	App		
						Drawn By:	
						Checked By:	
						Reviewed By:	
						Approved By:	
						Project Manager:	
						Scale: None	

ENTREGA GAS PIPELINE INC.

Typical Incised Bank Stabilization Restoration Plan

Project Number	Drawing Number	Rev.
1900-05	ENT-STD-801	0

Letter I-1 Continued

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Page 3-20, reference to Appendix H, Irrigation System Repair and Monitoring Plan

Entrega Comment:

I1-29

Entrega has revised its *Floodplain Irrigation Restoration Plan* (formerly known as the *Irrigation System Repair and Monitoring Plan*) to better suit the field conditions anticipated at the time of construction. Specifically, Entrega plans to install the pipeline beneath the irrigation channels while maintaining downstream channel flow during construction. This is typically accomplished by installing flumes across the irrigation channel. For irrigation channels that are dry at the time of crossing, Entrega will construct the crossing using its upland construction techniques. However, provisions will be on site to install flume pipes should the irrigation channel begin to flow during construction. To prevent trench subsidence, a defined method of backfilling in stages, combined with watering down the fill and using a mechanical means to compact the fill, will be used to reach a desired compaction density of 92 to 95 percent of the original soil density.

See the attached revised Floodplain and Irrigation Restoration Plan.

6-95

Responses to Letter I-1

I1-29 Entrega Revised Floodplain Irrigation Restoration Plan

Thank you for the additional information. The EIS has been revised to incorporate this new information.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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Page 3-20, reference to Appendix H, Irrigation System Repair and Monitoring Plan

Entrega Comment:

I1-29 Entrega has revised its *Floodplain Irrigation Restoration Plan* (formerly known as the *Irrigation System Repair and Monitoring Plan*) to better suit the field conditions anticipated at the time of construction. Specifically, Entrega plans to install the pipeline beneath the irrigation channels while maintaining downstream channel flow during construction. This is typically accomplished by installing flumes across the irrigation channel. For irrigation channels that are dry at the time of crossing, Entrega will construct the crossing using its upland construction techniques. However, provisions will be on site to install flume pipes should the irrigation channel begin to flow during construction. To prevent trench subsidence, a defined method of backfilling in stages, combined with watering down the fill and using a mechanical means to compact the fill, will be used to reach a desired compaction density of 92 to 95 percent of the original soil density.

See the attached revised Floodplain and Irrigation Restoration Plan.

6-96

Responses to Letter I-1

I1-29 Entrega **Revised Floodplain Irrigation Restoration Plan**

Thank you for the additional information. The EIS has been revised to incorporate this new information.

Letter I-1 Continued

6-97

ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline
Flood Irrigation Restoration Plan

Prepared for:

Entrega Gas Pipeline Inc.
Republic Plaza Building
370 17th Street
Suite 1700
Denver, CO 80202

Prepared by:

NATURAL RESOURCE GROUP, INC.

April 2005

Entrega Gas Pipeline
Floodplain Irrigation Restoration Plan

Entrega Gas Pipeline Inc. (Entrega) has prepared this Flood Irrigation Restoration Plan to establish procedures to identify and record location information of irrigation systems affected by pipeline construction, and to identify and describe procedures for the maintenance of irrigation systems during construction and the repair of irrigation systems following construction.

Implementation Plan References, Documentation, and Training

Entrega and its contractors and subcontractors will comply with conditions listed in the Federal Energy Regulatory Commission (FERC) Certificate (*e.g.*, Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan)), applicable federal and state permit conditions, and landowner agreements.

The FERC Certificate, applicable permits, and easement requirements (identified in the line list) will be retained at Entrega's field offices, contractor yards, and by Entrega's Environmental Inspectors during construction of the project and will be available for review by all project personnel.

Entrega will include the irrigation system maintenance and repair procedures as a component of the environmental training program for the project. Entrega personnel, Chief Inspector, craft inspectors, contractor and subcontractor employees, and other individuals involved with construction of the pipeline will participate in this training program. Additional training specific to irrigation system maintenance and repair will be provided to Craft Inspectors overseeing trenching and irrigation repair activities.

Identification of Existing Irrigation Systems

Entrega has identified areas, through its field surveys and through discussions with the landowners/tenants that have active surface ground irrigation systems that will be crossed by the pipeline. Information obtained from landowners and field observations has been compiled into a list of irrigation systems and irrigated lands crossed by the pipeline route (see attachment A). In addition, the location of irrigated lands will be indicated on the project alignment sheets (as part of the environmental bar information). This information will alert construction crews to the presence of irrigation systems so that the contractor and crews can make preparations for maintaining water flow during construction (if required). The list of irrigations systems in attachment A is based on preconstruction surveys. Other information on irrigation systems can be found separately in the ROW line lists.

Maintaining Flow of Irrigation Systems

During construction, downstream irrigation channel flow must be maintained. This is typically accomplished by installing a flume across in the irrigation channel to maintain flow during clearing and grading operations. A ramp is constructed over the flume to allow passage of vehicles and equipment along the construction right of way. A hard plug will be left at the flume crossing until the time of lowering in the pipeline. Immediately prior to pipe lowering-in, temporary dams will be installed across the irrigation channels at the edges of the construction right of way and the flume removed for the very short period of time to lower in and backfill the pipe. The flume will be re-installed after the pipe is lowered in to restore flow of irrigation water.

Restoration of Irrigated Agricultural Fields

Entrega will use the following backfill compaction method (or other methods that may be proposed by its Contractor, subject to the review and approval of Entrega) across irrigated agricultural fields to minimize the potential for post-construction trenchline subsidence and diversion of flood irrigation water. This method is described as follows:

- Placement of backfill to up to a few inches above the pipe
- Watering down the backfill utilizing a tanker truck with water hose or water disperser to settle the soil around the pipe;
- Placement of 18" to 24" (measured from top of pipe) of backfill material in the ditch and leveled to allow compaction equipment to operate. Water will be added to the backfill material as necessary to get the required target compaction.
- Compacting the backfill utilizing compaction equipment ("Wacker" packers, flat vibratory plates (stand alone or mounted on a backhoe) or either vibratory or non-vibratory "sheepsfoot" rollers (stand alone or mounted on a backhoe)
- Additional lifts must be limited to a maximum of 12". If compaction is not acceptable, the lifts will be reduced to 8". The "aim for" target density is 92 to 95 percent Standard Proctor Dry Density in accordance with ASTM D698.

Extra care must be taken to avoid direct contact of the pipe with backfilling, leveling or compacting equipment.

Entrega will coordinate with the landowners and/or tenants affected by the temporary interruption of irrigation water due to project activities.

For irrigation channels that are dry at the time of crossing, Entrega will construct the crossing utilizing its upland construction techniques; however, provisions will be on site to install flume pipes should the irrigation channel begin to flow during construction.

Damage to Agricultural Areas Due to Interruption of Irrigation Systems

Entrega will repair disrupted flood irrigation as soon as possible and will compensate the landowner for damages and lost crop production resulting from flood irrigation system interruptions due to the construction of the project. Entrega will include this language as a special right-of-way stipulation in the construction contract

Post-construction Monitoring

Entrega will communicate with the landowners or tenants following construction and restoration to ensure that irrigation systems are functioning properly. Additional repair or remedial work will be performed if problems are observed or if requested by the landowner. Mitigation will be site-specific and based on agreements and/or easement conditions with the affected landowner or tenants. Based on negotiations between the landowner and Entrega, mitigation may include additional compensation for portions of fields that may be taken out of production for all or part of the season.

During the easement negotiation process, Entrega and a landowner(s) may agree that the landowner will conduct final grading of his/her fields with compensation from Entrega. In

this case, Entrega will conduct post-construction monitoring of the irrigated area, coordinate with the landowner, and provide additional compensation if additional restoration is required.

Attachment A

Irrigation Systems Identified Along the Entrega Gas Pipeline Route

Milepost Location	Station Location	Unique ID	Date Surveyed	Vegetative Community
0.2	10+96.7	wb 0.20a	9/15/2004	hayfield
2.3	119+81.9	wb 2.30	9/15/2004	sage scrub
3.9	204+22.6	NA	NA	Unknown
3.9	204+95.9	wb 3.87	5/18/2004	hayfield
3.9	206+09.3	wb 3.89	5/18/2004	hayfield
4.1	216+90.8	wb 4.10	5/18/2004	hayfield
4.1	217+01.0	wb 4.10	5/18/2004	hayfield
4.1	217+14.7	wb 4.10	5/18/2004	hayfield
4.2	222+50.8	wb 4.21	5/18/2004	hayfield
4.3	225+79.8	wb 4.27	5/18/2005	hayfield
4.5	239+26.7	wb 4.52	5/18/2004	hayfield
4.7	246+55.0	wb 4.52	5/18/2004	hayfield
4.7	246+70.5	wb 4.52	5/18/2004	hayfield
4.7	250+60.8	wb 4.74	5/18/2004	hayfield
4.7	250+68.5	wb 4.74	5/18/2004	hayfield
4.8	254+07.2	wb 4.80	5/18/2004	hayfield
4.9	257+26.7	wb 4.87	5/18/2004	hayfield
4.9	259+92.9	wb 4.92	5/18/2004	hayfield
5.0	263+35.0	wb 4.92	5/18/2004	hayfield
5.0	263+44.7	wb 4.92	5/18/2004	hayfield
5.0	265+43.4	wb 4.92	5/18/2004	hayfield
7.2	382+74.5	wb 7.24	5/24/2004	hayfield
7.3	387+72.1	wb 7.24	5/24/2004	hayfield
7.5	393+73.6	wb 7.45	5/24/2004	hayfield
7.5	397+49.8	wb 7.52	5/24/2004	hayfield
8.5	428+31.5	NA	NA	Unknown
9.0	477+21.2	wb 9.02	5/25/2004	hayfield
10.6	556+24.6	wb 10.57	6/2/2004	hayfield
10.6	560+66.7	wb 10.57	6/2/2004	hayfield
10.6	562+31.8	wb 10.57	6/2/2004	hayfield
14.9	786+28.7	wb 14.87	6/3/2004	hayfield
29.6	1561+60.7	wb 29.56	5/21/2004	hayfield
29.6	1562+44.8	wb 29.56	5/21/2004	hayfield
30.3	1600+53.4	wb 30.29	5/21/2004	hayfield
30.4	1607+57.2	wb 30.43	6/1/2004	hayfield
30.5	1607+79.8	wb 30.43	6/1/2004	hayfield
30.5	1608+52.8	wb 30.43	6/1/2004	hayfield
31.0	1637+48.8	wb 31.00	6/1/2004	hayfield

Letter I-1 Continued

Attachment A

Irrigation Systems Identified Along the Entrega Gas Pipeline Route

Milepost Location	Station Location	Unique ID	Date Surveyed	Vegetative Community
31.2	1645+87.9	wb 31.00	6/1/2004	hayfield
31.3	1650+98.3	wb 31.00	6/1/2004	hayfield
31.4	1657+71.0	wb 31.50a	6/9/2004	hayfield
31.4	1657+91.8	wb 31.50a	6/9/2004	hayfield
31.4	1658+29.9	wb 31.50a	6/9/2004	hayfield
31.4	1659+56.9	wb 31.50a	6/9/2004	hayfield
31.7	1676+02.0	wb 31.50a	6/9/2004	hayfield
50.3	2656+17.0	wb 50.42d	9/13/2004	hayfield
50.3	2657+50.8	wb 50.42d	9/13/2004	hayfield
50.4	2660+22.6	wb 50.42c	9/13/2004	hayfield
50.4	2662+09.7	wb 50.42b	9/13/2004	hayfield
50.4	2663+62.2	wb 50.42a	9/13/2004	hayfield
226.2	11945+98.1	wb 225.73	8/4/2004	hayfield
226.3	11946+07.7	wb 225.73	8/4/2004	hayfield
226.3	11948+87.0	NA	NA	Unknown
226.3	11951+18.3	wb 225.85	8/4/2004	hayfield
235.8	12451+90.3	NA	NA	Unknown
238.9	12615+31.7	wb 238.26	7/8/2004	hayfield
238.9	12615+55.2	wb 238.23	7/8/2004	hayfield
239.6	12651+40.7	NA	NA	Unknown
241.4	12743+69.7	NA	NA	Unknown
241.6	12755+07.6	NA	NA	Unknown
244.1	12886+07.1	wb 245.87	7/1/2004	hayfield
244.7	12918+41.2	wb 244.09	7/1/2004	hayfield
246.7	13026+82.1	wb 246.14	6/30/2004	hayfield
247.2	13053+02.5	wb 246.65	6/30/2004	hayfield
247.3	13060+13.1	NA	NA	Unknown
247.4	13062+81.9	NA	NA	Unknown
253.1	13365+19.7	wb 252.58	8/26/2004	hayfield
260.2	13737+38.6	wb 259.62	6/29/2004	hayfield
260.6	13762+07.6	wb 260.08	7/12/2004	sage steppe
260.8	13771+32.3	wb 260.08	7/12/2004	sage steppe
261.0	13779+33.6	wb 260.41	7/12/2004	hayfield
261.1	13783+96.4	NA	NA	Unknown
261.1	13785+71.9	wb 260.53	7/12/2004	hayfield
261.9	13829+09.0	NA	NA	Unknown
262.5	13860+96.7	wb 261.95	7/12/2004	hayfield
262.6	13862+88.0	wb 261.99	7/12/2004	hayfield
262.7	13872+50.5	NA	NA	Unknown

Letter I-1 Continued

Attachment A

Irrigation Systems Identified Along the Entrega Gas Pipeline Route

Milepost Location	Station Location	Unique ID	Date Surveyed	Vegetative Community
263.1	13893+48.0	wb 262.58	6/28/2004	hayfield
263.6	13918+28.0	wb 263.04	6/28/2004	hayfield
263.6	13919+00.8	wb 263.06	6/28/2004	hayfield
264.7	13973+84.0	wb 264.09	6/28/2004	hayfield
265.0	13990+02.3	wb 264.40	6/28/2004	hayfield
266.2	14055+83.8	wb 265.64	6/28/2004	hayfield
274.3	14484+46.0	wb 273.76	6/28/2004	hayfield
275.1	14525+58.9	wb 274.54	6/25/2004	hayfield
275.2	14532+18.4	wb 274.67	6/25/2004	hayfield
275.2	14532+45.0	wb 274.67	6/25/2004	hayfield
275.4	14539+89.6	wb 274.88	6/25/2004	hayfield
275.4	14541+90.2	wb 274.81	6/25/2004	hayfield
275.5	14544+55.4	wb 274.81	6/25/2004	hayfield
275.6	14551+07.5	wb 275.03	6/25/2004	hayfield
304.9	16099+15.8	wb 304.34	6/25/2004	hayfield

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ITEMS WHERE DEIS MITIGATION MEASURES DIFFER FROM BLM POD

The following table illustrates the differences between the DEIS and the Plan of Development (POD) that Entrega has developed in consultation with the BLM. Below the table, Entrega provides its specific comments on the proposed recommendations in the DEIS and other items on which Entrega believes comment or clarification is necessary.

Issue	DEIS	POD	Entrega Comment
Erosion prevention	Recommendation 14	Was not addressed in POD filed with FERC/BLM in September 2004. POD has been modified to include this provision (Section 2, p.5).	**Entrega concurs with FERC Recommendation 14 as written.**
Topsoil Degradation	Recommendation 15	Entrega has two provisions for rutting/pulverized soils. **ROW Topsoil:** • POD has been modified to include the provision in the DEIS (Section 2, p.2). **Access Roads:** • In the White River District, if access road rutting is more than 3 inches, use will be halted. Either alternate road access will be selected, or repairs will be made prior to continuing use. In the Craig and Rawlins Districts, if access road rutting is more than 4 inches, use will be halted. Either alternate road access will be selected, or repairs will be made prior to continuing use. (section 1, p.51)	**Entrega recommends revision of this Recommendation to be consistent with measures outlined in the POD.**
Weed Management Plan	Recommendation 16		**See Entrega's comments on Recommendation 16.**

I1-30

I1-31

I1-32

6-101

I1-30 Entrega Erosion prevention

Thank you for your comment. The EIS has been revised to indicate that this recommendation is now a committed measure for Entrega.

I1-31 Entrega Topsoil Degradation

The recommendation has been revised to be consistent with the POD.

I1-32 Entrega Weed Management Plan

Comment noted. We have retained the requirement to pre-treat weed infestations in our recommendations, consistent with Entrega's revised Weed Management Plan (filed May 13, 2005).

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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Issue	DEIS	POD	Entrega Comment
Noxious Weed Control	Recommendation 17	Weed Management Plan (Appendix G)	Entrega recommends revising Recommendation 17 to be consistent with the POD. Entrega's Weed Management Plan states that monitoring will be conducted in July, annually for five years following construction. Where required, following the initial five years of monitoring, Entrega will implement additional revegetation and weed control programs in areas where monitoring determined additional measures will be necessary. Following the end of the monitoring program, weed infestations will be monitored as part of Entrega's operation and maintenance surveys.
Protection of Water Supply Wells/Systems	Recommendation 19(c)	Blasting Plan (Appendix F)	Entrega concurs with FERC Recommendation 19(c) as written. Entrega's Blasting Plan (Appendix F, POD) has been modified (p.3) to incorporate items found in 19(c).
500-foot setback of refueling, lubricating, and hazardous material	Recommendation 20	On private lands, Entrega shall restrict refueling, lubricating, and hazardous material storage to at least 100 feet away from the edge of any stream, wetland, ditch, or other waterbody, unless written approval from the EI is received. (Appendix C-SPCC).	See Entrega comment on DEIS Recommendation 20, which describes Entrega's recommended method for managing this issue.
Reclamation and Restoration of Wetlands	Recommendation 25	Wetlands will be seeded using a commercial sterile hybrid cover crop for temporary stabilization, as requested by the BLM (Section 2, 2.3).	Entrega recommends revising this Recommendation to be consistent with the approach specified in the POD. See Entrega comment on DEIS Recommendation 25.
Restoration of Riparian Woodlands	Recommendation 26	Not currently addressed in the POD.	Entrega concurs with FERC Recommendation 26 as written. Surveys will be conducted and revised site-specific plans will be attached to the POD, as an appendix.

I1-33
I1-34
I1-35
I1-36
I1-37

Responses to Letter I-1

I1-33 Entrega **Noxious Weed Control**

Comment noted. The discussion has been expanded to include Entrega's Weed Monitoring strategies. A sentence has been added to FERC's recommendation stating that Entrega should conduct weed surveys at a minimum of every three years as a part of their routine and maintenance surveys. Reports of these weed management surveys would be sent to conservation districts.

I1-34 Entrega **Protection of Water Supply**

Comment noted. However, we note that the revised POD filed May 20, 2005 does not incorporate the 200 foot distance as specified in condition 19(c). Changes within the new POD should be incorporated as necessary.

I1-35 Entrega **500-foot setback of refueling**

Our response to other agencies' setback issues are put forth in text modification and responses to other comments (see F1-36, F1-60, F1-75, S1-30). We believe that the 100-foot setback standard is adequate, but does not control the approval processes required for lands managed by other agencies.

I1-36 Entrega **Reclamation & restoration of wetlands**

See response to comment I1-9.

I1-37 Entrega **Restoration of Riparian Woodlands**

Thank you for your comment.

Entrega Gas Pipeline Inc.
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Issue	DEIS	POD	Entrega Comment
Spacing of ditch-plug bridges/escape ramps and breaks in the strung and welded pipe	Recommendation 27	Entrega will also consider, on a case by case basis, other alternative means of providing wildlife and livestock access across the welded pipe string, including raising the welded pipe string to provide a minimum of 5 feet clearance or earthen ramps across the pipe. (Section 1, p.53) To mitigate the effects of open trenches, soft plugs will be installed in the trench as described above. Additionally, Environmental Inspectors will be available to inspect the open trench for the presence of entrapped wildlife and immediately prior to backfilling. Other excavations that remain open overnight may be covered or ramped to prevent entrapment of wildlife. (section 1, p.54) In areas of T&E or sensitive wildlife species, Entrega will visually inspect the segments prior to capping or taping and remove wildlife that may be present in the pipe sections. Entrega will then seal the pipe ends on long welded segments to prevent animals from entering. Entrega will leave gaps between strung sections every 1.0 mile along the route to allow wildlife to pass between long, continuous sections prior to lowering in. (section 1, p.54)	**Entrega intends to uniformly implement these provisions when crossing BLM-managed lands.** **On private lands, Entrega intends to implement these measures on a case-by-case basis pursuant to its easement agreements, subject to approval of its Environmental Inspector.**
Pre-construction field surveys for federally listed plant species	Recommendation 31	This is not specifically addressed in the POD. The POD does reference Entrega's Survey Plans (Section 1, 4.3.1 and 4.3.2) and Conservation Measure Plans (Section 2, 2.5.1 and 2.5.2).	**Entrega concurs with FERC Recommendation 31 as written. Entrega has filed this information with its 2004 survey reports and will file it with 2005 survey reports.**

I1-38

I1-39

I1-38 Entrega **Spacing of ditch-plug bridges/escape ramps**

We will recommend that Entrega implement the recommendation uniformly across all lands, whether federal, state, or private. As stated in the EIS, the Environmental Inspectors would have the authority and flexibility during construction to reduce the spacing as deemed necessary.

I1-39 Entrega **Pre-construction field surveys for federally listed plant species**

Comment noted.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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Entrega's DEIS Comments

	Issue	DEIS	POD	Entrega Comment
I1-40	"Washing construction equipment"	ES-4, 2-12, 3-24 (6th bullet), 3-25 (2nd paragraph) – references to washing equipment and wash stations		Entrega recommends revising the DEIS to be consistent with the Weed Management Plan. All references to "wash/cleaning stations" in the POD will be changed to "cleaning stations."
I1-41	Typical Construction ROW	2-7 & 2-8, Figure 2.2-1 & 2.2-2-	FERC language to be inserted into Section 2, p.2 as an "alternate" topsoiling method.	Entrega will implement one or both topsoiling methods as outlined in the DEIS and the POD.
I1-42	Repair of Damage to Drain Tile System	2-6 (bottom)	Through consultation with BLM Specialists, Entrega has not adopted measures for drain tile repair in its POD.	Entrega concurs with DEIS section 2-6. If needed, Entrega intends to implement drain tile repair measures outlined in its Upland Erosion Control Plan.
I1-43	Pre-treatment of Weed Infestations	3-24 (2nd bullet)	No pre-treatment of weeds is proposed on BLM lands.	Entrega recommends revising the DEIS to be consistent with the POD's treatment of this issue.
I1-44	Wild Horse Management	3-85 (1st paragraph)	No wild horse management measures included/proposed in the POD.	Entrega believes that its response to DEIS Recommendation 27 addresses this issue.
I1-45	Stacking of pinyon pines for recovery as firewood	3-87 (last paragraph)	This provision is no longer a part of the POD at the direction of BLM field office staff.	Entrega recommends revising the DEIS to be consistent with the approach in its POD.
I1-46	Meeker Compressor Station paint color	3-92, (#1)	POD, Section 1, Table 6.2.1-1 "AGF painted either Carlsbad Canyon or Juniper Green (where applicable)	Entrega adopted paint color recommendations based on BLM consultation.
	Bighole Compressor Station Paint Color	3-92 (#2):	POD, Section 1, Table 6.2.1-1 "AGF painted Carlsbad Canyon"	Entrega adopted paint color recommendations based on BLM consultation.
	Wamsutter Compressor Station color not specified	3-93 (#3)	POD, Section 1, Table 6.2.1-1 "AGF painted "shale green"	Entrega adopted paint color recommendations based on BLM consultation.
I1-47	Boring beneath roads and railroads	3-112, last paragraph	All these road classifications are slated for boring (none open cut).	Entrega intends to bore all paved roads and railroad crossings, as specified in its POD.
I1-48	Noise Level at Bighole Compressor Station	3-126, Table 3.10-3,	POD-noise data consistent with DEIS table 3.10-3	See Entrega's comment to the DEIS concerning this issue.
I1-49	Pre-construction Weed Control	3-143, paragraph 1	POD does not propose pre-construction weed control	Entrega recommends revising the DEIS to be consistent with the POD's treatment of this issue.

Responses to Letter I-1

I1-40 Entrega — Washing construction equipment

We will retain this recommendation that the use of high-pressure water wash stations be required to remove weeds, seeds, and propagules from vehicles traveling along the ROW.

I1-41 Entrega — Typical Construction ROW

The EIS has been modified to document both topsoiling methods.

I1-42 Entrega — Repair of damage to drain tile system

Thank you for your comment.

I1-43 Entrega — Pre-treatment of weed infestations

Comment noted. See response to comment I1-32.

I1-44 Entrega — Wild Horse Management

Comment noted.

I1-45 Entrega — Stacking of Pinyon Pines for recovery as firewood

The EIS has been revised to be consistent with the POD.

I1-46 Entrega — Paint colors for compressor stations

The EIS text has been modified to incorporate this information.

I1-47 Entrega — Boring beneath roads and railroads

The EIS has been clarified to indicate that all railroad crossings would be bored.

I1-48 Entrega — Noise level at Bighole Compressor station

Comment noted. See also response to comment F1-1.

I1-49 Entrega — Pre-construction weed control

See response to comment I1-32.

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	Issue	DEIS	POD	Entrega Comment
I1-50	Fuel source of compressor stations	5-4, paragraph 4	POD states that only the Bighole compressor station will be gas powered - all others electric.	**The DEIS is correct on this matter. Entrega will revise the POD accordingly.**
I1-51	Identification of wildlife resources	3-53 to 3-62 identifies specific wildlife resources (including big game, small game species, nongame species, raptors and other migratory birds)	POD includes discussion of wildlife resources requiring specific mitigation: big game and raptor nests (Section 1, 4.3.3 and Section 2, 2.5.3)	**Entrega concurs with DEIS sections 3-53 and 3-62.**
I1-52	Identification of T&E species	DEIS, p. 3-63 to 3-83 identifies all specific T&E species	POD includes reference to Entrega's Special Status Species Survey Plan (Section 1, 4.3.1) and BLM Survey Plan (Section 1, 4.3.2), as well as Entrega's Conservation Measure Plan (Section 2, 2.5.1) and BLM Conservation Measure Plan (Section 2, 2.5.2). Entrega will attach these documents to the POD (as an appendix). Species addressed directly in the POD at the request of the field offices include: sage grouse, Colorado pikeminnow, mountain plover, and raptors (Section 1, 4.3.3 and Section 2, 2.5.3).	**Entrega concurs with DEIS sections 3-63 and 3-83.**
I1-53	Protection measures for BLM lands	3-66	Not currently addressed in the POD. Has been incorporated into BLM Conservation Measure Plan (section 6.0), which will be attached to the POD (as an appendix).	**Entrega concurs with DEIS section 3-66.**
I1-54	Protection of Sage Grouse Leks	3-76	Not currently addressed in the POD. Has been incorporated into Conservation Measure Plan (section 3.3) and BLM Conservation Measure Plan (section 3.4), which will be attached to the POD (as an appendix).	**Entrega concurs with DEIS section 3-76.**
I1-55	Water Depletion Impacts on Downstream Species	3-79 to 3-83	The Conservation Measure Plan will need to be updated with FWS time windows, and the plan will be attached to the POD (as an appendix).	**Entrega concurs with DEIS sections 3-79 and 3-83.**

I1-50 Entrega — Fuel source of compressor stations

Thank you for your comment.

I1-51 Entrega — Identification of wildlife resources

Comment noted.

I1-52 Entrega — Identification of T&E species

Comment noted.

I1-53 Entrega — Protection measures for BLM lands

Comment noted.

I1-54 Entrega — Protection of Sage Grouse Leks

Comment noted.

I1-55 Entrega — Water depletion impacts

Comment noted.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
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Entrega's DEIS Comments

Issue	DEIS	POD	Entrega Comments
Minimization of potential collision and electrocution impacts to migrating and foraging bird species.	3-62	Not currently addressed in the POD. Has been incorporated into the BLM Conservation Measure Plan (section 3.1), which will be attached to the POD (as an appendix).	Entrega concurs with DEIS section 3-62.

I1-56

Responses to Letter I-1

I1-56 Entrega **Impacts to migrating and foraging birds**

Comment noted.

Additional Comparison of Entrega's Upland Erosion Control, Revegetation and Maintenance Plan and BLM Conservation Measure Plan

	Issue	Entrega Plan	Entrega POD, Section 2	Entrega Preference
I1-57	Topsoil Segregation	Plan, P.7, #1: Unless the landowner or land managing agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area *or from the trench and subsoil storage area* (ditch plus spoil side method).	Section 2, P.2, 2.1.1: Typically, topsoil will be stripped and segregated from the ditch line only, and stored on either the working or non-working sides of the ditch line.	**Entrega does not believe it is necessary to strip topsoil from the area of the construction ROW where subsoil is stored. Entrega believes that with careful handling, subsoil will not mix with topsoil. Entrega believes that maintaining the integrity of the natural soil horizons and root stock is essential to successful post-construction revegetation.**
I1-58	Stripping of topsoil	Plan, P.7: In areas with less than 12 inches of topsoil, strip to actual depth.	Section 2, p. 2: Strip 6 inches of "surface soil" and treat as topsoil, unless otherwise directed by EI.	**Entrega recommends the approach taken in the POD, Section 2.**
I1-59	Disposal of Excess Rock	Plan, P.12: Excess rock should be disposed, unless landowner permits additional use.	Section 2, p.3: Excess rock will be stockpiled in some areas along existing roads to prevent public use of the ROW, or otherwise disposed at off-site facility.	**Entrega recommends the approach taken in the POD, Section 2.**
I1-60	Temporary Slope Breakers	Plan, p. 9, Temporary Slope Breakers: 5-15%- Spacing of 300 feet >15-30%- Spacing of 200 feet >30%- Spacing of 100 feet *p.5: In rocky areas where the surface is resistant to erosion, slope breakers may be omitted, or have increased spacing (EI call).	Section 2, p.4, Temporary Slope Breakers: 1-5%- spacing of 300 feet 5-15%-spacing of 200 feet 15-25%- spacing of 100 feet >25%- spacing of 50-75 feet, or EI	**Based on Entrega's experience, the POD approach is unnecessary and thus, Entrega recommends the approach taken in its FERC Plan.**

I1-57 Entrega Topsoil segregation

FERC agrees that stripping the topsoil from the area where subsoil would be stored would further disturb rootstock. The EIS has been modified to indicate that topsoil will not be stripped under these circumstances.

I1-58 Entrega Stripping of topsoil

Entrega has modified its Plan (revision filed May 17, 2005) to incorporated language which we find acceptable.

I1-59 Entrega Disposal of excess rock

Entrega has modified its Plan (revision filed May 17, 2005) to incorporated language which we find acceptable.

I1-60 Entrega Temporary slope breakers

Entrega has modified its Plan (filed May 17, 2005) to incorporate specifications which we find acceptable.

Letter I-1 Continued

Entrega Gas Pipeline Inc.
Docket Nos. CP04-413, et al.
Entrega's DEIS Comments

	Issue	Entrega Plan	Entrega POD, Section 2	Entrega Preference
I1-61	Permanent Slope Breakers	Plan, p.13, Permanent Slope Breakers See above	Section 2, p.4, Permanent Slope Breakers See above	**Based on Entrega's experience, the POD approach is unnecessary and thus, Entrega recommends the approach taken in its FERC Plan.**
I1-62	Depth of Seedbed	Plan, p.15: Prepare a seedbed in disturbed areas to a depth of three to four inches.	Section 2, p.7: Compacted soils: Prepare a seedbed to a depth of six to twelve inches. Upland, un-compacted soils: Prepare a seedbed two to six inches.	**Entrega recommends the approach taken in the POD, Section 2.**
I1-63	Timing of Seeding	Plan, p.15: Seeding to occur within six days of final grading.	Section 2, p.7: Seeding will occur as soon practical. In areas where sage brush is present in a mix, sage species will be spread separately during a second pass in late fall or early winter (even if snow cover is present).	**Entrega recommends the approach taken in the POD, Section 2.**
I1-64	Rate of mulch application	Plan, p.10: mulch applied at a rate of 2 tons/acre.	Section 2, p.8, 20: mulch applied at a rate of 1.5 tons/acre.	**Entrega recommends the approach taken in the POD, Section 2.**
I1-65	Follow-up inspections of disturbed areas	Plan, p.16: Conduct follow-up inspections of all disturbed areas after first and second growing seasons to evaluate revegetation.	Section 2, p.32-35: Conduct follow-up inspections of all disturbed areas for five years (in July, first, third, and fifth growing seasons) to evaluate revegetation and erosion control success.	**Entrega recommends the approach taken in the POD, Section 2.**

Responses to Letter I-1

I1-61 Entrega Permanent slope breakers

Entrega has modified its Plan (revision filed May 17, 2005) to adopt specifications recommended by the BLM. On non-federal lands, we believe that permanent slope breaker spacing may be adjusted to follow the spacing requirements of the local soil conservation authority or land management agency at the discretion of the environmental inspector. However, this change from the specifications in Entrega's Plan would require FERC approval prior to implementation.

I1-62 Entrega Depth of seedbed

See response to I1-60.

I1-63 Entrega Timing of seeding

See response to comment I1-60.

I1-64 Entrega Rate of mulch application

See response to I1-60.

I1-65 Entrega Follow-up inspection

Entrega has modified its Plan (revision filed May 17, 2005) to incorporated language which we find acceptable.

ENTREGA'S COMMENTS ON RECOMMENDATIONS AND OTHER AREAS WHERE DIFFERENCES WITH BLM POD ARE NOTED

Recommendation 13. During construction in areas prone to wind erosion, Entrega shall "wet down" topsoil stockpiles to maintain a surface crust which would act to minimize wind-blown losses.

Entrega Comment:

I1-66 Entrega has adopted this stipulation in its BLM Plan of Development (POD), Section 2.1.1, p.2. No further changes are required to the DEIS.

I1-66 Entrega **Adoption of stipulation to "wet down "topsoil**

Comment noted. The EIS has been revised to be consistent with the POD

Letter I-1 Continued

Recommendation 15. Entrega's Els shall monitor for potential topsoil degradation in areas where it is not stripped from the working side of the construction ROW. If topsoil in these areas becomes powdered or pulverized to a depth of 4 inches and is being mixed with subsoil, or if wind is moving topsoil off the ROW regardless of dust control measures applied, then the Els, in conjunction with the agencies' compliance monitors, shall require that Entrega change its procedures to strip topsoil from both the ditch line and the working side of the ROW.

Entrega Comment:

I1-67 Entrega has adopted this recommendation in its POD, Section 2.1.1, p.2. No further changes are required to the DEIS.

Responses to Letter I-1

I1-67 Entrega **Adoption of stipulation to monitor top soil**

Comment noted. The EIS has been revised to be consistent with the POD

Recommendation 16. **Prior to construction,** Entrega shall revise its Weed Management Plan to include:

a. the results of a survey which identifies by milepost (MP) where noxious or invasive weeds are currently present either within or immediately adjacent to all areas of project-related disturbance;
b. a site-specific plan for each location where weeds are present which:
   i. describes options for pretreatment (including the month(s) of the year when pretreatment would be effective);
   ii. identifies who was consulted regarding possible pretreatment options; and
   iii. includes whether the landowner/administrator has approved of the pretreatment; and

the location of all equipment wash stations (by MP), the source(s) of the wash water, how effluent from the wash stations would be monitored/treated to prevent seed releases, and specific plans for station decommissioning. Entrega shall also include a scaled plot plan of a typical wash station in the Weed Management Plan, identifying all features. Wash stations shall be at least 0.25 mile from all perennial streams and monitored for weeds after construction as part of the ROW monitoring and reclamation efforts.

Entrega Comment:

I1-68 Entrega plans to conduct full noxious and invasive weed surveys within and immediately adjacent to all areas of project-related disturbance beginning in spring 2005. Surveys will be completed for Segment 1 prior to construction, and will be completed for Segment 2 by late summer or early fall 2005 (prior to the initiation of construction on Segment 2 in 2006).

Results of the weed survey will be attached to Entrega's Weed Management Plan to create a project-specific plan that identifies locations and mitigation for control in areas of known weed infestations. The Weed Management Plan will be submitted to the FERC prior to initiating construction. Entrega does not plan to conduct pretreatment for known infestation. Consultations with the BLM field offices and local weed authorities (Attachment B of the Weed Management Plan) identified that pretreatment was not an effective means of controlling weed populations and that efforts should be concentrated on post-construction reclamation and weed treatment. In addition, no private or public landowners have requested pretreatment of weeds on their property.

I1-69 Entrega plans to use cleaning stations for construction equipment. Cleaning stations may use water as a source for cleaning, but may also clean equipment by other means (e.g., pressurized air). Entrega will include in its Weed Management Plan the

I1-68 Entrega **Noxious & invasive weed surveys**

See response for comment I1-32.

I1-69 Entrega **Cleaning stations for construction equipment**

See response to comment I1-40.

Letter I-1 Continued

I1-69 location of all cleaning stations, how effluent from the cleaning stations will be monitored/treated to prevent seed from being released and specific plans for station decommissioning. Entrega will also include a scaled plot plan of a typical cleaning station, identifying all features.

Recommendation 17. Entrega shall control noxious weeds along the pipeline ROW for the life of the project. Measures for long-term weed control strategies should be developed through consultations with the local Natural Resources Conservation Service, weed control board or officials, land management agencies, and landowners. Entrega's developed methods and comments from the various agencies should be filed with the Secretary for the review and written approval of the Director of OEP before implementation.

Entrega Comment:

I1-70 Entrega has initiated consultations with the appropriate parties listed above (see POD, Appendix G). As noted in the table above (see Noxious Weed Control, Recommendation 17), pursuant to its Weed Management Plan (POD Appendix G), Entrega will conduct monitoring each July for the five years following construction and when required thereafter. Entrega recommends revising this Recommendation to reflect Entrega's duties and responsibilities under its Weed Management Plan (POD Appendix G).

I1-70 Entrega Long-term weed control

See response for comment I1-33.
Additional text has been added, indicating that Entrega would be involved with other agencies and organizations concerned with weed control and other conservation issues for the life of the project.

Recommendation 20. On federal lands, Entrega shall restrict refueling, lubricating, and hazardous material storage to at least 500 feet away from the edge of any stream, wetland, ditch, or other waterbody, unless written approval from the Bureau of Land Management (BLM) is received.

Entrega Comment:

To reduce the likelihood of an accidental release of a hazardous or regulated liquid, Entrega has adopted the FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures). The FERC's standard for handling fuel and other materials is that such activities be conducted at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. Entrega also developed a Spill Prevention, Containment, and Countermeasure (SPCC) Plan to address the handling of fuel and other materials within 100 feet of waterbodies and wetlands. Additionally, Entrega is developing or has developed a Construction Mitigation and Reclamation Plan (Plan of Development (POD) Section 2), a site-specific crossing plan for six perennial waterbodies, site-specific hydrostatic testing plans and site-specific plans for construction and revegetation for riparian woodland communities to avoid or minimize potential impacts on waterbodies and wetlands during project activities.

With the implementation of the measures provided in the project Procedures, SPCC Plan, POD and site-specific plans, Entrega expects that potential impacts on water resources associated with the handling of fuel and other hazardous materials will be avoided or minimized; and, in the event a release occurs, response to and remediation of a release will be expedited. Additionally, for the reasons identified below, Entrega is requesting that the BLM provide Entrega with the basis for its requirement that the handling of fuel and other materials occur 500 feet from a water feature.

I1-71

1. Through consultation with BLM field office staff, Entrega agreed to use upland construction methods at washes and gulches that are dry at the time of crossing. Entrega also agreed that the crossing methods described in the Procedures will be utilized at washes and gulches with sustained, flowing water at the time of crossing.
2. Entrega anticipates that its pipeline facilities will be installed during the summer and fall of 2005 and 2006 and that during those months a majority of the water features will be dry, experiencing flowing or standing water during rare periods of heavy rainfall. Therefore, the likelihood of contaminating intermittent waterbodies is minimal.
3. The set-back provision does not provide an alternative for situations where the handling of fuel and other hazardous material 500 feet from one water

I1-71 Entrega 100 vs 500 foot setback

See response to comment I1-35.

feature places those same activities within 500 feet of another feature (e.g., water resources, cultural resources, roadways, etc.). Consequently, the potential impacts at one crossing location may be displaced on resources at another location.

4. The BLM indicated that the 500-foot set-back requirement will be imposed at all water crossings except where Entrega requests and receives written approval from the BLM for a variance. Due to the number of waterbodies and wetlands identified along the project route (485 and 296, respectively), constructability constraints (e.g., steep terrain, rocky soils, etc.), and environmental resources (e.g., water, wildlife, cultural, etc.) that could be encountered due to a 500-foot setback, Entrega anticipates that numerous variance requests would be required during construction. Entrega is concerned that the variance approval process will impede construction progress and other resource monitoring requirements.

5. Construction equipment that will require refueling near waterbody crossings and at narrowed wetland crossings is usually larger and heavier than equipment used in upland areas. Large equipment is typically serviced by smaller, more mobile vehicles, such as pick-up trucks. Transporting large equipment 500 feet from a wetland or waterbody crossing location will slow construction activities due to the amount of travel time that will be required to move the equipment from and to the crossing site. In some instances, the contractor will be required to travel several miles in order to remain 500 feet from any drainage.

I1-71

The transportation of large construction equipment to and from a water or wetland crossing location will also result in additional impacts on topsoil. Entrega committed to implementing special topsoil treatment standards to prevent excessive rutting on the right-of-way. As described in its POD, Entrega will leave topsoil in place along a majority of the right-of-way; stripping will occur only over the ditchline in most upland areas. Multiple passages along the construction right-of-way with heavy construction equipment to and from waterbody and wetland crossings will increase impacts (e.g., pulverized topsoil and rutting) on topsoil and will require additional mitigation, including full width top soil stripping and top soil stabilization.

Letter I-1 Continued

2-7 & 2-8, Typical Construction ROW, Figures 2.2-1 & 2.2-2 – **Topsoil in typical construction ROW indicates Topsoil on working side under pipe string.**

I1-72

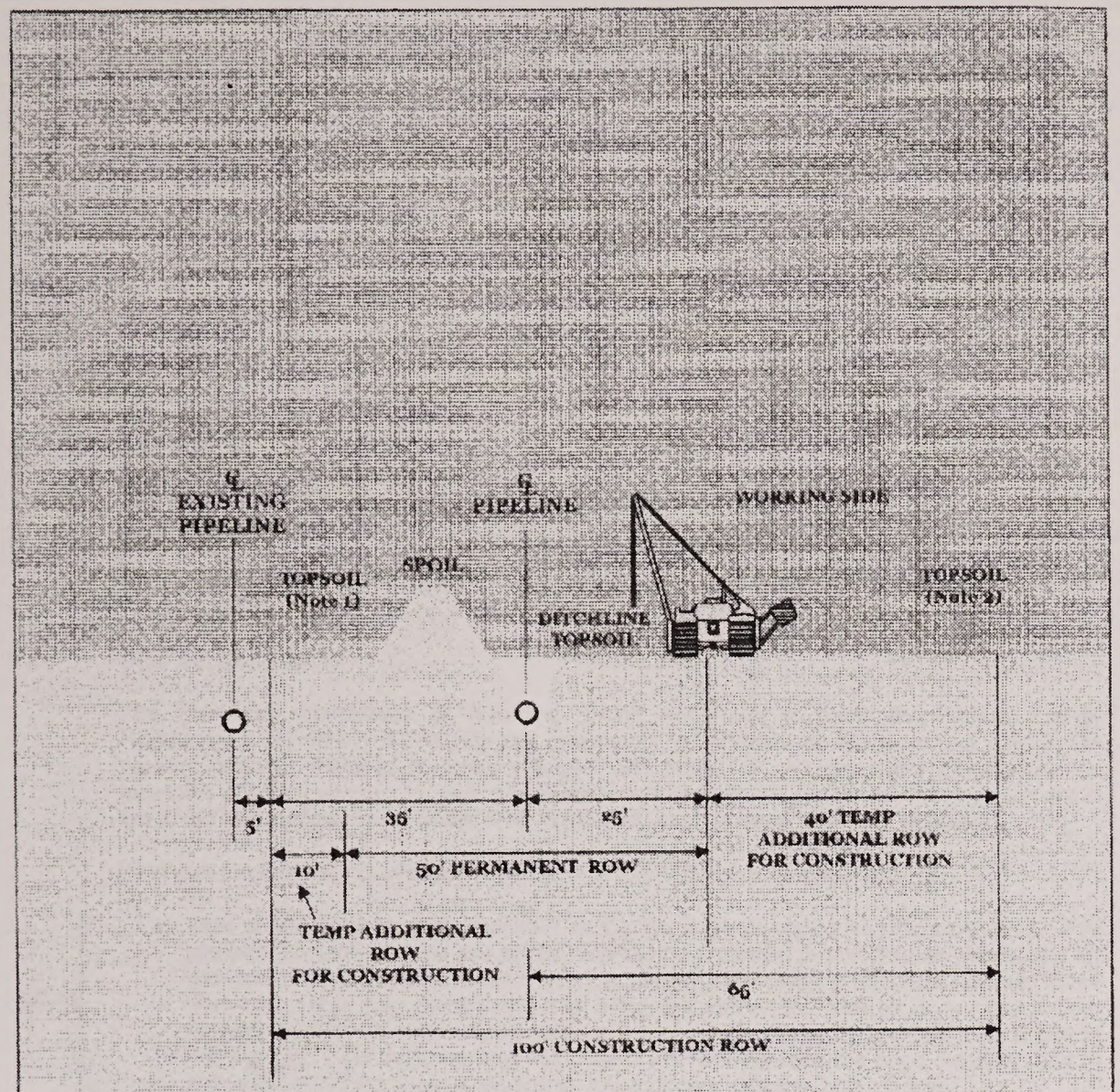
Entrega Comment:
See the attached revised drawings that show revisions to possible topsoil storage locations in accordance with the latest agreements between Entrega and BLM. Entrega recommends replacing the existing DEIS Figures 2.2-1 and 2.2-2 with the attached drawings.

Responses to Letter I-1

I1-72 Entrega Topsoil storage

The EIS has been modified to document both topsoiling methods.

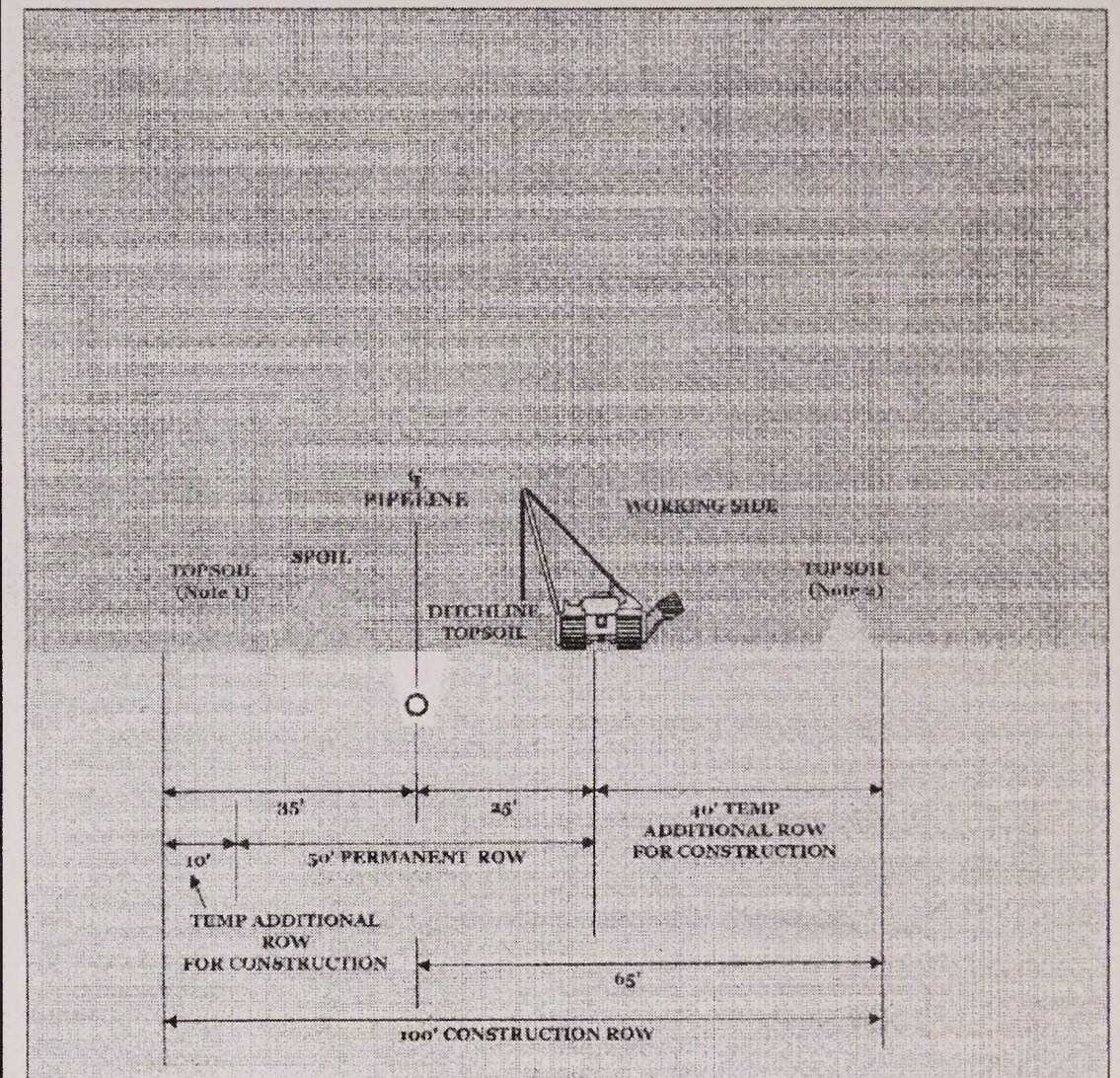
Letter I-1 Continued



Notes:
1. This is an alternate topsoil location for the ditch line topsoil depending upon the conditions encountered in the field during construction.
2. This location for topsoil will be required if full width topsoil stripping is required.

ENTREGA GAS PIPELINE INC.	**Figure 1.2.1-1a** Entrega Gas Pipeline Project Typical 100' Construction Right-of-Way Profile Shared Corridor	DATE: 02/03/04 REVISED: 03/15/05 SCALE: NTS APPROVED BY: RKP

Letter I-1 Continued



Notes:
1. This is an alternate topsoil location for the ditch line topsoil depending upon the conditions encountered in the field during construction.
2. This location for topsoil will be required if full width topsoil stripping is required.

ENTREGA GAS PIPELINE INC.	**Figure 1.2.1-1** Entrega Gas Pipeline Project Typical 100' Construction Right-of-Way Profile Greenfield Areas	DATE: 02/03/04 REVISED: 03/15/05 SCALE: NTS APPROVED BY: RKP

Letter I-1 Continued

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 18th day of April, 2005.

Debra H. Rednik

Letter I-2

PETROLEUM ASSOCIATION OF WYOMING

951 Werner Court, Suite 100
Casper, Wyoming 82601
(307) 234-5333

fax (307) 266-2189
e-mail: paw@pawyo.org
www.pawyo.org

April 15, 2005

Ms. Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

RE: Draft Environmental Impact Statement for the Entrega Pipeline Project Docket No. CP04-413-000

Dear Secretary Salas:

The Petroleum Association of Wyoming (PAW) would like to thank the Federal Energy Regulatory Commission (FERC) for the opportunity to comment on the proposed natural gas pipeline project. PAW is Wyoming's largest and oldest oil and gas trade association, the members of which account for over ninety percent of the natural gas and over eighty percent of the crude oil produced in the State. This project will directly affect members of PAW.

PAW has the following comments regarding the above referenced document:

I2-1
- This project is extremely important to the State of Wyoming and its producers. The disparity between natural gas prices received by Wyoming producers and prices paid for gas produced elsewhere in the country is having a devastating effect on not only those who rely on this resource to make their living, but also on the state treasury. The reason for this inequality is primarily Wyoming's lack of pipeline capacity to move natural gas to the market. PAW believes that this project will help alleviate the price disparity, and in turn, will benefit the State of Wyoming, its producers, citizens, and schools.

I2-2
- Regarding private property, should the company find it difficult to resolve issues with the landowner for the development of this pipeline, PAW recommends the services of the Wyoming Split Estate Initiative (WYSEI). It is a voluntary program that outlines options to be considered by both parties and if utilized, it could minimize or prevent conflict thereby eliminating the need for condemnation. Information regarding this program can be found on the WYSEI website at www.wysei.com.

6-119

Responses to Letter I-2

I2-1 Petroleum Association of Wyoming Project is important

Thank you for your comment.

I2-2 Petroleum Association of Wyoming Wyoming Split Estate Initiative

Thank you for your comment. We have forwarded this information to Entrega.

Letter I-2 Continued

951 Werner Court, Suite 100
Casper, Wyoming 82601

I2-3 [
- PAW support's the agencies' decision to analyze and eliminate from further consideration the alternatives outlined on page ES-10-11 because they do not support the agencies' mandate to provide for a balanced approach to management and use of the public lands.

I2-4 [
- The Applicants have agreed to numerous "Applicant Committed Measures" which go beyond the required protective measures established in the current land management plans. The Applicants have demonstrated their willingness to work with the land managing agency in protecting the effects on the environment and as a result, PAW believes that the proposed project has provided sufficient mitigation to protect the environment.

PAW believes that this project can and will achieve a balance between economic growth and environmental protection. This project proposal is consistent with President Bush's National Energy Policy. Wyoming has the opportunity to provide much needed natural resources to markets throughout the nation and this proposal will assist in that effort. At the same time, industry recognizes the importance of protecting the environment and will work to adequately address those concerns during the appropriate level of NEPA analysis.

In conclusion, PAW supports this project proposal and the Record of Decision should be prepared without delay.

Sincerely,

Dru Bower
Vice President

Responses to Letter I-2

I2-3 Petroleum Association of Wyoming Eliminate alternatives

Comment noted.

I2-4 Petroleum Association of Wyoming Committed measures more than sufficient

Comment noted.

Letter N-1

WYOMING OUTDOOR COUNCIL

Utah Office, 444 East 800 North, Logan, UT 84321
ph. (435) 752-2111 fax (435) 753-7447
e-mail: bpendery@pcu.net

April 13, 2005

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, D.C. 20426

Re: Docket Nos. CP04-413-000 et al.
Entrega Pipeline Project Draft Environmental Impact Statement

To whom it may concern:

The following comments are offered on the Entrega Pipeline Project Draft Environmental Impact Statement ("Entrega DEIS").

6-121

N1-1

The Purpose and Need for the Entrega Pipeline Project is not defined in a way that supports selection of the preferred alternative, namely construction of the Entrega pipeline. See Entrega DEIS at 1-1 to 1-7. The Entrega DEIS Purpose and Need is only defined in terms of natural gas supply, that is, there are apparently plans to increase the amount of natural gas produced. Id. But while the Purpose and Need for the project is defined in terms of supply, there is no indication there is demand for the increased gas supply at the Cheyenne Hub. Nor is there any indication the amount of gas produced could be stored at the Cheyenne Hub, or that anyone is willing to pay for the storage. No "downstream" customer or even potential customer is identified other than a vague, passing reference to shipment being made to "markets" in the "Midwest and central United States." Id. at 1-1 to 1-3.[1] There is no indication there are any buyers for the gas at the Cheyenne Hub. If the gas is produced and transported to the Cheyenne Hub, yet there is no company to buy the product or demand for it downstream of the Cheyenne Hub, the project has no purpose and there is no need for it.

While it is generally recognized that the demand for natural gas will be increasing, it is also generally recognized that the Midwest and central parts of the United States are not the strongest areas of the country in terms of growth (i.e., demand).

[1] See also http://www.entregapipeline.com/pdfs/ferc/2004/transmittal.pdf at pages 8-9 in the Executive Summary (containing very general information about demand); 14 in the Background section (making reference to nationwide demand, stating "It is estimated that, by 2005, demand for natural gas in the United States will reach nearly 22 trillion cubic feet (Tcf)."). Entrega is even relying on news reports and previous studies to address the demand-side of the equation. Id. at 14, citation #15. Yet general estimates of nationwide demand say nothing about what the demand is for gas from the Cheyenne Hub.

Protecting Wyoming's Natural Resources and Environment Since 1967
100% Recycled Post Consumer ♻ Acid Free ♻ Groundwood Free

Responses to Letter N-1

N1-1 Wyoming Outdoor Council Demand for natural gas

Entrega conducted an open season to gauge whether there was sufficient market interest (i.e., gas suppliers and purchasers) to support construction of a pipeline with long-term recovery of the capital costs. It subsequently signed a precedent agreement with a nationally-recognized natural gas marketer. As an interstate transporter, Entrega would accept specific volumes of natural gas at a location(s) designated by the shipper and deliver those volumes at a downstream location(s) designated by the shipper. Given that the Cheyenne Hub in perhaps the most important "virtual market" for natural gas in the Rocky Mountain region, it is not surprising that Entrega's shipper would specify this location for gas deliveries. In short, the fact that Entrega proposes to commit the resources necessary to construct a pipeline to the Cheyenne Hub amply demonstrates that there is demand for additional gas supplies at this location. See also our response to oral comment N1-O-1.

Entrega's proposal would make new gas supplies available at two locations – Wamsutter, Wyoming and the Cheyenne Hub in Weld County, Colorado. At Wamsutter, large interstate pipelines could either transport the gas westward (by displacement, or "backhauls") or eastward (to the Cheyenne Hub). Westward flowing supplies could ultimately be delivered to southern California (via the Kern River Gas Transmission System from Opal, Wyoming) or towards the Pacific Northwest (via Northwest Pipeline's system at Green River, Wyoming). Given the historic eastward flow of gas on the systems accessible at Wamsutter, deliveries destined for the Kern River or Northwest systems would likely be made by displacement of volumes presently traveling eastward.

New gas supplies delivered at the Cheyenne Hub would be available to CIG, Cheyenne Plains, Trailblazer, and PSCo (the local distributor for cities along Colorado's Eastern Slope, including the Denver area). Markets accessible via CIG's system include those throughout eastern Colorado, southwestern Kansas, western Oklahoma, and the Texas panhandle. Gas transported eastward on the Trailblazer could be delivered to either Northern Natural Gas (NNG) or Natural Gas Pipeline Company of America (NGPL) in southeastern Nebraska. Both of these systems extend between the Oklahoma panhandle and the Chicago area. Between the Cheyenne Hub and Kiowa County, Kansas, the Cheyenne Plains system interconnects with several interstate transmission systems including NNG, NGPL, ANR Pipeline Company, and Panhandle Eastern Pipeline Company, enabling gas produced in the Piceance Basin to reach as far east as Illinois, Indiana, and Ohio.

Finally, we note that as natural gas produced from traditional supply sources declines, existing demand will increasingly be supplied from sources such as the Piceance Basin and other formations in the Rocky Mountain region. The available interconnections with other major transmission pipelines would ensure ultimate access to major growth markets in the U.S.

Letter N-1 Continued

N1-1

Rather, the south and southwest are the primary areas of growth in this country. But the Cheyenne Hub does not serve those areas. Thus, the gas may be shipped to a disbursement point that serves areas where demand may be flat or even declining, or at least not increasing to a degree implied by amount of gas that could be carried by the Entrega pipeline. Certainly the Entrega EIS must objectively show there is some demand for the product being shipped in the places were the product can be dispersed to from the Cheyenne Hub. Lacking this, there is no Purpose and Need for the Entrega pipeline, and there is no reason to assume the environmental impacts resulting from the project.

N1-2

Furthermore, while the Entrega DEIS claims that the supply of natural gas generated by Encana and thus available for placement into the pipeline may increase in the future, it provides no indication there is any shortfall in pipeline capacity now. Historically and as a matter of practice, the Federal Energy Regulatory Commission ("FERC") has not allowed construction of pipelines under such speculative conditions. On information and belief we understand that Entrega has never constructed a pipeline before. It has little or no experience in constructing pipelines. See http://www.entregapipeline.com/pdfs/ferc/2004/transmittal.pdf at page 14 (pointing out that Entrega was formed as a subsidiary of Encana just for purposes of this project and that it neither "owns nor operates any interstate pipeline facilities). This issue has great relevance to the question of Entrega's ability to meet mitigation and reclamation requirements, and if the pipeline is being constructed to meet a speculative supply increase, there is little basis for departing from historical FERC practice of not approving speculative projects. In fact, it would appear that Entrega may simply be dissolved once this project is complete. Certainly the DEIS must make provisions to ensure financial assurances are in place to ensure reclamation regardless of whether Entrega exists or not; it appears to be solely a creation of Encana, so Encana should be required to be a surety for this project, especially given Entrega's "infancy."

N1-3

The failure to identify any customer for the natural gas that would purportedly be produced and delivered to the Cheyenne Hub means that it is totally speculative to assume there is any demand for the gas at the Cheyenne Hub, and more importantly at points the Cheyenne Hub serves. This problem not only plagues the definition of the Purpose and Need for the project, but also the alternatives that were considered. In particular, "system alternatives," that is the use of existing pipelines, were prematurely dismissed from full consideration. If there is no identified customer for the gas at the Cheyenne Hub, or any likelihood there will be demand for the product at points served by the Cheyenne Hub, then it cannot be assumed that the volume of gas will be produced or shipped as portrayed in the Entrega DEIS, or be in need of the pipeline capacity discussed in the DEIS. See DIES at 4-3 to 4-5. There may well be sufficient capacity in existing pipelines if there is no demonstrated desire to purchase the gas at the Cheyenne Hub at the volumes the DEIS asserts will be put into the pipeline.

Thank you for considering these comments.

6-122

Responses to Letter N-1

N1-2 Wyoming Outdoor Council — Entrega's pipeline experience / qualifications

In figure 1.2-1, the EIS presents a projection of gas production and available pipeline exit capacity for the Rocky Mountain Region. Other factors supporting the need for additional pipeline capacity from the Piceance and neighboring basins includes:

- The USGS (2002) and the Colorado School of Mines (Potential Gas Committee, 2002) estimated potential reserves in the Piceance-Uinta Basin at between 21 and 31 trillion cubic feet of natural gas.
- Recent natural gas production records for Garfield, Rio Blanco, and Mesa Counties, Colorado indicate an upward trend (see EIS figure 1.2-2).
- Both industry and news organizations report that record numbers of drilling permits have been issued for Garfield County during the last two years. And several major producers (EnCana, Williams, Barrett) have announced plans for increased drilling activities in the Piceance and Unita Basins.

Finally, we note that construction of an interstate natural gas transmission system is a major economic and business decision. A project of the scope proposed by Entrega is only proposed when precedent agreements are in place between natural gas buyers and sellers. Without an impending need for more pipeline capacity, there would be no economic support for a new pipeline.

Entrega is an affiliate of EnCana Oil and Gas (USA), a major oil and gas company with expertise in pipeline construction and operation. The Entrega pipeline will be bonded by the BLM for reclamation and maintenance for facilities on public lands. Finally, the EIS recommendations clearly envision that Entrega (or the holder of any Certificate issued by the FERC) would be responsible for rehabilitation and reclamation of all areas disturbed by project construction, including weed control for the life of the project. The FERC has the authority to enforce these obligations, either directly with Entrega, or with any purchaser of Entrega assets in the future.

N1-3 Wyoming Outdoor Council — Need for Entrega pipeline

See response to comment N1-1.

Letter P-1

LeBeau Family Limited Partnership
HC 64, Box 206
McFadden, WY 82083
April 4, 2005

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

Re: Comments, DEIS, Entrega Pipeline Project

To Whom It May Concern:

The proposed pipeline will cross property owned by the LeBeau Family Limited Partnership.

3.0 ENVIRONMENTAL ANALYSIS:
3.2-Soils and Noxious Weeds, Page 3-25: "To reduce the spread of invasive and noxious weeds following construction activities, we recommend that Entrega control noxious weeds along the pipeline ROW for the life of the project."

P1-1 I agree, because given high altitude, the fragile nature of our grasses, the limited amount of topsoil and the unpredictability of available water for plant growth. Once the topsoil is disturbed these conditions in unity tend to nurture the probagation of noxious and other weeds while impeding development of native grass cover. Depending upon the extent to which each of these conditions plays a role, weeds may prevail for an undetermined length of time.

APPENDIX H: ENTREGA'S IRRIGATION SYSTEM REPAIR AND MONITORING PLAN:
Page 3: Irrigation System Repair and Documentation: "Entrega will repair disrupted irrigation systems as soon as possible and will compensate the landowner for damages and lost crop production resulting from irrigation system interruption due to the construction of the project."

P1-2 In so much as this proposal is in draft form, it is appropriate that specific language relating to the manner in which lost crop production will be determined is included.

P1-3 Amounts of water absorbed while flowing across the pipeline will be impossible to calculate since the flows should immediately be spread to assure uniform coverage of lands downgrade from the pipeline. In order to assure that the least possible amount of water is trapped by the pipeline, NRCS personnel recommend that the backfill over the pipeline be applied in three lifts. Each of these lifts should be watered down to enhance settling and compaction. This procedure will significantly reduce the absorption of irrigation water.

Sincerely,

Gerald LeBeau

Gerald LeBeau, Managing Partner

6-123

Responses to Letter P-1

P1-1 LeBeau Family Limited Partnership Noxious weeds should be controlled for life of project

Comment noted. Additional EIS text relative to agency coordination for weed management and other restoration practices has been added in section 3.2.4.

P1-2 LeBeau Family Limited Partnership Lost crop compensation

Lost crop production is part of the easement negotiations between the landowner and Entrega and is typically determined on a case-by-case basis. See also the discussion of Property Values in section 3.7.7.

P1-3 LeBeau Family Limited Partnership Minimize water trapped by pipeline by using 3 lifts

Appendix L has been revised to address backfilling and water absorption over the pipeline on irrigated lands. In addition, revised EIS section 3.3 addressed agency (i.e., NRCS) coordination on this issue. Finally, landowner-specific requirements are typically part of easement negotiations between the landowner and Entrega.

Letter P-2

Comments to Draft EIS and meeting held in Cheyenne, Wyoming April 11, 2005

P2-1 P2-2 P2-3 P2-4 P2-5

I represent Weaver Ranch and discussed several issues at the April 11, 2005 meeting. In addition to the topsoil stripping, vegetation, and fugitive dust control I discussed at the meeting, I would like to add the following: 1) This proposed pipeline is not in an existing corridor on our property - it expands an existing corridor and further reduces our use of our property; 2) Entrega has not adequately addressed our concerns for their people and others trespassing on our property as a result of the proposed construction and use of this pipeline and I do not see trespass addressed in the Draft EIS; 3) width of the easement - Entrega has insisted on at least 125 feet, while the Draft EIS consistently states no wider than 100 feet - see pages 2-5, 3-85 and Upland plan p6; 4) the Draft EIS notes at page 2-34 that only working vehicles are allowed on the ROW - where are all the workers cars and pickups to park?; 5) Entrega has not adequately addressed the issue of access roads across our private property, but they are currently showing approximately 3 miles of our private road for their access to the pipeline. We are still negotiating with Entrega so some of these issues have yet to be resolved. Thank you for your consideration of these comments.

Maxine Weaver Work - 307-777-7881

Responses to Letter P-2

P2-1 Weaver Ranch Not in an existing corridor on property

See response to comment P1-0-5.

P2-2 Weaver Ranch Trespass issues

Although Entrega would be encouraged to notify landowners prior to entering the ROW, Entrega would be allowed to travel along its ROW as needed in accordance with its certificate.

P2-3 Weaver Ranch 125-foot ROW

Based on information filed with the FERC, Entrega would be requesting a 100-foot ROW easement through most of the Weaver Ranch, with the exception of a 125-foot easement at a railroad crossing. The extra width at the railroad crossing is required to accommodate a bored crossing.

P2-4 Weaver Ranch Car parking

Private vehicles would not be allowed on the ROW.
Entrega states that workers' private vehicles would be parked in central staging areas or contractor yards.

P2-5 Weaver Ranch Access roads across their property

Access is typically part of easement negotiations between the landowner and Entrega. Suitable access roads through the Weaver Ranch should be included in the easement negotiations between Entrega and the landowner.

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LIST OF PREPARERS AND REVIEWERS

REFERENCES

GLOSSARY

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APPENDIX A

DISTRIBUTION LIST FOR THE FINAL EIS

Agencies, Organizations, and Individuals Who Received Copies of the Final Environmental Impact Statement

Federal Agencies

Advisory Council on Historic Preservation
- Headquarters – Washington, DC
- Western Office – Lakewood, CO

Army Corps of Engineers
- Colorado/Gunnison Basin Regulatory Office – Grand Junction, CO
- Denver Regulatory Office – Littleton, CO
- Headquarters – Washington, DC
- Wyoming Regulatory Office – Cheyenne, WY

Bureau of Indian Affairs – Washington, DC

Bureau of Land Management
- Colorado State Office – Lakewood, CO
- Glenwood Springs Field Office – Glenwood Springs, CO
- Grand Junction Field Office – Grand Junction, CO
- Kremmling Field Office – Kremmling, CO
- Lander Field Office – Lander, WY
- Little Snake River Field Office – Craig, CO
- Rawlins Field Office – Rawlins, WY
- Rock Springs Field Office – Rock Springs, WY
- Umcompagre Field Office – Montrose, CO
- White River Field Office – Meeker, CO
- Wyoming State Office – Cheyenne, WY

Centers for Disease Control and Prevention, National Center for Environmental Health – Atlanta, GA

Council on Environmental Quality – Washington, DC

Department of Agriculture
- Natural Resource Conservation Service
  - Meeker, CO
  - Washington, DC
- Office of Finance and Management – Washington, DC

Department of Commerce, Office of the Secretary – Washington, DC

Department of Energy – Washington, DC
- Office of Environmental Compliance
- Office of Fossil Energy
- Office of Intergovernmental Affairs
- Office of the Secretary

Department of Homeland Security, United States Coast Guard – Washington, DC

Department of Justice, Land & Natural Resources Division – Washington, DC

Department of Labor, Office of Regulatory Economics – Washington, DC

Department of State, Office of Environment/Health – Washington, DC

Department of the Interior – Washington, DC
- Minerals Management Service
- Office of Environmental Policy and Compliance

Department of Transportation
- Office of Pipeline Safety
  - Central Region – Kansas City, MO
  - Eastern Region, Research and Special Program Administration – Washington, DC
  - Southern Region, Research and Special Program Administration – Atlanta, GA
  - Southwest Region – Houston, TX
  - Western Region – Lakewood, CO
- Office of the Secretary – Washington, DC

Federal Energy Regulatory Commission – Washington, DC

Housing and Urban Development – Washington, DC

Interstate Commerce Commission, Office of Energy and Environment – Washington, DC

Library of Congress, Federal Documents Section, Exchange and Gift Division – Washington, DC

National Oceanic and Atmospheric Administration – Washington, DC
- Office of Habitat Protection – Silver Springs, MD

National Park Service – Washington, DC
- Intermountain Region – Denver, CO
- Air Resource Division – Denver, CO

U.S. Air Force, Environment, Safety, and Occupational Health – Washington, DC

U.S. Army, Tribal and Regulatory Affairs – Washington, DC

U.S. Coast Guard, Office of Operating and Environmental Standards – Washington, DC

U.S. Environmental Protection Agency
- Office of Federal Activities – Washington, DC
  - EIS Filing Section
  - NEPA Compliance Division
- Region 8, NEPA Compliance – Denver, CO

U.S. Fish and Wildlife Service
- Cheyenne Field Office – Cheyenne, WY
- Grand Junction Ecological Services Offices – Grand Junction, CO
- Region 6 Administration Office – Denver, CO

U.S. Forest Service – Washington, DC
- White River National Forest – Rifle, CO

U.S. Senate, Committee on Energy & Natural Gas – Washington, DC

State and Regional Agencies

Colorado Department of Natural Resources
- Office of Energy, Lands, and Forestry – Denver, CO
- Oil and Gas Conservation Commission – Denver, CO
- State Land Board – Craig, CO
- State Land Board – Denver, CO

Colorado Department of Transportation – Denver, CO

Colorado Division of Wildlife
- Area 6 Office – Meeker, CO
- Headquarters – Denver, CO
- Northwest Regional Service Center – Grand Junction, CO
- Piceance State Wildlife Area – Meeker, CO

Colorado Historical Society, Office of Archaeology and Historic Preservation – Denver, CO

Colorado Public Utilities Commission – Denver, CO

University of Wyoming, Trustees – Laramie, WY

Wyoming County Commissioners Association, Planning and Land Use Committee – Rawlins, WY

Wyoming Department of Environmental Quality – Cheyenne, WY
- Air Quality Division
- Water Quality Division

Wyoming Department of Transportation – Cheyenne, WY

Wyoming Department of Workforce Services – Rawlins, WY

Wyoming Game and Fish Department
- Green River Regional Office – Green River WY
- Headquarters – Cheyenne, WY
- Laramie Regional Office – Laramie, WY

Wyoming Geological Survey – Laramie, WY

Wyoming Office of State Land and Investments – Cheyenne, WY

Wyoming Office of the Governor – Cheyenne, WY

Wyoming Pipeline Authority – Casper, WY

Wyoming Public Service Commission – Cheyenne, WY

Wyoming State Engineer's Office – Cheyenne, WY

Wyoming State Historic Preservation Office – Cheyenne, WY
- Cultural Records Office – Laramie, WY

Counties

Albany County / City of Laramie Planning Division – Laramie, WY
Carbon County
- Fire Department – Rawlins, WY
- Planning & Economic Development
  - Rawlins, WY
  - Saratoga, WY
- Road and Bridge Department – Rawlins, WY
- Weed and Pest Control – Rawlins, WY

Garfield County – Rifle, CO
- Cooperative Extension
- Oil and Gas Department
- Road and Bridge Department
- School District

Laramie County – Cheyenne, WY
- Fire Department
- Planning Department

Medicine Bow Conservation District – Medicine Bow, WY
Moffat County – Craig, CO
- Natural Resources Department
- Planning Department
- Weed Management

Rio Blanco County – Meeker, CO
- Assessor
- Planning and Development Department

Saratoga-Encampment-Rawlins Conservation District – Saratoga, WY
Sweetwater County – Rock Springs, WY
- Conservation District
- Emergency Management Agency

Weld County Planning Services – Greeley, CO

Municipalities

City of Cheyenne – Cheyenne, WY
- Chamber of Commerce
- Planning and Development Department

City of Laramie – Laramie, WY
- Public Works Department

City of Rawlins – Rawlins, WY
- Community Development Department

City of Rifle – Rifle, CO
City of Rock Springs – Rock Springs, CO
- Rock Springs Chamber of Commerce

Town of Meeker – Meeker, CO
Town of Walden – Walden, CO

Media

Casper Star-Tribune – Green River, WY
Craig Daily Press – Craig, CO
Moffat County Morning News – Craig, CO
Northwest Colorado Daily Press – Craig, CO
Rawlins Daily Times – Rawlins, WY

Libraries

Albany County Libraries
- Centennial Valley Branch – Centennial, WY
- Rock River Branch – Rock River, WY
- Laramie Library – Laramie, WY

Bureau of Land Management Library – Denver, CO
Carbon County Libraries
- Elk Mountain Branch – Elk Mountain, WY
- Encampment/Riverside Branch – Encampment, WY
- Hanna Branch – Hanna, WY
- Little Snake River Valley – Baggs, WY
- Medicine Bow Branch – Medicine Bow, WY
- Saratoga Branch – Saratoga, WY
- Sinclair Branch – Sinclair, WY
- Rawlins Library – Rawlins, WY

Colorado State University, Morgan Library – Fort Collins, CO
Garfield County Public Libraries
- Glenwood Springs Branch – Glenwood Springs, CO
- Parachute Branch – Parachute, CO
- Rifle Branch – Rifle, CO

Laramie County Libraries
- Burns Branch – Burns, WY
- Pine Bluffs Branch Library – Pine Bluffs, WY
- Cheyenne Library – Cheyenne, WY

Meeker Regional Library – Meeker, CO
Mesa County Public Library District, DeBeque Branch – DeBeque, CO
Moffat County Library – Craig, CO
Rangley Regional Library – Rangley, CO
Sweetwater County Libraries
- Bairoil Branch – Bairoil, WY
- Rock Springs Library – Rock Springs, WY
- Wamsutter Library – Wamsutter, WY
- White Mountain Library – Rock Springs, WY
- Sweetwater County Library – Green River, WY

University of Wyoming Libraries – Laramie, WY
Utah State University, Merrill-Cazier Library – Logan, UT
Weld Library Dsitrict, Farr Branch – Greeley, CO
Western Wyoming Community College, Hay Library – Rock Springs, WY

Elected Officials

Albany County Commissioners – Laramie, WY
Carbon County Clerks
- Linda Ann Smith – Saratoga, WY
- Lindy Schmidt – Saratoga, WY

Carbon County Commisioners
- Linda L. Fleming – Baggs, WY
- Art Zeiger – Saratoga, WY
- Lee Meacham – Saratoga, WY

Carbon County Coroner, Norman Newsome – Saratoga, WY
Garfield County Commissioners – Glenwood Springs, CO
Governor Bill Owens – Denver, CO
Governor Dave Freudenthal – Cheyenne, WY
Laramie City Council Member, Bob Bell – Laramie, WY
Laramie County Commissioners – Cheyenne, WY
Larimer County Clerks
- Scott Doyle – Fort Collins, CO
- Estes Park, CO
- Loveland, CO

Larimer County Commissioner, Glenn Gibson – Fort Collins, CO
Larimer County Coroner, Patrick C. Allen, MD – Loveland, CO
Mayor, Town of Burns – Burns, WY
Mayor, Town of Pine Bluffs – Pine Bluffs, WY

Mayor, Town of Rock River – Rock River, WY
Mayor Art Genzler – Sinclair, WY
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Mayor William Coble – Superior, WY
Mayor William Hippe – Wamsutter, WY
Mayor Zoda Furgason – Hanna, WY
Moffat County Commissioners
- Darryl Steele
  - Maybell, CO
  - Craig, CO
- Les Hampton – Craig, CO
- Saed F-Tayyara – Craig, CO

Rawlins City Council Members – Rawlins, WY
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- Larry J. Kmoch

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Rep. Wayne Reese – Cheyenne, WY
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Rio Blanco County Board of Commissioners – Meeker, CO
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- Kim Cook

Rock Springs City Council Member, Kent Porenta – Rock Springs, WY
Senator April Brimmer Kunz – Cheyenne, WY
Senator Bill Vasey – Rawlins, WY
Senator Craig Thomas
- Rock Springs, WY
- Washington, DC

Senator E. Jayne Mockler – Cheyenne, WY
Senator Irene Devin – Laramie, WY
Senator Jack Taylor
- Denver, CO
- Steamboat Springs, CO

Senator John Hanes – Cheyenne, WY
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Senator Ken Salazar – Washington, DC
Senator Mark O. Harris – Green River, WY
Senator Mike Enzi – Washington, DC
Senator Mike Massie – Laramie, WY
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Senator Rich Cathcart – Carpenter, WY
Senator Tex Boggs – Rock Springs, WY
Senator Wayne Allard
- Grand Junction, CO
- Washington, DC

Sheriff Danny Glick – Cheyenne, WY
Sheriff Jerry Colson – Rawlins, WY
Sheriff Larry Dalton – Craig, CO
Sheriff John Hutchins – Meeker, CO
Superior Town Council Member, Richelle Johnson – Superior, WY
Sweetwater County Commissioners – Green River, WY
- Alice Tielborg
- John D. Pallesen

Undersheriff Tim Templon – Glenwood Springs, CO

Tribal Organizations
Apache Tribe of Oklahoma – Anadarko, OK
Cheyenne and Arapaho Tribes of Oklahoma – Concho, OK
Commanche Tribe of Oklahoma – Lawton, OK
Crow Creek Lakota Tribe, Crow Creek Lakota Tribal Council – Fort Thompson, SD
Crow Creek Sioux Tribe, Crow Creek Sioux Tribal Council – Fort Thompson, SD
Crow Tribe – Crow Agency, MT
- Crow Tribal Administration
- Crow Tribal Council

Eastern Shoshone Tribe – Fort Washakie, WY
- Shoshone Cultural Office

Jicarilla Apache Cultural Affairs – Dulce, NM
Kiowa Tribe of Oklahoma – Carnegie, OK
- Environmental Program

Medicine Wheel Coalition for Sacred Sites of North America – Ranchos de Toas, NM
Northern Arapaho Tribe – Arapahoe, WY
Northern Cheyenne Tribe – Lame Deer, MT
Northern Ute Tribe – Fort Duchesne, UT
- Cultural Rights and Protection
- Uintah and Ouray Tribal Business Committee
- Ute Tribal Council

Pawnee Nation of Oklahoma, Tribal Historic Preservation Office – Pawnee, OK
Southern Ute Indian Tribe – Ignacio, CO
Ute Mountain Ute Tribe – Towoac, CO

Organizations
American Gas Association – Washington, DC
American Pipeline Contractors Association – Dallas, TX
- Executive Director – Lafayette, LA

Center for Native Ecosystems – Denver, CO
Colorado Natural Heritage Program – Fort Collins, CO
Colorado Wilderness Network – Craig, CO
Defenders of Wildlife – Washington, DC
International Union of Operating Engineers – Bar Nunn, WY
National Trails System – Salt Lake City, UT
OCTA-Preservation Officer – Steilacoom, WA
Petroleum Association of Wyoming – Casper, WY
Powder River Basin Resource Council – Sheridan, WY
Sierra Club Uncompahgre Group – Grand Junction, CO
The Rocky Mountain Elk Foundation – Craig, CO
The Wilderness Society – Denver, CO
Western Colorado Congress – Steamboat Springs, CO
Western Research Advocates – Laramie, WY
White River Electric Association – Meeker, CO
Wyoming Outdoor Council
- Laramie, WY
- Logan, UT

Industries/Businesses
360 Networks – Cheyenne, WY
Airgas – Salt Lake City, UT
Anadarko Petroleum Corporation – Casper, WY
Bio-Resources, Inc. – Logan, UT
Bjork, Lindley, Danielson, & Little, PC – Denver, CO
Blackwell, Sanders, Peper, & Martin, LLP – Washington, DC
Burlington Resources – Midland, TX
CBM Associates, Inc. – Laramie, WY
Cheyenne Plains Gas Pipeline Co., LLC – Colorado Springs, CO
Colorado Interstate Gas Co.
- Cheyenne, WY
- Colorado Springs, CO

Dickstein, Shapiro, Morin, & Oshinskt, LLP – Washington, DC
Double Eight Land Corporation – Saratoga, WY
DuBois Telephone – Dubois, WY
Edwards & Associates – Alexandria, VA
EEX Corp. – Houston, TX
El Paso Corporation
- Colorado Springs, CO
- Washington, DC

EnCana Marketing (USA), Inc. – Denver, CO
Energy Enterprises – Rapid City, SD
ENSR International – Fort Collins, CO
Entrega Gas Pipeline, Inc.
- Cheyenne, WY
- Denver, CO
- Lakewood, CO
- Rawlins, WY

Essex – El Granada, CA
ExxonMobil Gas & Power Marketing Company – Houston, TX

Frontier Heat Treating – Evanston, WY
Hageman and Brighton Law Firm – Cheyenne, WY
Kelley Land & Cattle Co. of Wyoming – Saint Paul, MN
Kinder Morgan – Lakewood, CO
Knight Planning, Rio Blanco – Eagle, CO
Kurt Kelly, Attorney – Sinclair, WY
Lario Oil & Gas Co. – Denver, CO
Lazy D Grazing Association – Nunn, CO
MacPherson, Kelly & Thompson, LLC – Rawlins, WY
MKT Low – Rawlins, WY
Mowry Ranch, Inc. – Saratoga, WY
Natural Resource Group, Inc.
- Denver, CO
- Minneapolis, MN

Nunemaker Middle Fork Ranch – Goshen, IN
Pacific Power & Light – Casper, WY
Pacificorp – Rawlins, WY
Questar Pipeline Company – Salt Lake City, UT
Rothberger, Johnson, & Lyons, LLP – Cheyenne, WY
Solvay Minerals – Houston, TX
Southern Cross Ranch, LLC – Stockbridge, GA
Strid Marble and Granite – Cheyenne, WY
TransCanada Corporation – Calgary, Alberta, Canada
Trigon – Meeker, CO
V.W.I. Pipeline – Evanston, WY
Western Ecosystems – Cheyenne, WY
Western Gas Resources, Inc. – Denver, CO
Williams Field Services – Green River, WY
Wyoming Interstate Gas Company, Ltd. – Colorado Springs, CO
Wyoming Natural Gas Pipeline Authority
- Casper, WY
- Highlands Ranch, CO

Individuals
Adrian & Maxine Weaver – Ft. Collins, CO
Andre & Cheri Chartier – Rifle, CO
Angelo Kallas – Green River, WY
Anthony Weiss – Meeker, CO
Arvid R DePorter – Carr, CO
Audrey Meyers – Greeley, CO
Beverly J. Anderson – Silt, CO
Bill Anderson – Rawlins, WY
Bruce L. & Joyce K. Barnes – Maybell, CO
Bud Spillum – Cheyenne, WY
Carolyn R. Harsha – Fort Bridger, WY
Charles E. Lambert – Casper, WY
Dan B. & Carol Schwartz – Laramie, WY
Danny Lee Taylor – Riverton, WY
Dave and Sue Cunningham – Laramie, WY
David P. Cunningham – Laramie, WY
Dean Peterson – Englewood, CO
Dee Weiss – Meeker, CO
Donald W. Nutting – Boulder, CO
Earl and Jeanne Ilgen – Meeker, CO
Ed Koucherik – Craig, CO
Ellen Durate – Sparks, NV
Frank P. Bingman – Loma, CO
Frederick A. Larson and Paul C. Blackwell – College Station, TX
Gerald R. Le Beau – McFadden, WY

Gilbert D. LeFevre and Melba LeFevre – Meeker, CO
Greg Love – Oklahoma City, OK
Gregory C. McGee, Sr. – Northglenn, CO
Gus Anderson – Meeker, CO
Gus Halandras – Meeker, CO
Henry C. & Georgie C. Taylor – Natchitoches, LA
Iris A. Brewer – Carson City, NV
James A. Prestridge – Cheyenne, WY
James C. Byers – Glenwood Springs, CO
James E. Nutting – Grand Junction, CO
James M. and Susan L. McMaster – Granite Canyon, WY
Jay Fetcher – Clark, CO
Jim Lamprecht – Cheyenne, WY
John and Carol Lay – Denver, CO
John and Leslie Cook – Maybell, CO
Joseph H. Claggett – Mitchell, SD
Karin Schubert – Granite Canyon, WY
Lance V. Larson – Pacific Palisades, CA
Laverne Sharp – Chico, CA
Lawrence K. Larson – Pacific Pallisades, CA
Loraine Connor and Kenneth R Connor – Keyes, OK
Lurleen Flores – Buford, WY
Mabel Ann Fazzi – Silt, CO
Marjorie Smith – Cheyenne, WY
Mary Heritage – Grand Junction, CO
Mary M. Adams – Costa Mesa, CA
Maxine Weaver – Cheyenne, WY
Mike Lopez – Meeker, CO
Myron C. Smith et ux Barbara A. – Lincoln, NE
Pat Hughes – Meeker, CO
Pat Nyquist – Laramie, WY
Patrick & Chelsey McManus – Cheyenne,WY
Paul Anderson – Craig, CO
Pete Shelton – Meeker, CO
Ralph Brokaw – McFadden, WY
Reed Kelley – Meeker, CO
Reuben G. Oldland – Rifle, CO
Richard Smiddy – Bloomington, MN
Rick and Deb Myers – Baggs, WY
Roberta Jones – Aloha, OR
Roy L. Bingman – Hagerman, ID
Ruby Love – Greenville, CA
Ruby Morton – Blackfoot, ID
Russell Dale Ellis, Jr. – Baggs, WY
Sammy Ray Taylor – Cody, WY
Shirley J. & Cheryl A. Minnick – Craig, CO
Shirley Stehle – Craig, CO
Stephanie Gripne – Lander, WY
Steve Beumee – Rock Creek, WY
Thomas E. LeFevre and Joyce LeFevre – Maybell, CO
Thomas O. Bingman – Loma, CO
Tom McLaughlin – Buford, WY
Tommy A. Hannigan – Conifer, CO

Agencies, Organizations, and Individuals Who Received the Executive Summary to the Final Environmental Impact Statement

State and Regional Agencies
Associated Governments of Northwest Colorado – Rifle, CO
Coal Bed Methane Coordination Coalition – Buffalo, WY
Colorado Department of Natural Resources – Denver, CO
Colorado Department of Public Health and Environment – Denver, CO
- Air Pollution Control Division
- Water Quality Control Division

Colorado Division of Commerce – Denver, CO
Colorado Division of Water Resources – Denver, CO
Colorado Division of Wildlife – Denver, CO
Colorado Historical Society, Office of Archaeology and Historic Preservation – Denver, CO
Colorado Mountain College – Glenwood Springs, CO
- Dean of Student Learning – Glenwood Springs, CO
- Division Director – Rifle, CO
- Public Affairs – Glenwood Springs, CO
- Workforce Training Coordinator – Glenwood Springs, CO

Colorado State University, Beef Improvement Center – Saratoga, WY
Kortes Dam – Hanna, WY
Northwestern University – Evanston, IL
Saratoga-Encampment-Rawlins, Conservation District – Saratoga, WY
The Field Museum of Natural History, Department of Geology – Chicago, IL
University of Wyoming – Laramie, WY
- Geology Museum
- Trustees
- Wyoming Natural Diversity Database

Wyoming Association of Municipalities – Cheyenne, WY
Wyoming Community Colleges Commission – Cheyenne, WY
Wyoming Department of Employment/Workforce Development – Cheyenne, WY
Wyoming Department of Environmental Quality – Cheyenne, WY
- Air Quality Division
- Industrial Siting Council

Wyoming Game and Fish Department
- Headquarters – Cheyenne, WY
  - Aquatic Habitat Program
  - Terrestrial Habitat Program
- Laramie Regional Office – Laramie, WY

Wyoming Office of the Governor, Environmental Policy Division – Cheyenne, WY
Wyoming Public Service Commission – Cheyenne, WY
Wyoming Rural Development Center – Cheyenne, WY
Wyoming Small Business Development Center, Region 4 – Cheyenne, WY
Wyoming State Geological Survey – Laramie, WY
Wyoming State Grazing Board – Lander, WY

Counties
Albany County Weed and Pest – Laramie, WY
Carbon County
- Assessor – Saratoga, WY
- Firefighters – Rawlins, WY
- Treasurer – Saratoga, WY
- Visitor's Council – Saratoga, WY

Garfield County
- Assessor's Office – Glenwood Springs, CO
- Vegetation Management – Rifle, CO

Laramie County
- Assessor – Cheyenne, CO
- Clerk of Court – Cheyenne, CO
- Weed and Pest – Pine Bluff, WY

Laramie County Community College – Cheyenne, WY
Larimer County
- Attorney – Fort Collins, CO
- Court – Loveland, CO
- Sheriff's Office – Estes Park, CO
- Surveyor – Fort Collins, CO

Medicine Bow Conservation District – Medicine Bow, WY
Moffat County – Craig, CO
- Road & Bridge Department
- Weed Department

Rio Blanco County Weed Department – Rangley, CO
Rock Springs/Sweetwater County Airport Fire Department – Rock Springs, WY
Routt County Planning Director – Steamboat Springs, CO
Sweetwater County
- Clerk of Court – Green River, WY
- Commission – Rock Springs, WY
- Conservation District – Farson, WY
- Fire Association, Inc. – Rock Springs, WY
- Fire District #1 – Rock Springs, WY
- School District #1 – Wamsutter, WY
- Sheriff's Office – Green River, WY
- Solid Waste #2 – Wamsutter, WY
- Weed and Pest – Farson, WY

Weld County Public Works, Weed and Pest Department – Greeley, CO

Municipalities
Baggs Fire Department – Baggs, WY
Bairoil – Bairoil, WY
- Fire Department
- Police Department

City of Fort Collins – Fort Collins, CO
- Public Trustee

City of Rock Springs Fire Department – Rock Springs, WY
Eden/Farson Fire Control District – Farson, WY
Elk Mountain Fire Department – Elk Mountain, WY
Encampment Fire Department – Encampment, WY
Estes Park, Health & Environment – Estes Park, CO
Hanna Police Department – Hanna, WY
Hanna/Elmo Fire Department & EMS – Hanna, WY
Laramie – Laramie, WY
- Chamber of Commerce
- Economic Development Corporation

Little America Holdings Fire Department – Little America, WY
Loveland – Loveland, CO
- Chamber of Commerce
- Parks & Recreation

Medicine Bow Fire Department – Medicine Bow, WY
Rawlins Chamber of Commerce – Rawlins, WY
Reliance Fire Department – Reliance, WY
Rifle Area Chamber of Commerce – Rifle, CO
Rifle Fire Protection District – Rifle, CO
Rock Creek Valley Volunteer Fire Department – McFadden, WY
Ryan Park Volunteer Fire Department – Saratoga, WY
Saratoga Fire Department – Saratoga, WY

Saratoga Platte Valley Chamber of Commerce – Saratoga, WY
Silt Chamber of Commerce – Silt, CO
Town of New Castle – New Castle, CO

Media
Battlement Mesa-Parachute Sun News – Parachute, CO
Casper Star Tribune (Tom Mast) – Casper, WY
Daily Sentinel – Grand Junction, CO
- The News Bureau – Rifle, CO

Denver Post – Denver, CO
Glenwood Springs Post – Glenwood Springs, CO
Green River Star – Green River, WY
High Country News – Paonia, CO
KCWY-TV – Cheyenne, WY
KDNK FM Radio – Carbondale, CO
KFBC/Cowboy News Network – Cheyenne, WY
KGWN TV – Cheyenne, Y
KING/KOLT – Cheyenne, WY
KMTS/KGLN – Glenwood Springs, CO
KOWB – Laramie, WY
KRAL/KIQZ – Rawlins, WY
KRGS 690 AM – Glenwood Springs, CO
KRSV – Afton, WY
KTWO TV and KTWO Radio – Casper WY
KUGR/KYCS – Green River, WY
KUWR – Laramie, WY
Mount Rushmore Broadcasting – Rawlins, WY
Pine Bluffs Post – Pine Bluffs, WY
Rocket Miner – Rock Springs, WY
Saratoga Sun – Saratoga, WY
The Citizen Telegram – Rifle, CO
Western Inspirational Broadcast – Carson City, NV
Western Radio Communications – Casper, WY
Wyomedia KFNB-TV – Casper, WY
Wyoming Community Network – Laramie, WY
Wyoming State Tribune-Eagle – Cheyenne, WY

Elected Officials
Carbon County Commissioners – Rawlins, WY
Larimer County Treasurer, Myrna Rodenberger – Fort Collins, CO
Mayor, City of Laramie – Laramie, WY
Mayor, Town of Saratoga – Saratoga, WY
Rifle City Council Members – Rifle, CO
- Adam Lambert
- Jeff Johnson
- Jonathan Rice

Senator Craig Thomas – Cheyenne, WY
Senator Mike Enzi
- Jackson, WY
- Casper, WY
- Cheyenne, WY

Sweetwater County Coroner, Dale S. Majhanovich – Rock Springs, WY

Tribal Organizations
Cheyenne River Lakota Tribe – Eagle Butte, SD
Northern Arapaho Tribe, Northern Arapaho Business Council – Fort Washakie, WY
Oglala Lakota Tribe, 5th Members Office – Pine Ridge, SD

Pawnee Nation of Oklahoma – Pawnee, OK
Rosebud Sioux Tribe – Rosebud, SD
Standing Rock Lakota Tribe – Fort Yates, ND

Industries/Businesses
American Soda LLP – Parachute, CO
Anadarko Land Corp. – Houston, TX
ARK Land Company – St. Louis, MO
Bear Creek Cattle Company – Centennial, CO
Blake Sheep Company – Rawlins, WY
Box Elder Holding Company – Woody Creek, CO
BP Amoco Production – Wamsutter, WY
CLEV-JCK Company – Rapid City, SD
Dana Meadows Ranches – Saratoga, WY
ENSR International – Fort Collins, CO
Grady Ranch Inc. – Meeker, CO
Harris Ranch Partnership – Bosler, WY
Laramie Country Club – Laramie, WY
Lost Creek Gathering Company, LLC – Denver, CO
Missouri Pacific Railroad – Omaha, NE
Mountain Cement – Laramie, WY
Natural Fort Grazing, LTD – Fort Collins, CO
North Canal Lake Hattie Irrigation District – Laramie, WY
Oasis Canal – Cheyenne, WY
Remount Ranch, LLC – Denver, CO
Terry Grazing Association – Cheyenne, WY
Union Pacific Land Resources – Houston, TX
Union Pacific Railroad – Omaha, NE
Wallis Livestock Limited Partnership – Saratoga, WY
Willadsen Brothers Partnership – Granite Canon, WY

Individuals
Alfonso Jaramillo, Jr. et al. – Rawlins, WY
Andrew Johnson – Laramie, WY
Andrew L. & Mark E. Johnson – Laramie, WY
Andrew Peroulis – Craig, CO
Berislov & Djurdica Sepic – Mesa, AZ
Bob Bennett – Cheyenne, WY
Brian Ted Sherar – Cheyenne, WY
Bridgette Rieke – Meeker, CO
Bruce L. & Ellen A. Strickler – Potter Valley, CA
Butch Beman – Laramie, WY
Caroline Butters Trust – Lovell, WY
Charles & Sharna K. Welty – Cheyenne, WY
Charlie Jaure – Rawlins, WY
Cheryl Morris – Aurora, CO
Cleve Preece – Craig, CO
Craig Harvey – Lakewood, CO
Craig T. Tomke – Hayden, CO
Dan Davidson – Craig, CO
Dan Hooper – Tie Siding, WY
Darlene G. Herman – Elk Mountain, WY
Dave & Sue Cunningham – Laramie, WY
Dave Storts – Cheyenne, WY
David & Patty Johnson – Meeker, CO
David J. & Muriel A Merchant – Cheyenne, WY
David L. & Patricia Wagner – Cheyenne, WY
Dean & Dale Burk – Rifle, CO
Dean Visintainer – Craig, CO

Dennis M. & Michelle R. Michnick – Santa Rosa, CA
Diane M. Sapounakis – Laguna Hills, CA
Don Britton – Wheatland, WY
Doris Willadsen – Granite Canon, WY
Doug Richardson – Casper, WY
Douglas Dean Hiatt – Cheyenne, WY
E. Willis & Michael Nottingham – Craig, CO
Earl A. Saulet, Jr. – Camarillo, CA
Edwin W. Davis – Buford, WY
Elmer Peterson – Rawlins, WY
Eric L. Ridley – Granite Canyon, WY
F. B. Espy – Rawlins, WY
Floyd M. Lopez – Cheyenne, WY
Frank & Roy Bingham – Loma, CO
Frank R. & Donna R. Felley – Winchester, CA
Frank Sampson – Meeker, CO
Franklin L. & Rose Marie Counts – Craig, CO
Gabriel Vaca – San Diego, CA
Gary L. McKee – Cheyenne, WY
Greg Kissel – Ogden, UT
Greg Pinker – Omaha, NE
Greg Weisz – Laramie, WY
Harris W. Hudson – Fort Lauderdale, FL
Howard M. & Audrey Brokaw – McFadden, WY
Jack Skinner – Laramie, WY
James C. Lamprecht
- Cheyenne, WY
- Tuscon, AZ

James D. & Andrea L. Rogers – Pinedale, WY
James F. & Deborah Jacob – Burns, WY
James J. & Monica Mallon – Cheyenne, WY
James Osborne – Laramie, WY
James P. & Leona Gay Rogers – Laramie, WY
James W. & Pamela M. Buffham – Maybell, CO
James Willadsen – Granite Canyon, WY
James Woodruff – Morgan Hill, CA
Janet Zink – Rawlins, WY
Jason & Shannon H. Sherar – Cheyenne, WY
Jeff Peterson – Fort Collins, CO
Jeff Puckett – Greenwood Village, CO
Jim & Martha W. Jankovsky – McFadden, WY
Joe Stovall – Denver, CO
Joe Stratton – Walnut Creek, CA
John & Steve Raftopoulos – Craig, CO
John Leffler – Eaton, CO
John Swanson – Rawlins, WY
John Weibel – Longmont, CO
Jon Neary – Sarasota, FL
Joseph L. & Georgia E. Bromberek – Downers Grove, IL
Joseph William & Robert Dale Jaure – Rawlins, WY
Judith Ann Smith Paul – Mannford, OK
Kathleen L. Roberts – Granite Canyon, WY
Kathryn Bingman – Loma, CO
Keith & Eula Dunbar – Meeker, CO
Ken Roberts
- Cheyenne, WY
- Granite Canyon, WY

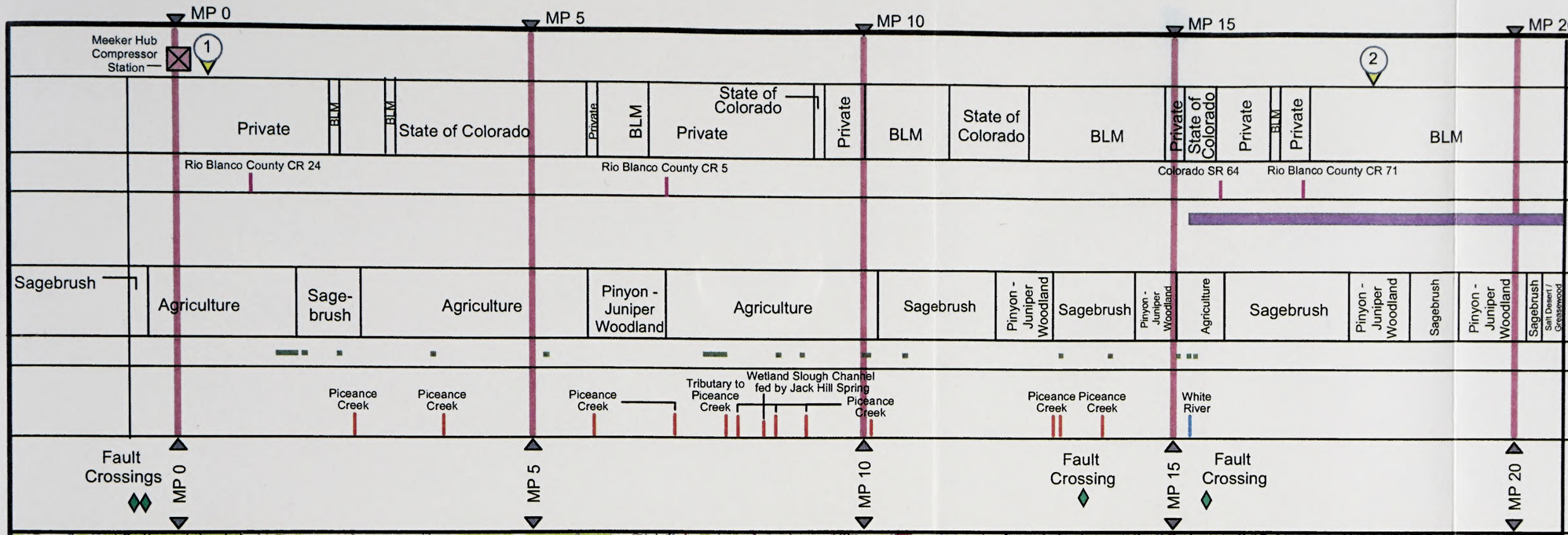
Kenneth Butters – Eagle River, AK
Kenneth R. Connor – Keyes, OK
Kreg & Virginia A. Von Lunen Revocable Trust – Laramie, WY
Lambert W. Holland Living Trust – Chamberlain, SD
Larry Hoffner – Ft. Collins, CO
Larry J. & Nancy A. Unger – Buford, WY
Leland D, Howard, & Grace M. Brokaw – McFadden, WY
Leon G. Feterl Living Trust– Salem, SD
Lonnie K. Shults – Meeker, CO
Louise G. Buchanan – Denver, CO
Lurleen Flores – Cheyenne, WY
Lyle Heath – Rapid City, SD
Manie Minford – Overbrook, KS
Margaret (Peg) Ellen Kartstoft – Rawlins, WY
Margrete V. Johnson – Meeker, CO
Marius Wilson – Cheyenne, WY
Marjorie I. Daley – Laramie, WY
Mark C. Booth – Lucerne, CO
Michael T. & Carla J. Ridley – Granite Canyon, WY
Mike Zech – Las Vegas, NV
Monty Winter
- Fort Collins, CO
- Laramie, WY

Nancy J. Voight – Mitchell, SD
Neal J & Anna Dow – New Cuyama, CA
Norman L. & Ruth E. Tyser – Laramie, WY
Olin Sims – McFadden, WY
Oscar S. Wyatt, Jr. – Houston, TX
Paul G. Etchepare, Jr. – Laramie, WY
Peter Hansen – Cheyenne, WY
Phil Schnabel – Cheyenne, WY
Philip E. Blacher – Pennsburg, PA
Randy J. Dunn – Laramie, WY
Randy Menge – Baggs, WY
Raymond L. & Greta McKinsey – Laramie, WY
Raymond T. & Lucille Z. Lopata – Downers Grove, IL
Richard J. & Kristine E. McGuirre – Laramie, WY
Richard & Dianne Van Pelt – Laramie, WY
Richard N. & Sophee Lewis – Ventura, CA
Rick Gallegos – Wellington, CO
Rickie Tingle – Meeker, CO
Robert & Delores McGlothlin – Bloomington, IN
Robert E. & Mary E. Smith – Buford, WY
Robert John & Willing John Johnson – Elk Mountain, WY
Robert M. & Catherine C Shopneck – Denver, CO
Robert Myers III – Bakersfield, CA
Robert O. Nutting – Manhatten Beach, CA
Rodney S. & Tamara Cook – Rangely, CO
Roger Patel – Port St. Lucie, FL
Ronald J. & Norma J. Day – Laramie, WY
Roy McKee Revocable Trust – Meeker, CO
Sam L. & Georgia B. McIntyre – Maybell, CO
Samuel Kelsall IV & Edna M. Kelsall – Phoenix, AZ
Sandra Clark – Laramie, WY
Stephen L. & Ruth D. Arthur – Laramie, WY
Stephen R. & Sharon L. Andrew – Craig, CO
Sterling Cook & Mary W. Cook Revocable Trust – Maybell, CO
Steve Bangert – Denver, CO
Steve Comstock – Fort Collins, CO

Stuart A. Vanmeveren – Fort Collins, CO
Susan M. Rusch & John S. Burnes – Ft. Collins, CO
Terry Haugen – Laramie, WY
Terry Miller – Meeker, CO
Thomas E. & Carol Eppler – Cheyenne, WY
Todd J. King – Cheyenne, WY
Tracy & Brian Sherar – Cheyennev, WY
Vern Vivion – Rawlins, WY
Victor G. Anderson – Walcott, WY
Victor Johnson – Laramie, WY
Welton J. Wenger – Laramie, WY
William Cahil – Glenbrook, NV
Windy A. Perkins Revocable Trust – Laramie, WY

APPENDIX B

MAPS SHOWING PIPELINE ROUTE AND ABOVEGROUND FACILITIES



ENTREGA PIPELINE PROJECT

Map 1 of 17

Rio Blanco County, CO

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

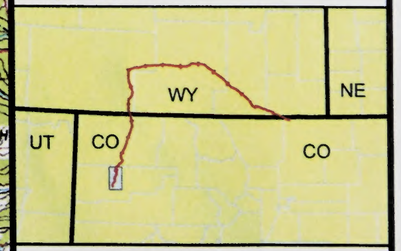
Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location



0 0.5 1 2 Kilometers

0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Rangely, CO, and Douglas Pass, CO

5/12/05

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

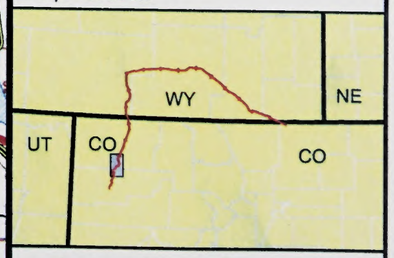
Map 2 of 17

Rio Blanco and Moffat Counties, CO

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- (2) Mainline Valves
- Match Lines

Map Location



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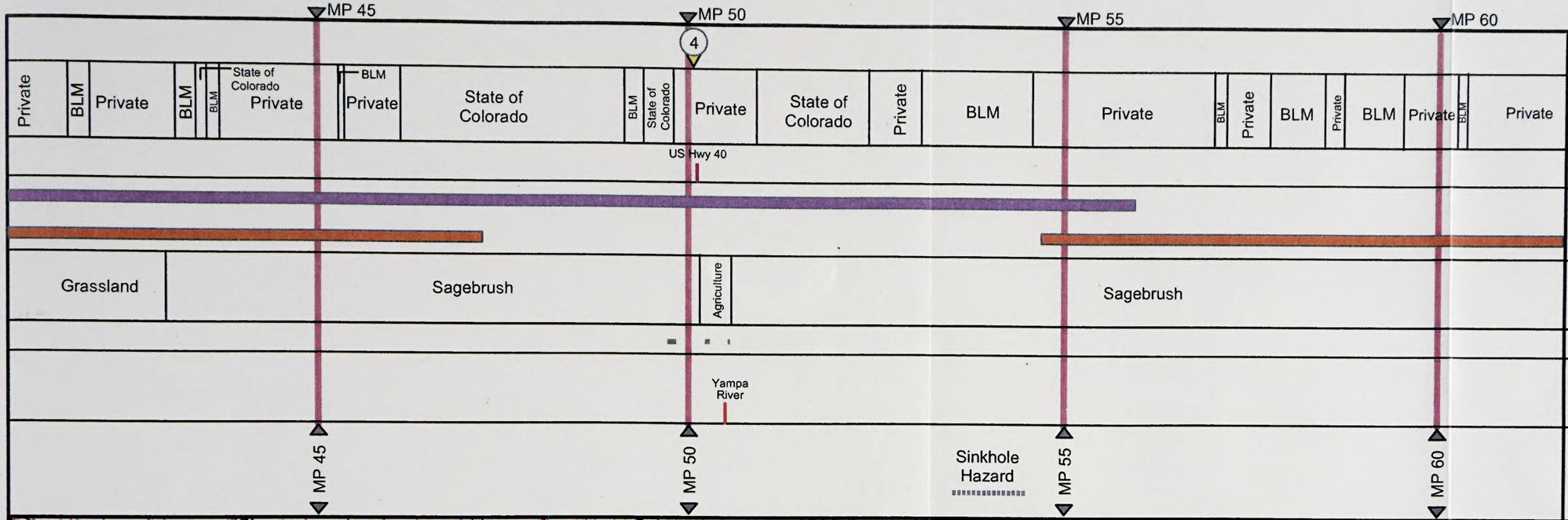
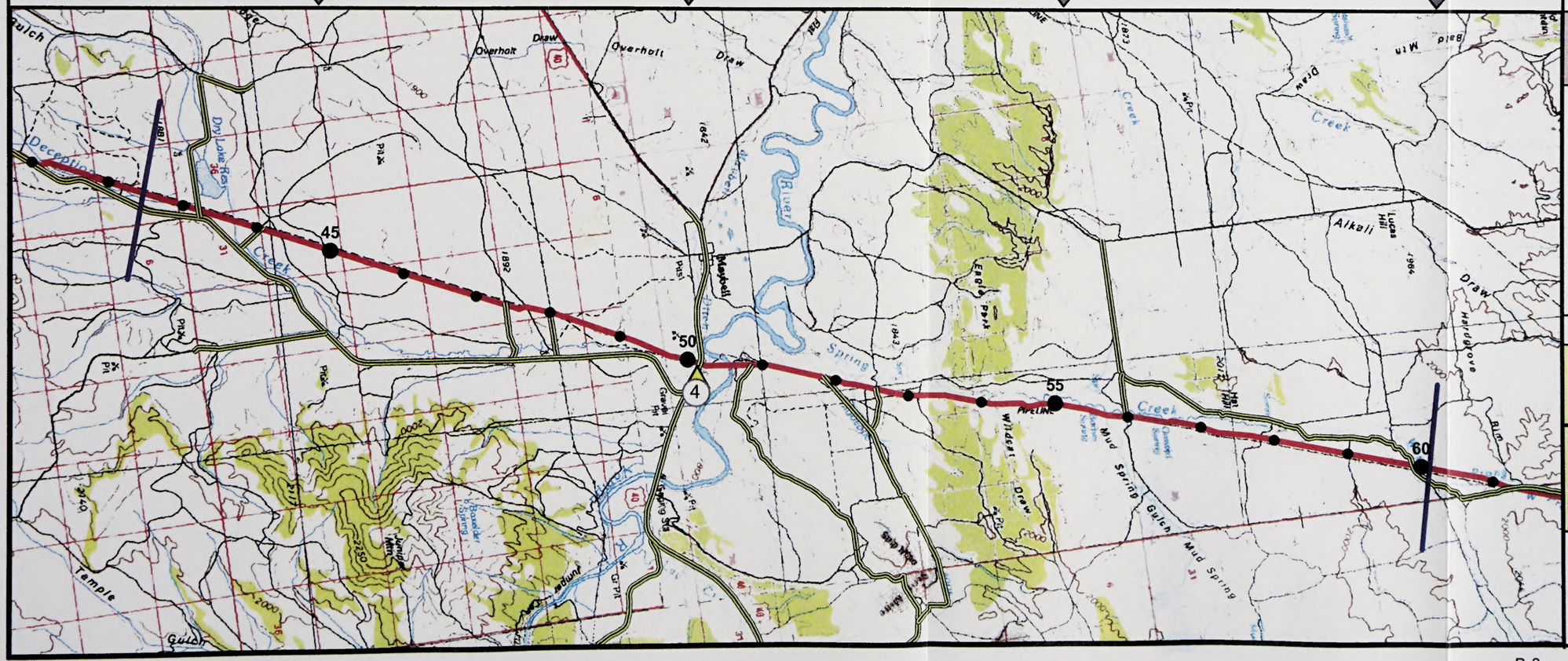
0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Rangely, CO

5/12/05





ENTREGA PIPELINE PROJECT

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

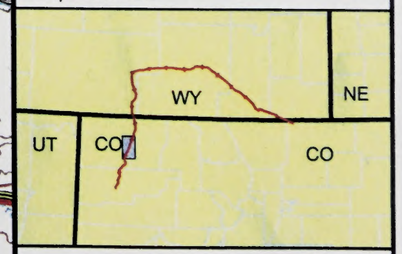
Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

Map 3 of 17
Moffat County, CO

Legend
- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- (2) Mainline Valves
- Match Lines

Map Location

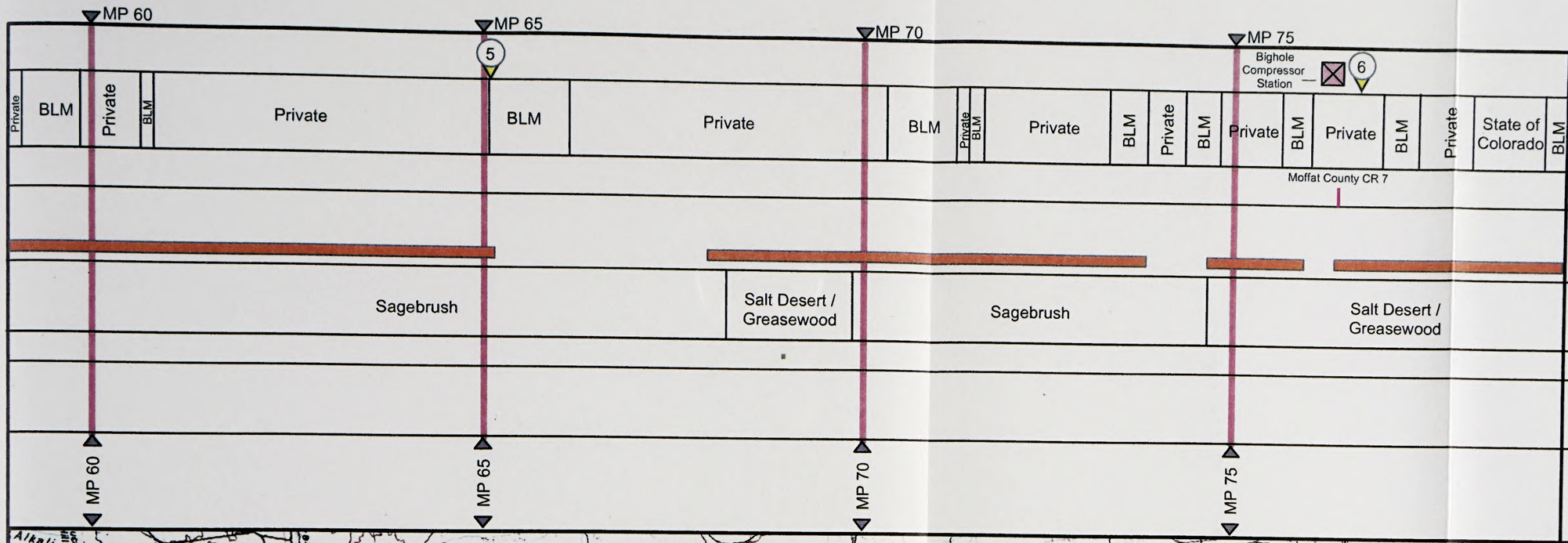


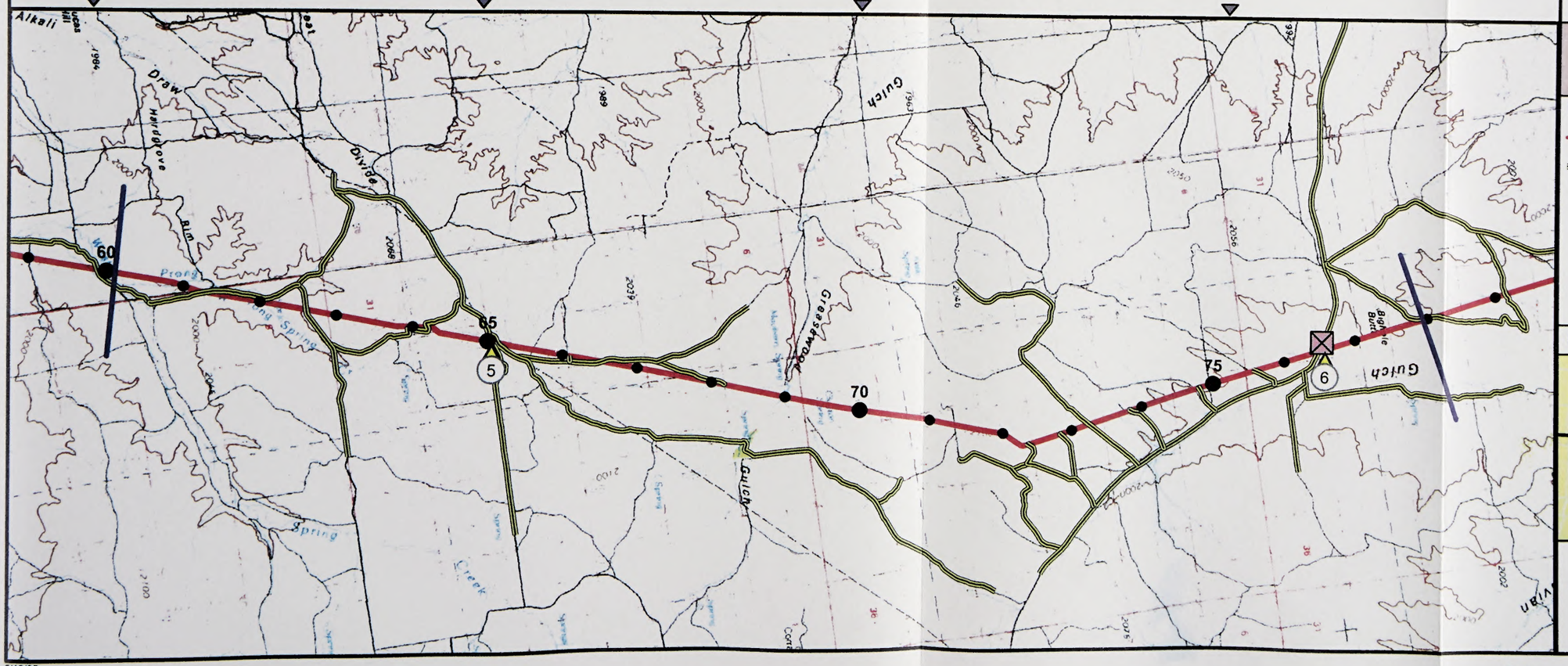
0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Craig, CO, Rangely, CO and Canyon of Lodore, CO

5/12/05





Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

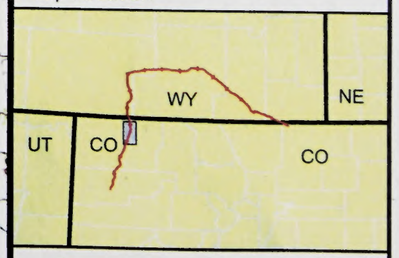
Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

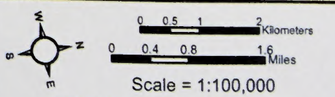
ENTREGA PIPELINE PROJECT

Map 4 of 17
Moffat County, CO

Legend
- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- 2 Mainline Valves
- Match Lines

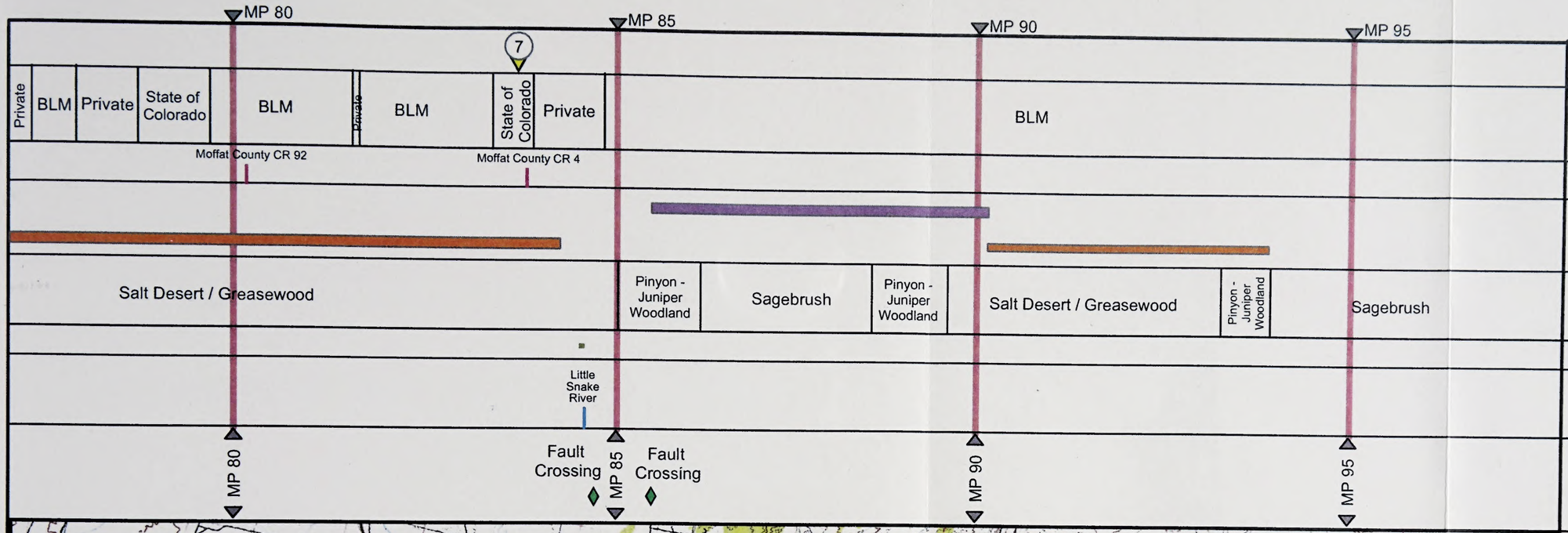
Map Location

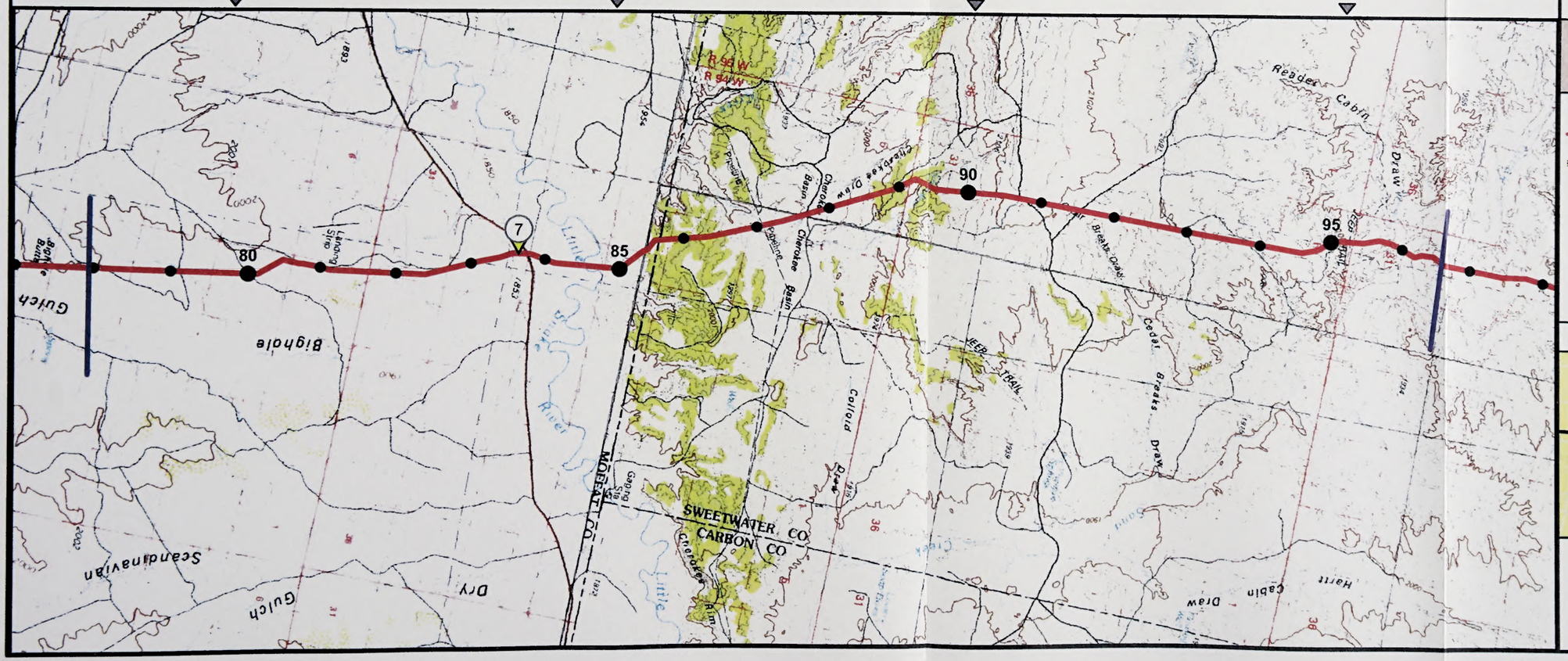




Scale = 1:100,000
USGS 1:100,000 series Craig, CO, and Canyon of Lodore, CO

5/12/05





Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

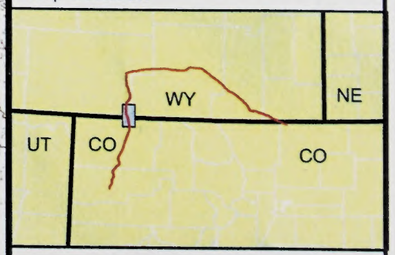
ENTREGA PIPELINE PROJECT

Map 5 of 17
Moffat County, CO and
Sweetwater County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- 2 Mainline Valves
- Match Lines

Map Location

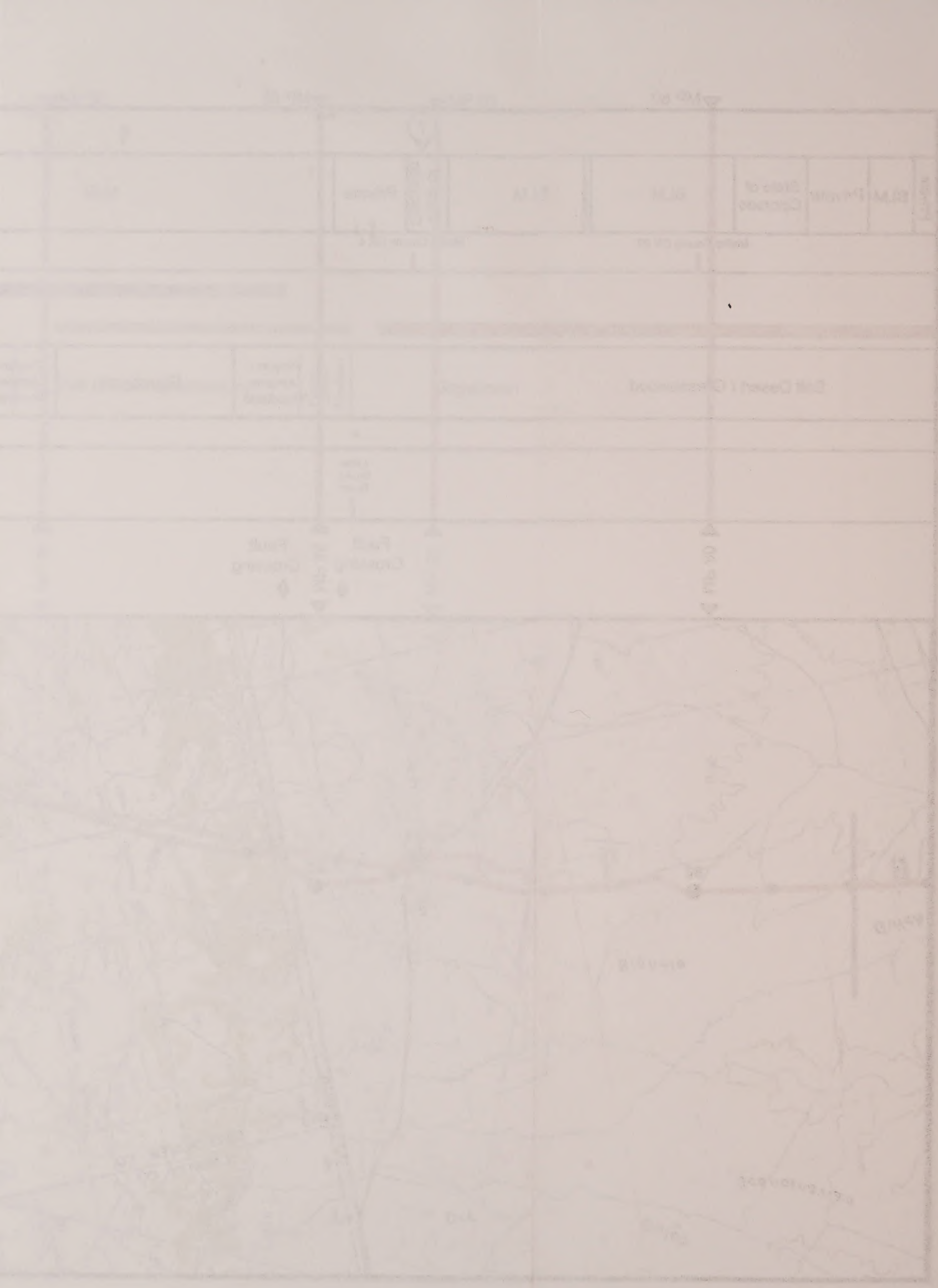


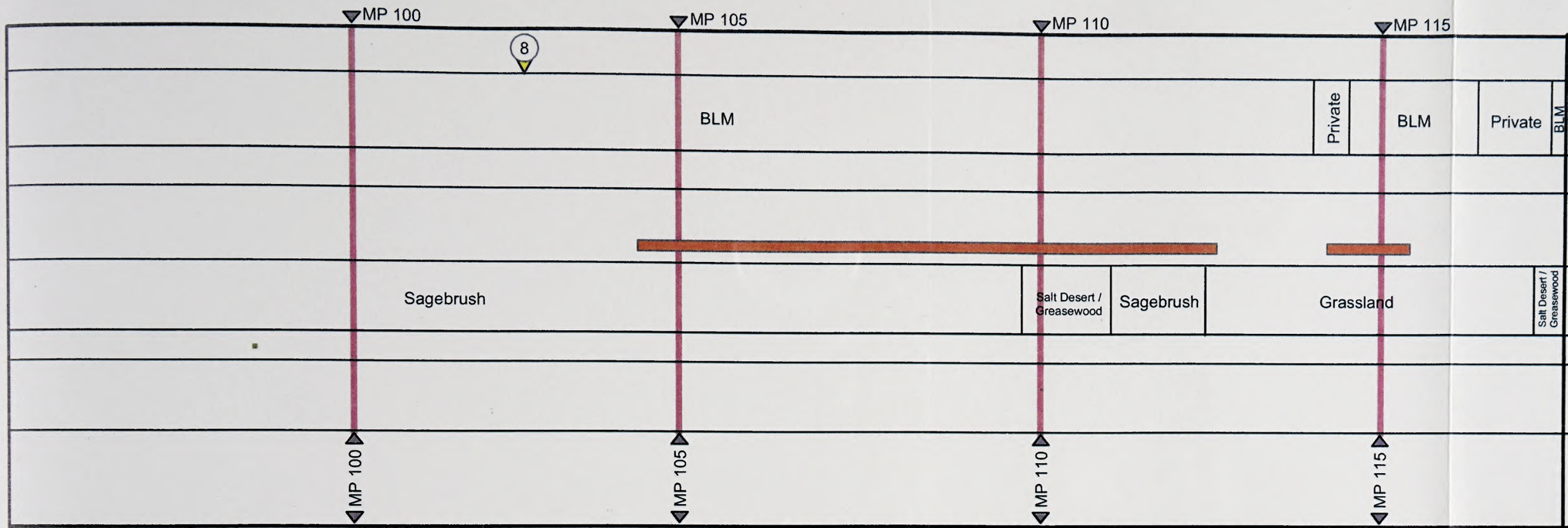
0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles

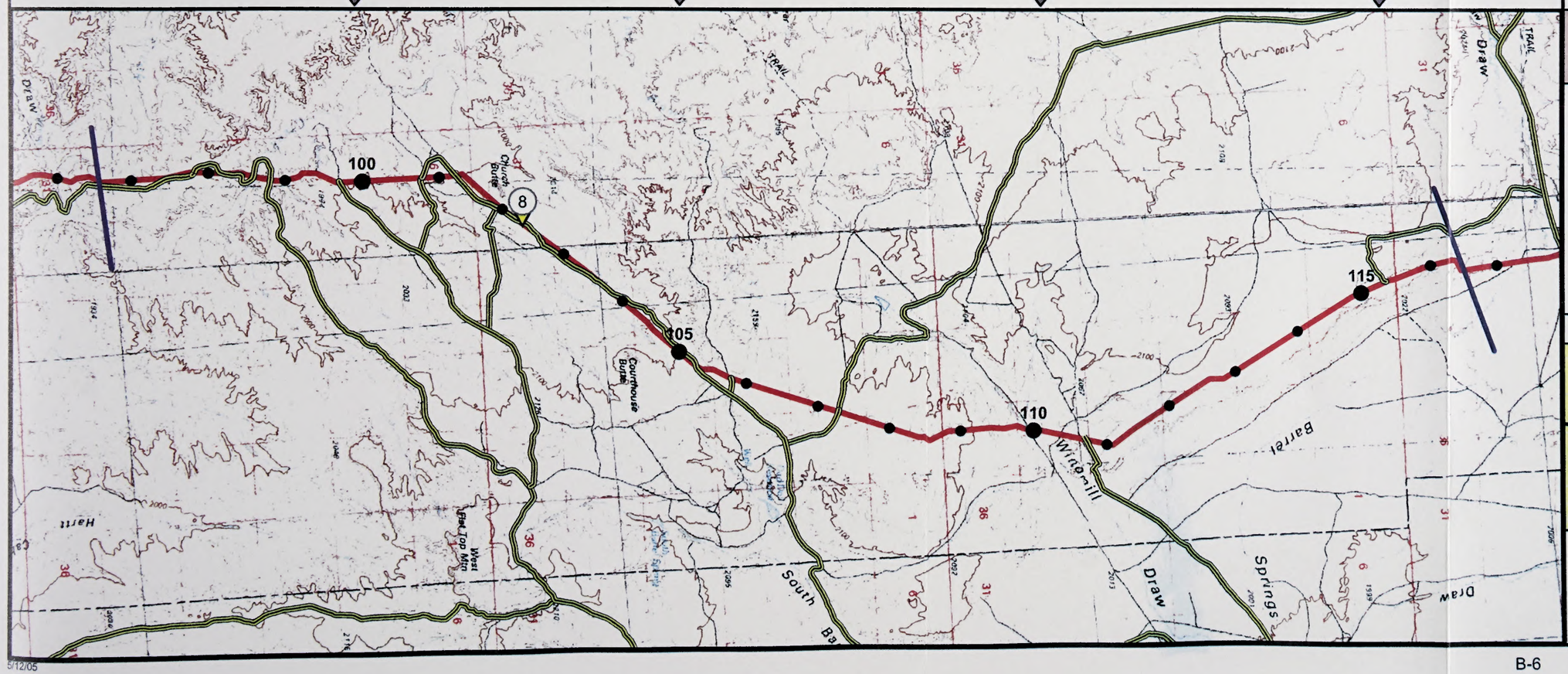
Scale = 1:100,000

USGS 1:100,000 series Kinney Rim, WY, Baggs, WY, and Craig, CO

5/12/05







Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

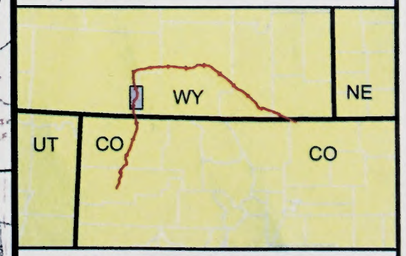
ENTREGA PIPELINE PROJECT

Map 6 of 17
Sweetwater County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- 2 Mainline Valves
- Match Lines

Map Location

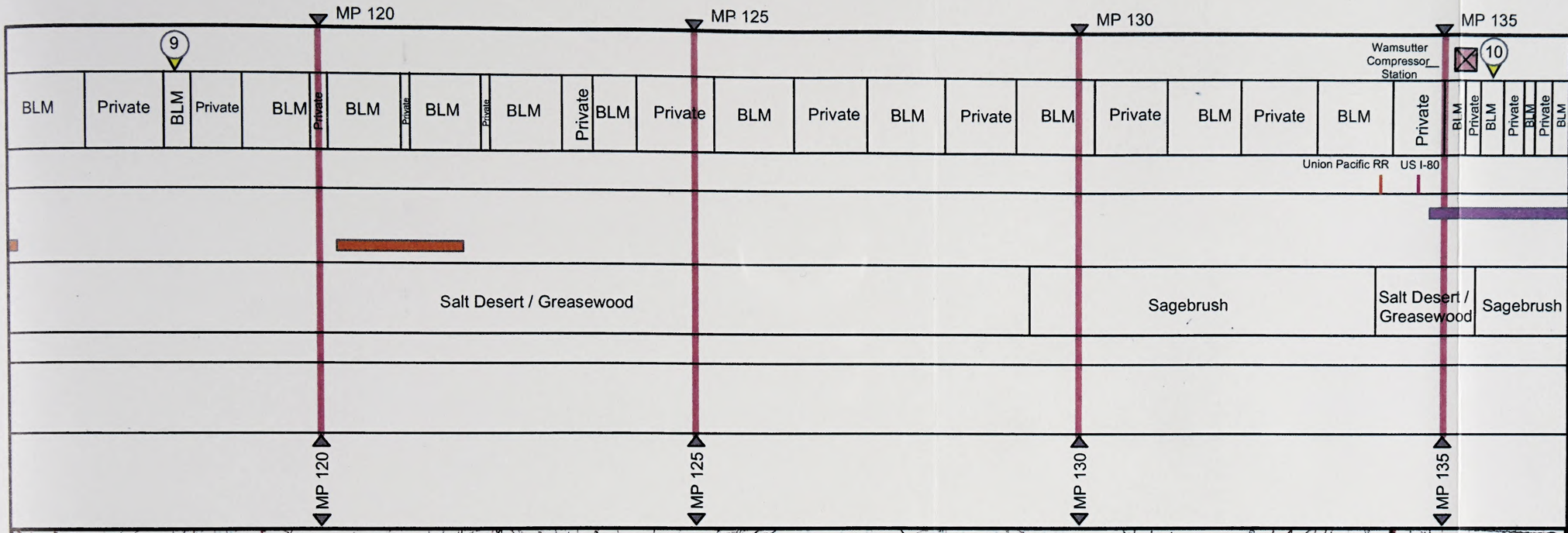


0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Kinney Rim, WY, and Baggs, WY

5/12/05



Project Component
Land Ownership (Federal, State, Private, Public ROW)
Transportation Crossings
Seasonal Wildlife Constraints (Winter and Spring Constraints)
General Natural Vegetation Communities
Wetlands
Waterbodies Supporting Fisheries (Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

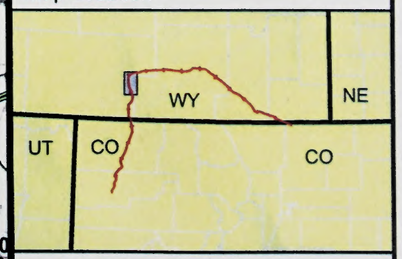
Map 7 of 17

Sweetwater County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location



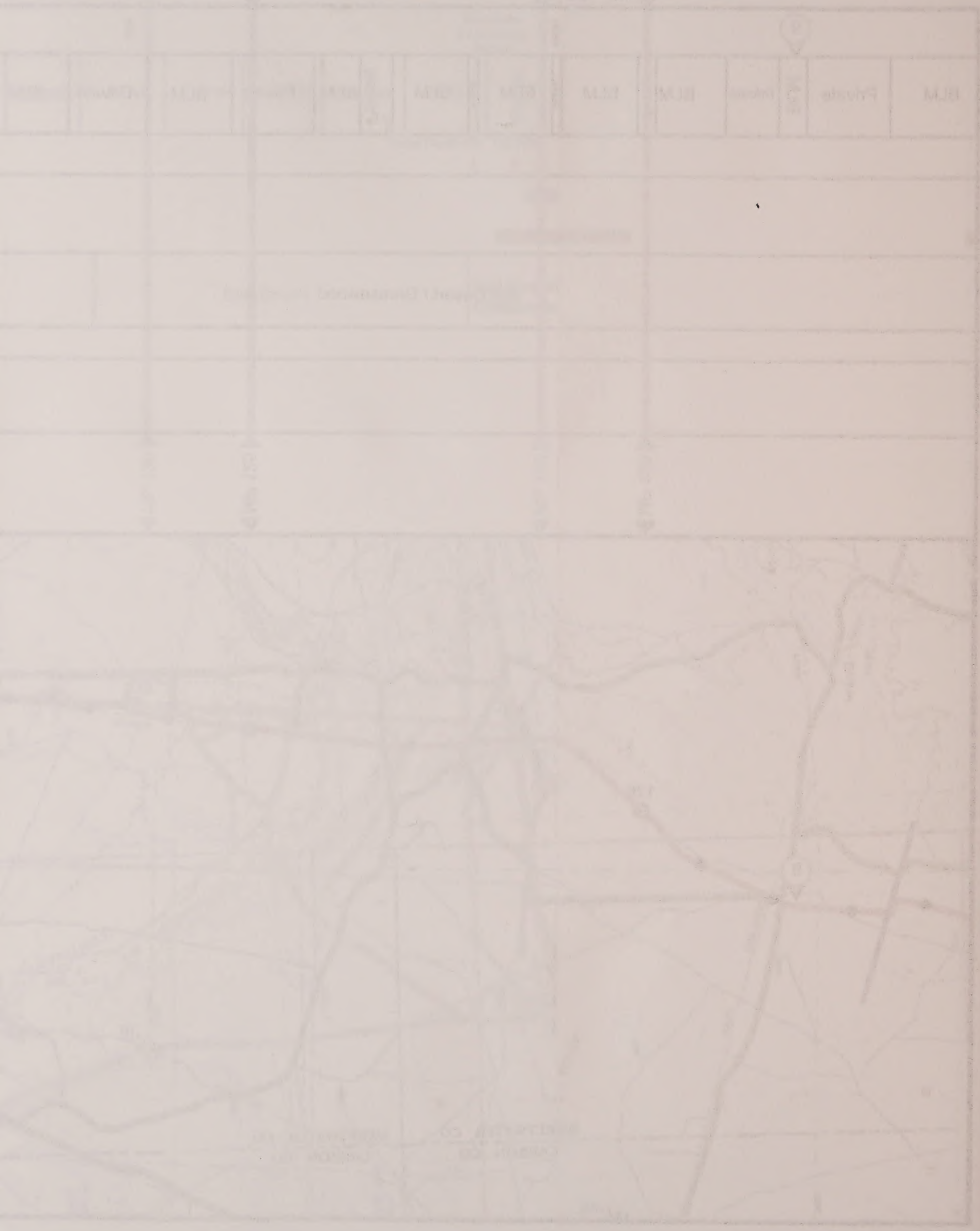
0 0.5 1 2 Kilometers

0 0.4 0.8 1.6 Miles

Scale = 1:100,000

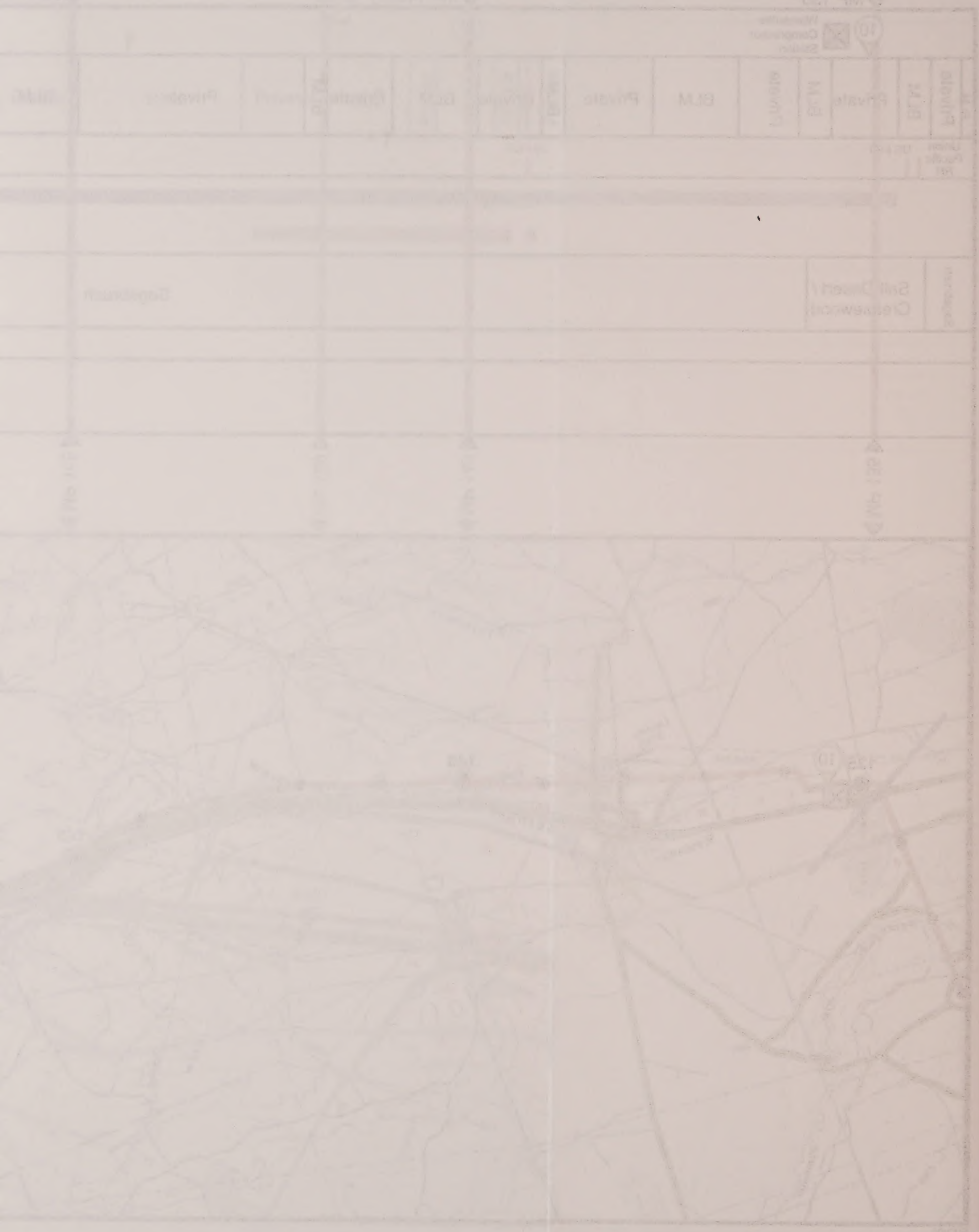
USGS 1:100,000 series Red Desert Basin, WY, Kinney Rim, WY, Rawlins, WY, and Baggs, WY

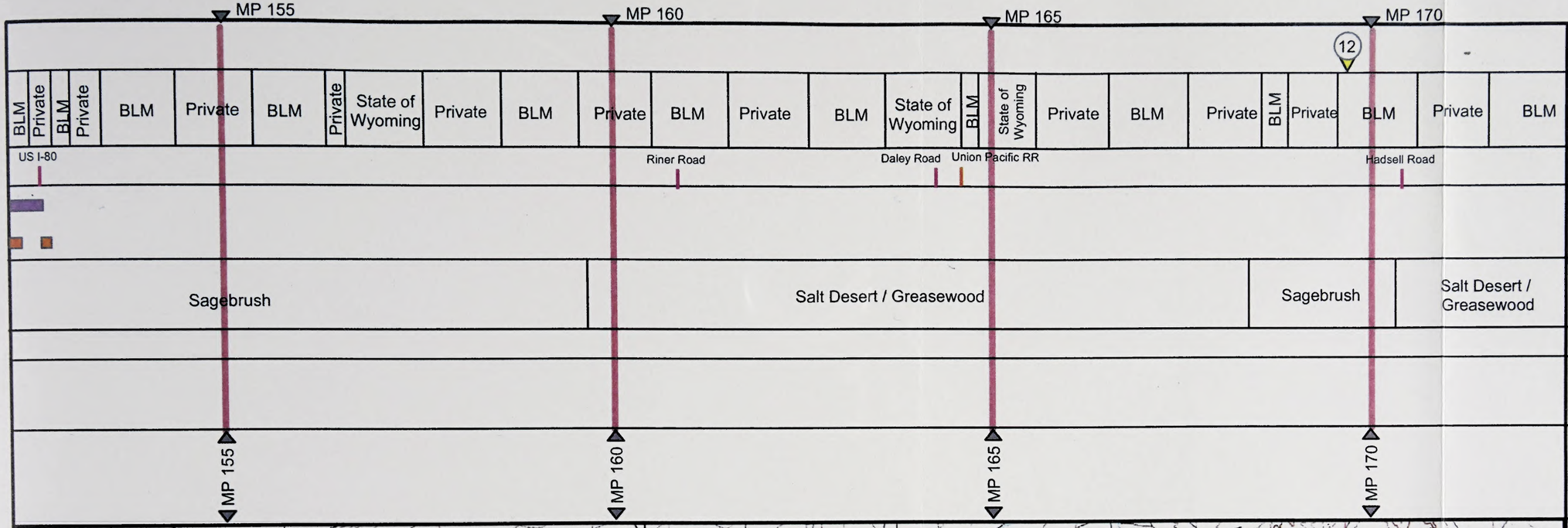
5/12/05

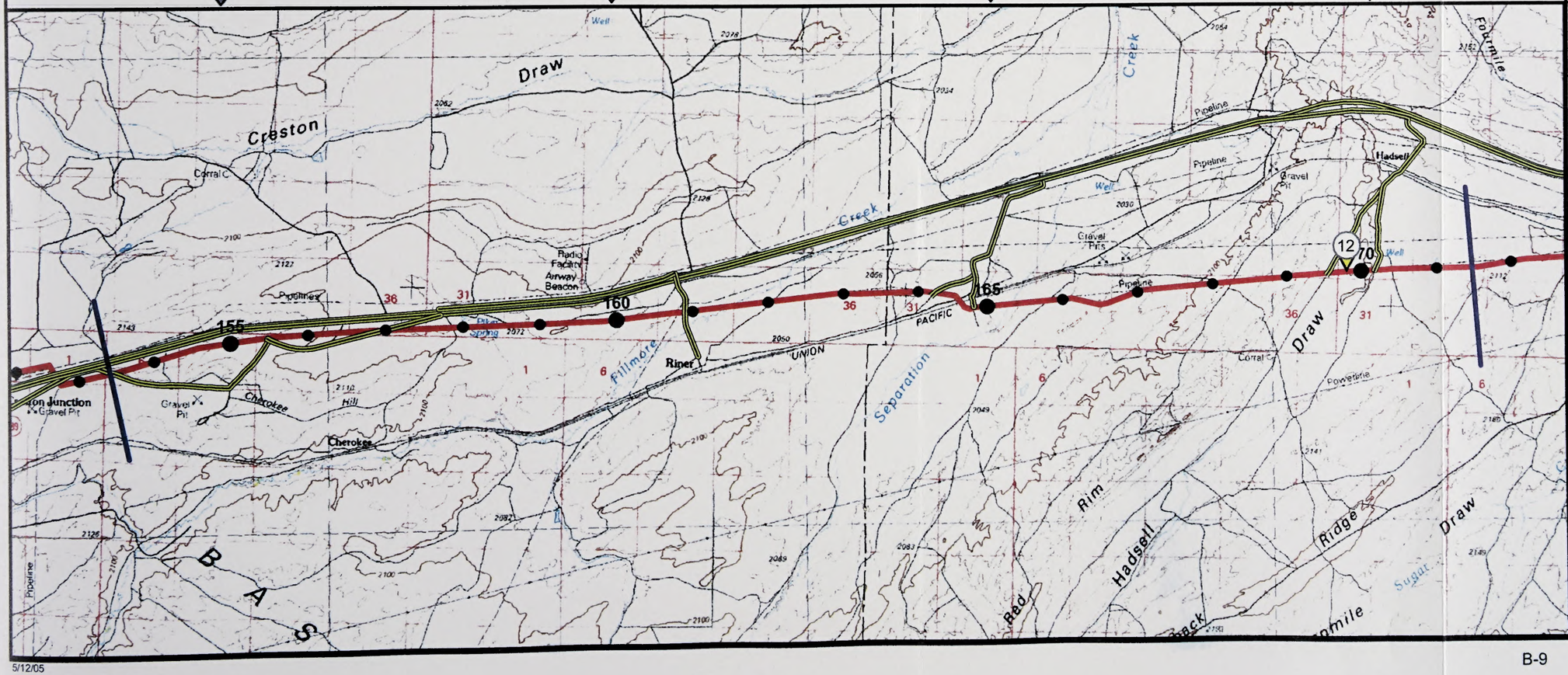


MP 135
MP 140
MP 145
MP 150
10
Wamsutter Compressor Station
11
Private
BLM
Land Ownership
(Federal, State, Private, Public ROW)
Union Pacific RR
US I-80
Transportation Crossings
Seasonal Wildlife Constraints
(Winter and Spring Constraints)
Sagebrush
Salt Desert / Greasewood
Sagebrush
General Natural Vegetation Communities
Wetlands
Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)
MP 135
MP 140
MP 145
MP 150
Project Component
ENTREGA PIPELINE PROJECT
Map 8 of 17
Sweetwater County, WY
Legend
Pipeline with Mileposts
Access Roads
Aboveground Project Facilities
Mainline Valves
Match Lines
Map Location
WY
NE
UT
CO
CO
Kilometers
Miles
Scale = 1:100,000
USGS 1:100,000 series Rawlins, WY, and Red Desert Basin, WY
Threemile Ditch
Pipeline
Latham Draw
Wamsutter
Hansen Draw
Union Pacific
Creston
Continental Divide
Creston Junction
Gravel Pit
Quarry
Landing Strip
Pipelines
Radio Facility
Radio Tower
Wamsutter Airport
135
140
145
150

5/12/05







ENTREGA PIPELINE PROJECT

Map 9 of 17

Sweetwater County, WY, and Carbon County, WY

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

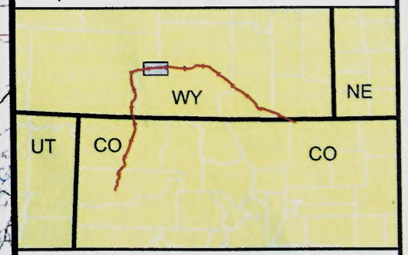
Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location



N W E S

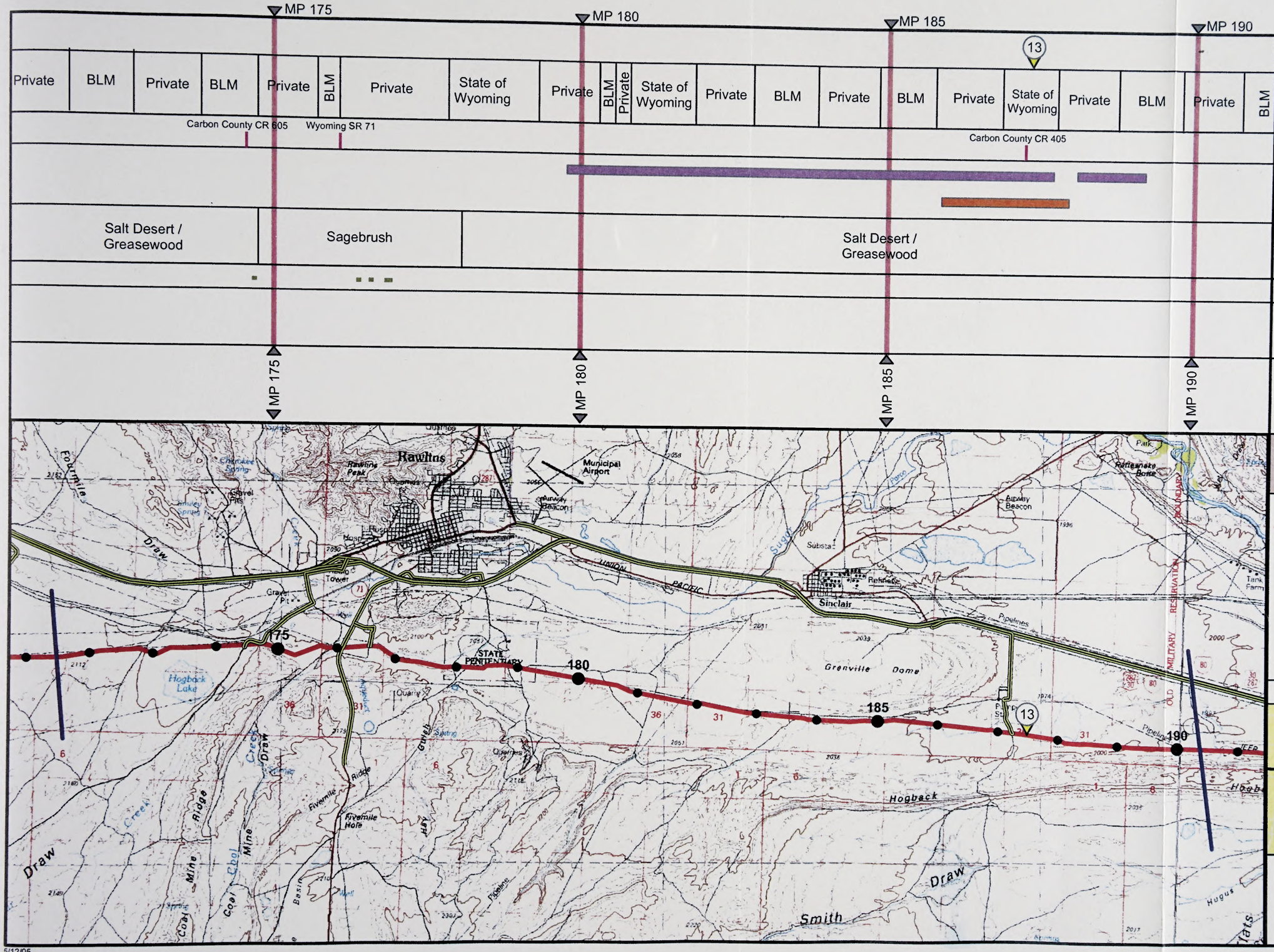
0 0.5 1 2 Kilometers

0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Rawlins, WY

5/12/05



ENTREGA PIPELINE PROJECT

Map 10 of 17

Carbon County, WY

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

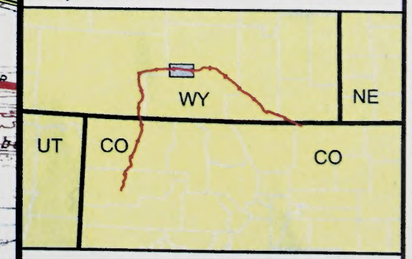
Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

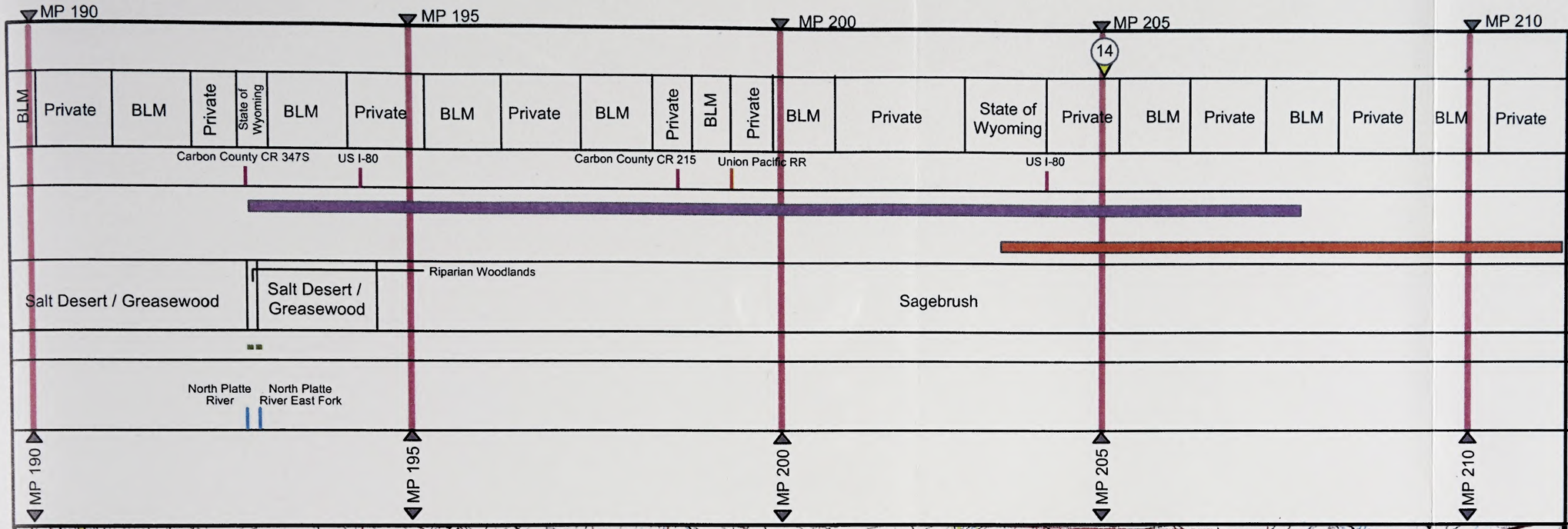
Map Location

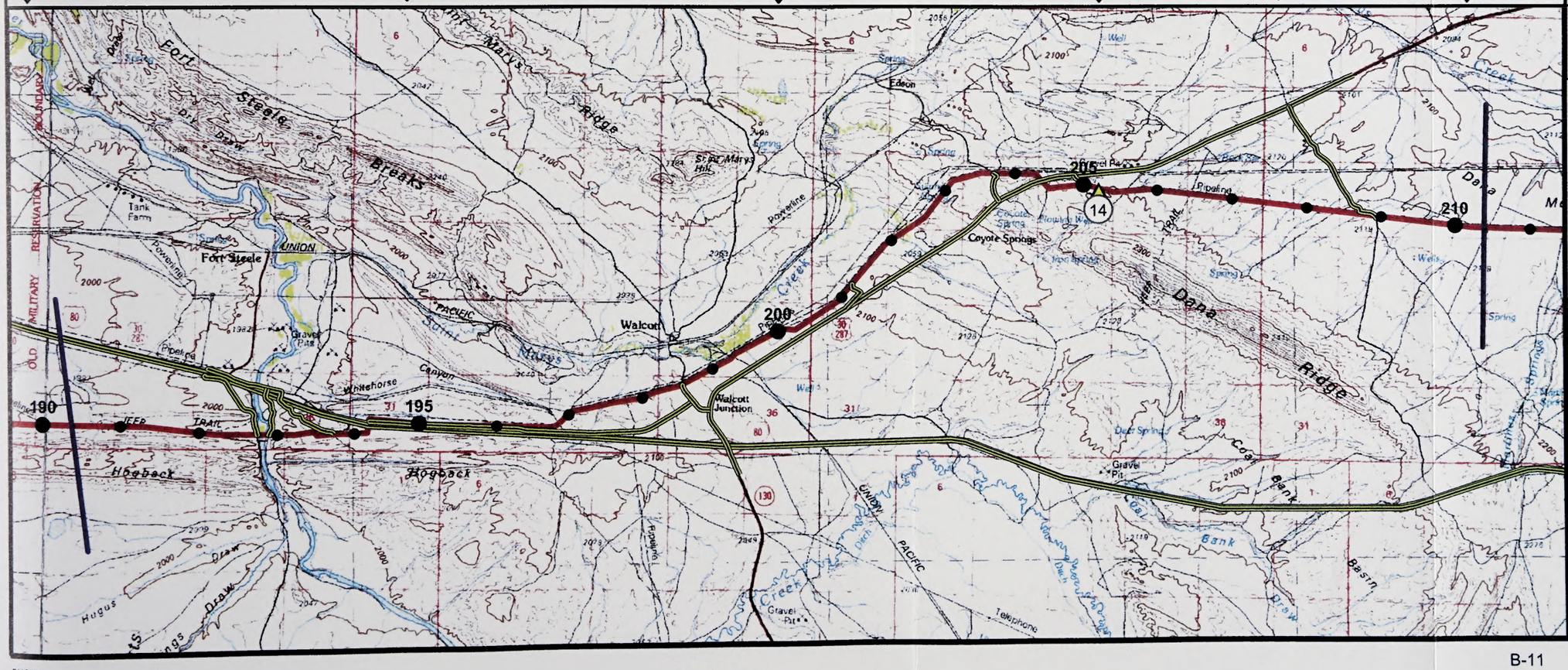


Scale = 1:100,000

USGS 1:100,000 series Rawlins, WY, and Medicine Bow, WY

5/12/05





Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

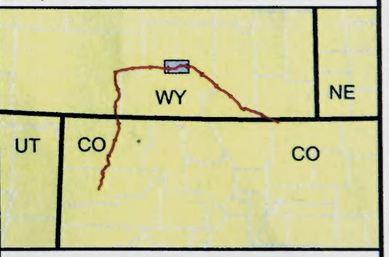
Map 11 of 17

Carbon County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- 2 Mainline Valves
- Match Lines

Map Location



N W E S

0 0.5 1 2 Kilometers

0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Rawlins, WY, and Medicine Bow, WY

5/12/05

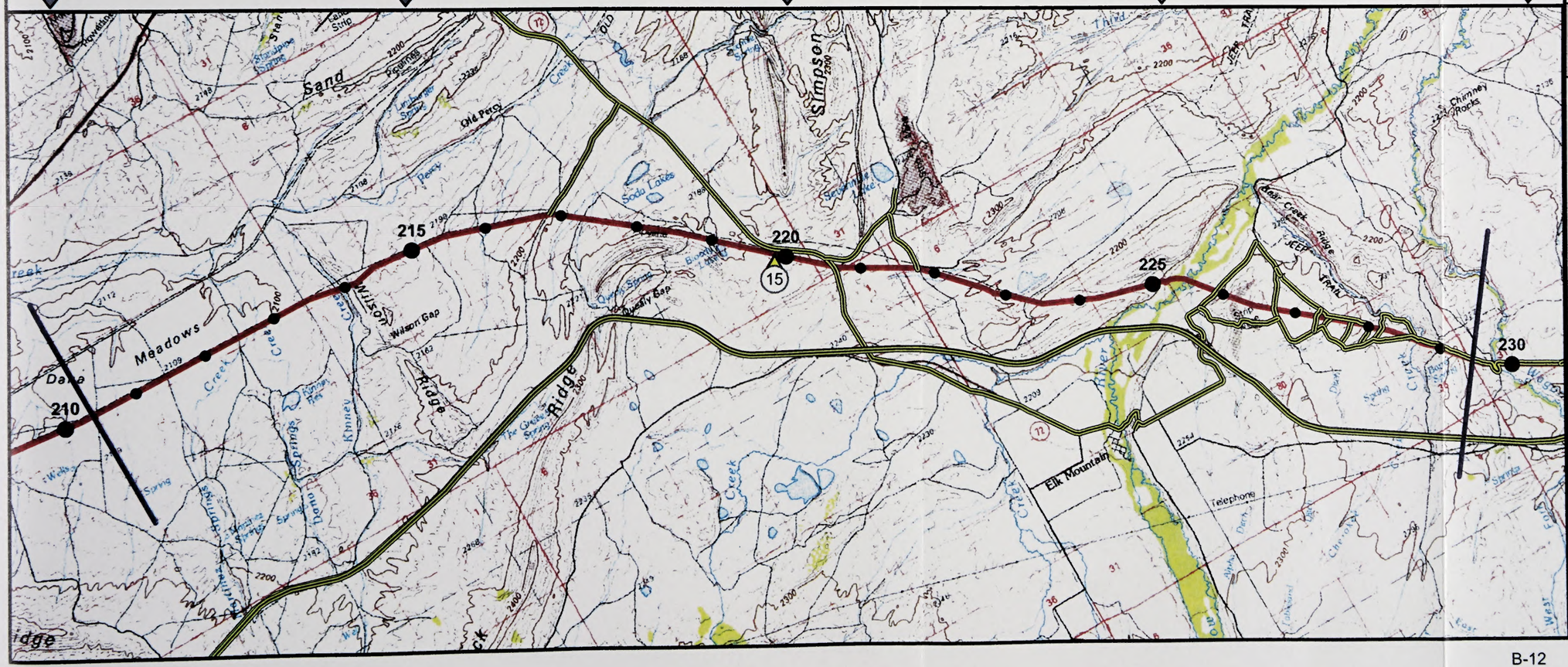
MP 210 | MP 215 | MP 220 | MP 225 | MP 230

Private | BLM | Private | BLM | Private | BLM | Private | BLM | Private | Private | BLM | Private | BLM | Private | BLM | Private | State of Wyoming | Private | State of Wyoming | Private | State of Wyoming | Private | State of Wyoming | Private

Sagebrush | Agriculture | Sagebrush | Riparian Woodlands | Sagebrush

Medicine Bow River | Bear Creek | Wagonhound Creek

MP 210 | MP 215 | MP 220 | MP 225 | MP 230



Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

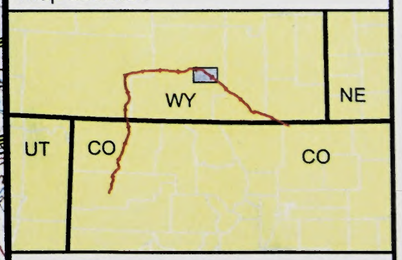
Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

Map 12 of 17
Carbon County, WY

Legend
- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location



0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles
Scale = 1:100,000

USGS 1:100,000 series Medicine Bow, WY

5/12/05

ENTREGA PIPELINE PROJECT

Map 13 of 17

Carbon County, WY
and Albany County, WY

Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

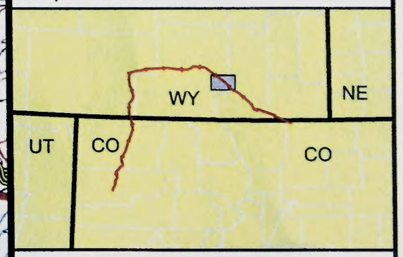
Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location

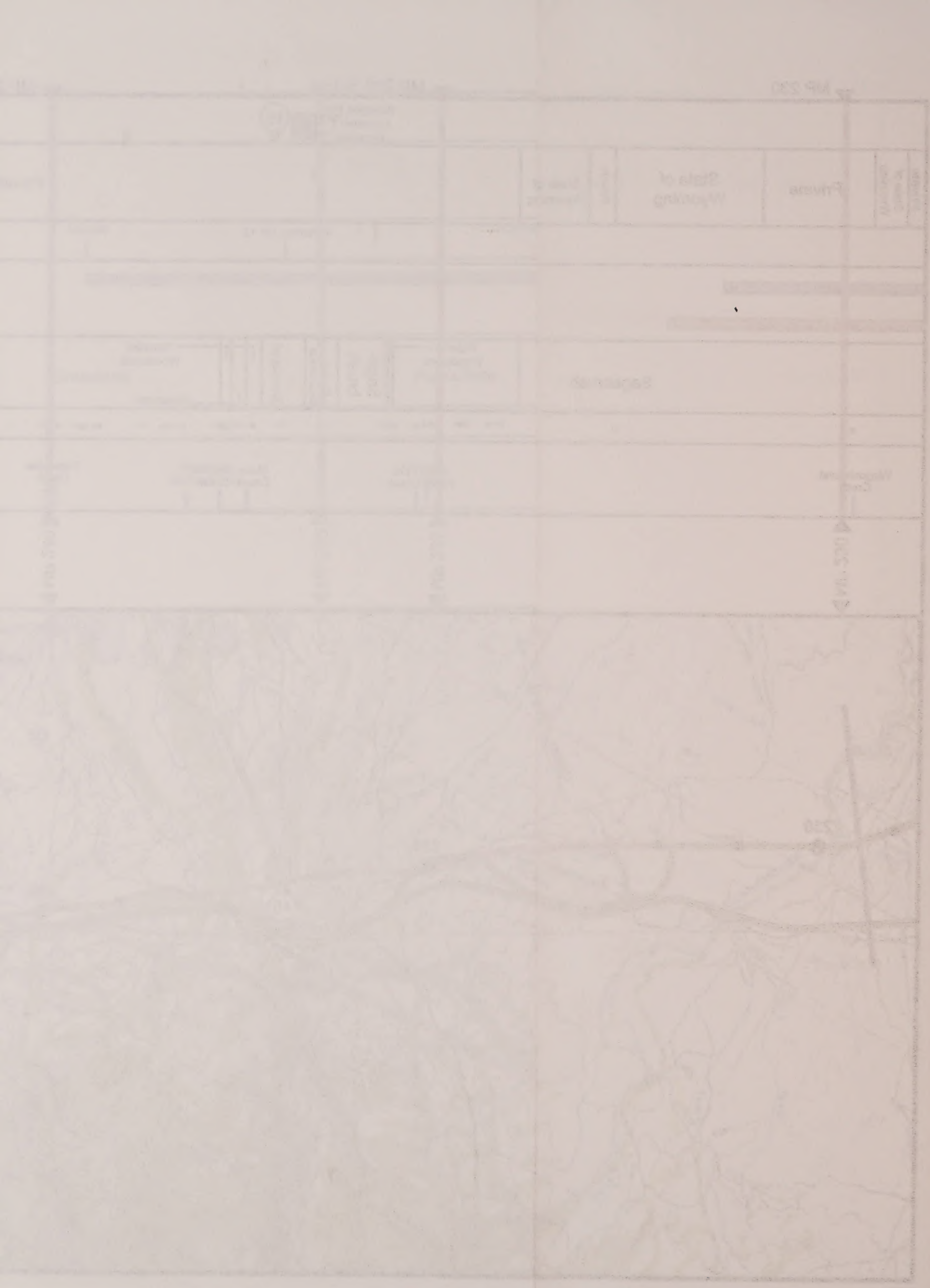


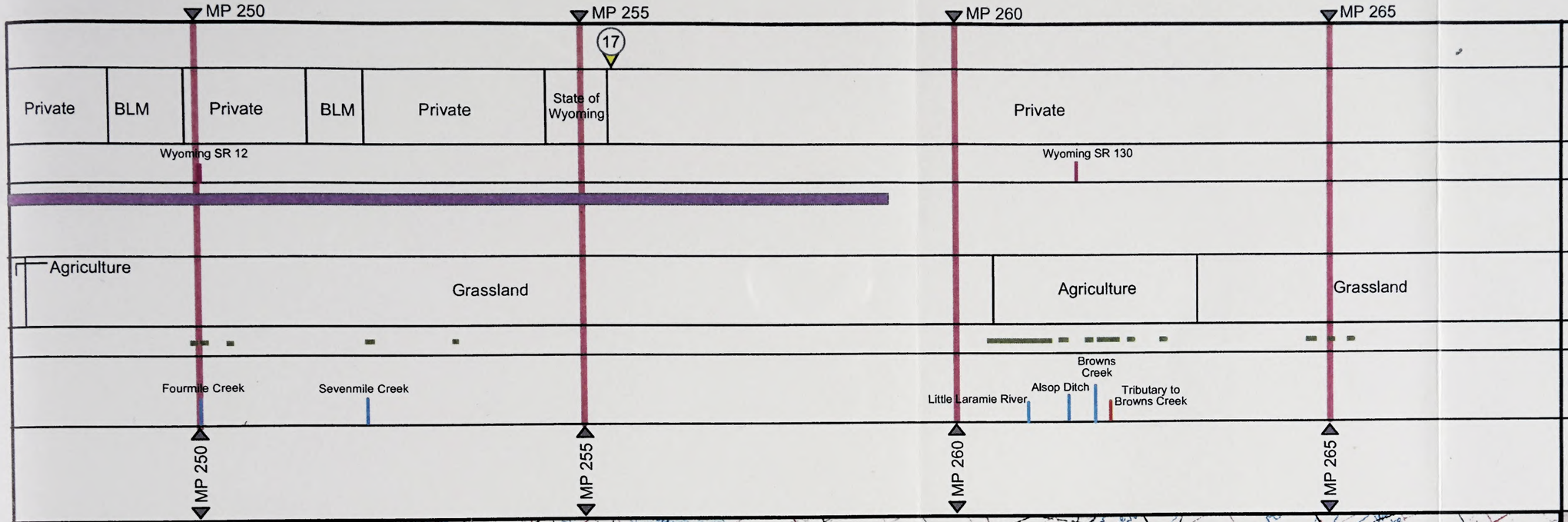
0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles

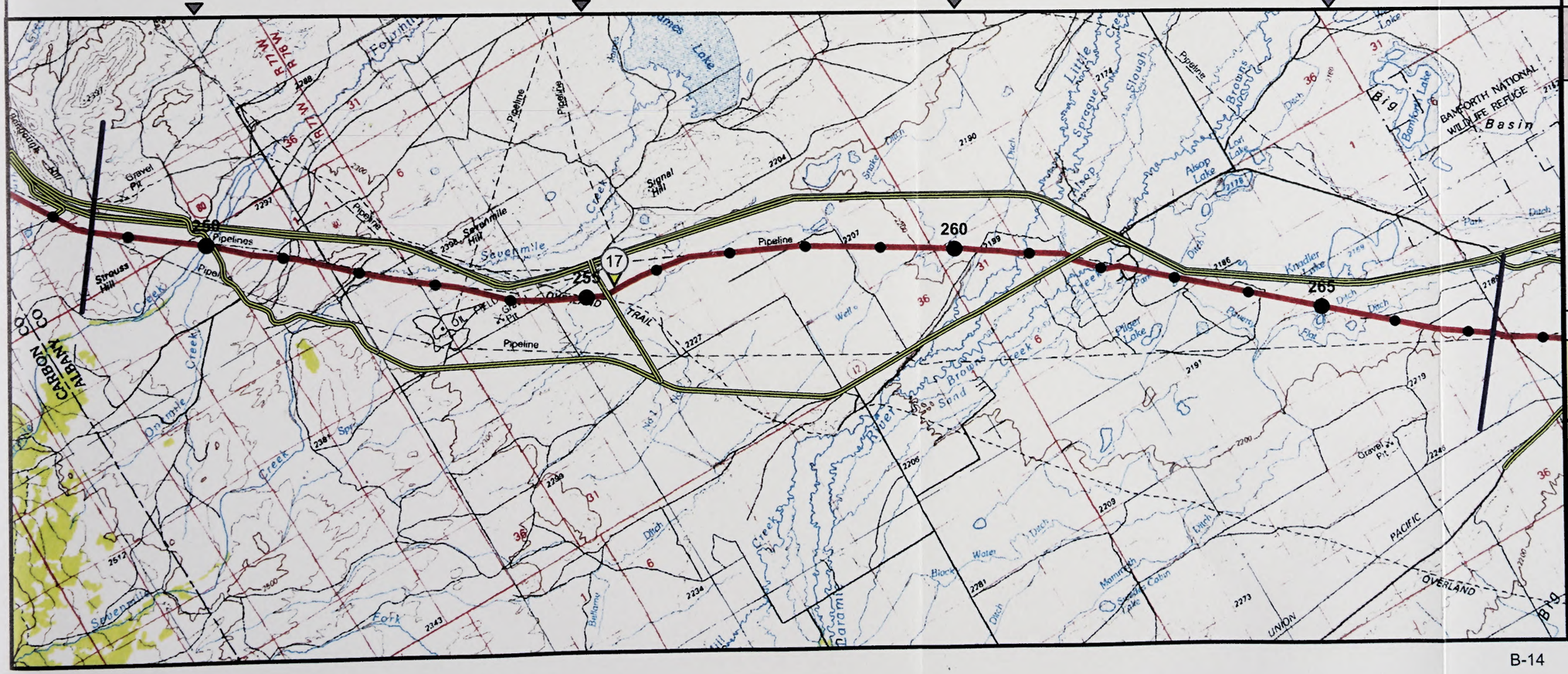
Scale = 1:100,000

USGS 1:100,000 series Medicine Bow, WY, and Saratoga, WY

5/12/05







Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

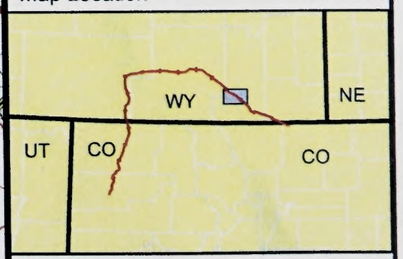
Map 14 of 17

Albany County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

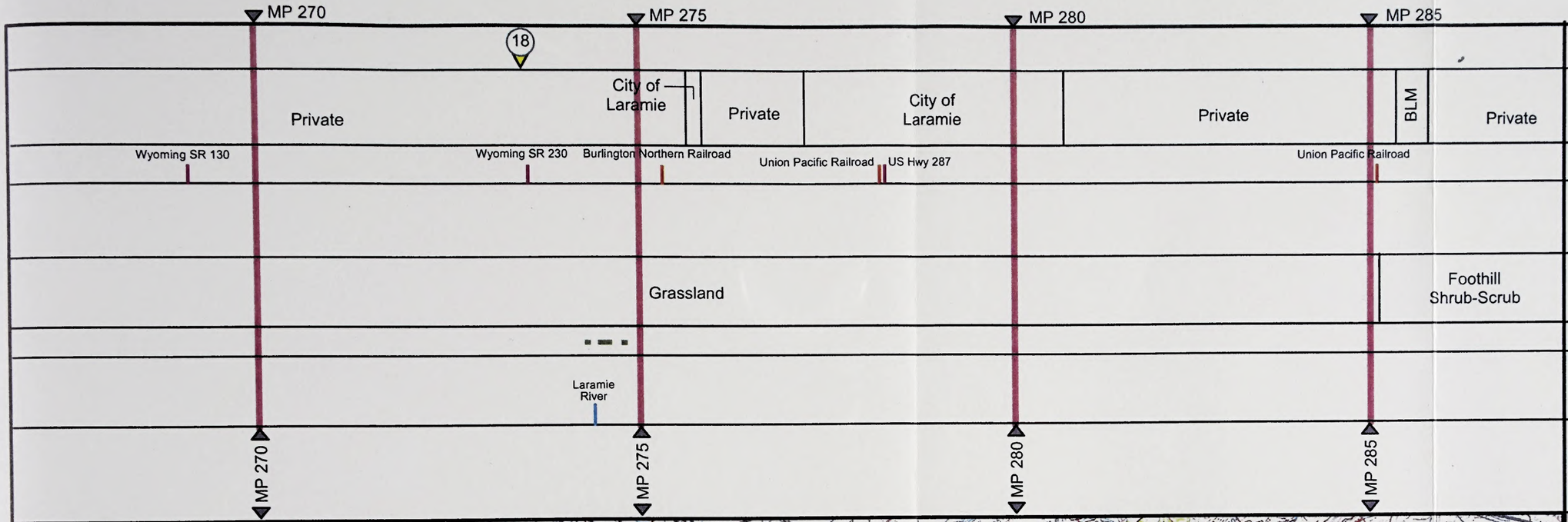
Map Location



Scale = 1:100,000

USGS 1:100,000 series Medicine Bow, WY, Saratoga, WY, and Laramie, WY

5/12/05



Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

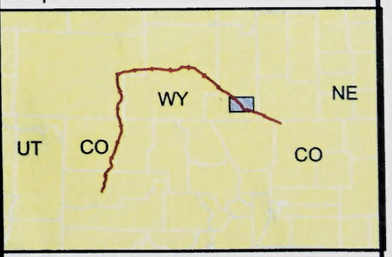
Map 15 of 17

Albany County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location

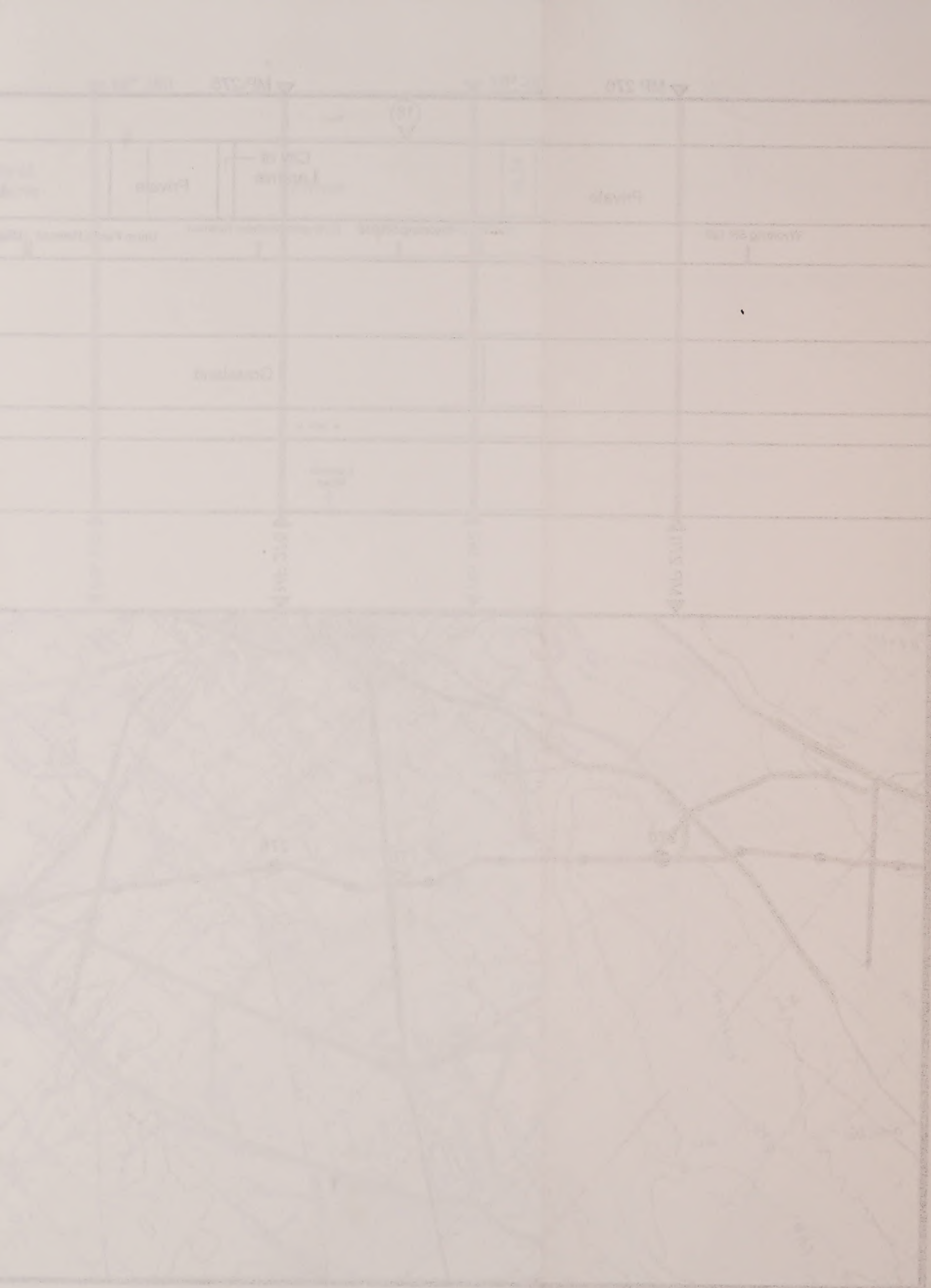


0 0.5 1 2 Kilometers
0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Laramie, WY

5/12/05



Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

ENTREGA PIPELINE PROJECT

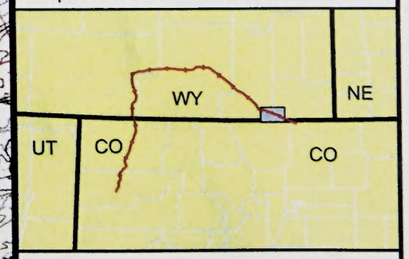
Map 16 of 17

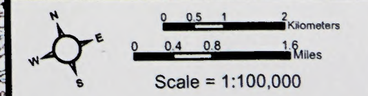
Albany County, WY, and
Laramie County, WY

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- Mainline Valves
- Match Lines

Map Location





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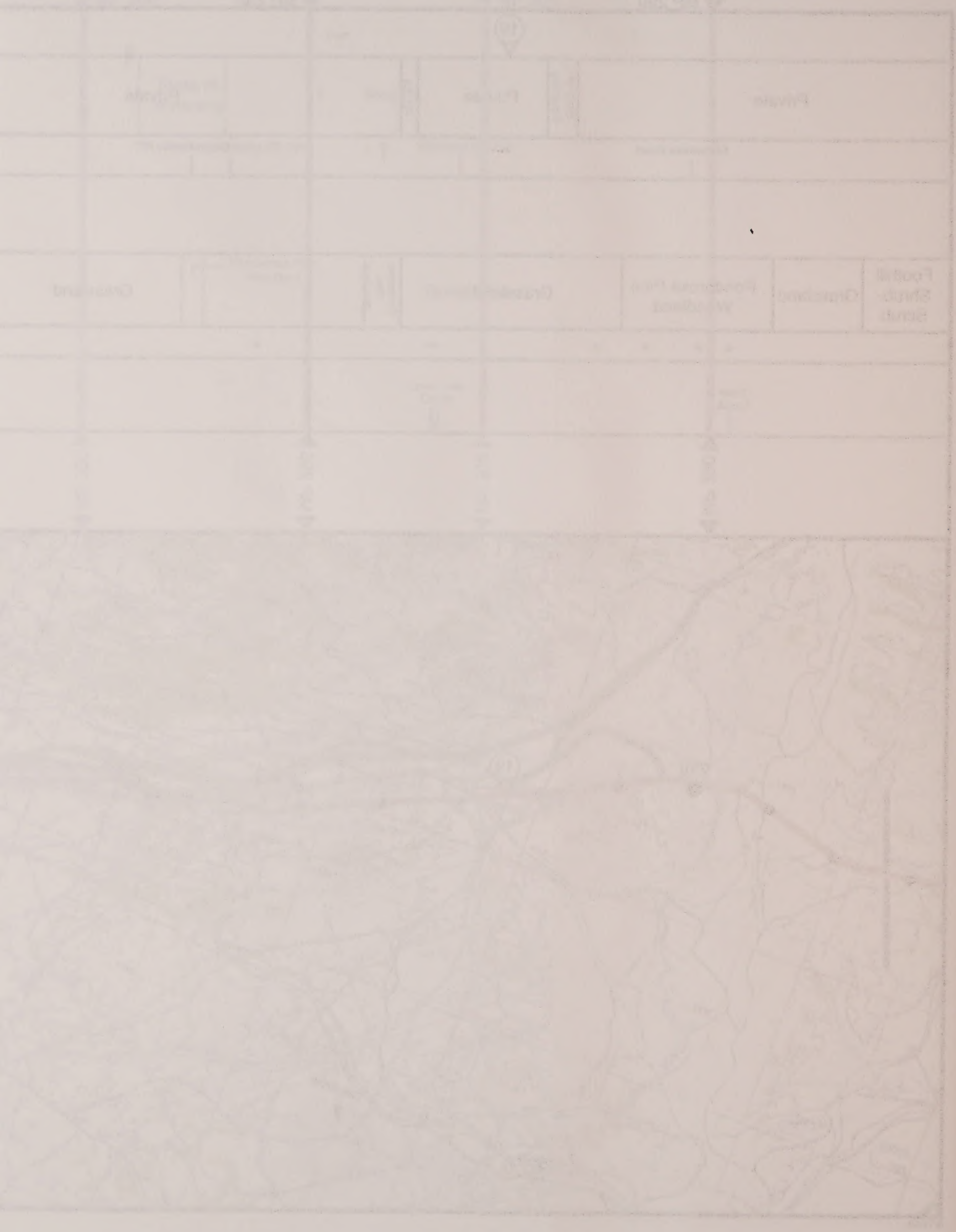
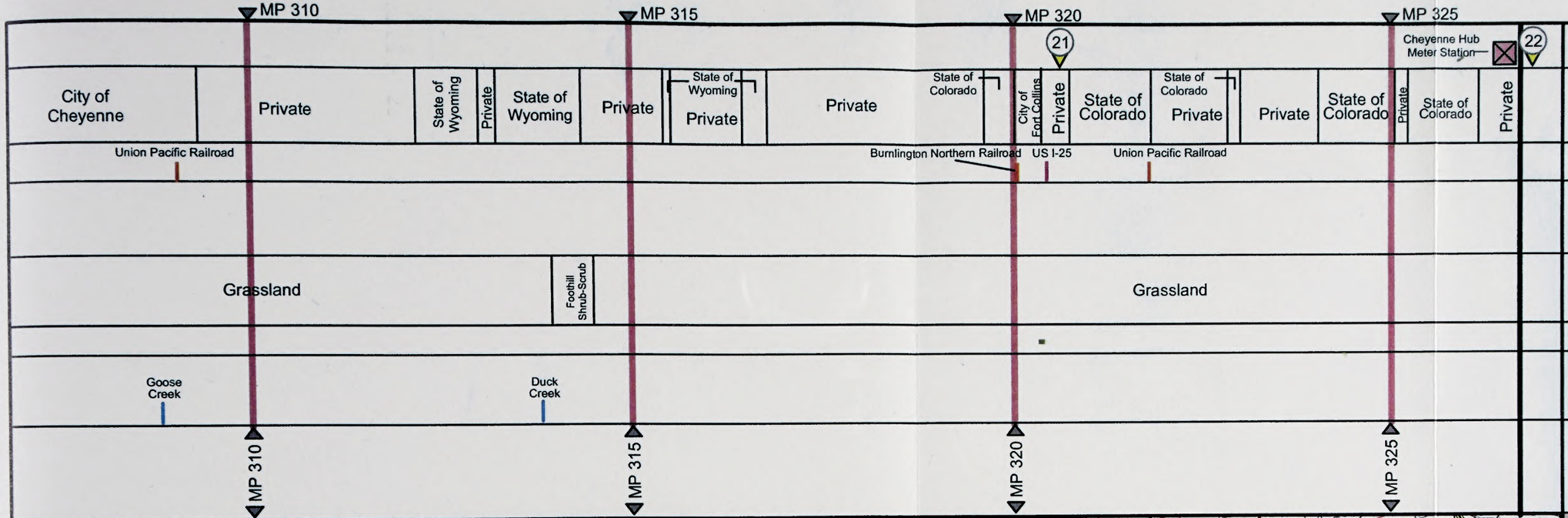
USGS 1:100,000 series Laramie, WY

5/12/05





Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

Seasonal Wildlife Constraints
(Winter and Spring Constraints)

General Natural Vegetation Communities

Wetlands

Waterbodies Supporting Fisheries
(Warm and Cold Water Habitat)

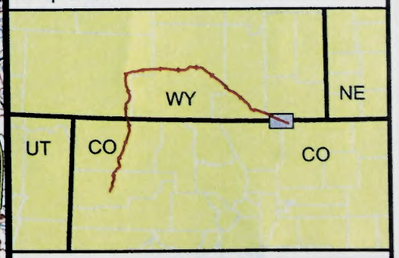
ENTREGA PIPELINE PROJECT

Map 17 of 17
Laramie County, WY, Larimer County, CO, and Weld County, CO

Legend

- Pipeline with Mileposts
- Access Roads
- Aboveground Project Facilities
- 2 Mainline Valves
- Match Lines

Map Location



N W E S

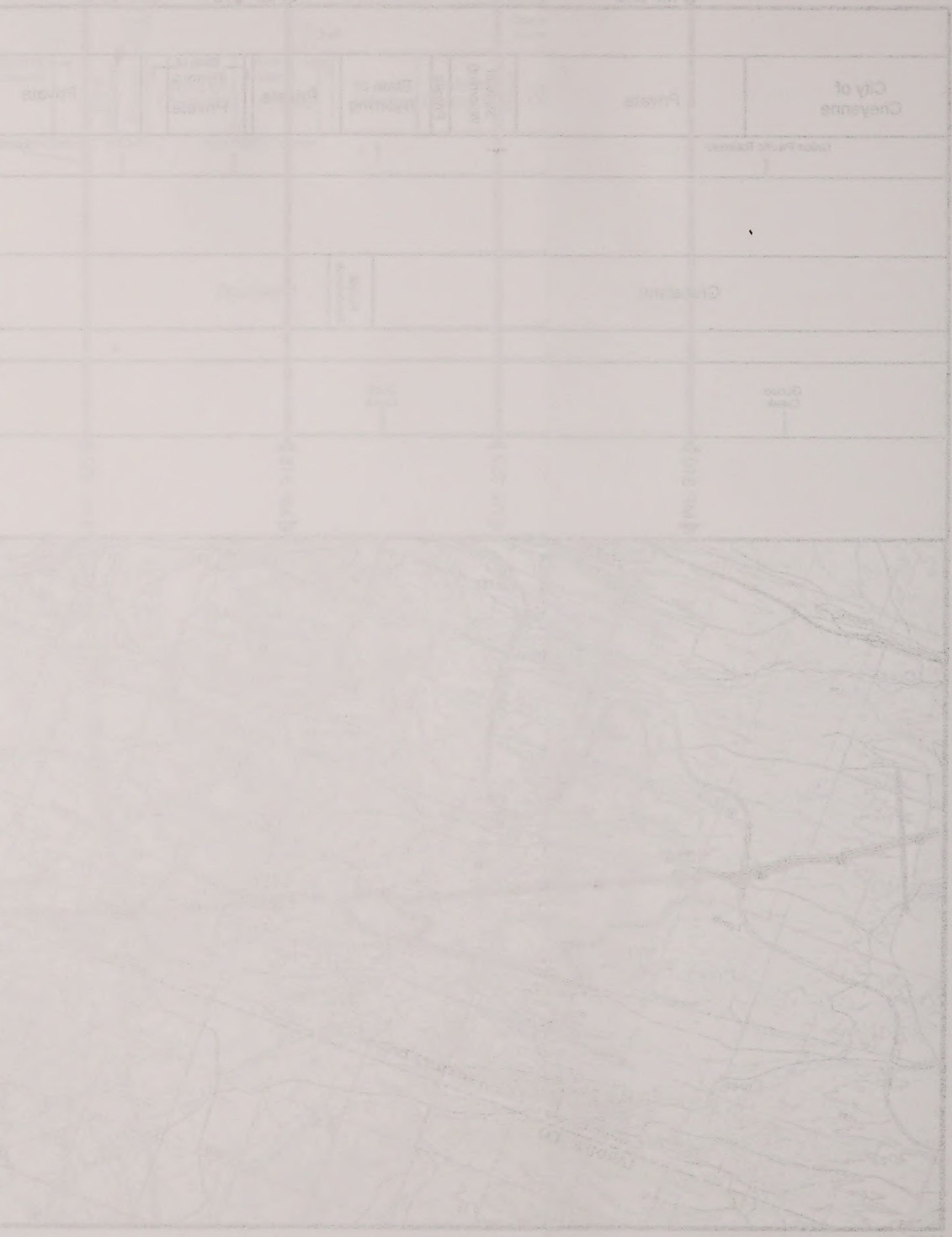
0 0.5 1 2 Kilometers

0 0.4 0.8 1.6 Miles

Scale = 1:100,000

USGS 1:100,000 series Laramie, WY, Fort Collins, CO, and Eaton, CO

5/12/05



APPENDIX C

EXISTING PUBLIC AND PRIVATE ACCESS ROADS BY MILEPOST

Entrega Pipeline Project
Existing Public and Private Access Roads By Milepost

Milepost [1]	Name	County	Class [2,3]
COLORADO			
–	County Road 5/Highway 13	Rio Blanco	A – paved
1.0	County Road 24	Rio Blanco	A – paved
2.0	Rio Blanco – 1	Rio Blanco	A – paved
3.7	Rio Blanco–2	Rio Blanco	C – two track
3.7	Rio Blanco–3	Rio Blanco	C – two track
4.6	Rio Blanco – 4/BLM 1150	Rio Blanco	C – two track
5.0	Rio Blanco – 5	Rio Blanco	C – two tracks
7.0	County Highway 5	Rio Blanco	A – paved
7.5	County Road 76/R – 6	Rio Blanco	C – two track
8.2	County Road 22	Rio Blanco	A – gravel
11.5	Rio Blanco – 7	Rio Blanco	C – two track
14.0	Rio Blanco – 7A	Rio Blanco	C – two track
14.8	Rio Blanco – 8	Rio Blanco	B – dirt
15.4	State Highway 64	Rio Blanco	A – paved
15.4	County Road 71	Rio Blanco	A – paved
16.2	Rio Blanco – 9/BLM 1754	Rio Blanco	B – dirt
16.7	County Road 71 / R–15 / BLM 1512 (will provide access to mainline valve #2)	Rio Blanco	B – dirt
18.6	Rio Blanco – 10	Rio Blanco	B – dirt / C – two track
20.7	Rio Blanco – 11	Rio Blanco	C – two track
21.2	County Road 71/Keystone Road	Rio Blanco	A – gravel
22.6	Rio Blanco – 12	Rio Blanco	C – two track
23.0	Rio Blanco – 13	Rio Blanco	B – dirt
25.4	Rio Blanco – 14A	Rio Blanco	B – dirt
32.0	Rio Blanco – 15	Rio Blanco	unknown
33.2	County Highway 57 – (will provide access to mainline valve #3)	Moffat	A – paved
33.5	Moffat – 1	Moffat	B – dirt
33.5	Moffat – 1Z (Zech Ranch road, built by Entrega)	Moffat	unknown
35.2	Moffat – 2	Moffat	A – gravel
39.8	Moffat – 3	Moffat	C – two track
39.9	Moffat – 4	Moffat	C – two track
40.4	Moffat – 5	Moffat	C – two track
40.7	Moffat – 6	Moffat	C – two track
43.1	County Road 59 South	Moffat	A – gravel
44.0	Moffat – 6A	Moffat	unknown
47.4	Moffat – 6B	Moffat	unknown
48.0	Moffat – 7D	Moffat	C – two track
50.1	U.S. Highway 40	Moffat	A – paved
(50.1)	County Road 17	Moffat	A – gravel
(50.1)	County Road 53N	Moffat	A – gravel
50.7	Moffat – 7A	Moffat	C – two track
51.8	Moffat – 7B	Moffat	C – two track
52.3	Moffat – 7C	Moffat	C – two track
55.9	Moffat – 8	Moffat	C – two track
59.9	County Road 58	Moffat	A – gravel
61.2	Moffat – 9	Moffat	C – two track
62.5	County Road 8	Moffat	A – gravel
64.0	Moffat – 9A	Moffat	unknown

Milepost [1]	Name	County	Class [2,3]
64.9	County Road 6	Moffat	A – dirt
65.0	County Road 50	Moffat	A – dirt
(65.6)	County Road 44 – (will provide access to mainline valve #5)	Moffat	A – dirt
65.9	Moffat – 10	Moffat	C – two track
(70.0)	Moffat–11A	Moffat	unknown
(67.1)	County Road 50	Moffat	B – dirt
(68.1)	Moffat – 11	Moffat	C – two track
(71.8)	Moffat – 11B	Moffat	unknown
(72.0)	Moffat – 11C	Moffat	unknown
72.2	Moffat – 12	Moffat	B – dirt
72.8	Moffat – 12A	Moffat	unknown
73.1	County Road 42	Moffat	A – dirt
73.7	Moffat – 13	Moffat	C – two track
74.6	Moffat – 14	Moffat	C – two track
75.4	Moffat – 15	Moffat	B – dirt
76.3	County Road 7	Moffat	A – gravel
(76.3)	County Road 21 North (from CR – 7)	Moffat	A – gravel
77.9	Moffat – 16	Moffat	B – dirt
79.0	Moffat – 16A	Moffat	unknown
79.8	Moffat – 17	Moffat	C – two track
80.6	County Road 92	Moffat	A – dirt
81.4	Moffat – 18	Moffat	C – two track
81.5	Moffat – 18A	Moffat	C – two track
82.7	Moffat – 19	Moffat	C – two track
83.6	County Highway 4	Moffat	A – paved
84.3	County Road 19A	Moffat	C – two track
84.3	County Road 148/Moffat – 1C	Moffat	unknown
319.9	Weld – 1A	Weld	C – two track
320.2	Weld – 1B	Weld	A – gravel
320.9	Weld – 1C	Weld	C – two track
321.6	Weld – 2	Weld	C – two track
(322.0)	Weld – 3	Weld	C – two track
(323.0)	Weld – 4	Weld	C – two track
323.0	Weld – 5	Weld	C – two track
323.8	Weld – 6	Weld	C – two track
326.2	County Road 27 (potential new)	Weld	A–gravel
(327.0)	U.S. Highway 85	Weld	A – paved
WYOMING			
85.4	Sweetwater – 1C	Sweetwater	B – dirt
87.5	Sweetwater – 1	Sweetwater	unknown
90.6	Sweetwater – 1A	Sweetwater	A – dirt
(90.6)	County Road 700	Sweetwater	A – dirt
(90.6)	Sweetwater – 1E	Sweetwater	unknown
(90.6)	Sweetwater – 1F	Sweetwater	unknown
91.3	Sweetwater – 1B	Sweetwater	C – two track
93.7	Sweetwater – 1G	Sweetwater	unknown
(97.0)	Sweetwater – 2A	Sweetwater	unknown
97.0	Sweetwater – 2B	Sweetwater	unknown
97.6	Sweetwater – 2	Sweetwater	A – gravel
99.5	Sweetwater – 3	Sweetwater	B – dirt
100.6	Sweetwater – 3A	Sweetwater	B – dirt
101.8	Sweetwater – 3B	Sweetwater	unknown
(100.7)	Sweetwater – 4 (will provide access to mainline valve #8)	Sweetwater	B – dirt

Milepost [1]	Name	County	Class [2,3]
103.6	Sweetwater – 4A	Sweetwater	B – dirt
(107.0)	Sweetwater–2B	Sweetwater	unknown
107.1	Sweetwater – 4B	Sweetwater	B – dirt
(107.1)	Wamsutter Crooks Gap Road	Sweetwater	A – gravel
(107.1)	Sweetwater – 4C	Sweetwater	unknown
(107.1)	Sweetwater – 4D	Sweetwater	unknown
115.2	Sweetwater – 5	Sweetwater	A – gravel
117.7	Sweetwater – 6 (will provide access to mainline valve #9)	Sweetwater	A – gravel
118.0	Sweetwater – 6B	Sweetwater	unknown
121.2	Sweetwater – 6C	Sweetwater	unknown
121.2	Sweetwater – 6A	Sweetwater	C – two track
123.4	Sweetwater – 7A	Sweetwater	A – gravel
124.4	Sweetwater – 7A1	Sweetwater	unknown
126.0	Sweetwater – 7B	Sweetwater	A – gravel
126.6	Sweetwater – 7C	Sweetwater	A – gravel
128.2	Sweetwater – 7	Sweetwater	A – gravel
131.1	Sweetwater – 7D	Sweetwater	A – gravel
131.8	Sweetwater – 7E	Sweetwater	A – gravel
132.3	Sweetwater – 7F	Sweetwater	A – gravel
133.2	Sweetwater – 7G	Sweetwater	A – gravel
133.7	Sweetwater – 7H	Sweetwater	A – gravel
134.2	Sweetwater – 8	Sweetwater	C – two track
135.2	Sweetwater – 9 (will provide access to mainline valve #10)	Sweetwater	A – gravel
136.0	Sweetwater – 10	Sweetwater	unknown
137.3	Sweetwater – 11	Sweetwater	A – gravel
138.2	Sweetwater – 12	Sweetwater	A – gravel
138.5	County Road 23/Sweetwater – 13 (Wamsutter Break)	Sweetwater	A – paved
143.8	Sweetwater – 14	Sweetwater	A – gravel
148.6	Sweetwater – 15	Sweetwater	A – gravel
151.6	State Highway 789	Sweetwater	A – paved
152.8	Sweetwater – 16	Sweetwater	C – two track
(158.0)	Sweetwater – 1	Sweetwater	A – gravel
161.0	Riner Road	Sweetwater	A – gravel
164.2	Daley Road	Carbon	C – two track
164.3	Carbon – 1	Carbon	C – two track
169.7	C1A1	Carbon	C – two track
170.3	Hadsell Road	Carbon	B – dirt
174.6	County Road 605	Carbon	C – gravel
176.2	State Highway 71	Carbon	A – paved
176.7	Carbon – 1A	Carbon	B – dirt
187.1	Carbon – 1B	Carbon	unknown
187.4	County Road 407	Carbon	A – paved
192.9	County Road 347S	Carbon	A – gravel
193.0	Carbon – 2	Carbon	C – two track
193.9	Carbon – 2A	Carbon	C – two track
194.5	Carbon – 3	Carbon	B – dirt
198.7	County Road 215	Carbon	B – dirt
201.4	Carbon – 4	Carbon	C – two track
203.9	Carbon – 5	Carbon	C – two track
204.5	U.S. Highway 30	Carbon	A – paved
205.1	Carbon – 6	Carbon	C – two track
209.1	Carbon – 7	Carbon	B – dirt
216.9	Carbon – 8	Carbon	B – dirt

Milepost [1]	Name	County	Class [2,3]
220.7	County Road 115	Carbon	A – gravel
220.8	State Highway 72	Carbon	A – paved
221.9	Carbon – 9	Carbon	B – dirt
226.8	Carbon – 11A	Carbon	C – two track
226.0	Carbon – 10/County Road 3	Carbon	B – dirt
227.4	Carbon – 11B	Carbon	C – two track
227.6	Carbon – 11C	Carbon	C – two track
227.7	Carbon – 11D	Carbon	C – two track
228.1	Carbon – 11	Carbon	C – two track
228.3	Carbon – 11E	Carbon	C – two track
231.9	Carbon – 12	Carbon	C – two track
232.7	Carbon – 13	Carbon	C – two track
234.5	Carbon – 14/County Road 402	Carbon	A – gravel
237.0	State Highway 13	Carbon	A – paved
237.7	Carbon – 15	Carbon	B – dirt
240.6	Carbon – 16	Carbon	B – dirt
244.9	Carbon – 17	Carbon	B – dirt
245.4	Carbon – 18	Carbon	B – dirt
248.1	Copper Cove	Albany	A – gravel
250.2	State Highway 12/Dutton Creeek/Cty Road 57	Albany	A – paved
255.1	County Road 59	Albany	A–paved
269.2	State Highway 130	Albany	A – paved
271.4	Albany – 1A	Albany	B – dirt
273.6	State Highway 230	Albany	A – paved
278.3	U.S. Highway 287	Albany	A – paved
278.3	Albany – 1B	Albany	A – dirt
278.6	Albany – 1	Albany	A – gravel
279.9	Albany – 2	Albany	B – dirt
281.8	Albany – 2A	Albany	C – two track
285.0	Albany – 3	Albany	C – two track
290.4	Monument Road/CCR 234	Albany	B – dirt
296.6	Albany – 4	Albany	B – dirt
301.9	County Road 206	Laramie	A – gravel
(301.9)	County Road 106	Laramie	A – gravel
304.8	State Highway 218	Laramie	A – gravel
305.0	Jenny Lynn Rd	Laramie	unknown
306.1	Laramie – 1	Laramie	A – paved
306.2	Laramie – 2	Laramie	C – two track
309.2	Laramie – 2A	Laramie	C – two track
309.3	Laramie – 2A (2)	Laramie	C – two track
309.8	Laramie – 2B	Laramie	C – two track
309.8	Laramie – 3	Laramie	C – two track
313.8	Laramie – 3A	Laramie	C – two track
318.3	Laramie – 4	Laramie	A – gravel

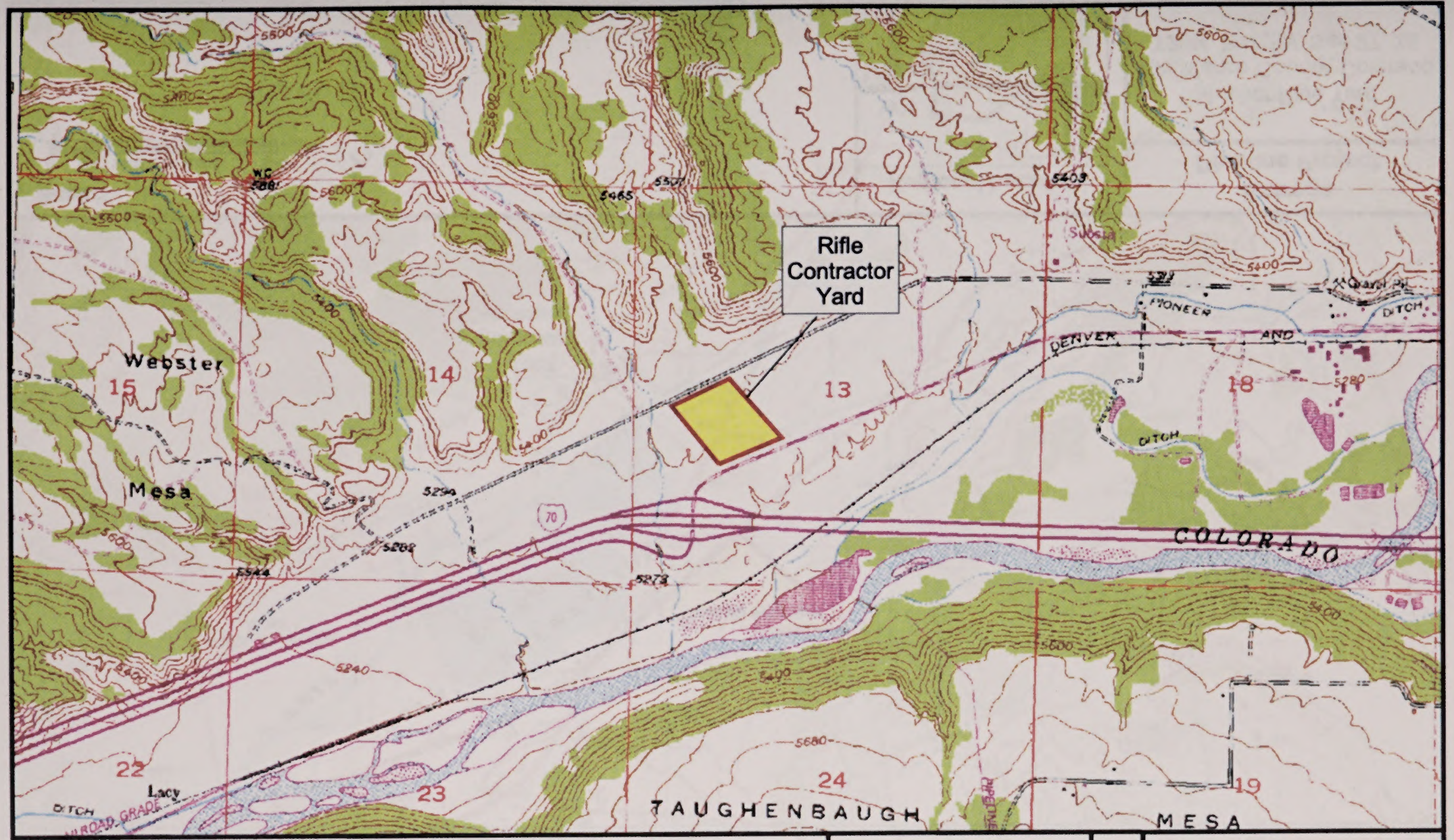
[1] Milepost location is where the access road first crosses the pipeline ROW. Access roads with milepost identified in parenthesis do not cross the pipeline ROW.

[2] Class A = paved or improved gravel roads which will not require improvement during construction.
Class B = improved gravel or dirt roads which will most likely require minor maintenance for construction.
Class C = unimproved dirt or two track roads will require improvement for construction.
Unknown = no data provided by Entrega.

[3] Access road width is assumed to be 66 feet for Class A paved roads and 25 feet for Class B and C roads.

APPENDIX D

PIPE STORAGE AND CONTRACTOR YARDS



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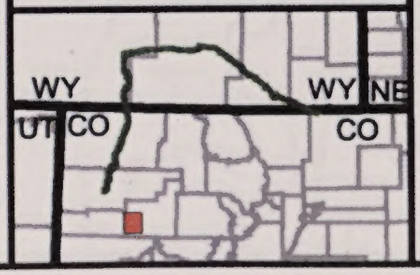
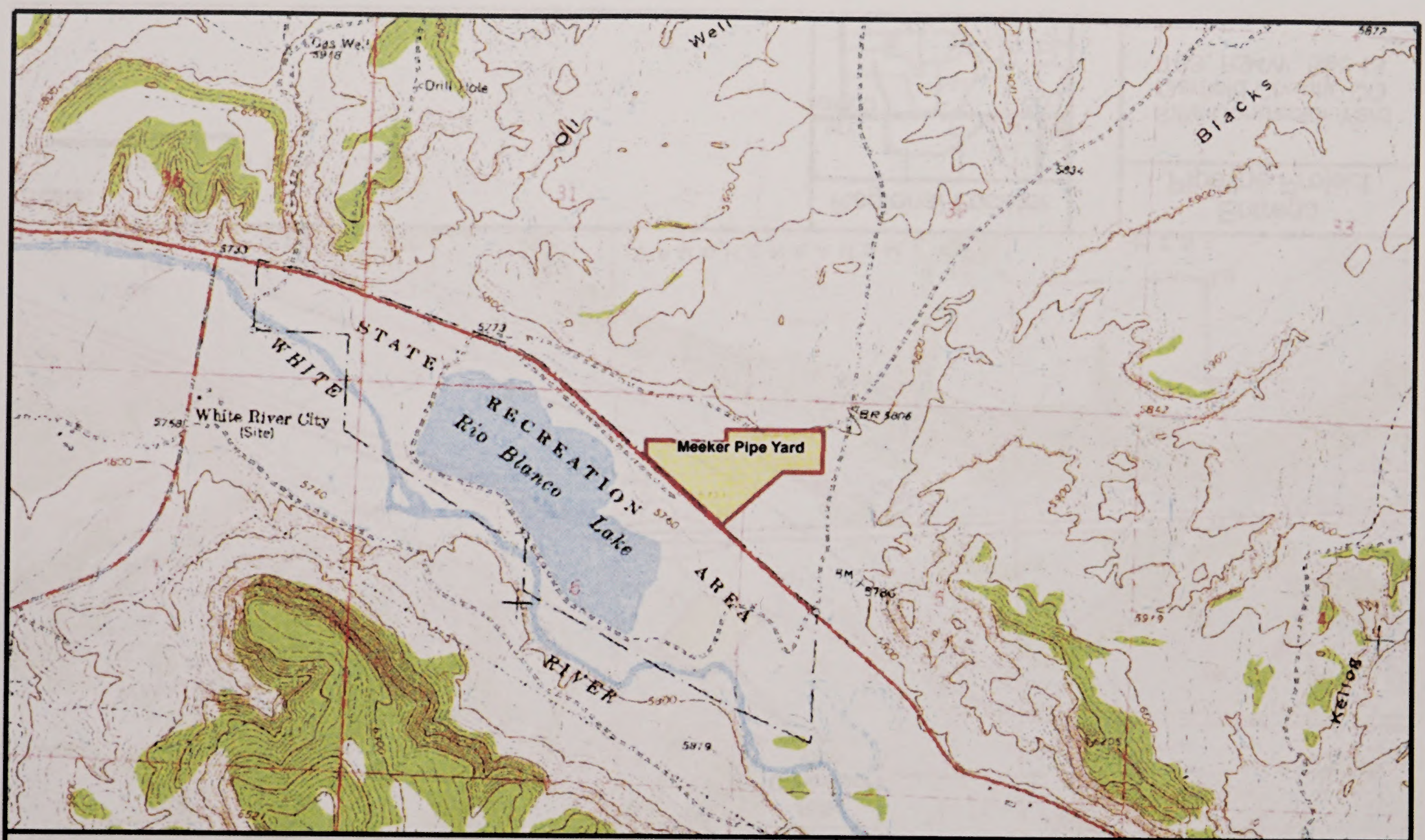


Entrega
Pipeline Project

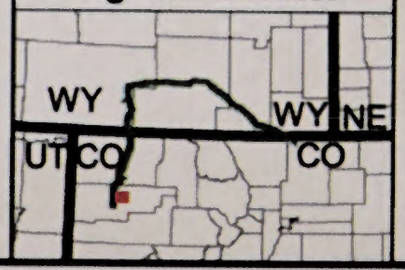
Rifle Contractor Yard
Garfield County, CO
T6S, R94W, Sec 13



Scale:

0 500 1,000 2,000 3,000 Feet

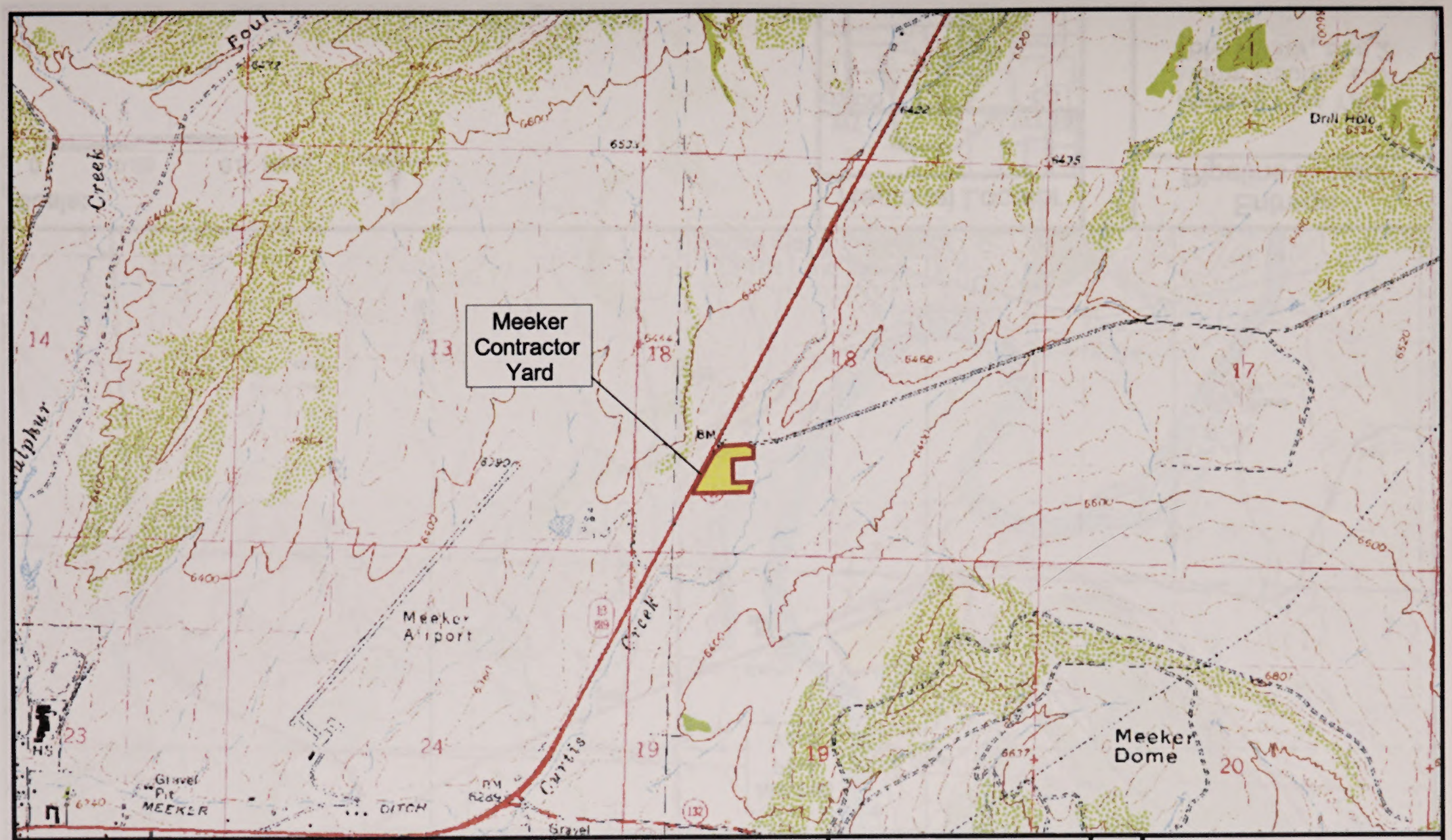
Regional Locator



Entrega Pipeline Project

Meeker Pipe Yard
Rio Blanco County, Colorado
T20N, R102W, Sec 27, 28

D-2



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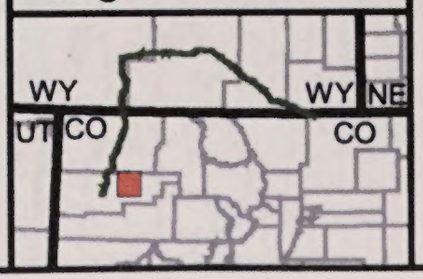
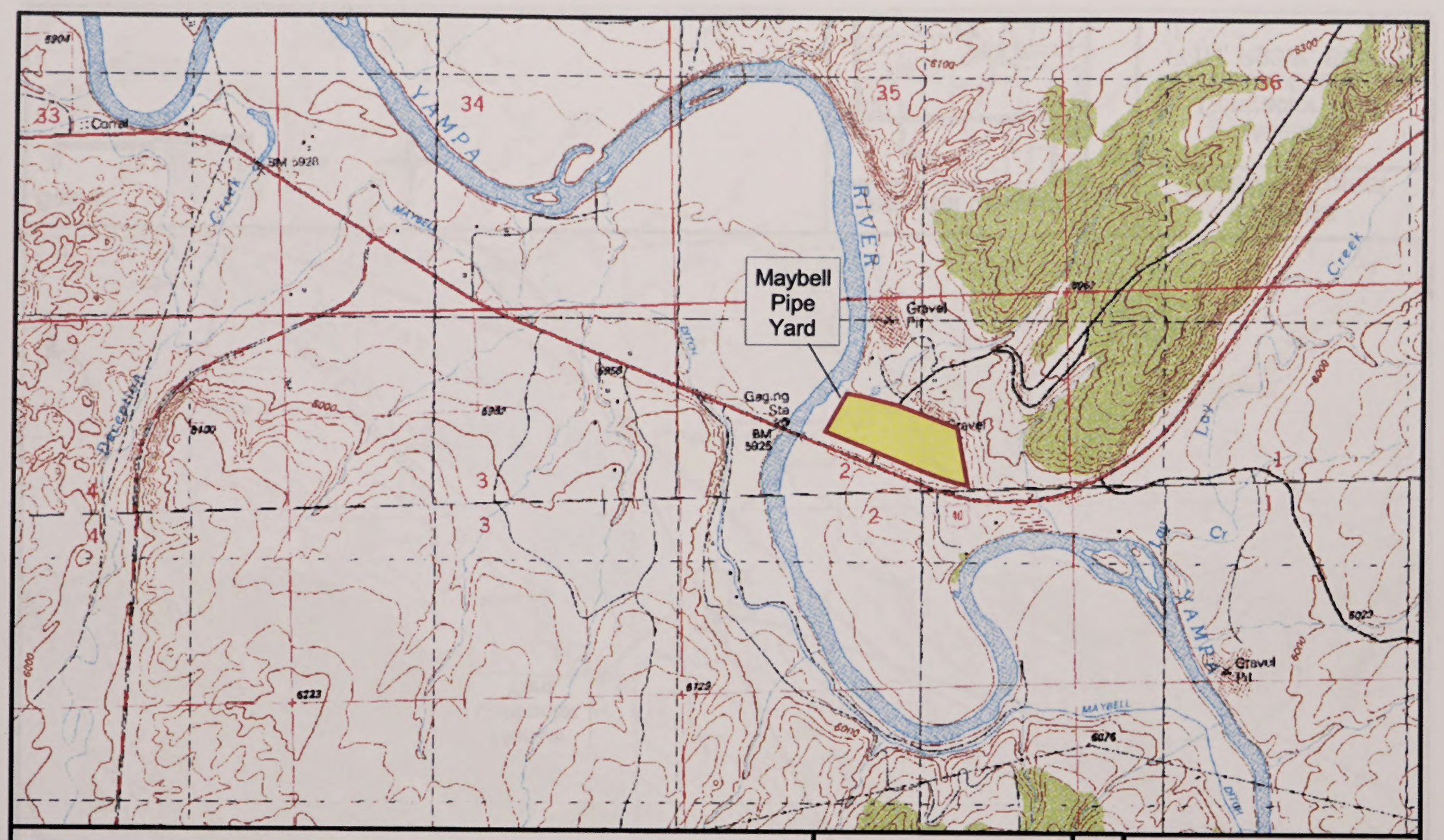


Entrega Pipeline Project

Meeker
Contractor Yard
Rio Blanco County, CO
T1N, R93W, Sec 18



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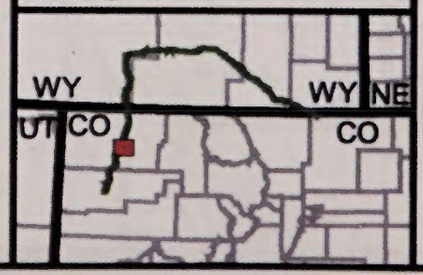

Entrega Pipeline Project

Maybell Pipe Yard
Moffat County, CO
T6N, R95W, Sec 2

Scale:

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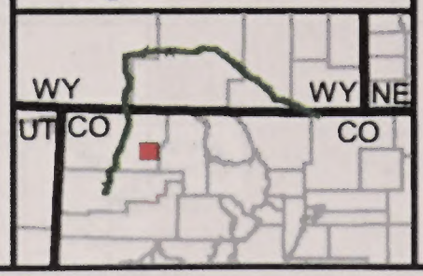
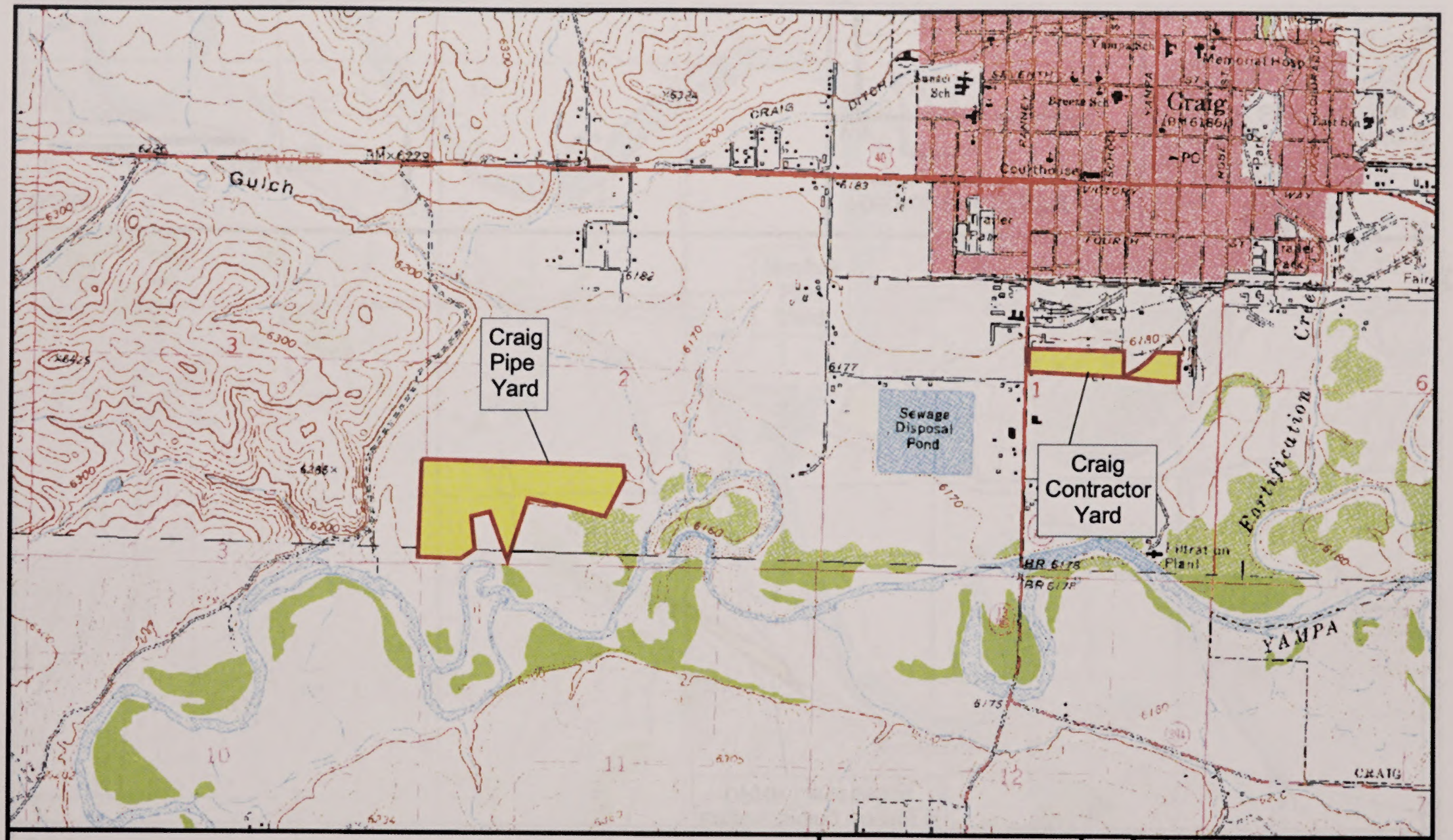


Entrega
Pipeline Project

Empire Siding Private &
UPRR Siding Lease
Moffat County, CO
T6N, R91W,
Sec 29 and 30



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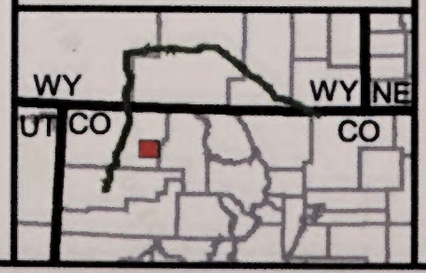
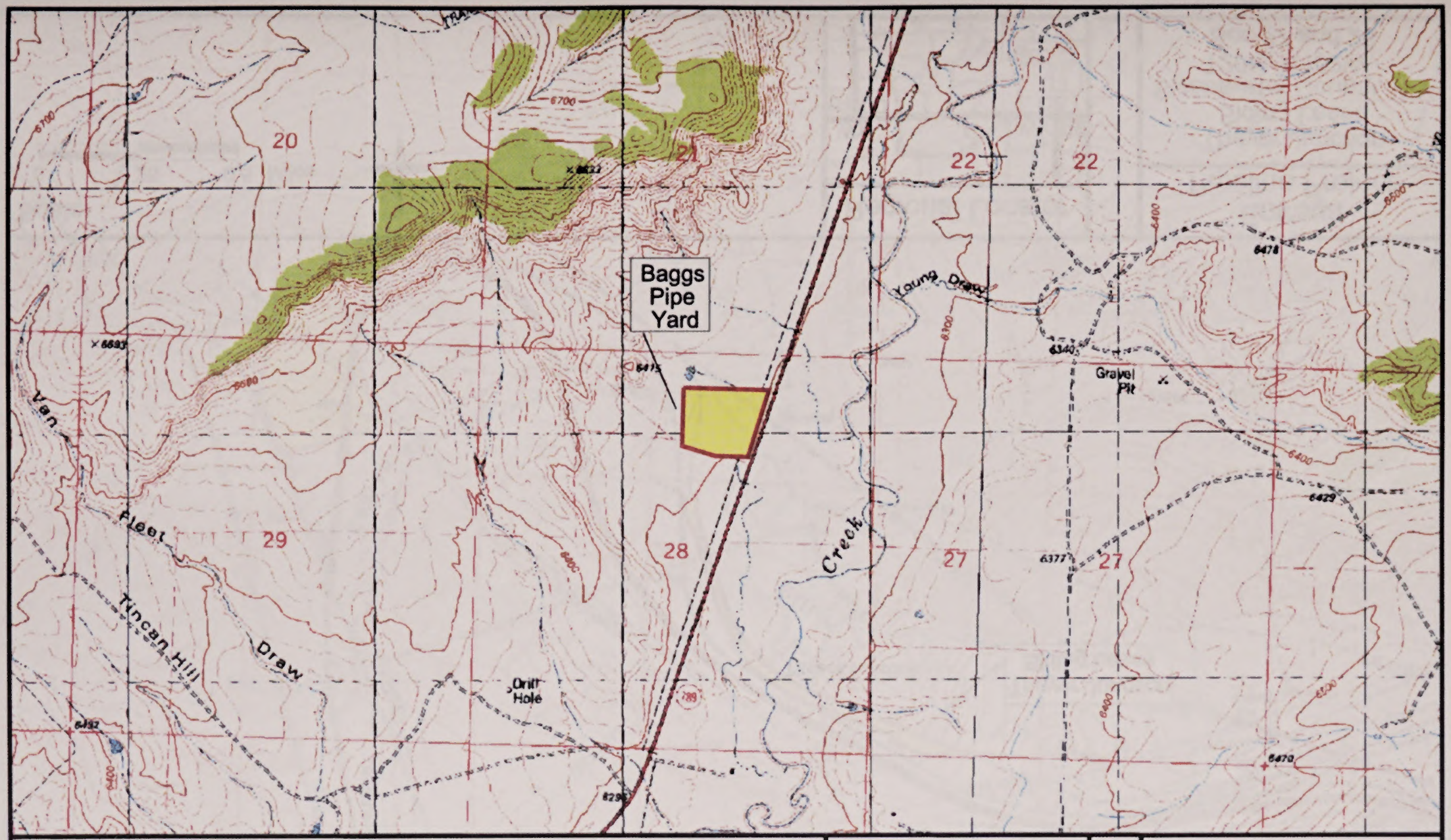


Entrega Pipeline Project

Craig Contractor and Pipe Yards
Moffat County, CO
T6N, R91W, Sec 1 and 2



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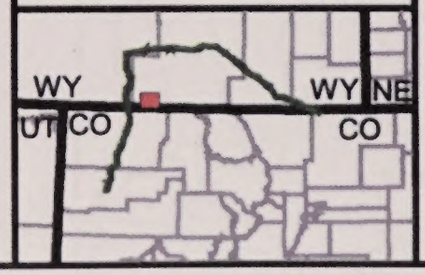
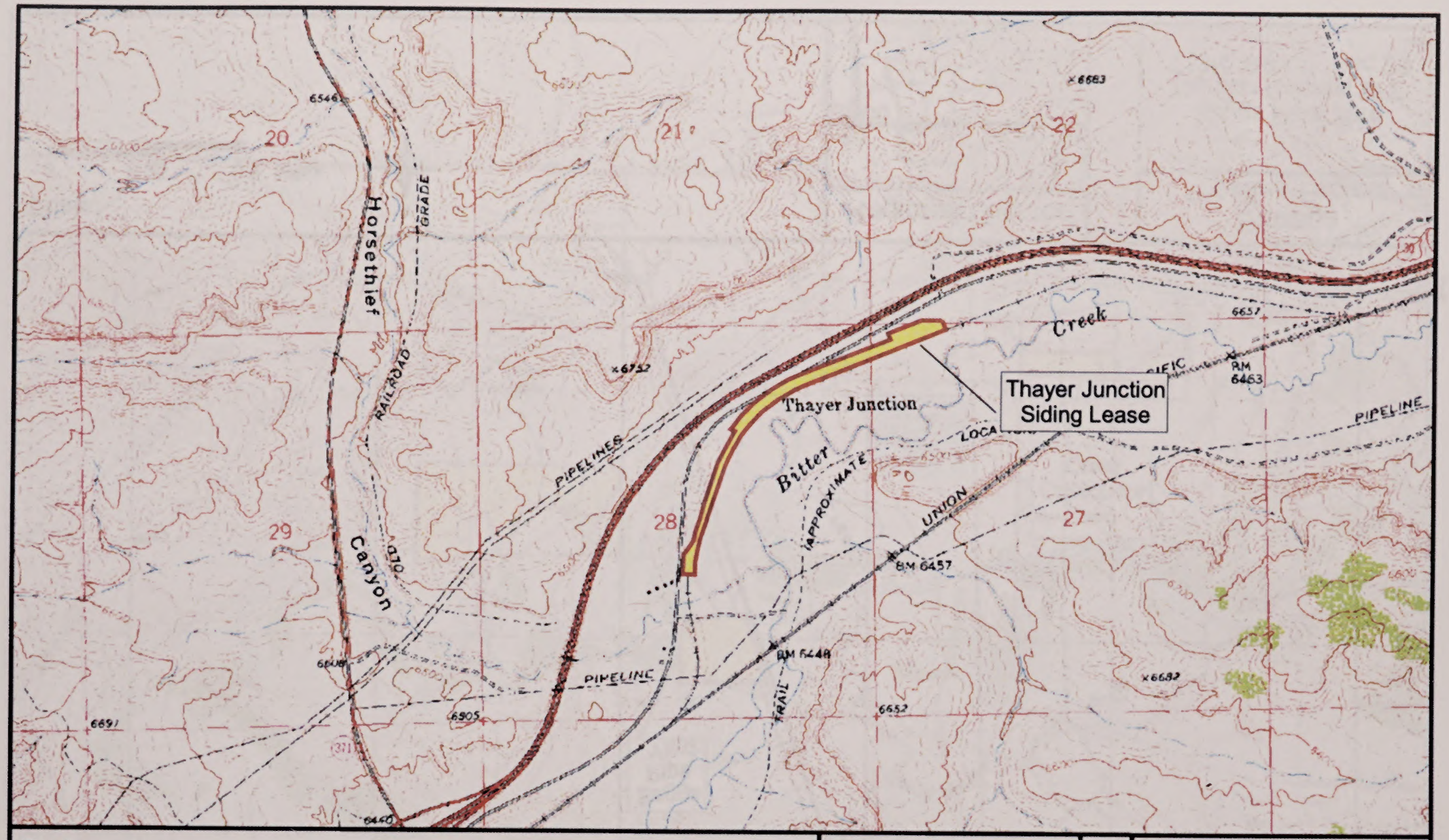


Entrega Pipeline Project

Baggs Pipe Yard
Carbon County, WY
T13N, R91W, Sec 28



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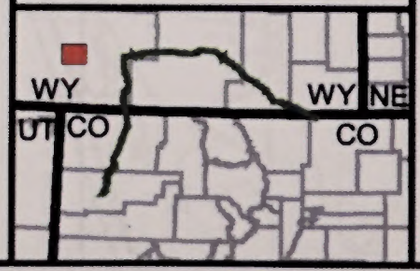
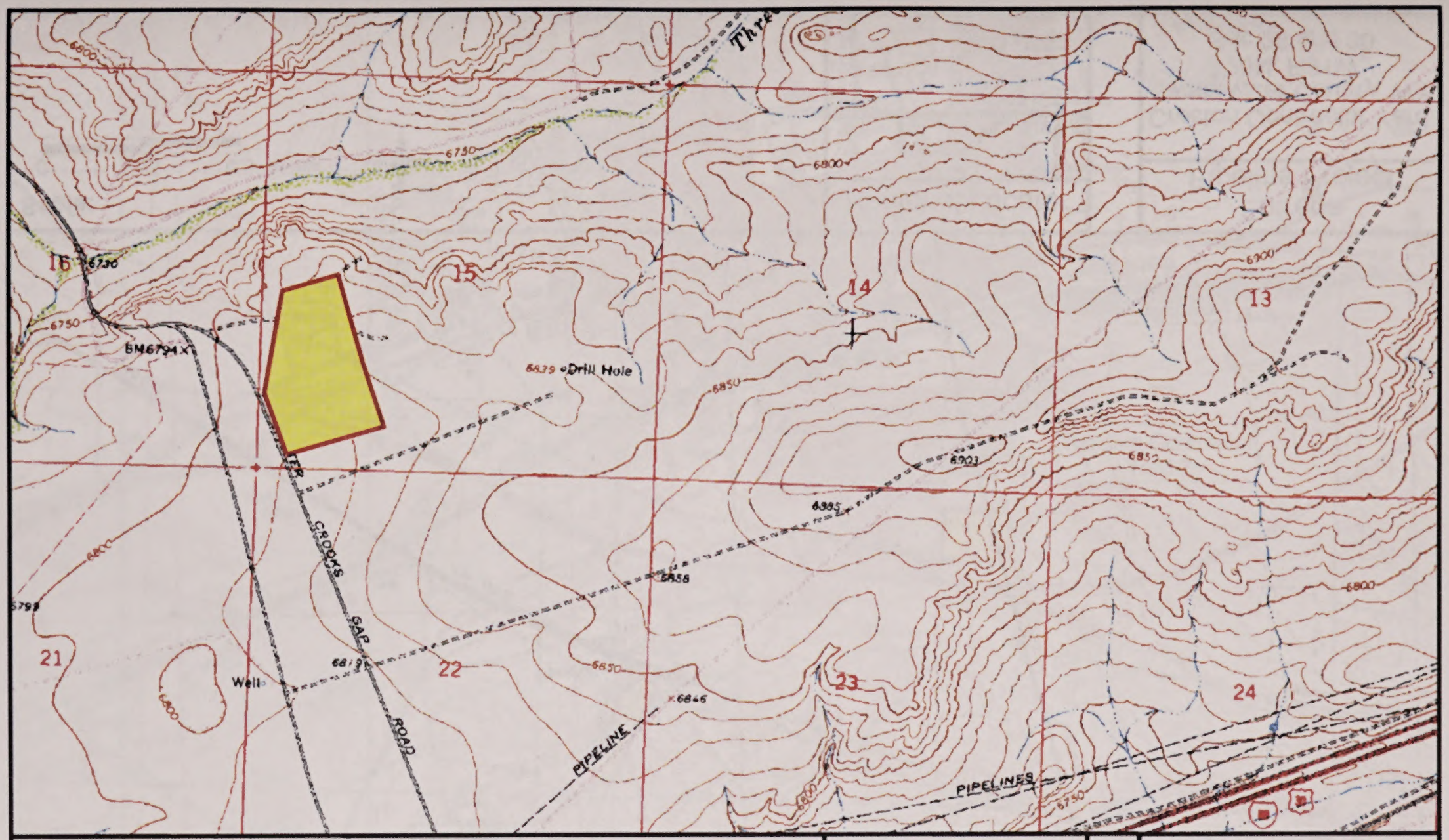


Entrega Pipeline Project

Thayer Junction
Siding Lease
Sweetwater County, WY
T20N, R102W,
Sec 27 and 28



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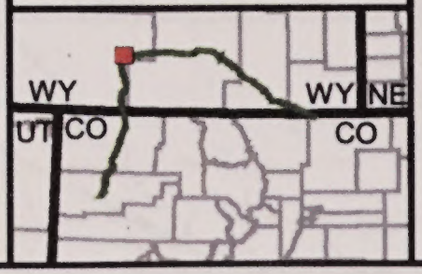
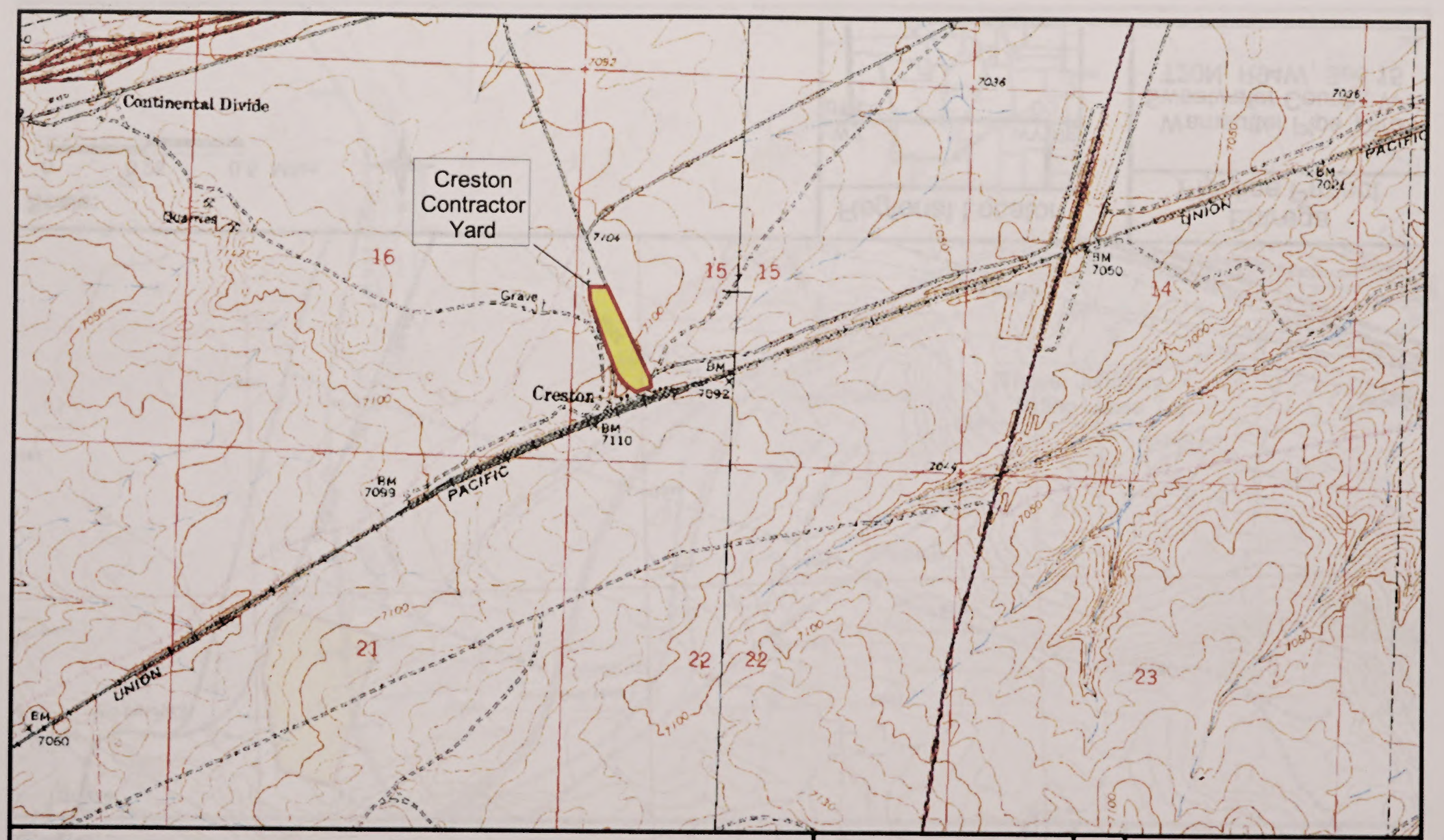


Entrega Pipeline Project

Wamsutter Pipe Yard
Sweetwater County, WY
T20N, R94W, Sec 15



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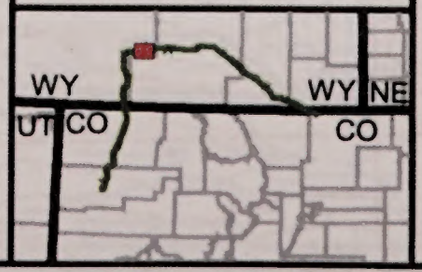
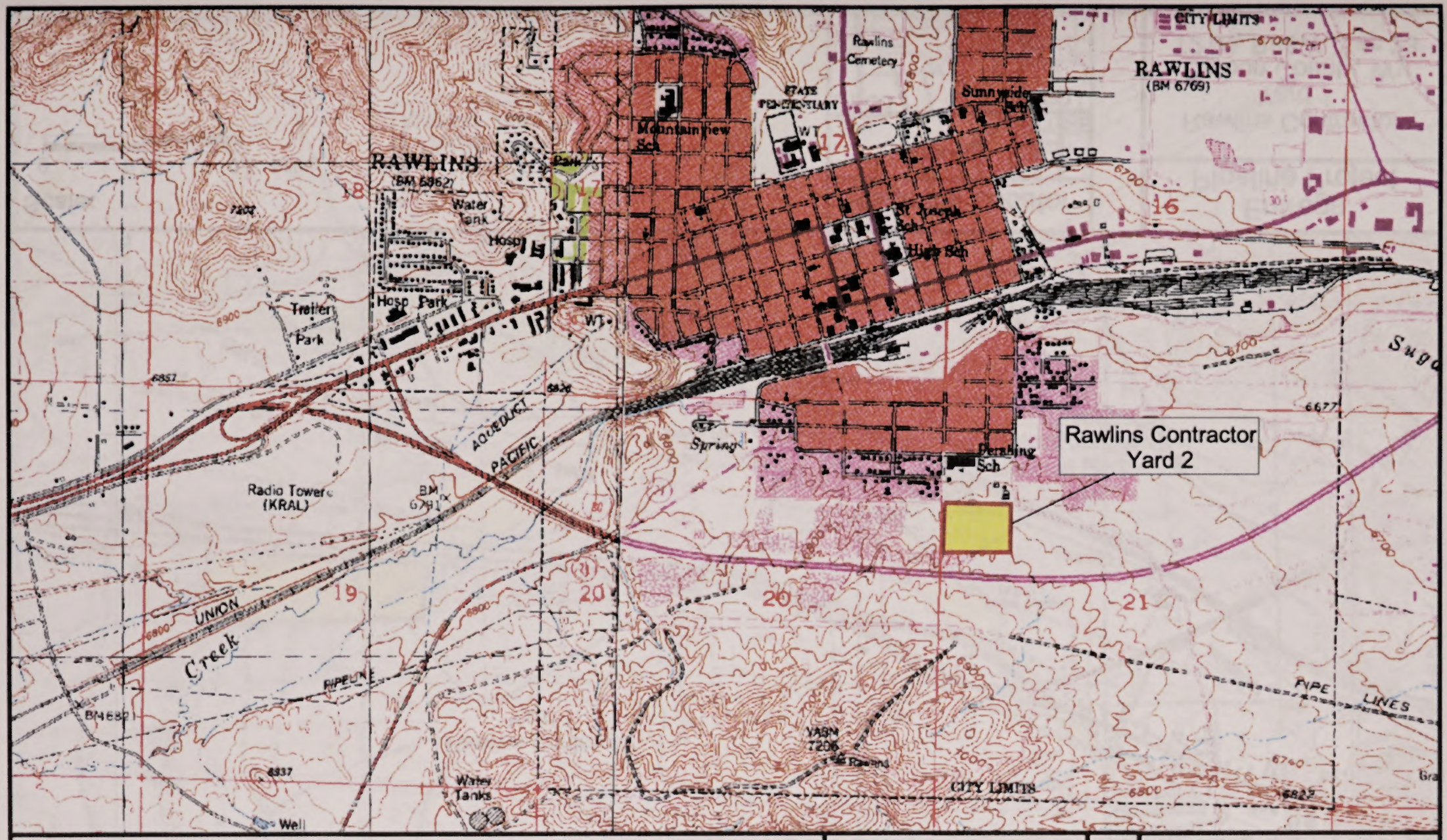


Entrega Pipeline Project

Creston Contractor Yard
Sweetwater County, WY
T20N, R91W,
Sec 29 and 30



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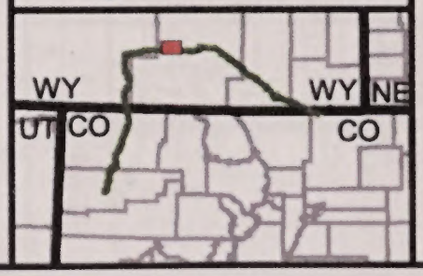
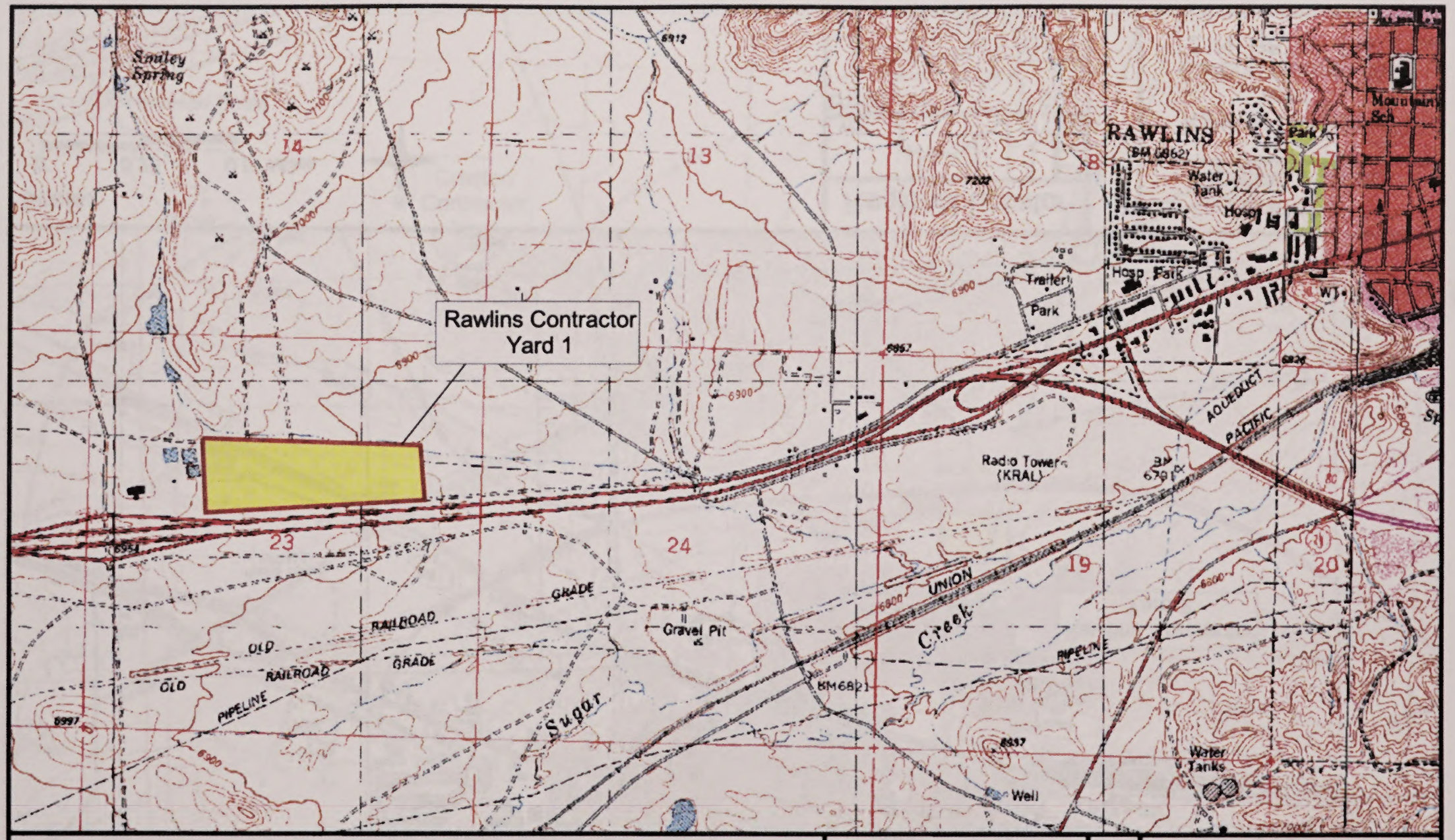


Entrega Pipeline Project

Rawlins Contractor
Yard 2
Carbon County, WY
T21N, R87W, Sec 21



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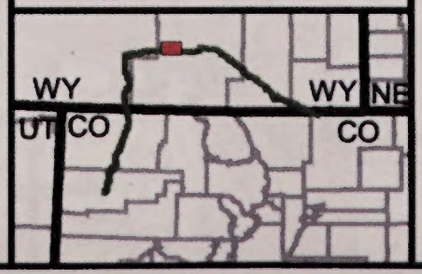
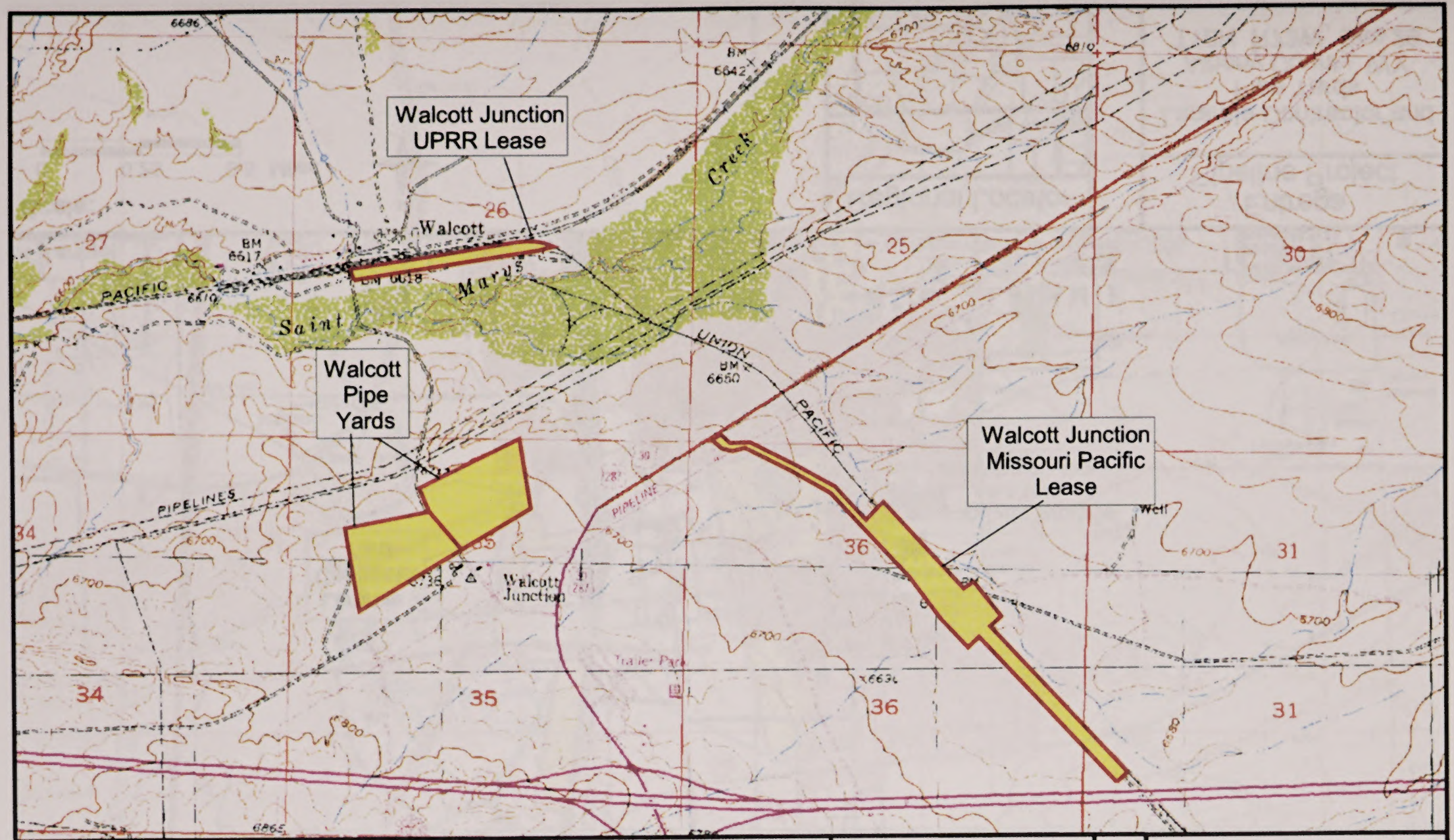


Entrega Pipeline Project

Rawlins Contractor
Yard 1
Carbon County, Wy
T21N, R88W, Sec 23



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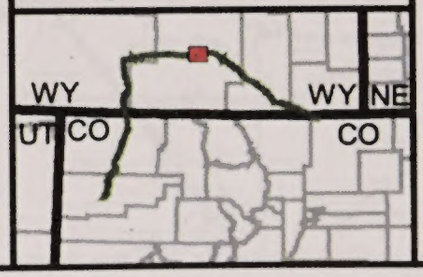
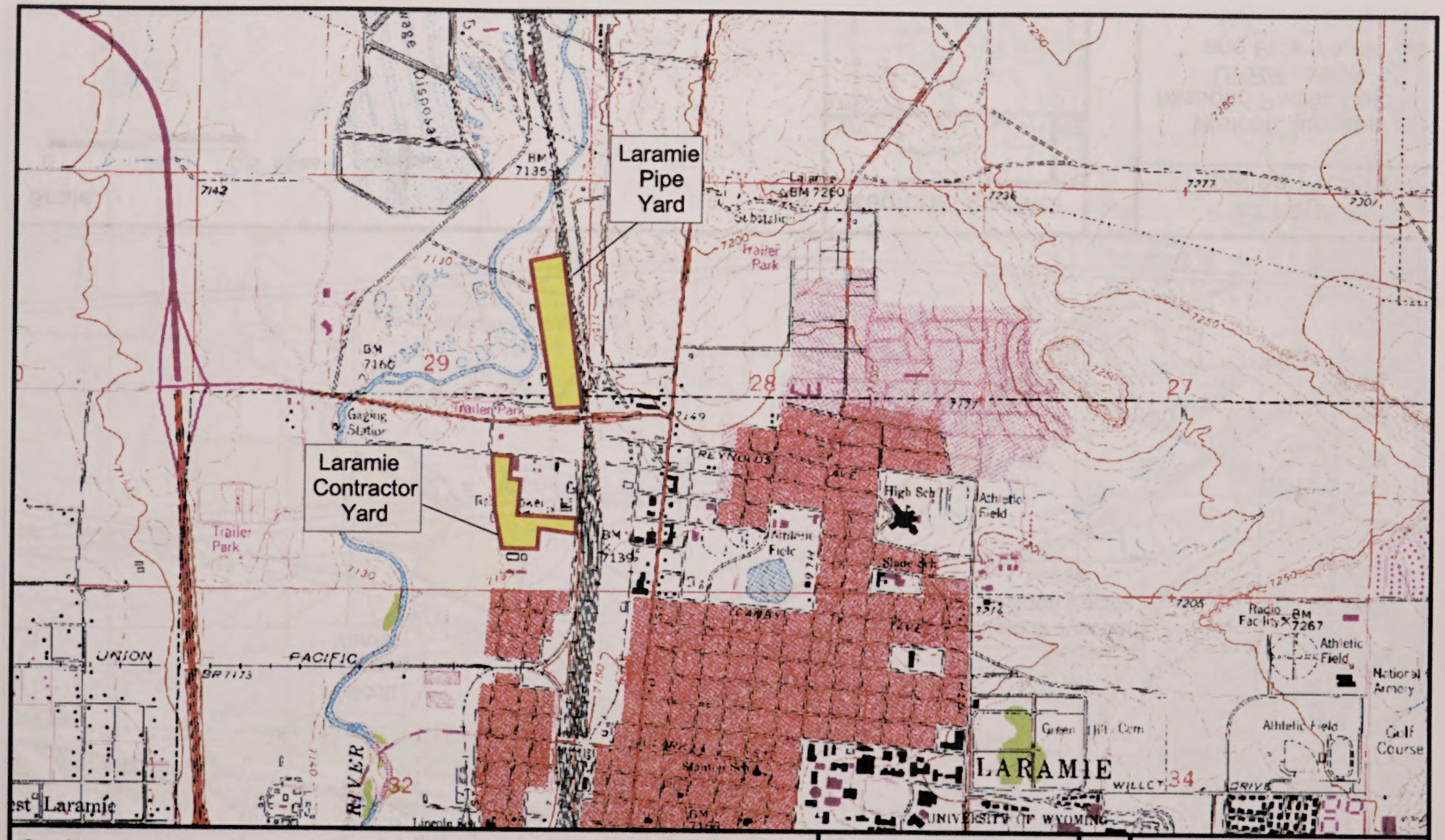


Entrega Pipeline Project

Walcott Junction Missouri Pacific Lease, UPRR Lease, and Pipe Yards



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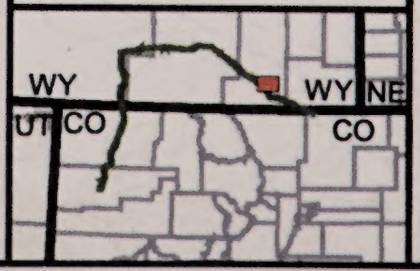
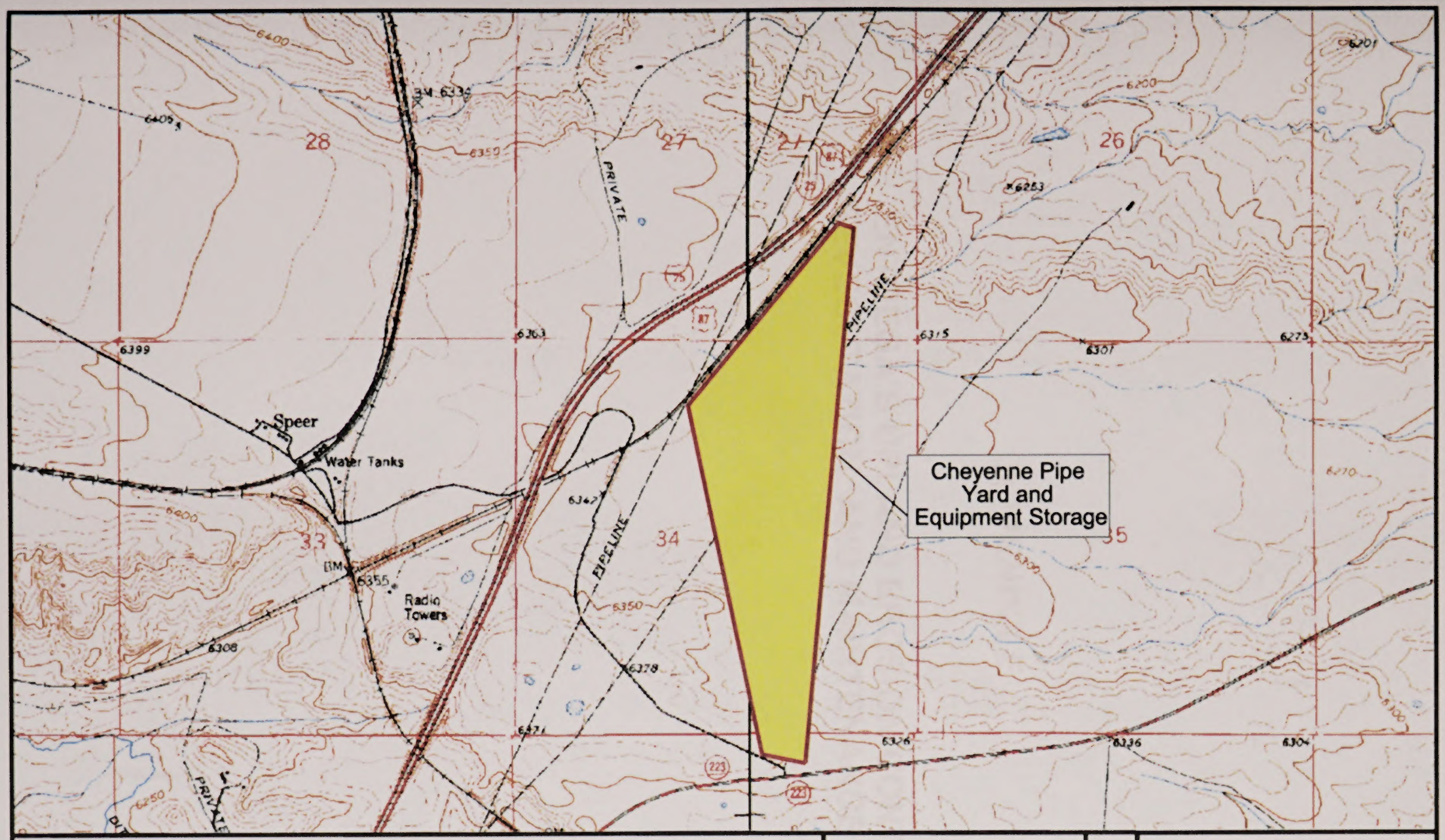


Entrega Pipeline Project

Laramie Contractor and Pipe Yards
Albany County, WY
T16N, R73W, Sec 29



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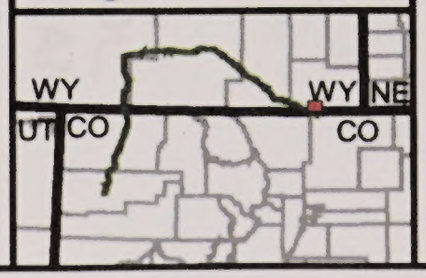

Entrega Pipeline Project

Cheyenne Pipeyard and Storage Equpment
Laramie County, WY
T14N, R67W,
Sec 27 and 34

APPENDIX E

ENTREGA'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

ENTREGA'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

May 2005

ENTREGA'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

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ENTREGA'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN (PLAN)

I. APPLICABILITY

A. The intent of this Plan is to assist Entrega Gas Pipeline Inc. (Entrega) by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. Entrega will specify in its applications for a FERC Certificate (Certificate) any individual measures in this Plan it considers unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Entrega will also explain how those alternative measures would achieve a comparable level of mitigation.

Once the Entrega Gas Pipeline project is certificated, changes to this Plan may be approved. Any such changes from the measures in this Plan may be approved by the Director of the Office of Energy Projects (Director), upon Entrega's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in this Plan to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on wetland and waterbody systems are addressed in Entrega's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the Certificate, state and Federal environmental permit conditions, or landowner requirements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Ensuring compliance with the requirements of this Plan, the Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements;

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the location of dewatering structures and slope breakers will not direct water into known cultural resources sites or locations of sensitive species;

7. Verifying that trench dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Determining the need for and ensuring that erosion controls are properly installed, as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. on a weekly basis in areas with no construction or equipment operation; and

    c. within 24 hours of each 0.5 inch of rainfall;

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;

15. Keeping records of compliance with the environmental conditions of the FERC certificate, and the mitigation measures proposed by Entrega in the application submitted to the FERC, and other Federal or state environmental permits during active construction and restoration; and

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

III. PRECONSTRUCTION PLANNING

Entrega shall do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (*e.g.*, construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads, etc.) that would be needed for safe construction. Entrega must ensure that appropriate cultural resources and biological surveys have been conducted.

2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of certificated work areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through draintiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one should be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material should be included in the reports:

a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;

b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and

c. a statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the Certificated construction right-of-way width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from the ditch line only on lands managed by the BLM and Colorado and Wyoming state lands and on private lands where the landowner has not made a specific request regarding topsoil handling (refer to Entrega's POD, Section 2, 2.1.1).

2. In residential areas importation of topsoil is an acceptable alternative to topsoil segregation.

3. In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil, strip 6 inches of surface soil and treat as topsoil, unless directed by the EI.

Determine methods and locations for the disposal of construction debris (*e.g.*, timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

F. AGENCY COORDINATION

Entrega must coordinate with the appropriate local, state, and Federal agencies as outlined in this Plan and in the Certificate.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

G. STORMWATER POLLUTION PREVENTION PLAN

Make available on each construction spread the Stormwater Pollution Prevention Plan prepared for compliance with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements.

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the Certificate. Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with the Plan and Procedures (*e.g.*, slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the Certificated areas are subject to all applicable survey and mitigation requirements.

   Special construction mitigation procedures for steep slopes and visually sensitive areas will be implemented as outlined in Entrega's Plan of Development, Section 2, parts 2.2 and 2.4, respectively.

2. The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this

4. Where topsoil segregation is required, maintain separation of salvaged topsoil and subsoil throughout all construction activities. Separation of topsoil may be maintained by a physical barrier, such as weed-free straw or hay, in areas where restricted right-of-way exists.

5. Segregated topsoil may not be used for padding the pipe.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential or active agricultural areas, place the stone on synthetic fabric to facilitate removal.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland and road crossings at the following spacing (closer spacing should be used if necessary):

Slope (%)	Spacing (feet)
5 - 15	300
>15 – 30	200
>30	100

c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

2. Sediment Barriers

a. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (*e.g.*, driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetlands or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

3. Mulch

a. Apply mulch on dry, sandy sites and slopes exceeding 5 percent (except in actively cultivated cropland and in areas where surface rock greater than 4 inches in diameter exceeds at least 20 percent surface coverage after rough grading), unless otherwise stated by the landowner or land-managing agency, concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 1.5 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch <u>before</u> seeding if:

(1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching <u>before</u> seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 1.5 tons/acre of straw or equivalent. The application rate may be increased at the discretion of the EI.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

h. Install erosion control fabric on waterbody banks at the time of final bank recontouring. Anchor the erosion control fabric with staples or other appropriate devices.

V. <u>RESTORATION</u>

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup.

   Entrega should file with the Secretary for the review and written approval of the Director, a winterization plan if construction will continue into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained (as specified in sections II.B.12 through 14). When access is no longer required, the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be stockpiled in areas along existing roads to prevent public use of the right-of-way, or shall be disposed of at an approved off-site facility unless approved for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as upslope of permanent slope breakers.

c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, sand bags, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
2-5	300
5-15	200
15-25	100
>25	EI Recommendation

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

a. Entrega is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.l.b.

b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application.

3. Seeding Requirements

a. Prepare a seedbed in compacted areas to a depth of 6 to 12 inches and in non-compacted, upland areas to a depth of 2 to 6 inches, both using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or as requested by the landowner or land management agency. Seeding is not required in actively cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F. and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils during the fall prior to prolonged ground frost, final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c. In areas where sage brush is present in the see mix,

sage species shall be spread separately during a second reseeding pass in late fall or early winter (even if snow cover is present).

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or imprinter after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (*e.g.*, use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

A. Signs;

B. Fences with locking gates;

C. Slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

D. Conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas for five years (in July, first, third, and fifth growing seasons) to determine the success of revegetation and erosion control success.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless requested otherwise by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in an herbaceous state. In no case shall routine vegetation maintenance clearing occur between April 15 and August 1 of any year.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

B. REPORTING

1. Entrega shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions; and

   e. any problem areas and how they were addressed.

2. Entrega shall file with the Secretary quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

APPENDIX F

ENTREGA'S WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

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May 2005

ENTREGA'S WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

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ENTREGA'S WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES (PROCEDURES)

I. APPLICABILITY

A. The intent of these Procedures is to assist Entrega Gas Pipeline Inc. (Entrega) by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies. Entrega will specify in its applications for a FERC Certificate (Certificate) any individual measures in these Procedures it considers unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Entrega will also explain how those alternative measures would achieve a comparable level of mitigation.

Once the Entrega Gas Pipeline project is certificated, further changes may be approved. Any such changes from the measures in these Procedures may be approved by the Director of the Office of Energy Projects (Director), upon Entrega's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of these Procedures is infeasible or unworkable based on project specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in these Procedures to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on non-wetland areas are addressed in Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

A. The following information shall be filed with the Secretary prior to the beginning of construction:

1. the hydrostatic testing information specified in section VII.B.3. and a wetland delineation report as described in section VI.A.1., if applicable; and

2. a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. Entrega shall revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

B. The following site-specific construction plans required by these Procedures must be filed with the Secretary for the review and written approval by the Director:

1. plans for extra work areas that would be closer than 50 feet from a waterbody or wetland;
2. plans for major waterbody crossings;

3. plans for the use of a construction right-of-way greater than 75 feet wide in wetlands; and

4. plans for horizontal directional drill (HDD) "crossings" of wetlands or waterbodies.

III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

IV. PRECONSTRUCTION PLANNING

A. A copy of the Stormwater Pollution Prevention Plan (SWPPP) prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements must be available in the field on each construction spread.

The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and Federal agencies.

1. It shall be the responsibility of Entrega and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. Entrega and its contractors must, at a minimum, ensure that:

   a. all employees handling fuels and other hazardous materials are properly trained;

   b. all equipment is in good operating order and inspected on a regular basis;

   c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

   d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and Entrega and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

   e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 500 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and

   f. concrete coating activities are not performed within l00 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.

2. Entrega and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, Entrega and its contractors must:

   a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;

   b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

   c. know the contact names and telephone numbers for all local, state, and Federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

   d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

Entrega must coordinate with the appropriate local, state, and Federal agencies as outlined in these Procedures and in the Certificate.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

B. INSTALLATION

1. Time Window for Construction

Unless expressly permitted or further restricted by the appropriate state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

   a. coldwater fisheries - June 1 through September 30; and

   b. coolwater and warmwater fisheries - June 1 through November 30.

2. Extra Work Areas

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the

adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

b. Entrega shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from the water's edge, (except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

c. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.

d. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the COE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

g. Special construction mitigation procedures for waterbody and wetland crossings will be implemented as outlined in Entrega's Plan of Development, Section 2, 2.3.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.

b. Use sediment barriers to prevent the flow of spoil or heavily silt-laden water into any waterbody.

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s);
(2) equipment pads or railroad car bridges without culverts;
(3) clean rock fill and culvert(s); and
(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove equipment bridges as soon as possible after permanent seeding unless the COE, or its delegated agency, authorizes it as a permanent bridge.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove equipment bridges as soon as possible after final cleanup.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries except for those waterbodies that are identified at the time of construction as dry washes, which will be crossed using standard upland construction methods as outlined in Entrega's Plan.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (*e.g.*, sandbags or clean gravel with plastic liner);
(iii) screen pump intakes;
(iv) prevent streambed scour at pump discharge; and
(v) monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and
(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill (HDD)

To the extent they were not provided as part of the pre-certification process, for each waterbody or wetland that would be crossed using the HDD method, provide a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(3) a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification (*e.g.*, agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

Before construction, Entrega shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and

scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan should be developed in consultation with the appropriate state and Federal agencies and should include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. In the travel lane, these may consist of removable sediment barriers or driveable berms. Removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and

c. use trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt laden water flowing into any waterbody. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain Coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

5. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

6. Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.

7. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

8. Sections V.C.3. through V.C.6. above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

VI. WETLAND CROSSINGS

A. GENERAL

1. Entrega shall conduct a wetland delineation using the current Federal methodology and file a wetland delineation report with the Secretary before construction. This report shall identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process Entrega is encouraged to identify site-specific areas where existing soils lack adequate unconfined compressive strength that would result in excessively wide ditches and/or difficult to contain spoil piles.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V. and VI. in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V. and VI. cannot be met, Entrega must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

   e. method of crossing; and

   f. size and location of all extra work areas.

6. Do not locate aboveground facilities in any wetlands except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

   b. Entrega shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

   c. Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.

   d. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (*e.g.*, with timber riprap, prefabricated equipment mats, or terra mats).

      In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

   e. The only access roads, other than the construction right-of-way, that can be used in wetlands without Director approval, are those existing roads that can be used with no modification and no impact on the wetlands

2. Crossing Procedures

a. Comply with COE, or its delegated agency, permit terms and conditions

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just aboveground level, leaving existing root systems in place, and remove it from the wetland for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetlands tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Do not cut trees outside of the approved construction work area to obtain timber for riprap or equipment mats.

l. Attempt to use no more than two layers of timber riprap to support equipment on the construction right-of-way.

m. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the wetland or adjacent upland. sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c., maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetlands

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetlands install sediment barriers along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetlands

c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt laden water flowing into any wetlands Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or state agency.

4. Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include

measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (*e.g.*, purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

5. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

6. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

7. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.5. of the Plan.

D. POST-CONSTRUCTION MAINTENANCE

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in an herbaceous state. In addition, trees within 15 feet of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a wetlands except as allowed by the appropriate land management agency or state agency.

3. Monitor and record the success of wetland revegetation annually for the first 3 years after construction or until wetland revegetation is successful. At the end of 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts. Include the percent cover achieved and problem areas (weed invasion issues, poor revegetation, etc.). Continue to file a report annually until wetland revegetation is successful.

4. Wetland revegetation shall be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. if revegetation is not successful at the end of 3 years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetlands Continue revegetation efforts until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetlands address the operation and refueling of these pumps in the project's Spill Prevention and Response Procedures.

3. Entrega shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to prevent entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodics which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and local permitting agencies grant written permission.

APPENDIX G

ENTREGA'S CONSTRUCTION, MITIGATION, AND RECLAMATION PLAN

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). SECTIONS OF (OR ATTACHMENTS TO) THE POD REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

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SECTION 2 CONSTRUCTION MITIGATION AND RECLAMATION PLAN

1.0 Plan Objectives

The purpose of this Construction Mitigation and Reclamation (CM&R) Plan is to identify the construction mitigation and reclamation measures that Entrega will utilize to minimize impacts on environmental resources and promote successful reclamation of those resources affected by the Entrega Gas Pipeline Project.

Entrega will utilize mitigation measures that support:

- stabilization of disturbed sites by reducing runoff and erosion;
- reestablishment of vegetation to preconstruction conditions;
- reestablishment of visual resources to meet visual management objectives of the BLM;
- reduction of visual contrast and enhancement of aesthetics values;
- restoration of the functional qualities of the area, including wildlife habitat and livestock forage;
- prevention of surface water and wetland degradation; and,
- protection of off right-of-way areas.

To achieve these objectives, Entrega will use general and site specific construction mitigation measures, which include:

- installation and maintenance of temporary and permanent erosion and sediment control devices;
- preservation and replacement of native topsoil and seed sources, restoration of soil horizons and reestablishment of original surface conditions to enhance the development of a stable vegetative community, and reclamation of the project area with perennial native grasses, forbs, and shrub species;
- utilization of site specific plans for certain visually sensitive areas;
- implementation of a Conservation Measure Plan to avoid or minimize impacts on sensitive species and habitat;
- use of temporary and permanent treatments to stabilize streambed and banks, riparian and wetland vegetation, minimize sediment discharge into waterbodies, and prevent pipeline exposure from streambed scour; and
- rehabilitation of stream beds and banks and riparian areas, and reestablishment of original drainage conditions.

To maximize reclamation potential, Entrega will implement general and site specific restoration measures, including:

- preservation of topsoil, native seed sources, and root stock;
- limiting the amount of time between final grading and reseeding;
- preparation of an adequate seedbed, including decompaction;
- use of seed mixtures compatible to the native vegetative community and soil conditions;
- careful monitoring of the seeding rate;
- mulching high erosion potential areas;
- installation of diversion berms to reduce the runoff volume produced on sloping areas and minimizing the runoff energy to detach soil particles;
- slope reduction to reduce the erosion hazard; and,

- prevention of off road use on the right-of-way by constructing barriers at appropriate locations.

When the POD is silent on a particular mitigation measure during construction, Entrega's supplemental plans (identified below) will apply. If there is an inconsistency between the POD and Entrega's supplemental plans, the POD will apply with respect to BLM-owned lands and Entrega's supplemental plans as published and revised under the FEIS will apply with respect to non-BLM lands. Entrega's supplemental plans include, but are not limited to:

- Upland Erosion Control, Revegetation, and Maintenance Plan
- Wetland and Waterbody Construction and Mitigation Procedures
- Weed Management Plan
- Spill Prevention, Control, and Countermeasure (SPCC) Plan
- Typical Incised Bank Stabilization Restoration Plan
- Revegetation Plan for Riparian Woodland Communities (Riparian Woodland Plan)
- Emergency Response Plan (ERP)
- Flood Irrigation Restoration Plan
- Site-Specific Waterbody Crossing Plans

2.0 Environmental Construction Mitigation and Reclamation Measures

Entrega will implement general construction mitigation and reclamation measures during project activities to reduce or avoid impacts on environmental resources. Additionally, Entrega will use special construction and reclamation methods, including site-specific plans, to further minimize impacts on sensitive environmental resources.

2.1 General Construction Mitigation and Reclamation Measures

Section 1 of this document describes standard pipeline and aboveground facility construction procedures. General construction mitigation and reclamation measures that will be utilized during the project are discussed below.

2.1.1 Topsoil Segregation

Topsoil/upper surface material will be removed and stored separately from subsoils, prior to trench excavation. Typically, topsoil will be stripped and segregated from the ditch line only, and stored on the non-working side (see figure 1). In some instances, topsoil will be stored on the working side of the ROW underneath sections of strung pipe next to the open trench (see figure 2).

In areas where there is a need to separate topsoil from subsoil, topsoil will be graded and stored in accordance with figures 1 & 2, prior to trenching. The approximate width of topsoil/upper surface material stripping could be as large as 14 to 16 feet which is the width required to accommodate a standard wheel trencher. This width may decrease if the pipe trench is not excavated by a trencher. The soils from the trench excavation will be segregated from the topsoil/upper surface in separate locations, which allows for proper placement of the topsoil horizon during the backfilling process. Gaps will be left between the spoil piles to prevent stormwater runoff from backing up or flooding.

Where cutting and filling are required, topsoil will be segregated from the graded area only if topsoil is present. In general, six inches of topsoil/upper surface material will be stripped and treated as topsoil on federal land, as directed by the BLM. Topsoil will be returned to its original horizon after subsoil is backfilled in the trench.

The BLM Monitor or EI may require Entrega to remove topsoil from the full width of the ROW if excessive rutting or pulverizing of topsoil occurs in travel lanes along the construction ROW and alternate measures (i.e. wetting pulverized soils) are unsuccessful. This stipulation will apply only in areas where rutting exceeds four (4) inches or the mixing of topsoil with subsoil is visually apparent to the inspectors.

Where cutting and filling are required, topsoil will be segregated from the graded area only if topsoil is present. In general, six inches of "surface soil" will be stripped and treated as topsoil on federal land, as directed by the BLM. Topsoil will be returned to its original horizon after subsoil is backfilled in the trench.

The EI may require Entrega to remove topsoil from the full width of the right-of-way if excessive rutting or pulverizing of topsoil occurs in travel lanes along the construction right-of-way. This stipulation will apply only in areas where rutting exceeds 4 inches or the mixing of topsoil with subsoil is visually apparent to the inspectors.

Topsoil will not be stored in drainage channels, used as pipe padding material, or used as the base for permanent diversion berms. Silt fence will be installed around topsoil piles as necessary to prevent the discharge of sediment into surface waters. Mixing of surface rock with topsoil will occur only in areas where surface rock exists, in these areas the rock will be spread across on the right-of-way during reclamation.

On private land, Entrega will comply with the landowner's topsoil segregation requirements; otherwise, Entrega will strip and segregate topsoil in the same manner described above.

2.1.2 Rock Removal and Replacement

Surface Rock

Where present and useful for reclamation, surface rock will be removed from the trench and stockpiled along the edge of the work areas. After construction, rock will be spread across the right-of-way. Salvaged surface rock will be placed to blend with off right-of-way areas during restoration in nonagricultural areas to conceal the corridor from adjacent undisturbed areas and to act as a mulch to minimize erosion. If spreading rock over the right-of-way will prevent the safe operation and maintenance of the pipeline, it will be removed and properly disposed. Rock may be stockpiled on the right-of-way edge near existing roads to prevent public use, at the discretion of the EI or BLM Monitor.

Bedrock

Bedrock excavated on BLM land will be backfilled to the top of the bedrock profile. Large rock not suitable as backfill material and excess rock will be stored at the edge of the right-of-way during construction. This rock will be scattered across the construction right-of-way, or transported off the right-of-way and disposed of at an approved facility.

2.1.3 Trench Dewatering

Where trench dewatering is required for lowering the pipeline, padding, tie-in welds, or other construction activities, trench water will be pumped at a controlled rate onto a well-vegetated or stable upland site, or into a dewatering structure or filter bag to minimize erosion (see trench dewatering figure in appendix A-3). Water pumped or drained from the construction right-of-way will not be discharged directly into waterbodies or wetlands, or over the top of known cultural resource sites.

2.1.4 Trench Breakers

Permanent trench breakers consisting of stacked sand/cement bags, bentonite bags, or foam will be installed around the pipe in the trench to prevent subsurface channeling of water along the trench. Trench breakers will be installed on both sides of perennial waterbodies, and where needed to avoid draining wetlands and waterbodies (see appendix A-3).

Topsoil will not be used for trench breakers. Permanent trench breakers will be installed on slopes just before backfilling at intervals determined by the EI or a qualified engineer.

2.1.5 Erosion and Sediment Control

Entrega will control erosion and sedimentation using a variety of different methods as appropriate for the protection of environmental resources.

Temporary Erosion and Sediment Control

Temporary erosion and sediment control devices, including slope breakers and sediment barriers, will be installed promptly after soil disturbance and as directed by the EI (see appendix A-3). These devices will be inspected on a daily basis in areas of active construction; on a weekly basis in areas with no active construction; and within 24 hours of each 0.5-inch or greater rainfall.

Temporary slope breakers (*e.g.*, hay bales, silt fence, earthen berms) will be constructed and maintained according to the specifications and recommendations of the BLM. In the absence of these recommendations, Entrega will use the slope-dependent spacings indicated in its Plan.

Table 2.1.5-1 provides the spacing intervals of temporary berms by percent of slope. Berms will be installed with a 2 to 6 percent gradient and will provide a minimum depth of 18 inches. Typical temporary berm installation methods are illustrated on the drawings included in appendix A-3.

TABLE 2.1.5-1

Temporary Diversion Berm Spacing

Percent slope	Spacing interval
5 to 15 percent	300 feet
>15 to 30 percent	200 feet
>30 percent	100 feet

Entrega will install temporary sediment barriers such as silt fence or staked straw bales, on either side of a waterbody channel across the width of the construction right-of-way; around spoil and topsoil stockpiles to prevent sediment runoff into a waterbody; as required at the edge

of the right-of-way to contain topsoil or trench spoil and prevent flow of sediment into adjacent areas; and, at locations identified by the environmental monitors. Sediment barriers will be maintained as necessary to ensure effectiveness during construction. Entrega's EI may modify division berm spacing on a case-by-case basis.

In steep terrain, temporary sediment barriers will be installed during clearing to prevent the movement of disturbed soil off the right-of-way. Temporary slope breakers consisting of mounded and compacted soil will be installed across the right-of-way during grading. Where waterbodies or wetlands are located at the base of slopes, temporary sediment barriers will be installed where necessary until revegetation of adjacent upland areas is successful. Once revegetation is successful, sediment barriers will be removed from the right-of-way and disposed of properly.

Several areas of the project from approximately Wamsutter, Wyoming to Laramie, Wyoming can experience high, sustained winds. In an effort to preserve topsoil during construction activities, Entrega will periodically water down topsoil piles. This will create a natural crust on the soil which will facilitate keeping it in place until backfilling is scheduled to begin. If necessary, as directed by the EI, the topsoil piles will be re-watered down in order to maintain the crust. Additionally, Entrega will monitor wind erosion-prone areas for exposed pipe, deflation, or dune formation. Erosion control devices, such as snow fences, will be installed where appropriate.

Permanent Erosion and Sediment Control

Permanent slope breakers (diversion berms) will be constructed according to BLM standards and in accordance with Entrega's Plan. Permanent slope breakers will be installed across the full width of the right-of-way where needed to prevent and divert runoff from the right-of-way to adjacent stable areas. Slope breakers will be installed to drain down slope at an approximate gradient of 2 to 6 percent and will extend 3 to 4 feet into undisturbed, stable areas at the edge of the construction right-of-way. Slope breakers will provide a minimum height of 18 inches from the up-slope channel and the berm top. Topsoil will not be used to construction diversion berms and berms will be compacted after installation. If necessary, energy dissipation devices will also be installed to prevent soil runoff or sink holes.

Diversion berms will also be installed at the edges of wetland crossings and the banks of waterbodies if the approaches slope toward the waterbody or wetlands or as directed by the EI.

In rocky areas where the surface is resistant to erosion, diversion berms may be omitted or have increased spacing. The EI will identify rocky areas that do not require diversion berms.

Spacing of diversion berm will be constructed according to Table 2.1.5-2. Entrega's EI may modify permanent division berm spacing on a case-by-case basis.

TABLE 2.1.5-2

Permanent Diversion Berm Spacing

Percent slope	Spacing interval
2 to 5 percent	300 feet
5 to 15 percent	200 feet
15 to 25 percent	100 feet
>30 percent	100 feet or EI Recommendation

2.1.6 Fencing

Entrega is responsible for contacting grazing lessees prior to crossing any fence on public lands, or any fence between public and private land, and for offering the lessees an opportunity to be present when the fence cut(s) is/are made so the lessees can be satisfied that the fence is adequately braced and secured (see fence bracing typical in appendix A-3). The grazing permittee will be contacted by a representative of the right-of-way holder and/or contractor prior to commencing pipeline construction and reclamation on their respective allotment. Before cutting the wires for pipeline construction, each fence crossed by the right-of-way will be braced and secured to prevent slacking of the wire. The opening created will be temporarily closed when construction crews leave the project area to prevent passage of livestock. Any gaps in natural barriers used for livestock control created by construction activity will be fenced according to BLM requirements or landowner's instructions.

Several fences and water pipelines may be crossed, or are parallel to the construction right-of-way. If parallel, a minimum of ten feet of undisturbed area will be maintained between the Entrega pipeline and fence or water lines, if possible. Entrega will attempt to avoid livestock and/or wildlife water pipelines during construction. If construction damage occurs, water pipelines (and fences) will be repaired according to the BLM or landowner specifications. If needed, an emergency source of wildlife or livestock water will be provided by Entrega.

If required by the BLM or landowner, Entrega will erect temporary fences on the right-of-way boundaries after reseeding to prevent cattle from disturbing the seedbed and emerging seedlings. Fences and gates will conform to BLM standards and specifications.

All existing improvements, such as fences, gates, irrigation ditches, cattle guards and reservoirs will be maintained during construction and repaired to pre-construction conditions or better.

2.1.7 Blasting

Entrega's Blasting Plan (appendix H) identifies blasting procedures, including safety, use, storage, and transportation of explosives, that are consistent with minimum safety requirements as defined by Federal, state, and local regulations. The plan also addresses environmental aspects of blasting activities and identifies areas of concern along the pipeline route.

2.1.8 Cleanup

Cleanup will begin after backfilling, as soon as weather and site conditions permit. Every reasonable effort will be made to complete final cleanup within 20 days after backfilling (10 days in residential areas). Construction debris, with the exception of salvaged vegetation to be used during restoration, will be removed from the right-of-way and transported to a disposal facility.

2.1.9 Topsoil Replacement

Topsoil will be distributed evenly over the area from which it was removed after grading activities are complete. Special care will be taken not to mix topsoil with subsoil during this procedure, and Entrega will attempt to restore soil horizon functionality, to the extent possible, to facilitate natural and physical biological influences. Entrega will leave the surface rough and irregular after topsoil replacement to provide a more suitable seedbed (*e.g.*, depressions for moisture collection, wind protection, and erosion control).

2.1.10 Recontouring

Preconstruction contours will be restored to the extent practicable. No portion of the trenchline will be intentionally crowned as snow melt or rain events could hinder natural runoff and inadvertently create wash out areas or the ponding of water.

Contours will be established using tractors, backhoes, bulldozers, and/or graders, except in steep ravines where the slope of the right-of-way may be reduced to stabilize the area. A 3:1 slope may be used in these areas of the right-of-way.

2.1.11 Revegetation

Seedbed Preparation

Seedbed preparation will consist of scarification of compacted soils, if required; rough disking; recontouring the construction right-of-way to conform to adjacent areas where soil conditions allow, as described in 2.1.10, Section 2; and, topsoil replacement as described in 2.1.9, Section 2.

In compacted soils, Entrega will scarify or rip the area to a depth of 6 to 12 inches using a chisel or para-plow, or other similar tillage equipment until the soil density is comparable to areas off the construction right-of-way. If ripped, the ripper shanks will be set apart 12 to18 inches. Topsoil will be replaced after decompaction is completed. Sandy soils will not be scarified.

In upland soils not compacted during construction, Entrega will disk (or harrow) the disturbed construction right-of-way approximately 2 to 6 inches deep to roughen the surface to enhance water and root penetration.

In compacted soils, after the soil is scarified or disked, topsoil segregated from the construction right-of-way prior to construction will be replaced evenly over the area from which it was removed, except in drainage channels.

To create a firm seedbed and create small depressions in highly erodible soils, Entrega will use a non-directional imprinting device (*e.g.*, sheep's foot roller or similar device) if the seed is not drilled. Depressions produced with the imprinting device reduce wind erosion, improve the micro-environmental conditions by retention of moisture, aid in the collection of wind-blown seeds, and supply partial shading against direct sunlight. A tacifier may be used after seed application in areas where wind erosion or steep slopes are present.

Seeding Schedule

Seeding will typically occur after topsoil replacement during the fall, and prior to prolonged ground frost. In some areas seeding may be delayed by weather. Based on a recommendation by the CDOW, in areas where sagebrush seed is a component of the seed mix, sage may be separately spread in winter of the same year, during a second pass, to facilitate growth. Sagebrush seed mixes may be applied even if snow cover is present.

In areas where access along the right-of-way is required for vehicular travel to hydrostatic test section tie-ins, pipeline drying, or valve sites, the travel lane may not be restored or seeded concurrently with right-of-way restoration. A separate crew will restore the travel lane when contractor access along the right-of-way becomes unnecessary.

Seeding Methods

Entrega will generally use one of four seeding methods, including seed drill, mechanized broadcast (cyclone) seeder on a tractor, and hand cyclone seeder. Alternatively, in highly erodible soils, Entrega may use a non-directional imprinting device (*e.g.*, sheep's foot roller or similar device). Entrega's intent is to incorporate the seed to an average depth of 0.25-0.50 inch, but not exceeding 1 inch in depth, and to cover the seed eliminating air pockets.

A seed drill will be used to distribute seed on the right-of-way where slopes and soil conditions allow. The seed drill will be calibrated according to the manufacturer's recommendations prior to use and a known amount of seed will be used over a known area to monitor the calibration of the equipment. Care will be taken to ensure light seed (*e.g.*, winter fat) is evenly applied with heavier seed. In Colorado, sagebrush seed distribution may be increased in areas where sagebrush naturally occurs in denser clusters.

A hand-operated or mechanically-powered cyclone seeder will be used when a seed drill is not suitable. The seeding rate will be doubled where a broadcast seeder is used. This method distributes the seeds on the surface and the seeds are subsequently covered by use of a cultipacker, rake, or dragging a chain behind the seeding equipment. Hand-operated cyclone seeders will be used on slopes too steep for equipment to be operated safely. If rock is not present in these areas, hand dragging or raking will be used to incorporate the seed.

In Wyoming, Entrega may water down some areas after seeding as an additional measure against wind erosion.

Hydroseeding and hydro mulching are not expected to be used except in areas where conventional seeding and mulching techniques cannot be applied (*i.e.*, slopes exceeding 25 percent), or when requested by the landowner or land-managing agency. The seeding rate during hydroseeding will be broadcast application rate (*i.e.*, twice the drilled rate). Mulch will be applied at a rate of 1.5 tons per acre and will be anchored with a tackifier on slopes exceeding 25 percent. Only organic, non-toxic tackifiers will be used.

Seeding Mixtures

Seed mixtures that will be used to revegetate the right-of-way are based on consultations with the Rawlins, Little Snake, and White River Field Offices, Colorado Division of Wildlife, Colorado State Land Board, and local Natural Resource Conservation Service offices, which provided written approval of the proposed mixes.

Entrega will use seed that is tested to ensure compliance with Federal and state seed requirements and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will consider alternative species subject to approval of the BLM. Alternative species are included in this CM&R Plan.

In areas where the pipeline is in sagebrush habitat and adjacent to existing right-of-way, Entrega will add sagebrush to the seed mix in areas identified by the BLM or landowner, to avoid a break in habitat and a change in migration corridors. The seeding rate may be increased in areas where dense clusters of sagebrush are present.

Entrega will use the following seed mixtures in respective vegetative communities and land uses.

Rio Blanco Mix 1-Native Rangeland Areas above 7,000 feet and North & East Slopes below 7,000 feet elevation

Native rangeland areas above 7,000 feet do not occur in the project area in Rio Blanco County; however, this mix will be used on north- and east-facing slopes (see table 2.2.11-1). The seeding mixture proposed for these communities will provide erosion control, suitable livestock grazing species, and palatable wildlife forage.

TABLE 2.1.11-1

Rio Blanco County Mix 1 (RB#1)
Native Rangeland Areas –
Above 7,000 Feet and North & East Slopes Below 7,000 Feet Elevation

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Arizona fescue-Redondo	0.4	0.8
Western wheatgrass-Barton	1.2	2.4
Mountain bromegrass-Bromar	1.9	3.8
Letterman's needlegrass-ACLE9	0.8	1.6
Intermediate wheatgrass-Amur	2.0	4.0
Smooth bromegrass-Manchar	1.0	2.0

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

Rio Blanco Mix 2-Native Rangeland Areas below 7,000 feet and South & West Slopes above 7,000 feet elevation

Native rangeland areas below 7,000 feet occur throughout Rio Blanco County (MPs -0.5 – 25.8). There are no south- and west-facing slopes above 7,000 feet in Rio Blanco County. The seeding mixture proposed for this community (see table 2.1.11-2) will provide erosion control, suitable livestock grazing species, and palatable wildlife forage.

TABLE 2.1.11-2

Rio Blanco Mix 2 (RB#2)
Native Rangeland Areas –
Below 7,000 Feet and South & West Slopes Above 7,000 Feet Elevation

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Western wheatgrass-Barton	1.2	2.4
Bluebunch wheatgrass-Secar	1.4	2.8
Slender wheatgrass-San Luis	0.6	2.2
Prairie Junegrass-Koma	0.2	0.4
Inidan ricegrass-Nezpar	0.3	0.6
Sandberg bluegrass-Canbar	0.1	0.2
Intermediate wheatgrass-Luna	1.8	3.6
Smooth bromegrass-Lincoln	1.0	2.0

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

Rio Blanco Mix 3-Irrigated Hayland and Irrigated Pasture

The majority of irrigated hayland and pasture crossed in Rio Blanco County occurs on private land between MPs -0.5 and 25.8, and is primarily composed of irrigated hay and alfalfa meadows adjacent many of the larger riparian corridors and pasture lands used for grazing purposes. Entrega's line list will specify the seed mix requested by the landowners; however, if a landowner has not indicated a seed mix preference, the following mix will be use as an alternative.

TABLE 2.1.11-3

Rio Blanco Mix 3 (RB#3)
Irrigated Hayland and Irrigated Pasture

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Timothy-Climax	0.7	1.4
Orchardgrass-Latar	1.3	2.6
Smooth bromegrass-Lincoln	4.3	8.6

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

An alternative species that may be used in place of this mix is alfalfa (at 8.0 Lbs/acre/PLS).

Rio Blanco Mix 4-Riparian Areas

The following specific seed mix will be used for river and stream bottom crossings, as recommended by the NRCS Meeker Field Office.

TABLE 2.1.11-4

Rio Blanco Mix 4 (RB#4)
Riparian Areas

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Redtop-Streaker	0.1	0.2
Reed canary grass-Loreed	0.7	1.4
Canada bluegrass-Poco	0.6	1.2
Alkali saceton-Salado	0.3	0.6
Streambank wheatgrass-Sodar	2.2	4.4

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

Moffat County Mix 1-Loamy and Clay Foothills

The National Soil Survey Center defines loam as soil consisting of 7-27 percent clay, 28-50 percent silt, and less than (<) 52 percent sand, and clay as soil consisting of 40 percent or more clay, < 45 percent sand, and <40 percent silt (Soil Survey Staff 2005). In Moffat County, Colorado, these soil types occur from approximate MPs 28.8 to 37.1. The Moffat County NRCS office has approved Moffat County Mix 1 (table 2.1.11-5) for areas containing these soil types.

TABLE 2.1.11-5

Moffat County Mix 1 (MC#1)
Loamy and Clay Foothills Seeding Mix

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Western wheatgrass	4	8
Green needlegrass	2	4
Needle and Thread	1	2
Thickspike wheatgrass	1.5	3
Indian ricegrass	1	2
Wyoming Big Sagebrush b/	3	6

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.

Moffat County Mix 2-Sandy Soils

Sand is defined as soil consisting of 85 percent or more sand and not more than 10 percent clay (Soil Survey Staff 2005). In Moffat County, terrain dominated by sandy soils occurs between approximate MPs 25.1 to 28.8, and 37.1 to 85.4. Moffat County Mix 2 (table 2.1.11-5) has been approved by the Moffat County NRCS office for these areas.

TABLE 2.1.11-5

Entrega Gas Pipeline Project
Moffat County Mix 2 (MC#2)
Sandy Soils Seeding Mix

Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Inidan Ricegrass	2.5	5
Needle and Thread	2	4
Nevada Bluegrass	1	2
Prairie Junegrass	1	2
Great Basin Wildrye	1	2
Bluebunch wheatgrass	0.25	0.5
Wyoming Big Sagebrush b/	3	6
Antelope Bitterbrush	0.25	0.5

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.
b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.

Wyoming Mix 1-Sagebrush Steppe/Sagebrush Scrub Communities

The sagebrush steppe and sagebrush scrub communities occur in semi-arid areas (10- to 14-inch precipitation) on gently sloping (1 to 8 percent) terrain at elevations from about 5,700 to 7,500 feet. In the project area, they occur throughout much of central and western Wyoming (MPs 88 to 266). Sagebrush steppe is distinguished from sagebrush scrub by containing greater than 50 percent understory of grasses and forbs. Both of these communities are dominated by big sagebrush. Other common species include: broom snakeweed, rabbitbrush, prickly pear cactus, mountain mahogany, ephedra, fourwing saltbush, winterfat, blue grama, bottlebrush squirreltail, Indian ricegrass, needlegrasses, and western wheatgrass.

The majority of agricultural (range) land crossed in Wyoming occurs on private land and is primarily composed of irrigated hay and alfalfa meadows adjacent many of the larger riparian corridors and pasture lands used for grazing purposes. Entrega's line list will specify the seed mix requested by the landowners; however, if a landowner has not indicated a seed mix preference, the sagebrush communities seed mix (WM#1) or the prairie communities seed mix (WM#4) will be use as an alternative, based on surrounding vegetation.

The seeding mixture proposed for these communities will provide erosion control, suitable livestock grazing species, and palatable wildlife forage.

TABLE 2.1.11-6

Wyoming Mix 1 (WM#1)
Sagebrush Communities Seeding Mix

Species	Seeding Rate in Lbs/acre/PLS [a/]	
	Drilled	Broadcast
Thickspike wheatgrass-Critana	4	8
Indian ricegrass-Nezpar	2	4
Western wheatgrass-Rosana	2	4
Needleandthread	2	4
Big sagebrush-Wyoming [b/]	0.5	1
Gardner's saltbush	1	2

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.

Alternative species that may be used in this mix include bottlebrush squirreltail, slender wheatgrass, shadscale, fourwing saltbush, scarlet globemallow, and Lewis' flax.

Wyoming Mix 2-Pinyon-Juniper Woodland Community

The Juniper woodland community is typically located on slopes and higher elevations and occurs in several smaller areas in the extreme southern portion of Sweetwater County (MPs 85.7 to 94). Dominate species include Utah juniper and pinyon pine. Associated shrub species include broom snakeweed, mountain mahogany, big sagebrush, and rabbitbrush. Common grasses include needlegrasses, Indian ricegrass, western wheatgrass, and Sandberg bluegrass.

The seeding mixture proposed for this community will provide erosion control, suitable livestock grazing species, and palatable wildlife forage.

TABLE 2.1.11-7

Wyoming Mix 2 (WM#2)
Juniper Woodland Community Seeding Mix

Species	Seeding Rate in Lbs/acre/PLS [a/]	
	Drilled	Broadcast
Western wheatgrass-Rosana	4	8
Indian ricegrass-Nezpar	2	4
Thickspike wheatgrass-Critana	2	4
Slender wheatgrass-Pryor	2	4
Big sagebrush-Wyoming [b/]	0.5	1
Serviceberry	1	2

a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.

Alternative species that may be used in this mix include bluebunch wheatgrass, green needlegrass, basin wildrye, antelope bitterbrush, snowberry, and Lewis' flax.

Wyoming Mix 3-Salt Desert Scrub Community

The salt desert scrub community occurs in arid areas (6- to 10-inch precipitation) at elevations of about 3,100 to 8,500 feet. It can typically be found on fine-textured, poorly drained soils with high alkalinity and/or salinity, often with a high water table. Salt desert shrub occurs as a mosaic within sagebrush communities, frequently on the fringes of playas, desert lakes, ponds, rivers, and streams, and can be found in small scattered patches within the project area in western Wyoming (MPs 117, 160 to 164, and 180 to 183). Within the pipeline alignment, this vegetation community is dominated by greasewood, but features a mixture of other shrub species including saltbush species, spiny hopsage, and winterfat.

The seeding mixture proposed for this community will provide erosion control, suitable livestock grazing species, and palatable wildlife forage.

TABLE 2.1.11-8 Wyoming Mix 3 (WM#3) Salt Desert Scrub Community Seeding Mix		
Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Western wheatgrass-Rosana	4	8
Slender wheatgrass-Pryor	2	4
Indian ricegrass-Nezpar	2	4
Bottlebrush squirreltail	2	4
Gardner's saltbush	1	2
Common winterfat	1	2
a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.		

Alternative species that may be used in this mix include bluebunch wheatgrass, thickspike wheatgrass, basin wildrye, shadscale, and fourwing saltbush.

Wyoming Mix 4-Prairie Communities

Shortgrass prairie occurs in areas of extreme hot and cold climatic conditions and low precipitation (10- to 21-inch), and is found at elevations ranging from about 5,100 to 6,800 feet. Mixed grass prairie occurs throughout most of eastern Wyoming and typically supports a high diversity of grasses, including short, mid, and tall grass species. Shortgrass and mixed grass prairie communities occur throughout the project area in eastern Wyoming (MPs 265 to 318.5) and in northeastern Colorado (MPs 318.5 to 327.0).

Over half the plant cover in shortgrass prairie is comprised of two sod-forming species: blue grama and buffalo grass. Buffalo grass is considered the indicator species. Other common species include western wheatgrass, needlegrasses, prickly pear cactus, fringed sagewort, Indian ricegrass, and broom snakeweed. Mixed grass prairie is distinguished from the shortgrass prairie by having much higher floristic diversity and an absence of buffalo grass. Dominant species that occur include blue grama, bluebunch wheatgrass, Indian ricegrass, western wheatgrass, needlegrasses, Sandberg bluegrass, fringed sagewort, and prickly pear cactus.

TABLE 2.1.11-9

Wyoming Mix 4 (WM#4)
Prairie Communities Seeding Mix

Species a/	Seeding Rate in Lbs/acre/PLS b/	
	Drilled	Broadcast
Western wheatgrass	6	12
Blue grama	1	2
Side-oats grama	4.5	9
Needleandthread	6	12
Slender wheatgrass	6	12
Prairie coneflower	1.2	2.4
Lewis' flax	0.5	1

a/ The first four grasses make up 100 percent of this mix; slender wheatgrass is a carrier and will establish quickly for erosion control but will fade as other grasses come in; and the forbs are counted separately.

b/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.

Alternative species that may be used in this mix include needleandthread, Indian ricegrass, and scarlet globemallow.

2.1.12 Mulching

Entrega will apply 1.5 tons/acre of clean, weed-free straw mulch to dry, sandy areas and areas with slopes exceeding five percent. In actively cultivated cropland and in areas where surface rock is greater than 4 inches in diameter and exceeds at least 20 percent surface coverage after rough grading, mulch will not be applied unless otherwise requested by the landowner. Mulch will be applied concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Mulch will be uniformly spread over at least 75 percent of the ground surface in disturbed areas to minimize the effects of water and wind erosion and to preserve moisture in areas requiring vegetation. Mulch will be anchored by disking or punching, depending the percent slope.

Woody vegetation cleared from the right-of-way may be stored for use as mulch to be spread over the right-of-way following seeding and mulching, if required. A backhoe with a hydraulic thumb or equivalent apparatus operating on the edge of the right-of-way will randomly distribute woody vegetation across the restored right-of-way to create a visual barrier.

If final grading and installation of permanent erosion control measures are delayed and cannot be completed before the following spring, Entrega will apply mulch on slopes greater than 5 percent that contain less than 20 percent surface rock greater than 4 inches in diameter. Mulch will provide temporary erosion control until permanent erosion control measures can be installed.

2.2 Special Construction Mitigation and Reclamation Measures

Entrega will utilize special mitigation and reclamation measures in specific areas where use of general methods may be impractical, create unsafe working conditions, or where sensitive

environmental resources are located. Special mitigation and reclamation measures will be used in areas of steep slope and erodible soils (Special Treatment A); at waterbody, dry wash, and wetland crossing (Special Treatment B); and visually sensitive areas (Special Treatment C).

2.2.1 Steep Slopes and Erodible Soils – Special Treatment A

Steep slopes in excess of 20 percent and areas with unstable soils are common on the pipeline route, particularly between Meeker Hub and Wamsutter. There are approximately 46 of these areas along the route. They range in linear distance from 100 to 200 feet to upwards of 0.75 mile. When disturbed by construction, these areas may be susceptible to erosion if water from snowpack runoff and intense rainfall events are not controlled. In some instances, pipe sections required in these areas will be factory bent to facilitate installation. Table 2.2.1-1 lists these areas with approximate mileposts.

TABLE 2.2.1-1

Entrega Gas Pipeline Project
Special Treatment Area A

Beginning Milepost	Ending Milepost	Feature/Terrain	Special Considerations
7.0	7.1	Steep Slope	None
12.4	12.9	Rock Outcropping/Steep Slope	Special Treatment C
15.4	15.6	Steep Slope	None
16.7	16.8	Steep Slope/Dry Gulch Crossing	None
18.3	18.5	Steep Slope	None
20.1	20.7	Steep Slope	None
21.3	21.4	Steep Slopes/Dry Gulch Crossing	None
22.4	22.6	Steep Slopes/Dry Gulch Crossing	None
32.7	23.8	Steep Slope	None
24.2	24.3	Steep Slope	None
24.9	25.1	Steep Slope	None
25.5	25.8	Several Steep Areas/Dry Gulch Crossing Special Treatment Area C	None
26.1	26.2	Steep Slope	None
26.6	26.7	Steep Slope	None
27.5	28.1	Several Steep Slope Crossings/Unstable Soils	None
29.7	29.75	Steep Slope/Unstable Soils	None
29.9	29.95	Steep Slope/Unstable Soils	None
33.2	33.5	Steep Slope	Special Treatment C
37.4	37.7	Steep Slope Entering Pine Tree Gulch	Special Treatment C
39.1	39.4	Steep Slope Existing Pine Tree Gulch	Special Treatment C
40.7	40.7	Steep Slope/Unstable Soils	None
53.9	54.2	Several Steep Slopes/Gulches	None

TABLE 2.2.1-1

Entrega Gas Pipeline Project
Special Treatment Area A

Beginning Milepost	Ending Milepost	Feature/Terrain	Special Considerations
64.2	64.3	Several Steep Slopes	None
83.6	83.8	Steep Slopes/Unstable Soils	None
89.2	89.6	Several Steep Slopes/Dry Gulches	None
90.4	90.5	Steep Slopes	None
91.95	92.0	Steep Slope	None
93.1	93.8	Several Steep areas/Steep Side Slope Construction Required	None
95.9	96.7	Several Steep areas/Several Dry Gulches	Special Treatment B applies for some areas near Sand Creek
98.6	98.8	Several Steep areas/Several Dry Gulches	Special Treatment B applies some areas near Willow Creek
99.2	99.5	Several Steep Slopes	None
99.6	100.0	Several Steep Slopes	None
100.2	100.6	Several Steep Slopes	None
213.9	214.0	Steep Slope at Kinney Creek	None
225.9	226.0	Steep Slope	None
228.7	228.8	Steep Slope at Bear Creek	None
229.7	229.8	Steep Slope at Wagonhound Creek	None
236.7	237.0	Steep Slopes	Special Treatment C applies due to TCP
239.9	240.0	Moderately steep slope	Special Treatment B applies in some areas
244.2	244.3	Moderately Steep Slope	None
245.3	245.6	Moderately Steep Slope at wash crossing	None
305.0	305.1	Steep Slope	None
313.1	313.2	Moderately Steep Slope	None
313.8	314.0	Several Moderately Steep Slopes	None
315.3	315.6	Several Steep Slopes	None
316.0	316.1	Steep Slope /Dry Gulch	None

The Entrega Gas Pipeline route crosses approximately 23 gulches and washes where the slope exceeds 20 percent. In some cases, the walls of the washes can approach a nearly vertical incline in the pipeline right-of-way. Entrega attempted to route the pipeline to avoid nearly vertical walls. In some areas, the terrain in the alternative routes was equally difficult for construction relative to the original route.

Based on area-specific conditions, Entrega has identified the following measures that will be implemented to prevent slope failure:

Stockpiling

On steep slopes where topsoil, woody debris, and rock cannot be conventionally stockpiled at the edge of the construction right-of-way, the contractor will push the material to temporary use areas for use during restoration.

Temporary Slope Breakers

On steeply sloping land, temporary slope breakers will be installed after the right-of-way is graded. Temporary slope breakers will be spaced at intervals determined by the EI. A temporary berm will be installed 10 to 30 feet from the crest of a slope to act as a reference point for spacing the remaining berms. Slope breakers will be inspected on a daily basis in areas of active construction; on a weekly basis in areas with no active construction; within 24 hours of each 0.5-inch or greater rainfall.

Temporary slope breakers may be omitted where the surface is predominately rock and the potential for erosion is minimal.

Trench Breakers

Trench breakers will be constructed at intervals determined by the EI where surface drainages parallel the trenchline. In addition, trench breakers will be installed at the base of steep slopes adjacent to waterbodies.

Recontouring and Slope Reduction

Special attention will be given to shaping the construction right-of-way to direct runoff into existing drainages off the right-of-way. Cut and fill slopes will have the slope reduced to 3:1 or 4:1 ratio or to match the adjacent utility right-of-way to aid in reclamation and stabilization. If necessary, energy dissipation devices may be installed at the bases of cut and fill slopes to prevent scour in adjacent steep banks not located in the construction right-of-way.

Permanent Diversion Berms

Permanent diversion berm will be installed near the top of a slope, typically within 10 to 30 feet of the crest of a slope, to act as a reference point for spacing the remaining berms. Spacing of the remaining berms will be determined by the EI.

Where the ground surface is naturally rocky and resistant to erosion, diversion berms may be omitted or the spacing increased at the discretion of the EI.

Mulch Crimping and Punching

Entrega will crimp or "punch" mulch into the topsoil. Crimping and punching involves two applications of 1.5 tons per acre of weed-free straw to an area. After the first application of mulch and seed is applied, the material will be crimped into the soil by hand, or with a disk, or "punched" into the surface with a footed roller pulled by a tractor. Following the first mulch application and seeding/fertilizing, a second layer of mulch will be applied and anchored.

Use of a nondirectional footed roller is the preferred method to anchor mulch. This device creates depressions in the soil surface, increases soil contact with the seed, and holds the soil in place. Punching reduces the potential for wind erosion and provides an environment conducive for moisture retention and germination. Punching will not be used in rocky areas.

If mulch is crimped into the surface by a disk, the crimping pattern will be cross hatched to prevent the creation of down slope furrows that could channelize runoff. Mulch will not be crimped in rocky areas.

Erosion control fabrics (*i.e.*, jute matting, straw blankets with plastic netting, or curlex) will be substituted for straw mulch on steep, unstable slopes where mulch cannot be applied by mechanical means because of safety concerns. Fabric should overlap by 4 to 6 inches and be stapled or staked into the soil.

Rock Mulch

Rock mulch will be used to control erosion in areas that have a native gravel, cobble, boulder, or bedrock surface. Rock salvaged and stockpiled from these areas during construction will be distributed over the construction right-of-way during restoration and seeded with broadcast seeder. The gaps in the rocks will provide a micro environment beneficial to seed germination by allowing moisture to collect and provide protection from wind. A rock cover will also blend the construction right-of-way into undisturbed areas.

2.3 Waterbodies, Dry Washes, and Wetlands – Special Treatment B

Entrega will implement special mitigation and reclamation treatments to stabilize the streambed and banks, replace riparian and wetland vegetation, minimize discharge of sediment into the waterbodies, and prevent pipeline exposure from streambed scour.

The waterbody table in appendix A lists the proposed construction methods that were identified by Entrega based on site-specific conditions, and stream crossing techniques are described in 6.3, Section 1.

Entrega has developed site-specific waterbody crossing plans for the White River (MP 15.7), Yampa River (MP 51.0), Little Snake River (MP 85.1), North Platte River (MP 193), Medicine Bow River (MP 225.5), Rock Creek (MP 237.4) and Little Laramie River (MP 260.9). The site-specific plans are located in the appendix A-6.

Bridging

No construction equipment will be allowed to ford perennial waterbodies. Temporary construction bridges, span or supported, will be installed over perennial waterbodies during the clearing operation and will remain in place until final restoration has been completed. Temporary equipment bridges will be constructed in accordance with typical figures, and designed to accommodate high stream events (see appendix A-3 for typical bridge drawings) Bridge decks will be kept free of soil. Bridges are not required on dry washes.

Equipment bridges will consist of one of the following: clean rock placed over flume pipes; prefabricated construction mats; rail flat cars placed over the waterbody with or without a culvert; or flexi-float or other temporary bridging, such as Bailey bridges.

Only clearing equipment and equipment necessary for installation or equipment bridges may cross waterbodies prior to bridge installation. Entrega will limit the number of such crossings of each waterbody to one per piece of clearing equipment.

Clearing and Grading

Clearing and grading of work areas will be confined to the construction right-of-way. The width of surface disturbance will be kept to the minimum required for safe and efficient construction.

If blading is not required to level the right-of-way to create a safe working area, Entrega will mow or crush areas of small woody vegetation and herbaceous vegetation and leave the root systems intact.

Cuttings and Rootings

Where required by the FERC, the BLM, or the COE permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way. Species include willow, cottonwood, and aspen. Willow species will be planted as non-rooted cuttings; and cottonwood as rooted cuttings. Tree cuttings will be obtained from adjacent areas within the surveyed corridor that were identified and approved by the land-management agency. Locally obtained tree cuttings will be used to ensure that plants are adaptable to the environment.

Tree cuttings will be between 16 and 24 inches long and obtained during the dormant season (February to May) and planted within two weeks of cutting, or stored under refrigeration, until needed.

Willow and aspen cuttings will be spaced with an average of 10 feet/center (for example: an area 50-feet by 100-feet will require 50 trees set at 10-foot spacings). Cottonwoods will be spaced at 15 feet/center. Plantings will be randomly placed to promote a natural distribution, but the recommended average plant density will be maintained. Species will not be planted within 15 feet either side of the pipeline.

Tree cuttings will be inserted into the ground approximately 6 inches and will be covered with a fine plastic netting to deter browsing.

In Wyoming, at the Medicine Bow River and Rock Creek crossings, the right-of-way will be reduced down to 75 feet in areas were large stands of willow trees are present. This will facilitate a visual barrier at the crossing of these waterbodies.

At the Medicine Bow River, fewer than 140 trees would require removal from the right-of-way. Entrega will provide a final number of trees to be removed prior to construction. They range in diameter from 8-inches to 48-inches with a mean diameter of 18-inches. Rock Creek will require the removal of substantially few trees which are generally smaller in diameter. The dominant species at this crossing are comprised of cottonwood species

Sediment Control

Silt fence, or equivalent, will be installed and anchored along the banks of waterbodies. Sediment control devices will be maintained until revegetation of adjacent areas is considered successful or the area is stabilized. Permanent diversion berms will be constructed at the base of slopes near waterbodies, unless otherwise specified by the land-managing agency or the EI.

Trench Breakers

Sand bags or foam plugs breakers will be installed in the pipeline trench adjacent to waterbodies and wetlands, or at locations specified by the EI.

Trench Dewatering

If trench dewatering is necessary in wetlands, silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation.

Where trench dewatering is required prior to pipeline lowering in, padding, or tying in, the trench will be dewatered by pumping from the trench at a controlled rate into a dewatering structure to prevent erosion and minimize sedimentation of surface water. Trench water may not be pumped directly into wetlands or waterbodies.

Pipeline Burial Depth

The pipeline will be installed at a depth below the bed of washes and wetlands that is consistent with DOT pipeline design and operating code, *49 CFR, PART 192-TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE*, to prevent exposure of the pipeline and maintain the integrity of the system in event of a flash flood.

Backfill Material

Excavated material will be used for trench backfill in perennial streams and dry washes, unless expressly permitted otherwise by the BLM, the COE, or state regulatory agency. Backfilling will begin as soon as practical after installation of the pipe and reestablishment of the streambanks.

If blasting is required for installation in a waterbody, the trench will be backfilled with native rock that was removed during blasting activities.

Streambed and Bank Stabilization

Original channel configurations will be reestablished, and the banks replaced, compacted, and restored to the original condition. Banks may be graded to a more stable configuration if eroding or unstable conditions were present prior to construction.

To provide additional erosion control, Entrega will use erosion control blankets (*e.g.*, jute matting, straw blankets with plastic netting, or curlex) on the banks of washes and waterbodies where a minimum of natural rock is present. The use of erosion control fabric on waterbodies and washes in BLM-managed land will require approval of the BLM Monitor.

If required, Entrega will install temporary fences at the edges of waterbodies and wetlands to prevent grazing cattle from disturbing the area before a mature vegetative cover is established.

Seeding

The banks of perennial streams will be seeded with mixes listed in 2.1.11 Section 2. Dry washes will not be seeded. Wetlands will be seeded using a commercial sterile hybrid cover crop, as requested by the BLM.

2.4 Visually Sensitive Areas – Special Treatment Area C

Public lands that will be affected by the proposed pipeline are comprised mostly of lands managed by the BLM. The BLM has an RMP for each resource area that will be crossed by the proposed pipeline route and each RMP includes a visual resource management (VRM) standard. Therefore, BLM-managed public lands are managed in a manner that will maintain

the quality of scenic and visual resources. VRM classes are assigned to the various landscapes in each of the BLM's' resource areas.

The BLM VRM classes range from class I to class V, with class I being the most restrictive and class V being the least restrictive. In general, the proposed Entrega Gas Pipeline route will cross lands designated as class III or class IV. The class III designation applies entirely to the BLM-managed lands in the White River Resource Area and to the majority of the BLM-managed lands within the Rawlins Resource Area. A class III designation allows for changes in the visual landscape caused by a management activity, but should remain an insignificant portion of the visual strength of the existing landscape. New land disturbing activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic visual elements found in the predominant natural features of the preconstruction landscape.

The area that will be crossed by the proposed pipeline route along U.S. Interstate 80 to the west of Rawlins, Wyoming (about MP 135.0 to MP 172.5) has been designated by the BLM as a VRM class IV. Lands under the VRM class IV designation are currently dominated by land disturbing structures and activities that repeat the form, line, color, and texture of the characteristic landscape. New land disturbing activities should not be comprised of facilities or changes to the landscape that will create a new, visually dominant feature.

Entrega developed milepost-specific reclamation methods to mitigate construction impacts on the landscape. The treatments vary depending on the terrain, native vegetation type, and recommendations from land and resource management agencies.

Visually important areas that will be crossed by the pipeline project include the rock outcropping at approximate MP 12.4, and the north-facing slopes at MPs 13.4 and 39.4, and Kennetech Windfarm at MP 237. These areas are readily visible from roads and highways. The project crosses a designated Traditional Cultural Property (TCP) located near several existing pipelines and the Kennetech Wind Farm. The area is visible for miles from Interstate-80.

2.4.1 Construction Mitigation and Reclamation Measures

In addition to the conditions described in tables 2.4.1-1, 2.4.1-2, and 2.4.1-3, construction procedures outlined in Special Treatment A will be followed to minimize impacts on visually sensitive areas.

TABLE 2.4.1-1

Entrega Gas Pipeline Project
Visual Character and Mitigation by Landscape Unit
MPs 13.0-13.4

Landscape Unit:	Piceance Basin
Notable Viewpoints:	Hillside is visible for miles, including locations on County Road 5 and Highway 64.
Ownership:	Colorado DNR/DOW and BLM; included in the Piceance Creek State Wildlife Area.
VRM Class:	Class III
Previous disturbance:	Uinta Basin Lateral (CIG) installed in 1991.
Description:	Entrega would create a new pipeline corridor on the north-facing slope on a visible hillside. Uinta Basin Lateral right-of-way is visible on the west side, and Entrega's right-of-way would add a second corridor on the face of the hillside.
Visual Impact:	The visual impact would be moderate because the corridor would be visible for miles and could be seen from Highway 64.
Mitigation:	• The right-of-way width at MP 13.0 cannot be reduced to less than 100 feet on the north-facing slope adjacent to Piceance Creek due to the steepness of the terrain. Entrega does not feel that it can adhere to the standards of its Health & Safety Plan by reducing workspace. • Salvaged woody debris and rock will be randomly scattered over the right-of-way after seeding to blend the pipeline corridor into the surrounding landscape.

TABLE 2.4.1-2

Entrega Gas Pipeline Project
Visual Character and Mitigation by Landscape Unit
MPs 39.1-39.4

Landscape Unit:	Pine Tree Gulch
Notable Viewpoints:	Hillside is visible for miles, including locations on County Road 57.
Ownership:	Private
VRM Class:	Class III
Previous disturbance:	None
Description:	Entrega would create a new pipeline corridor on the north-facing slope on a visible hillside adjacent to Pine Tree Gulch. There has been no previous surface disturbance to the hill.
Visual Impact:	The visual impact would be moderate because the corridor would be visible for miles and could be seen from County Road 57.
Mitigation:	• The right-of-way width between MPs 39.1 and 39.4 cannot be reduced to less than 100 feet due to the steepness of the terrain. Entrega does not feel that it can adhere to the standards of its Health & Safety Plan by reducing workspace. • Photographs of the right-of-way and rock outcropping will be taken prior to construction and used for reference during restoration. • Rocks salvaged from the rock outcropping will be replaced at the same elevation as the rock outcropping, as practical and only if not creating a safety hazard, to form a continuous band of rocks across the right-of-way. • Entrega will increase sagebrush in the seed mix to facilitate better post-construction screening. • Division berms will be placed across the top of the slope above the rocks. • Mulch will be tacified to prevent excessive water or wind erosion of topsoil. Monitor the revegetation of feature using methods outlined in section 3.4.

TABLE 2.4.1-3

Entrega Gas Pipeline Project
Visual Character and Mitigation by Landscape Unit
MPs 236.7 - 237.0

Landscape Unit:	Arlington, flat plateau
Notable Viewpoints:	Hillsides and plateau are visible for miles, including locations on Interstate-80.
Ownership:	Bear Creek Cattle Company Leland D. Brokaw
VRM Class:	Class III
Previous disturbance:	Several natural gas pipelines Fiber optic lines Kennetech Windpower Project
Description:	Entrega would add a new pipeline corridor adjacent (south side) of the existing Wyoming Interstate Gas pipeline corridor.
Visual Impact:	The visual impact would be moderate because the corridor would be visible for miles and could be seen from Interstate-80.
Mitigation:	• The construction right-of-way width will be reduced to 75 feet across the top of the plateau to minimize disturbance. • A required TUA was shifted to avoid known cultural resource sites within the project area. • An archaeological monitor will be present during construction. If required, site boundaries will be isolated with exclusion fencing during all construction activities. • No aboveground facilities will be located on the plateau.

Other Site Specific Restoration

At several locations along the pipeline where unpaved BLM, county, or private roads are crossed, Entrega may stockpile natural debris (*i.e.* rocks, tree stumps) along the right-of-way near the road edge to discourage public use of the newly created right-of-way or inadvertently cause the creation of new roads.

At MP 12.4, rocks removed from the right-of-way will be replaced and blended into the remaining rock outcropping to present the most natural look possible. The dry wash channel to the east will be recontoured to as near original condition as possible.

2.5 Threatened and Endangered Species, Sensitive Species, and Sensitive Habitats

Entrega consulted with the USFWS and the BLM Field Offices regarding the presence of federally listed endangered, threatened, proposed and candidate species, BLM-listed sensitive species, and sensitive wildlife habitats in the vicinity of the proposed Entrega Gas Pipeline. Proposed measures to minimize disturbances to the identified species and habitats are included below.

2.5.1 Federally Listed or Proposed Threatened and Endangered Species

Entrega developed a Conservation Measure Plan (CMP) that includes measures to be implemented if federally listed species or species of concern are identified along the proposed pipeline route during project-specific surveys. The plan includes measures for all species based on the assumption that surveys will confirm presence of each species along the proposed pipeline route. Developed through coordination with the USFWS, Entrega's CMP includes the

appropriate measures to avoid or minimize impacts on protected species and the measures have been included as part of the proposed project. Implementation of these measures will avoid or minimize impacts on federally listed species such that the proposed project is not likely to adversely affect these species. The USFWS has provided comments to Entrega's first draft of its CMP, and the plan was filed as a part of Entrega's FERC Application on September 17, 2004. Entrega's CMP has been updated with information provided in the DEIS, and is included in appendix E.

2.5.2 BLM Listed Sensitive Species

Entrega developed a BLM CMP that includes measures to be implemented if BLM sensitive species are identified along the proposed pipeline route during project-specific surveys. The plan includes measures for all species based on the assumption that surveys will confirm the presence of each species along the proposed pipeline route. Developed through coordination with the BLM, the BLM CMP includes the appropriate measures to avoid or minimize impacts on sensitive species and the measures have been included as part of the proposed project. Implementation of these measures will avoid or minimize impacts on sensitive species such that the proposed project is not likely to result in a loss of viability, nor cause a trend to Federal listing or a loss of species viability rangewide. The BLM Field Offices have provided comments to Entrega's first draft of the BLM CMP, and the plan was filed as a part of Entrega's FERC Application on September 17, 2004. The BLM CMP has been updated with information provided in the DEIS, and is included in appendix E.

2.5.3 Sensitive Wildlife Habitats

Sensitive wildlife habitats assessed during agency review of the project included big game winter range, sage grouse leks, Colorado pikeminnow critical habitat, mountain plover nesting habitat, raptor nests, and T&E species habitats. Mitigation measures recommended by the BLM and the USFWS resource specialists for sage grouse leks, Colorado pikeminnow critical habitat, mountain plover nesting habitat, raptor nests, and T&E species habitats are included in appendix K. Big game ranges and specific sage grouse lek historic locations are discussed below.

Big Game Ranges

Crucial winter and winter/yearlong big game ranges for elk, pronghorn, and mule deer occur throughout the project area (Section 1, 4.3.3). Entrega will mitigate disturbance to these crucial big game ranges by avoiding construction activities within these habitats between November 15 and April 30 in Wyoming and between December 1 and April 30 in Colorado, as recommended by the Wyoming Game and Fish Department and the Colorado Division of Wildlife, respectively. The pipeline construction right-of-way will not create a permanent barrier to migrations. The disturbed area will be reclaimed immediately using revegetation and restoration measures specified in this plan.

To avoid disturbances to crucial winter and crucial winter/yearlong ranges during operation of the pipeline, operations and maintenance activities will also be scheduled outside of the November 15 to April 30 time window in Wyoming and the December 1 to April 30 time window in Colorado. Construction time windows will be adhered to and are included on the construction alignment sheets.

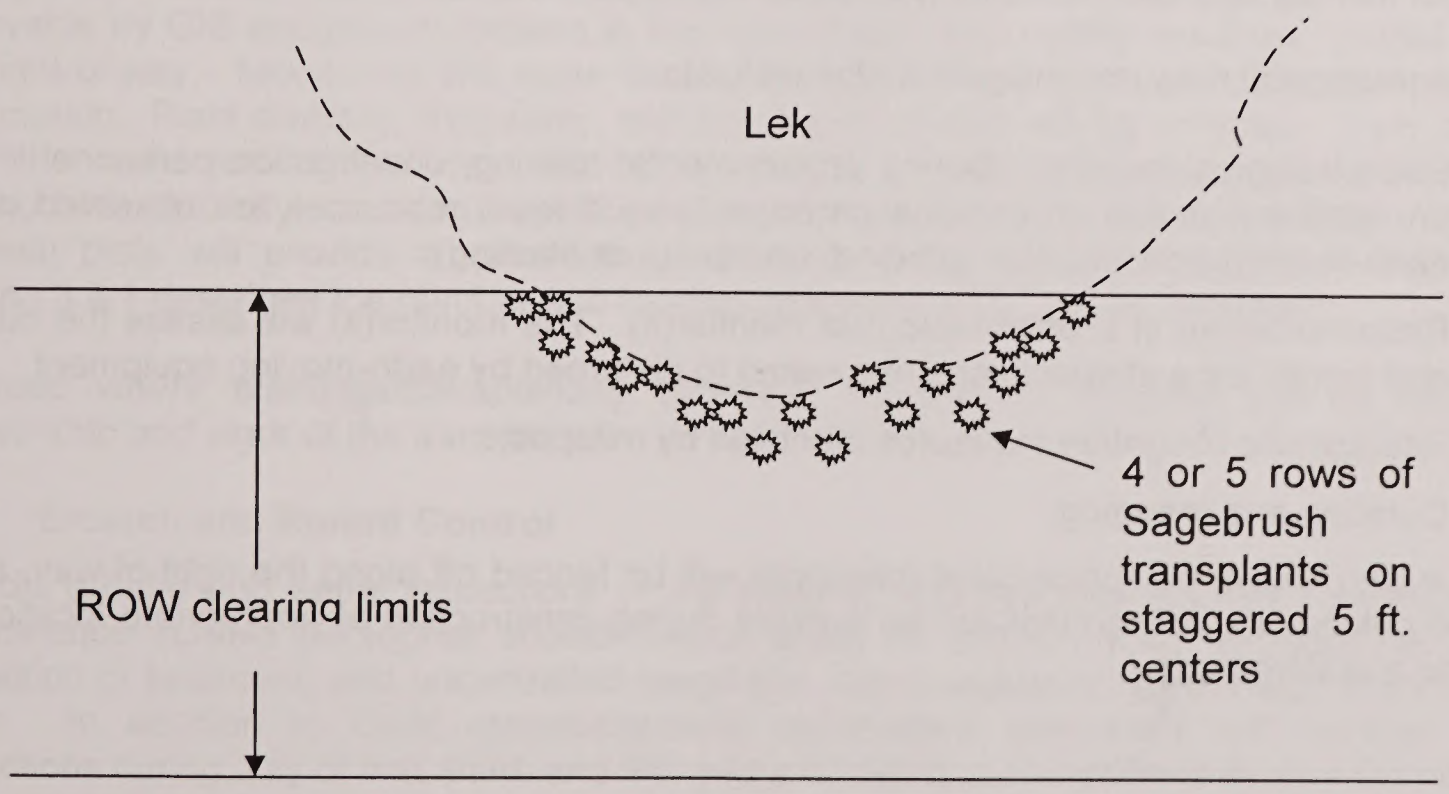
Sage Grouse Leks

Habitat for sage grouse leks occurs within the proposed project area. Full surveys to determine the locations of active leks will be conducted during the year of construction in accordance with Entrega's Survey Plan. See appendix K for conservation measures.

The BLM Craig Field Office and the Colorado Division of Wildlife (CDOW) identified three historic sage grouse leks that will be directly impacted by the clearing of portions of Entrega's construction right-of-way. The leks occurring within or adjacent to the project area are located at approximate MPs 61.0, 71.2, and 80.6. Additionally, there is an inactive lek located within 0.25-mile of the project area at MP 43.3. Field surveys conducted in 2004 and 2005 did not identify lekking activities in these areas.

For those leks where the clearing limits for the pipeline overlap or immediately adjoin the lek boundary, the BLM has expressed its desire to create a visual buffer so that grouse on the strutting ground would not view long expanses of linear right-of-way. To create this visual barrier, Entrega will establish sagebrush plants either by transplanting young sagebrush plugs from surrounding areas or by obtaining containerized sagebrush plants to be planted on the right-of-way, in accordance with BLM recommendations. Entrega will maintain a 10-foot-wide corridor directly over the pipeline for operation and maintenance activities.

Sagebrush plugs will be planted in four or five rows with the plants on 5-foot staggered centers (see sketch below). The first row will start along the original boundary of the lek. Entrega will consult with the BLM Craig Field Office and the CDOW to identify and mark the lek boundary in the field and to determine where the rows of sagebrush will be planted. Entrega will conduct transplanting during late fall when plants are dormant, or as otherwise approved by the BLM and CDOW. Should transplanting be unsuccessful, Entrega will increase sagebrush seeding efforts to establish the vegetative visual barrier around the perimeter of the lek.



2.6 Cultural Resources

2.6.1 Archaeological Resources

Cultural resources potentially impacted by this project will be protected as described in the BLM stipulations attached to the Grant and/or Notice(s) to Proceed. Data recovery and documentation will be completed on all identified sites, including excavation and monitoring the trench in designated areas, per the stipulations. For site avoidance, temporary barriers will be erected where required between the cultural resource sites and construction activity prior to the start of construction. The barrier will be upright wooden survey laths spaced no more than ten feet apart and marked with flagging, paint, or other distinctive markings. A qualified archaeological monitor and/or BLM archaeologist will direct temporary barrier placement as required by the stipulations issued with the BLM's Right-of-Way Grant.

Cultural resources will be protected during construction, operation, and maintenance procedures. In Colorado, Entrega will require a qualified archaeological monitor to be present for all phases of construction to monitor trenching and other ground disturbing activities. In Wyoming, Entrega will require a qualified archaeological monitor in areas where sensitive cultural resources are present or the potential for eligible resources exists (*i.e.* sensitive landforms). Additionally, cultural resource sensitivity training will be incorporated into Entrega's Environmental Training Program and morning tailgate meetings for construction personnel.

Site-specific monitoring and mitigation requirements are located in Entrega's Treatment Plans and Plan for the Unanticipated Discovery of Human Remains and Historic Properties.

2.6.2 Paleontological Resources

Construction of the project will involve several fossil-bearing rock formations. Due to the geographic distribution of these formations Entrega has prepared a Paleontological Mitigation and Monitoring Plan to fulfill the requirements of the FERC and the BLM regarding the protection of significant paleontological resources. The mitigation plan includes construction personnel training and spot monitoring of areas with a potential for fossils.

The paleontological resource mitigation plan includes:

- Paleontological training. During environmental training, construction personnel will be provided instruction on compliance procedures if fossil resources are observed during earth-moving activities (*i.e.*, grading, trenching, or blasting).
- Responsibilities of a paleontological monitor(s). The monitor(s) will assess the number and significance of specimens excavated to disturbed by earth-moving equipment.
- Site-specific mitigation measures identified by mileposts.
- Curation and reporting.

Sensitive and known paleontological resources will be fenced off along the right-of-way, and a qualified paleontological monitor will be present during construction at appropriate locations in Colorado and Wyoming.

3.0 Reclamation Monitoring Plan

3.1 Goals of Reclamation Monitoring

To assess the effectiveness of the reclamation treatments and to evaluate the condition of right-of-way, Entrega will implement a monitoring program consisting of field inspections and vegetative analysis. A report of the condition of the right-of-way and the status of sensitive resources affected during construction will be submitted to the FERC and the BLM. The monitoring program will also identify remedial measures that will be considered by Entrega to mitigate environmental degradation if the initial treatments were not effective in achieving the objectives of the reclamation program.

3.2 Reclamation Performance Criteria

Entrega's effort to reclaim areas disturbed during construction will be evaluated for a minimum period of five years. Successful reclamation performance will be based on revegetation success (*e.g.,* cover, frequency, and diversity), the absence of weeds or invasive plants (see appendix K), stability of the construction right-of-way, waterbody bed and bank stability; and visual aesthetics.

3.3 Monitoring Techniques and Procedures

To evaluate the success of revegetation, Entrega will use a quantitative rapid diversity assessment. This is an effective and efficient technique to monitor the composition of vegetative cover and diversity over time and between sampling plots. The technique is useful to measure the response of vegetation to disturbance.

In association with a vegetative monitoring program, Entrega will assess the success of reclamation efforts to stabilize soil and waterbodies.

3.3.1 Vegetation Monitoring

Entrega will monitor quadrats (*i.e.,* rectangular analytical plots identified in the field and retrievable by GIS equipment) located in the right-of-way, and control quadrats located outside the right-of-way. Monitoring will occur in July during the first, third, and fifth years following reclamation. Plant diversity, frequency, and percent cover data will be collected. Data obtained from the reclaimed right-of-way will be compared to vegetative data obtained from the undisturbed, naturally-occurring vegetative populations adjacent to the right-of-way. Variation between plots will provide a quantitative indication of the relative success of reclamation. Section 3.4.1 describes the number and location of the plots that will be assessed.

In areas where plantings/transplanting occurred, reclamation success will be based on survivorship and vigor of the transplants.

3.3.2 Erosion and Runoff Control

Periodic ground and aerial inspections of the route by Entrega Gas Pipeline Operations and Maintenance (O&M) personnel should detect areas of erosion (*i.e.*, formation of gullies, deposition of sediment) and uncontrolled runoff (*i.e.,* berm washouts) before significant impacts occur. In addition to O&M reconnaissance, reclamation specialists will conduct annual inspections during July of first, third, and fifth years following reclamation to assess the condition of the right-of-way and the effectiveness erosion control measures. This ground inspection will concentrate on steep slopes, erodible soils, and sensitive areas identified during construction by the Els and agency representatives.

3.3.3 Waterbody Stabilization

In association with erosion control and runoff inspections, Entrega representatives will visually assess the condition of bed and bank stabilization measures installed during restoration at waterbodies that were constructed using site-specific crossing plans (see appendix A-6). This assessment will occur with the same frequency of the erosion and runoff control inspections. In addition, a limited number of dry washes that drain into high quality streams will also be assessed for bed and bank stability.

3.4 Monitoring Methods and Procedures

3.4.1 Vegetation Quadrats

Entrega will survey plots to determine the vegetative diversity, density, frequency, and percent cover on the right-of-way, TUA and in off right-of-way areas following restoration. The monitoring program will meet the FERC's post construction monitoring requirements listed in Section VIII.A.3 of the Plan, which reads "Revegetation shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation (or crops in cultivated crop land) are similar in density and cover to adjacent undisturbed lands". Entrega will consider long term revegetation to be successful if approximately 80% of the proposed vegetative communities are reestablished in disturbed areas. In addition, vegetative monitoring will determine if, or to what extent, noxious weeds have become established in the project areas.

Entrega will use two teams for surveys, and conduct the program in July for three years, staggered over the first five years, following construction. The teams will consist of a vegetative specialist and a weed expert. Entrega will obtain landowner permission prior to conducting surveys.

Entrega will assess the vegetative diversity, frequency, and percent cover in sampling quadrats to assess revegetation. Entrega will monitor 50 quadrats, of which, 25 quadrats will be located in the right-of-way, and 25 in adjacent, undisturbed areas off the right-of-way. The number of quadrats per vegetative community will reflect the percentage of each community crossed by the pipeline route. Entrega will consult with the BLM prior initiating the program, to determine appropriate locations.

The sampling quadrats will be paired: one quadrat will be located on the construction right-of-way and a second quadrat will be located off the right-of-way in an undisturbed area (*i.e.,* control plot). The control quadrat will be located in proximity to right-of-way quadrat. Quadrant size will vary by vegetative community:

- In the Grassland-Sagebrush Shrub areas: 44 quadrats (22 in the right-of-way and 22 in undisturbed areas) measuring 3 meters square will be assessed; and,
- In the Juniper Woodland/Pinyon Juniper Woodland areas, six quadrats (three in the right-of-way and three in undisturbed areas) measuring 5 meters square will be assessed.

Within the quadrats, the monitors will determine the diversity of the cover by recording the number of native and invasive species present. Vegetative assessment in the Juniper Woodland/Pinyon Pine Woodland areas will be limited to the herbaceous understory (*e.g.*, mature, woody species will be omitted).

Diversity will be indicated by the number and species of plants counted in each quadrat. Foliar cover will be estimated. "Cover" is defined as the area of ground covered by vertical projection of the aerial portions of plants. Foliar cover will be recorded in 10 percent increments, (*i.e.,* 10, 20, 30 percent, etc.). For example, foliar cover of 10 percent will mean that 90 percent of the quadrat consists of exposed litter, rock, and other surface debris, and 10 percent is covered with living, foliar vegetation.

Comparing the data from sample year to sample year will provide Entrega with an indication if: cover is increasing, if the species composition and diversity of the vegetation is expanding or contracting from one area to another, and if noxious weeds have been established in the right-of-way.

The geographic location of quadrats will be collected and stored using hand-held, sub-meter accuracy global positioning system (GPS) equipment. Location and size of the quadrants will be recorded using area polygons. These data can easily be transferred from the GPS equipment to either a CAD or GIS software application for use on project maps or alignment sheets. Entrega will also permanently identify the four corners of the quadrats with 1x2-inch wooded or metal stakes embedded into the ground so that a 4-inch section of the stake is visible for future reference.

Entrega will also monitor the survival, vigor, and success of transplants in riparian areas. This assessment will include a count of living transplants and invasive species. These data will be compared to the number of trees transplanted during restoration.

Entrega will monitor the presence of noxious weeds in the right-of-way during the same timeframe as outlined above. . Measured values for native vegetation will be compared to the minimum success standards for each year in a summary report that will be submitted to the BLM and the FERC.

If required, Entrega will implement an additional revegetation and/or noxious weed control program in areas where monitoring has determined that additional measures would likely be successful.

3.4.2 Erosion and Runoff Control

Entrega will selectively survey areas that are susceptible to erosion (*i.e.,* step slopes and erodible soils) during the same timeframe as outlined above. The surveys will be conducted in July and will involve a visual inspection of steep slopes, erodible soils, and other erosion sensitive areas identified by EIs, and agency personnel during construction. This survey will assess the condition of the right-of-way, TUAs, and access roads, the effectiveness of the erosion control devices, and recommend repair or maintenance procedures that are necessary to meet reclamation objectives. Entrega will survey approximately 35 sites. Entrega will obtain landowner permission prior to conducting surveys. The inspection sites will range from 200 to 1,000 feet in length.

Entrega will use teams consisting of a soil scientist and a vegetation specialist for the survey. The teams will complete an Erosion and Runoff Control Inspection Form for each site visit. Photographic documentation will accompany the inspection report.

Survey teams will notify Entrega O&M personnel if areas of the right-of-way require immediate stabilization and repair to meet the reclamation objectives. O&M personnel will attempt to respond to a repair request within 48 hours of notification.

3.4.3 Waterbody Stabilization

Entrega will survey high-quality waterbodies, and dry washes that drain into high-quality streams during the same timeframe as outlined above. This visual assessment will evaluate the stability of the waterbody, condition of permanent erosion and sediment control measures, and the condition of the streambed and banks. Surveys will be conducted in July, and will involve two teams, each consisting of reclamation specialists. Entrega will obtain landowner permission prior to conducting surveys. The teams will use a Waterbody Stabilization Inspection Report Form. Photographic documentation will accompany the inspection report.

Entrega anticipates that inspection effort will require two weeks of field work to complete. During the surveys teams will notify O&M personnel if any stream or dry wash require stabilization and repair to meet the reclamation objectives. O&M personnel will attempt to respond to a repair request within 48 hours of notification.

3.5 Reclamation Monitoring Reports

Entrega will prepare an annual Reclamation Monitoring Report and submit this report to the BLM on or before December 31 of the inspection year. These reports will include:

<u>Vegetation</u>

- A summary of the general vegetative diversity, frequency, and cover between the right-of-way and the comparison with off right-of-way vegetation quadrats;
- An assessment of the condition of transplants in riparian areas;
- Identification of areas that require remedial action;
- Recommendations and schedule for remedial action(s); and,
- Monitoring forms.

<u>Erosion and Water Control</u>

- Summary description of the condition of the right-of-way;
- Identification and description of problem areas;
- Recommendations and schedule for remedial action (s); and
- Erosion and Runoff Control Inspection Forms.

<u>Waterbody Stabilization</u>

- Summary description of the condition and stability of high-quality waterbodies and associated washes;
- Identification and description of problem areas;
- Recommendations and schedule for remedial action (s); and
- Waterbody Stabilization Inspection Report Forms.

3.6 Remedial Action

Entrega will consult with the BLM Project Manager prior to initiating remedial actions. This consultation will establish a work schedule, prioritize the list of actions to be taken, identify the equipment required, and describe mitigative measures that will be implemented.

APPENDIX H

ENTREGA'S WEED MANAGEMENT PLAN

THIS APPENDIX DOES NOT INCLUDE ANY ATTACHMENTS THAT ARE REFERENCED IN THE PLAN

ENTREGA
GAS PIPELINE INC.

APPENDIX H

WEED MANAGEMENT PLAN

Rev. 3

Prepared for:

BUREAU OF LAND MANAGEMENT

Prepared by:

Natural Resource Group, Inc.

1515 Arapahoe Street, Suite 580

Denver, CO 80202

April 30, 2005

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2-1 Noxious and Invasive Weed Species and Existing Populations

Attachment List

A. State Laws Regarding Noxious Weeds

B. Agency Correspondence

C. Rio Blanco Land Use Resolution

1.0 INTRODUCTION

Noxious and invasive weed control practices for the Entrega Gas Pipeline Project described in the Weed Management Plan (Plan) plan have been developed in consultation with the following Bureau of Land Management (BLM) Field Offices:

- White River, Colorado
- Little Snake, Colorado
- Rawlins, Wyoming

Additionally, Entrega Pipeline Company Inc. (Entrega) consulted with the County Weed and Pest Districts and Weed Control Supervisors for the following counties:

- Rio Blanco, Colorado
- Moffat, Colorado
- Sweetwater, Wyoming
- Carbon, Wyoming
- Albany, Wyoming
- Laramie, Wyoming
- Larimer, Colorado
- Weld, Colorado

1.1 Plan Purpose

The purpose of this Plan is to prescribe methods to prevent and control the spread of noxious and invasive weeds during and following construction of the Entrega Gas Pipeline Project. Entrega and its Contractors will be responsible for implementing the methods described in this Plan.

This Plan is applicable to the construction and operation of the proposed pipeline facilities, including the pipeline right-of-way, the proposed compressor stations, the meter stations, areas of extra temporary workspaces, and any other areas disturbed during the construction and operation of the proposed facilities.

1.2 Goals and Objectives

The goal of Entrega's Weed Management Plan is to implement preventative measures to minimize the potential of establishment and spread of noxious and invasive weed infestations during the construction of the proposed facilities.

Legally, a noxious weed is any plant officially designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley, Petroff, and Borman,1999). A noxious weed is also commonly defined as a plant that grows out of place (*i.e.,* a rose can be a weed in a wheat field) and is "competitive, persistent, and pernicious." (James, *et al,* 1991). Noxious weeds are officially designated as unwanted or undesirable. Noxious weeds are opportunistic plant species that readily flourish in disturbed areas, thereby preventing native plant species from establishing successive communities.

An "invasive species" is defined as a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive plants include not only noxious weeds, but also other plants that are not native to this country. The BLM considers plants invasive if

they have been introduced into an environment where they did not evolve. As a result, they usually have no natural enemies to limit their reproduction and spread (Westbrooks, 1998).

1.3 Project Description

The proposed project includes the construction and operation of a buried 42- and 36-inch-diameter natural gas pipeline and ancillary facilities designed to transport natural gas from the Meeker Hub in western Colorado, north to Wamsutter, Wyoming, and then southeast to the Cheyenne Hub in northeastern Colorado.

2.0 NOXIOUS AND INVASIVE WEED INVENTORY

The BLM maintains a National List of Invasive Weed Species of Concern for western states that includes 132 plant species. The BLM inventory for Colorado can be accessed at: http://www.co.blm.gov/botany/weedhome.htm. The BLM inventory for Wyoming can be accessed at: http://www.wy.blm.gov/weeds/whatis.htm.

Not all invasive species are legally designated as noxious species. Colorado and Wyoming also maintain official state lists of weed species that are designated noxious species. Information on the State of Colorado Weed Management Program and species lists can be obtained at: http://www.ag.state.co.us/DPI/weeds/Weed.html. Information on the State of Wyoming Weed and Pest Districts and species lists can be obtained at: http://www.wyoweed.org/wp_dist.html.

Colorado

Under its Colorado Weed Management Act, §§ 35-5.5-101 through 119, C.R.S. (2000), Colorado has officially designated 82 plant species as noxious, divided into three lists. List A species are noxious weeds that are not common to the state and require eradication. Upon identification of list A species, the State Weed Coordinator/County Weed Control Supervisor are to be notified to coordinate control efforts. List B species are noxious weeds for which the state is currently developing management plans but does not require treatment for at this time. List C species are weed species commonly found throughout the state. While the state does not require treatment for species included on its Lists B and C, control of these species may be required at the county level.

Wyoming

Under the authority of the Wyoming Weed and Pest Control Act of 1973 (Wyoming Statute 115-119), Wyoming has officially designated 24 plant species as noxious. Per the Act, weed control is the responsibility of the landowner or the owner of rights-of-way or easement. Similar to Colorado, noxious weed control is required at the county level.

Consultations

Through consultations with the BLM, the states of Colorado and Wyoming, Colorado and Wyoming Departments of Agriculture, and the individual counties affected by the project, a list of noxious weeds of concern within the project area was developed and is presented in table 2-1. County Weed Districts and BLM Field Offices were requested to identify known noxious weed infestations within the vicinity of the proposed right-of-way and aboveground facilities. The known locations of existing noxious weed infestations are identified in table 2-1. Copies of consultation letters, e-mail, and phone logs of conversation with BLM and county weed management staff are included with this plan.

TABLE 2-1
Entrega Gas Pipeline Project
Noxious and Invasive Weed Species and Existing Populations

State/County/Agency	Noxious Weed Species of Concern Within the Project Area	Existing Noxious Weed Populations Within the Project Area (If known) a/
COLORADO		
State List A – designated for eradication	▪ African rue ▪ camelthorne ▪ common crupina ▪ cypress spurge ▪ Dyer's woad ▪ giant salvinia ▪ hydrilla ▪ meadow knapweed ▪ Mediterranean sage ▪ medusahead ▪ myrtle spurge ▪ purple loosestrife ▪ rush skeltonweed ▪ sericea lespedeza ▪ squarrose knapweed ▪ tansy ragwort ▪ yellow starthistle	
BLM Little Snake Field Office	• biannual thistle • cheatgrass • dalmation toadflax • halogeton • houndstongue • leafy spurge • tall whitetop • tamarisk • whitetop	
BLM White River Field Office	• black henbane • bull thistle • Canada thistle • houndstongue • mullein • musk thistle • perennial pepperweed • spotted knapweed	• Magnolia • Citadel, Magnolia • Citadel, WRay Gullch, Magnolia • Citadel, Magnolia • Magnolia • Citadel, Colorow, WRay Gulch, Magnolia • Crooked Wash/Deep Channel • Colorow
Rio Blanco Co.	• black henbane • Canada thistle • common burdock • common mullein • dalmation toadflax • diffuse knapweed • field bindweed • halogeton • hoary cress • houndstongue • leafy spurge • musk thistle • perennial pepperweed • plumeless thistle • Russian knapweed • Scotch thistle • spotted knapweed • sulfur cinquefoil • yellow toadflax • yellow starthistle	• MP 9.0 • MP 1.5, 9.0, 15.5 • MP 1.5, 6.5 • MP 15.3 • MP 1.5, 9.0 • MP 7.8, 15.5 • MP 18.0 • MP 9.0 • MP 1.5, 18.0 • MP 1.5, 2.4, 7.0
Moffat Co.	• Black henbane • Canada thistle	

TABLE 2-1
Entrega Gas Pipeline Project
Noxious and Invasive Weed Species and Existing Populations

State/County/Agency	Noxious Weed Species of Concern Within the Project Area	Existing Noxious Weed Populations Within the Project Area (If known) a/
	• Common burdock • Common cocklebur • Common mullein • Dalmatian toadflax • Field bindweed • Halogeton • Hoary cress • Houndstongue • Leafy spurge • Musk thistle • perennial pepperweed • Poison hemlock • Russian knapweed • Scotch thistle • Western water hemlock • Yellow toadflax	• MP 28-30
Larimer Co.	• dalmation toadflax • yellow toadflax	• MP 318.6
Weld Co.	• Russian knapweed • diffuse knapweed • Canada thistle • field bindweed • dalmation toadflax • musk thistle • leafy spurge • Scotch thistle	• northwestern Weld County. • northwestern Weld County.
WYOMING		
BLM Rawlins Field Office	• diffuse knapweed • spotted knapweed • Canada thistle • houndstongue • dalmation toadflax • musk thistle • whitetop • perennial pepperweed • field bindweed • leafy spurge • Russian knapweed • common burdock • Dyers woad • salt cedar • halogeton • Russian thistle • black henbane • kochia • gum weed	• MP 220-248 high potential • MP 220-248 high potential • MP 296-319 high potential; MPs 269, 273.5, 296 • MP 117-152 high potential; MP 117, MPs 121-122 and 193 • MPs 176 and 261-267 • MP 193 • MPs 122.3, 193, 194.5-199, and 225-226 • MPs 96 and 98-99 • MP 90-220 intermittent throughout; MPs 101-107 and 175-193 • MP 90-220 intermittent throughout; MPs 175-193 and 285 • MP 220-248 high potential • MP 254-255 • MP 254-255
Sweetwater County	• black henbane • foxtail barley	
Carbon County	• halogeton • plains pricklypear	• halogeton

TABLE 2-1
Entrega Gas Pipeline Project
Noxious and Invasive Weed Species and Existing Populations

State/County/Agency	Noxious Weed Species of Concern Within the Project Area	Existing Noxious Weed Populations Within the Project Area (If known) a/
	• plains larkspur • Wyeth lupine • spotted knapweed • Canada thistle • black henbane • whitetop • houndstounge • musk thistle • leafy spurge	
Albany County	• spotted knapweed • black henbane • Canada thistle • houdstongue • dalmation toadflax • musk thistle • whitetop • perennial pepperweed	• spotted knapweed – located near Carbon Co. line; • black henbane – located near Laramie County and west of Buford; • Canada thistle – located near water; • houndstongue, dalmation toadflax, musk thistle located from Laramie Co line west to Hwy 287; • whitetop and perennial pepperweed located between Hwy 287 and NW of the Little Laramie River
Laramie County	• dalmation toadflax • leafy spurge • Canadian thistle	

a/ Known weed inventories include infestation areas that were provided by BLM field offices and county weed personnel. Entrega will conduct a weed survey prior to construction in summer of 2005.

2.1 Weed Management Areas

Weed Management Areas (WMAs) are typically determined by multiple partners (*e.g.*, federal, state, and local agencies, organizations, private landowners) who collectively identify the boundaries of a management area and work with landowners in that area to contribute to the management of a designated weed species. The Middle Colorado River Watershed Cooperative Weed Management Area (MCRWCWMA) acts in such a coordinating role for northwestern Colorado and northeastern Utah. Other partners in weed control include the Southeast Carbon County (WY) Weed Management Area. WMAs are based on the location of a weed infestation or an area that is deemed a high priority to detect and control weeds. The parties work together to plan and budget weed management efforts for both long term and seasonal needs. The Wyoming Weed and Pest Management Districts, Rio Blanco County, Colorado, and the MCRWCWMA are currently updating their lists of noxious species and known locations; these will be compared with the proposed pipeline route when available.

3.0 NOXIOUS WEED MANAGEMENT

Entrega's weed management program is designed to:

- identify areas supporting weeds prior to construction;
- prevent the introduction and spread of weeds from construction equipment during construction; and,
- contain weed seeds and propagules by preventing segregated topsoil from being spread to areas.

3.1 Identification of Problem Areas

Entrega conducted incidental surveys for weed species of concern within the project area concurrent with biological and botanical surveys in 2004. These surveys were conducted by qualified specialists in weed identification. Entrega also identified known locations of weed infestations in the project area by contacting county and local weed control districts and BLM field offices (see table 2-1). Entrega will conduct dedicated weed surveys prior to construction. In addition to the areas supporting known infestations, all areas supporting noxious and invasive species will be delineated by the Environmental Inspectors (EI) by using color-coded flagging on the construction right-of-way prior to construction. The construction alignment sheets will identify the location of known weed infestations. Identification of existing noxious and invasive weed locations will alert environmental inspection and construction personnel to implement weed control measures during construction.

3.2 Preventive Measures

The following measures will be implemented to prevent the spread of noxious weeds:

- Prior to the beginning of construction of the project and at county lines, all Contractor vehicles and equipment will be cleaned of soil and debris capable of transporting weed propagules (see attached figure). All contractor vehicles and equipment will be inspected by the EIs and may require additional cleaning if necessary prior to mobilization to the right-of-way. Cleaning will be conducted using methods approved by FERC's Environmental Compliance Monitor after consultation with local environmental staff;
- To ensure compliance, each vehicle will be required to display a ticket on the driver's side dash board that identifies the station it passed through and the county in which the station is located. This will assist the EI in identifying compliance with the Plan.
- Weed cleaning stations will be constructed at all county lines, and at Entrega's construction spread break near the Yampa River crossing at approximately MP 50.5. Each station would be installed a minimum of 1,320 feet (0.25 miles) from perennial waterbodies. The station at the Yampa River will be sized smaller because it will service smaller vehicles (*i.e.,* rubber tired trucks driven by construction personnel) that travel between the spreads.
- Areas of the right-of-way where weed infestations are identified will be clearly marked prior to construction. In these areas, the Contractor will conduct full right-of-way topsoil stripping and will stockpile cleared vegetation and segregated topsoil (see Entrega's Plan for topsoil segregation requirements) along the right-of-way during construction. The stockpiles will be maintained adjacent to the areas from which they were obtained to eliminate the transport of soil-borne noxious and invasive weed propagules to other areas along the right-of-way. During reclamation, the Contractor will return topsoil and vegetative material to the areas from which they were obtained. Pretreatment of noxious and invasive weeds may be conducted in selected areas where required. Pretreatment methods may include the application of herbicide or mowing to prevent seed development (see section 3.3 Treatment Methods);
- The Contractor will ensure that straw or hay bales used to construct sediment control devices or used as mulch applications will be certified weed free and obtained from approved certified sources as recommended by the County Weed and Pest Districts, Weed Control Supervisors, and the States of Colorado and Wyoming.

- The Contractor will ensure that seed mixes utilized for revegetation will be certified weed free and obtained from approved certified sources as recommended by the States of Colorado and Wyoming;
- The Contractor will implement reclamation procedures of disturbed lands immediately following construction as described in the Construction Mitigation and Reclamation Plan (CM&R Plan). Continuing revegetation efforts will ensure adequate vegetative cover to discourage the invasion of noxious and invasive weeds. In areas of severe weed infestation, as determined by Entrega's environmental inspector(s), Entrega may elect to delay reclamation efforts and conduct intensive weed control efforts prior to implementing reclamation procedures. In areas where the project is co-located with the WIC Piceance Basin Expansion Project, the two companies will work together to reclaim the disturbed area as detailed in Entrega's CM&R Plan; and,
- The Contractor will limit the use of fertilizer in reclaimed areas. Fertilizer will only be applied where specified by the jurisdictional land management agency or the property owner.
- Each cleaning station will be decommissioned by gathering the collected sediment, framework, filter fabric, waste soil, weeds, and seeds and hauling the waste material to an off–site approved landfill.

3.3 Treatment Methods

Entrega's objective and intent is to assist local, county, and state noxious and invasive weed control efforts, comply with the requirements to prevent the spread of noxious and invasive weeds, and treat areas of the right-of-way where weed species form a significant portion of the vegetation community in comparison to adjacent undisturbed areas. Entrega's will utilize established reclamation practices to prevent the establishment of noxious and invasive weeds in reclaimed construction areas and pipeline right-of-way. Noxious and invasive weed control efforts will include use of certified seed mixes and certified weed-free mulch. In the event noxious and invasive weed species become established in the right-of-way, Entrega will make good faith efforts to control weeds in the right-of-way and to work with adjacent landowners to prevent spread of the species to adjacent lands.

Entrega will implement weed control measures in accordance with existing regulations and jurisdictional land management agency or landowner agreements and in accordance with Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan. Entrega intends to utilize state certified weed control contractor services as recommended by the local regulatory entities. Post-construction weed control measures may include the application of herbicide or mechanical, biological, and/or alternative methods. The weed control measure chosen will be the best method available for the time, place, and species of weed as mutually agreed upon by Entrega and the appropriate regulatory agencies.

- Herbicide application is an effective means of reducing the size of weed populations. Herbicide applications will be conducted prior to seed maturation where possible. Applications will be controlled, as described in section 5.1, to minimize the impacts on the surrounding vegetation. Spot herbicide applications will be the preferred option. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented. Seed selection will be based on site-specific conditions and the appropriate seed mix identified for those conditions, as presented

in the CM&R Plan. The timing of subsequent revegetation efforts will be based on the persistence of the selected herbicide.

Herbicide treatment methods will be based on species-specific and area-specific conditions (*e.g.,* proximity to water, riparian areas, or agricultural areas, and time of year) and will be coordinated with the local counties and regulatory agencies.

- Mechanical methods entail the use of equipment to mow or disc weed populations. Mechanical treatments will be conducted prior to seed maturation where required. If such a method is used, subsequent seeding will be conducted to re-establish a desirable vegetative cover that will stabilize the soils and slow the potential re-invasion of weeds. Seed selection will be based on site-specific conditions and the appropriate seed mix identified for those conditions, as presented in the CM&R Plan. Seed mixes utilized for revegetation will be certified weed free.
- Biological control methods may include use of agents such as goats, sheep, or insects. Local regulatory advice will be sought for biological noxious and invasive weed control.
- Alternate weed control measures such as repeated pulling or introduction of aggressive desirable species may be applicable in sensitive habitat and other areas. Local regulatory advice will be sought for alternative noxious and invasive weed control.

3.4 BLM Specific Requirements

The BLM has developed specific requirements for herbicide use on BLM managed lands. The *Final Environmental Impact Statement on Vegetation Treatment on BLM Lands in Thirteen Western States* (USDI 1991) lists 19 herbicides acceptable for use on BLM lands. Guidelines for the use of chemical control of vegetation on BLM lands are presented in the BLM's Chemical Pest Control Manual. These guidelines require submittal of a Pesticide Use Proposal (PUP) and Pesticide Application Records (PARs) for the use of herbicides on BLM lands.

The occurrence of weeds within the pipeline right-of-way will be reported to the BLM field office where the weeds occur. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with BLM personnel. Entrega will be responsible for providing the necessary personnel or hiring a Contractor to implement the weed control procedures. Entrega may be able to utilize cooperative agreements that may exist between the BLM and counties by providing the funds required for county personnel to implement the necessary weed control procedures.

4.0 MONITORING

Following construction, Entrega will monitor the pipeline right-of-way and proposed facilities for weeds. In addition, Entrega will conduct revegetation monitoring as required by its CM&R Plan. Following the end of Entrega's revegetation monitoring program, weed infestations will be monitored as part of its operations and maintenance surveys.

Entrega's effort to reclaim areas disturbed during construction will be evaluated over a period of 5 years. Successful reclamation performance will be based on revegetation success (*e.g.,* cover and diversity), the absence of weeds or invasive plants, and the erosional stability of the construction right-of-way. Additionally, the FERC and BLM will conduct monitoring of the project area that will continue until they have determined revegetation is successful. Landowners will be consulted regarding weed control status and implementation measures, and will be

encouraged to report concerns to Entrega. Landowners can contact Entrega by talking with their specified land agent, calling Entrega's toll-free line (1-866-305-3830), or by submitting an electronic comment on Entrega's website (http://www.entregapipeline.com).

To evaluate the success of revegetation, Entrega will monitor quadrants (*i.e.,* rectangular analytical plots identified in the field and retrievable by GIS equipment) located in the right-of-way, and control quadrants located outside the right-of-way. Revegetation monitoring will occur in July during the first, third, and fifth years following reclamation. Plant diversity, percent cover, and other data obtained from the reclaimed right-of-way will be compared to vegetative data obtained from the undisturbed, naturally-occurring vegetative populations adjacent to the right-of-way. Variation between plots will provide a quantitative indication of the relative success of reclamation.

To conduct weed monitoring, Entrega will use a team composed of a vegetative specialist and a weed expert to survey annually in July for 5 years following construction. As requested by the Moffat County Weed and Pest Department for purposes of white top surveys, Entrega will survey beginning in June in Moffat County. Entrega will consult with the BLM or appropriate regulatory agency prior to initiating the surveys, to determine appropriate locations. Entrega will obtain landowner permission prior to conducting surveys. Where required, following the initial 5 years of monitoring Entrega will implement additional revegetation and/or weed control programs in areas where monitoring has determined that additional measures would be necessary.

Entrega will prepare annual Reclamation Monitoring Reports. These reports may include information such as:

- A summary of the general vegetative cover and diversity between the right-of-way and the comparison with off right-of-way vegetation quadrants;
- An assessment of the condition of transplants in riparian areas;
- Photographs;
- Identification of areas that require remedial action;
- Recommendations and schedule for remedial action(s); and,
- Monitoring forms.

Copies of these monitoring reports will be kept on file with Entrega and will be provided annually to appropriate agency personnel.

5.0 HERBICIDE APPLICATION, HANDLING, SPILLS, AND CLEANUP

5.1 Herbicide Application and Handling

Herbicide application will be based on information gathered from the local Weed Districts and the BLM. Before application, Entrega or its Contractor will obtain any required permits from the local Weed Districts and/or the BLM. A licensed Contractor will perform the application in accordance with applicable laws and regulations.

All herbicide applications will follow United States Environmental Protection Agency label instructions. Application of herbicides will be suspended when any of the following conditions exists:

- Wind velocity exceeds 6 miles per hour (mph) during application of liquid or granular herbicides;
- Snow or ice covers the foliage of noxious weeds; or

- Precipitation is occurring or is imminent.

Vehicle-mounted sprayers (*e.g.,* handgun, boom, injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (*e.g.,* backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the project site daily with the following provisions:

- On-site herbicide quantities will be limited where practical;
- Concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a compartment that is isolated from food, clothing, and safety equipment;
- Mixing will be conducted in an upland area and at a distance greater than 100 feet from open or flowing water, wetlands, greater than 200 feet from private wells and greater than 400 feet from public wells, and;
- All herbicide equipment and containers will be inspected for leaks daily.

5.2 Herbicide Spills and Cleanup

Entrega has developed a Spill Containment and Control (SPCC) Plan that incorporates all reasonable precautions to be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are:

- protective clothing and gloves,
- a minimum of 20 pounds of suitable commercial adsorbent and barrier materials,
- plastic bags and bucket,
- shovel,
- fiber brush and screw-in handle,
- dust pan,
- caution tape, and
- detergent.

Response to an herbicide spill will vary depending on the material spilled, and the size and location of the spill. The order of priorities after discovering a spill are to protect the safety of personnel and the public, minimize damage to the environment, and conduct cleanup and remediation activities.

5.3 Worker Safety and Spill Reporting

All herbicide Contractors will obtain and have readily available copies of the appropriate material safety data sheets and the herbicide labels for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements. Refer to Entrega's SPCC Plan for further information regarding spill response and reporting.

6.0 REFERENCES

United States Department of the Interior (USDI), 1991. *Final Environmental Impact Statement on Vegetation Treatment on BLM Lands in Thirteen Western States.* Washington, D.C

Wyoming Weed and Pest Council http://www.wyoweed.org/

Rules and Regulations Pertaining to the Administration and Enforcement of the Colorado Weed Management Act http://www.ag.state.co.us/DPI/weeds/statutes/weedrules.pdf

Noxious Weed List for Colorado (12/2004) http://www.ag.state.co.us/DPI/weeds/mapping/CommonNameList.htm

The Bureau of Land Management - Noxious Weed Inventory for Colorado (12/2004): http://www.co.blm.gov/botany/weedhome.htm.

The Bureau of Land Management - Noxious Weed Inventory for Wyoming (12/2004): http://www.wy.blm.gov/weeds/whatis.htm.

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James, L., J. Evans, M. Ralphs, and R. Child, editors.1991. Noxious Range Weeds. Westview Press. Boulder, CO.

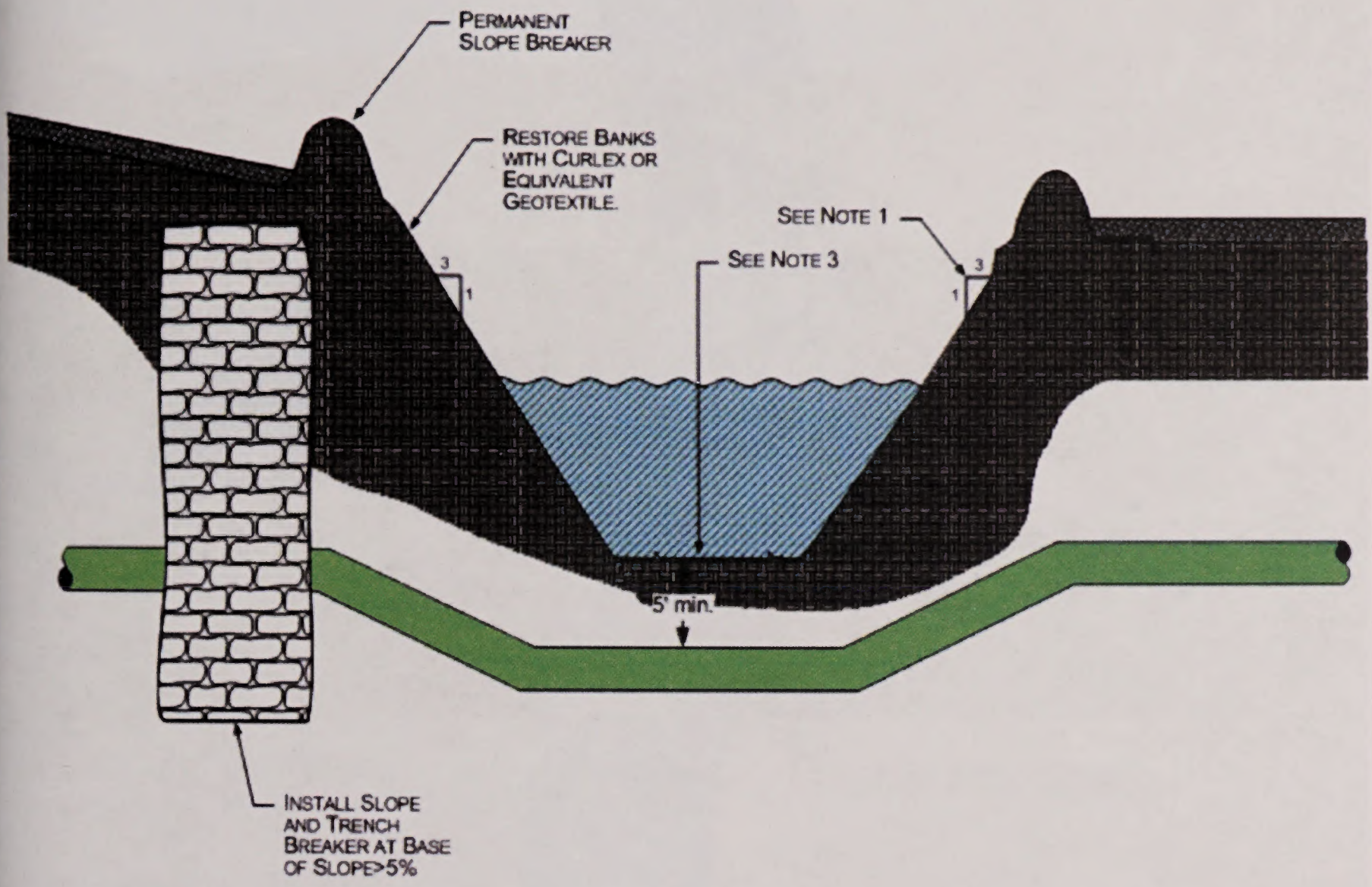
Sheley, R.,J. Petroff, M.. Borman, 1999. Introduction to Biology and Management of Noxious Rangeland Weeds, Corvallis, OR.

Westbrooks, R. 1998. Invasive plants, changing the landscape of America: Fact book. Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW). Washington, DC.

APPENDIX I

ENTREGA'S TYPICAL INCISED BANK STABILIZATION RESTORATION PLAN

STREAM BANK PROFILE VIEW



NOTES:

1. MATCH SLOPES AS CLOSE AS POSSIBLE TO ADJACENT ROW.
2. ROW WILL BE REDUCED TO 75' WHEN INCISED BANKS HAVE A DEPTH GREATER THAN 20'.
3. TO REDUCE BOTTOM SCOUR, CLEAN GRAVEL OR NATIVE COBBLE WILL BE PLACED IN THE UPPER 1 FOOT OF TRENCH BACKFILL.

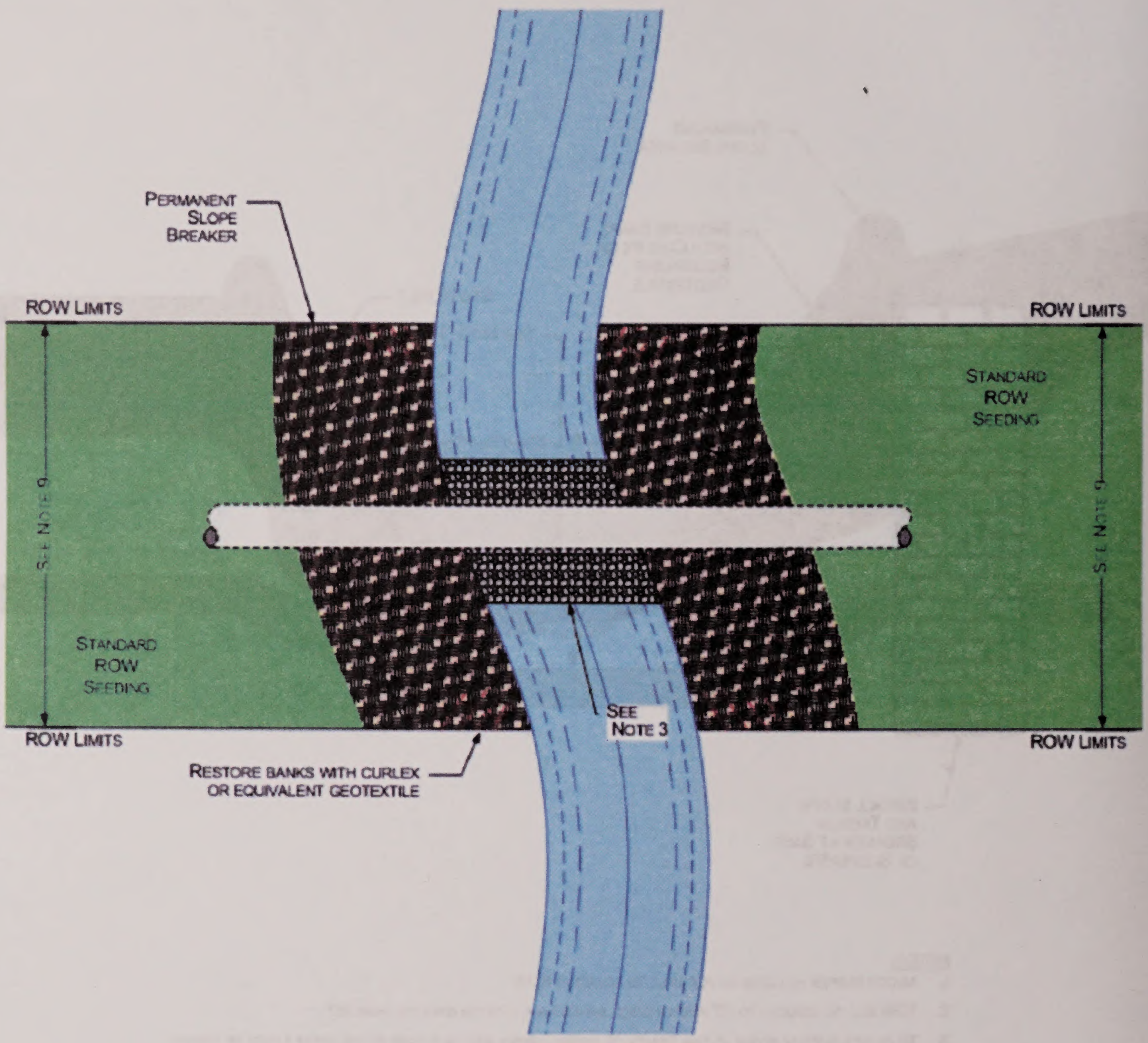
Revisions							
No.	Description	Date	By	Chk.	Appr.	Drawn By:	
						Checked By:	
						Reviewed By:	
						Approved By:	
						Project Manager:	
						Scale: None	

ENTREGA GAS PIPELINE INC.

Typical Incised Bank Stabilization Restoration Plan

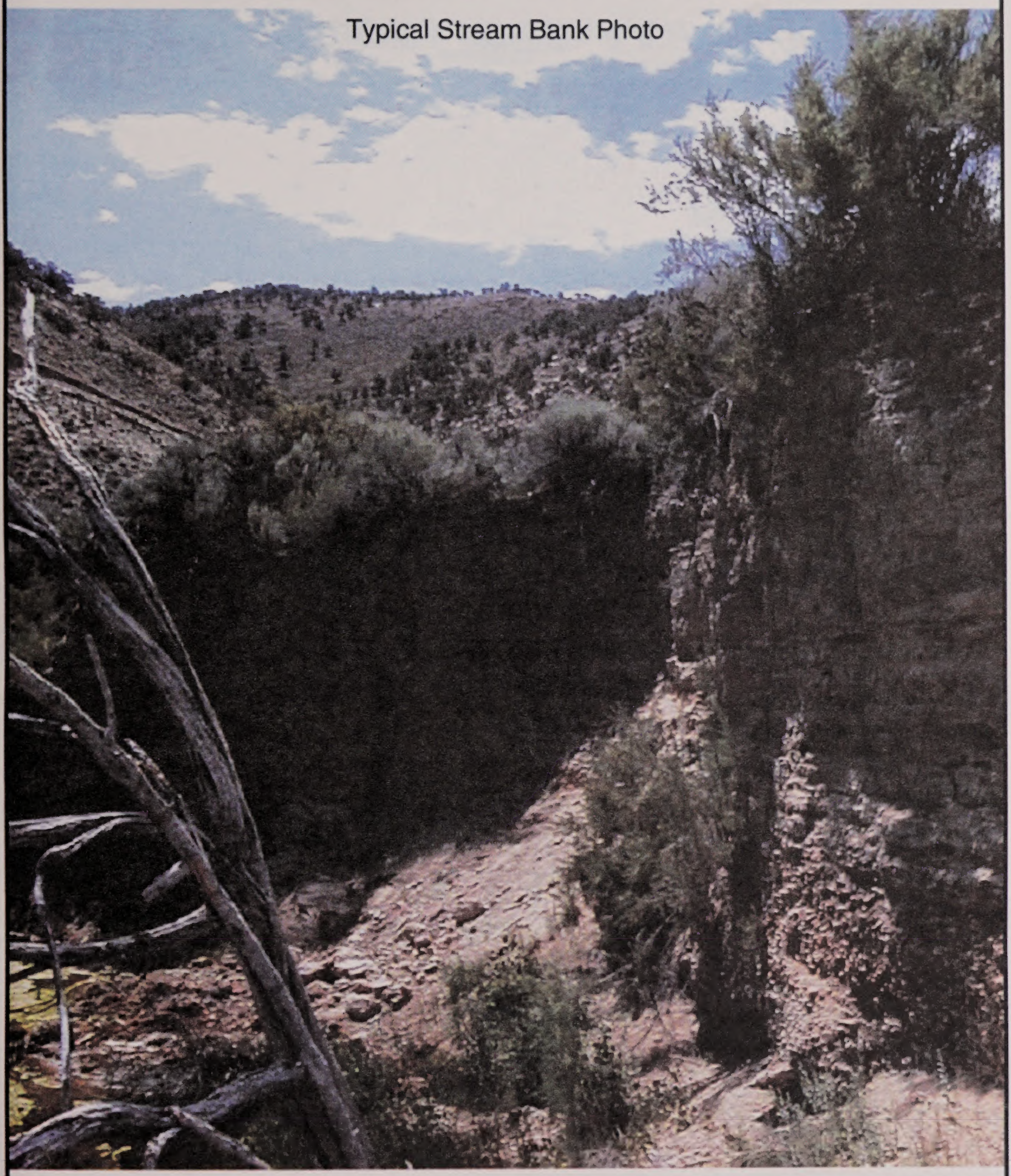
Project Number	Drawing Number	Rev
1900-05	ENT-STD-800	0

STREAM BANK PLAN VIEW



Revisions						Drawn By:		ENTREGA GAS PIPELINE INC.		
						Checked By:				
						Reviewed By:				
						Approved By:				
						Project Manager:		Typical Incised Bank Stabilization Restoration Plan		
No.	Description	Date	By	Chk.	Appr.	Scale: None		Project Number 1900-05	Drawing Number ENT-STD-801	Rev 0

Typical Stream Bank Photo



ENTREGA
GAS PIPELINE INC.

Typical Incised Bank Stabilization
Restoration Plan
Page 3 of 3

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NATURAL RESOURCE GROUP, INC.

APPENDIX J

ENTREGA'S SITE-SPECIFIC WATERBODY CROSSING PLANS

SITE-SPECIFIC WATERBODY CROSSING PLANS

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1. INTRODUCTION

These site-specific waterbody crossing plans are intended to provide measures to be taken by Entrega Gas Pipeline, Inc. (Company) and its contractors (Contractor) for construction activities in and adjacent to the specified waterbodies crossed by the Entrega Gas Pipeline Project. These plans were developed as an implementing document for relative environmental protection measures contained in the project's plans and permits and Entrega's Wetland and Waterbody Construction and Mitigation Procedures (Procedures). Each drawing was designed as a draft plan. Minor changes in the field may occur based on current site conditions at the time of the crossings. The Environmental Inspector will have the authority to approve minor changes to the plans in the field and will document such changes appropriately.

1.1 Purpose

These plans are designed to minimize the environmental impacts to waterbodies, wildlife and aquatic species, and the soils and vegetation in the vicinity of each crossing. The plans also identify specific environmental protection measures that will be implemented during construction and restoration to minimize short- and long-term impacts to the waterbodies, adjacent wetlands, and riparian habitats.

1.2 Responsibility

1.2.1 Company

The Company (i.e., Entrega) will be responsible for meeting the goals and objectives of these plans and for ensuring that the Contractor implements the environmental protective measures identified on the attached drawings. Company Construction and Environmental Inspectors will help the Contractor construct each crossing in accordance with the site-specific plans and the state and Federal permits governing construction activities in or near waterbodies and wetlands. In addition, the Company will ensure that all marking/flagging will be installed prior to the start of work and remain visible and in place throughout construction.

1.2.2 Contractor

The Contractor will be responsible for implementing the requirements described in the attached drawings and will install and properly maintain all environmental protection measures. The Contractor will also be responsible for acquiring and distributing an adequate supply of erosion control materials to meet the daily construction requirements as well as for emergency situations. Prior to starting a waterbody crossing, the Contractor will stockpile erosion control materials on-site, in the event that additional materials are needed during the crossing.

1.3 Training

Each member of the project team will attend environmental training prior to working on the right-of-way. The environmental briefing will address the requirements of the project, including specific waterbody crossing mitigation measures. For all of the crossings detailed in this plan, all project personnel constructing the crossing will participate in on-site briefing (tailgate training) conducted by the Environmental Inspector that will outline the requirements of the site-specific plan.

1.4 Related Plans and Drawings

The following documents include additional requirements specifically related to construction in waterbodies:

- Entrega's Procedures;
- Section 2 of Entrega's Plan of Development prepared for the Bureau of Land Management;
- Typical Incised Bank Stabilization Restoration Plan;
- Entrega's Stormwater Pollution Prevention Plan (SWPPP);
- Entrega's Horizontal Directional Drilling Inadvertent Release Control Plan; and
- Entrega's Spill Prevention, Containment, and Countermeasure Plan (SPCC).

2. SITE-SPECIFIC CROSSINGS

Site-specific plans have been developed for six (6) crossings on the Entrega Gas Pipeline Project (see Attachment A). The waterbodies include the major perennial river crossings. Where pipe will be installed, the waterbody will be crossed using the open-cut crossings technique or horizontal directional drill (HDD) method. The four major waterbodies are the White River, Yampa River, Little Snake River, and Platte River. The Medicine Bow River and Rock Creek River have also been included at the request of the Federal Energy Regulatory Commission (FERC).

3. CONSTRUCTION METHODS

3.1 Timing Window for Construction

Due to U. S. Fish and Wildlife Service restrictions regarding the Colorado Pikeminnow, a federally endangered fish species, all in-stream construction in the White and Yampa Rivers will be prohibited after March 30 and until October 1. Entrega will adopt the HDD

method for these crossings to avoid the time restrictions imposed on construction due to the potential impacts to the Colorado Pikeminnow.

3.2 Flagging and Signing

In addition to site-specific resource protection flagging at such features as wetlands, cultural sites, and for vegetation protection, the Company will flag and/or sign the following boundaries:

- clearing and grading limits of the right-of-way;
- all temporary use area (TUA) boundaries;
- limits for 100-foot buffers for refueling; and
- vegetative buffers parallel to bank.

The Environmental Inspector and survey crew will install flagging and/or signs oriented on the right-of-way so they are highly visible throughout construction.

3.3 Vehicle and Equipment Crossing

It will be necessary for vehicles and equipment to cross waterbodies to access locations on the right-of-way, transport materials and pipe, and to install the pipe across the waterbody. Temporary equipment bridges may be installed across all waterbodies that are flowing or saturated at the time of construction. Figure 1 shows a typical bridged equipment crossing.

3.4 Hazardous Materials

An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to the standard equipment (shovels, personal protective gear, fire fighting equipment, emergency contacts, storage containers, and communication equipment) will be on hand with each construction and cleanup crews to allow the rapid containment and recovery of spilled materials and equipment leaks. The Contractor will comply with all applicable requirements of Entrega's SPCC Plan.

3.5 Temporary Use Area (TUA) Requirements

TUAs will be required at a number of the waterbody crossings to store spoil and fabricate pipe. TUAs will be set-back from the top of the bank, out of riparian areas. In no case will TUAs be located closer than 10 feet from the top of the bank. The site-specific drawings contained in Attachment A depict the location and dimensions of TUAs and the associated erosion control structures intended to prevent sediment transport from a TUA to a waterbody.

3.6 Clearing and Grading

Prior to construction, the right-of-way and TUA boundaries will be staked and/or flagged. Clearing and grading activities will be limited to the staked boundaries as indicated on the site-specific drawings. A 10-foot buffer zone will be maintained at all waterbody crossings. Temporary erosion and sedimentation control measures will be installed prior to or immediately after earth disturbing activities.

3.7 Trenching and Backfilling

The trench will be excavated using a standard open-cut crossing technique (see below), unless otherwise noted on the site-specific drawing. All spoil generated from the crossing must be stored within the right-of-way limits at least 10 feet from the water's edge or in additional workspace as indicated on the site-specific drawings. Every effort will be made to complete the crossing within the timeframes specified in Entrega's Procedures.

3.7.1 Open-Cut Crossing Method

The open-cut crossing method will involve trenching through the waterbody while water continues to flow through the trenching area. Prior to initiating construction across the waterbody, pipe segments for the crossing will be fabricated in adjacent TUAs. Backhoes or draglines will then excavate a trench in the flowing waterbody from one or both of the waterbody banks. Where the waterbody is too wide to excavate the trench from the banks, equipment may operate from within the waterbody. Equipment operating within the waterbody will be limited to that needed to construct the crossing. Entrega will place spoil excavated from the trench in the stream bed or a minimum of 10 feet from the edge of the waterbody for temporary storage. Sediment barriers will be installed where necessary to prevent sediment and excavated spoil from entering the water. Earthen trench plugs will be left in place on both banks of the waterbody until immediately before pipe installation. This will separate the waterbody trench from the upland trench to prevent water from being diverted into the upland portions of the pipeline trench and to keep muddy water that accumulates in the upland trench from flowing into the waterbody. Once the trench is excavated, the prefabricated segment of pipe will be installed in the trench. Most pipe installed under waterbodies will be coated with concrete or equipped with set-on weights to provide negative buoyancy. The trench will then be backfilled with native streambed spoil. Entrega will complete all in-stream work within 48 hours for waterbody crossings less than 100 feet wide, water's edge-to-water's edge.

3.7.2 Horizontal Directional Drill Method

The HDD method is a technically advanced process involving skilled operators. HDD is a pipeline installation method typically used to avoid disturbance of sensitive surface features, including waterbodies and wetlands. The process uses drilling fluid consisting primarily of water and bentonite, a naturally occurring clay. The drilling fluid is prepared in the mixing tank using both new and clean recycled drilling fluid. The fluid is pumped at rates of 200 to 1,000 gallons per minute through the center of the drill pipe to the cutters.

Return flow is through the annulus created between the wall of the boring and the drill pipe. In the entry pit, the fluid is pumped to the fluid processing equipment. Typically, shaker screens, desanders, desilters, and centrifuges remove increasingly finer cuttings from the drilling fluid. The cleaned fluid is recycled to the mixing tank and pumps for reuse in the borehole. The excess cuttings are disposed of at a site approved to accept this type of material. Directional drilling does, however, present a remote potential for surface disturbance through inadvertent drilling fluid releases. Drilling fluid releases are typically caused by pressurization of the drill hole beyond the containment capability of the overburden soil material, which allows the drilling fluid to flow to the ground surface. Releases can be caused by fractures in bedrock or other voids in the geotechnical strata that allow the fluid to surface even if the downhole pressures are low. Providing adequate depth of cover for the installation can substantially reduce the potential for inadvertent releases. Detection of drilling fluid seepage is dependent upon the skill and experience of the drilling crew. A minimum depth of cover of 25-feet in competent soils is required to provide a margin of safety against drilling fluid seepage. The areas that present the highest potential for drilling fluid seepage are the drill entry and exit points where the overburden depth is minimal. At the entry and exit points, a pit can be constructed to collect and provide temporary storage for the drilling fluid seepage until it can be pumped into the drilling system.

3.8 Trench Dewatering

If trench dewatering is necessary, silt laden water from the trench will be discharged into a stable upland area. The flow will be directed into an energy dissipating device to reduce scour and minimize erosion. If a well vegetated upland area is not available, a straw bale dewatering structure or sediment filter bag will be used. Discharge areas will be located and identified in the field prior to construction of the crossing. The discharge must be situated to promote sheet flow and infiltration to the greatest extent possible. In no case will runoff from trench dewatering be allowed to return to a waterbody. The project's SWPPP provides additional information on trench dewatering techniques.

4. EROSION CONTROL AND RESTORATION

4.1 Erosion Control

Temporary erosion and sediment control structures will installed prior to or immediately after the first earth disturbing activity and will be maintained until permanent erosion control structures are in place. Erosion and sediment control structures will be placed as indicated on the site-specific plans, but may be moved or altered in the field to accommodate for actual runoff patterns at the time of construction. Permanent waterbars or similar runoff diversion devices will be installed on each side of the waterbody immediately after the pipe is installed, backfilled, and final graded. All erosion control structures will be installed and maintained in accordance with the plans listed in Section 1.4 of this document.

4.2 Restoration

Restoration of the streambed and banks will begin immediately after the trench is backfilled. The Contractor will make every effort to stabilize the channel and install temporary erosion control measures within 24 hours of completing the crossing. Waterbody banks will be returned to preconstruction contours, however, a slightly less angle of repose may be required to ensure bank stability. Final site restoration and permanent erosion controls will be completed, if possible, immediately following the completion of all construction activities, including hydrostatic testing.

Entrega will use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries (i.e., White River (if open cut contingency is needed), Little Snake River, North Platte River, Medicine Bow River, Rock Creek). Further, Entrega will install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, Entrega will install sediment barriers as outlined in its Plan. In some areas, with the approval of the environmental inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

4.2.1 Riparian Restoration

Because riparian woodland exists at the North Platte River crossing, Entrega will adhere to the restoration and revegetation provisions outlined in its Site-Specific Construction and Revegetation Plan for Riparian Woodland Communities. These provisions include, but are not limited to, the following:

- Entrega will reduce permanent impacts to riparian woodland by limiting vegetation maintenance to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way in accordance with section V.D.1 of its Procedures.

- Entrega will maintain a 10-foot-wide corridor centered over the pipeline in riparian woody areas in an herbaceous state in accordance with section V.D.1 of its Procedures.

- If conditions require, trees within 15 feet of the pipeline centerline that are greater than 15 feet in height may be selectively cut and removed from the right-of-way on an as-needed basis, not to exceed once every 3 years. Entrega will only use mechanical mowing or cutting along its right-of-way for normal vegetative maintenance. However, in those areas where the pipeline will parallel or be within adjacent rights-of-way, alternate means of vegetative maintenance may be used by the land owner(s) of those areas.

- No herbicides or pesticides will be used within 100 feet of a waterbody.

- Entrega will also reseed, plant, and/or allow for natural revegetation in the area disturbed by construction with tree and shrub species of similar type, diversity, and density. Entrega is in the process of consulting with the Bureau of Land Management, Rawlins Field Office, the Natural Resource Conservation Service, and the landowners of the properties containing riparian woodlands to develop seed mixes for reseeding in riparian woodland areas.

- In addition to reseeding with woody riparian seed mixes and where required by permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way.

Attachment A

Little Snake River, MP 84.5

1. The time windows outlined in Entrega's project-specific Procedures for crossing coldwater fisheries is June 1 through September 30. Entrega plans to start the crossing on or about August 15, 2005.
2. Prior to construction, the Contractor will post warning signs upstream of the crossing site visible to recreational users stating "Heavy construction equipment in use downstream within and near waterbody. Do not pass or use caution at crossing."
3. Access will be made along the right-of way on the north side and from an approved access road on the south side of the river.
4. The river will be crossed using the open-cut method.
5. A railroad car or equivalent span bridge with or without supports will be installed for access across the river.
6. Equipment refueling and hazardous material storage will occur in approved areas only. No refueling within 100 feet of the water's or wetland edge.
7. Unless depicted otherwise on the site-specific drawings, the TUA will be set back from the water's edge a minimum of 10 feet. No clearing will occur between the TUA and 10 feet of the water's edge.
8. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and or embedded silt fence along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
9. Sediment control devices must be installed and maintained across the construction right-of-way and haul road, except during excavation and installation of the pipeline crossing segment. Sediment barriers must be installed between the spoil areas and the water's edge prior to in stream excavation. Erosion control devices must be functional across the right-of-way during non-working hours.
10. Contractor shall maintain hard or soft plugs in the trench until just prior to the installation of the crossing segment.
11. Contractor shall place stream trench spoil a minimum of 10 feet from the water's edge on the right-of-way and within the fenced TUA.
12. The stream will be backfilled with native material. Clean gravel or native cobbles will be used in the upper 1 foot of the trench backfill.
13. Contractor shall restore the stream bed and banks to approximate pre-construction contours after installation of the pipe segment.
14. Stream banks shall be stabilized with erosion control fabric or equivalent as soon as practical after completion of the crossing, but within 24 hours after completion of the crossing.
15. Contractor shall dispose of all excess spoil at a location approved to accept such waste
16. Trenching, installing the pipe and backfilling activities are projected to take 48 to 72 hours to complete. Site specific conditions such as blasting may prolong the process. Every attempt to expedite the crossing duration will be implemented.
17. Crossing must be completed after July 1, due to eagle nest proximity.
18. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to the standard equipment will be on hand with each construction and cleanup crews to allow the rapid containment and recovery of spilled materials and equipment leaks.
19. Rutting of wetlands within the construction right-of-way will be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
20. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used to restore wetlands.
21. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
22. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

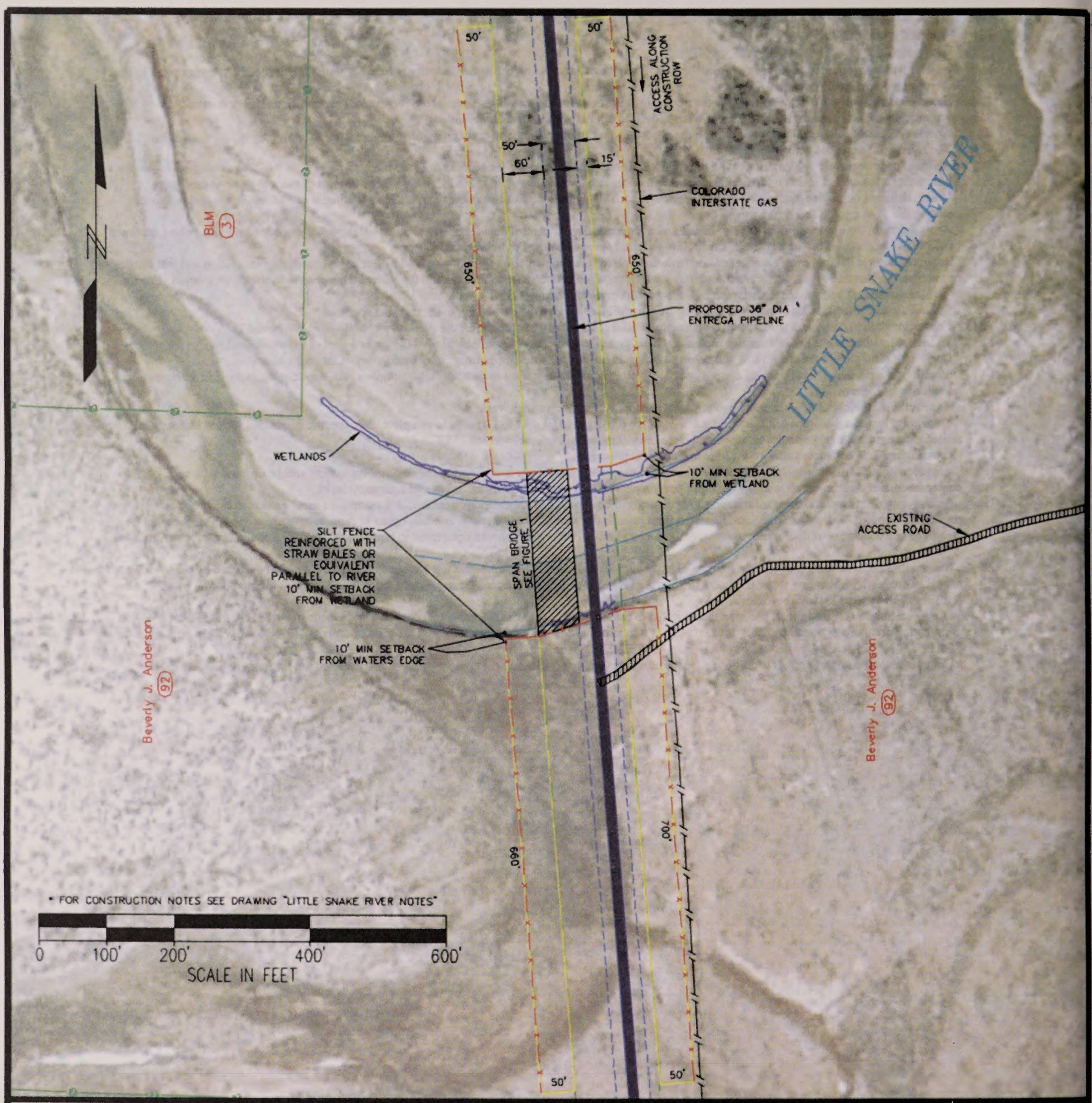
Crossing Notes – Little Snake River MP 84.5

ENTREGA GAS PIPELINE — Moffat, Colorado

SCALE: N/A	CLJ 12/16/04			

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER	REV.
LITTLE SNAKE RIVER NOTES	A



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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Open Cut Crossing Detail – Little Snake River MP 84.5

ENTREGA GAS PIPELINE — Moffat, Colorado

SCALE: 1"=200'	CLJ 12/16/04			

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER	REV.
LITTLE SNAKE RIVER	B

Medicine Bow River, MP 225.5

1. The time windows outlined in Entrega's project-specific Procedures for crossing coldwater fisheries is June 1 through September 30. Entrega plans to start the crossing on or about August 15, 2005.
2. Access will be made along the right-of way on both sides of the river.
3. The river will be crossed using the open-cut method.
4. A railroad car or equivalent span bridge with or without supports will be installed for access across the river.
5. Equipment refueling and hazardous material storage will occur in approved areas only. No refueling within 100 feet of the water's or wetland edge.
6. Unless depicted otherwise on the site-specific drawings, the TUA will be set back from the water's edge a minimum of 50 feet. No clearing will occur between the TUA and 50 feet of the water's edge.
7. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and or embedded silt fence along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
8. Sediment control devices must be installed and maintained across the construction right-of-way, except during excavation and installation of the pipeline crossing segment. Sediment barriers must be installed between the spoil areas and the water's edge prior to in stream excavation. Erosion control devices must be functional across the right-of-way during non-working hours.
9. Contractor shall maintain hard or soft plugs in the trench until just prior to the installation of the crossing segment.
10. Contractor shall place stream trench spoil a minimum of 10 feet from the water's edge on the right-of-way and within the fenced TUA.
11. The stream will be backfilled with native material. Clean gravel or native cobbles will be used in the upper 1 foot of the trench backfill.
12. Contractor shall restore the stream bed and banks to approximate pre-construction contours after installation of the pipe segment.
13. Stream banks shall be stabilized with erosion control fabric or equivalent as soon as practical after completion of the crossing, but within 24 hours after completion of the crossing.
14. Contractor shall dispose of all excess spoil at a location approved to accept such waste.
15. Trenching, installing the pipe and backfilling activities are projected to take 48 to 72 hours to complete. Site specific conditions such as blasting may prolong the process. Every attempt to expedite the crossing duration will be implemented.
16. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to the standard equipment will be on hand with each construction and cleanup crews to allow the rapid containment and recovery of spilled materials and equipment leaks.
17. Rutting of wetlands within the construction right-of-way will be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
18. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used to restore wetlands.
19. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
20. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Crossing Notes – Medicine Bow River MP 225.5

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: N/A | CLJ 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: MEDICINE BOW RIVER NOTES

REV.: A

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B	REVISED DELINEATED WETLAND DATA	
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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Open Cut Crossing Detail – Medicine Bow River MP 225.5

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: 1"=200' | CLJ | 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: MEDICINE BOW RIVER

REV.: B

North Platte River, MP 192.7

1. The time windows outlined in Entrega's project-specific Procedures for crossing coldwater fisheries is June 1 through September 30. Entrega plans to start the crossing on or about August 15, 2005.
2. Access will be made on a county road on the west side and from an approved access road on the east side of the river.
3. A railroad car or equivalent span bridge with or without supports may be installed for access across the river.
4. Equipment refueling and hazardous material storage will occur in approved areas only. No refueling within 100 feet of the water's or wetland edge.
5. Unless depicted otherwise on the site-specific drawings, the TUA will be set back from the water's edge a minimum of 50 feet. No clearing will occur between the TUA and 50 feet of the water's edge.
6. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and or embedded silt fence along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
7. Sediment control devices must be installed and maintained across the construction right-of-way and haul road, except during excavation and installation of the pipeline crossing segment. Sediment barriers must be installed between the spoil areas and the water's edge prior to in stream excavation. Erosion control devices must be functional across the right-of-way during non-working hours.
8. Contractor shall maintain hard or soft plugs in the trench until just prior to the installation of the crossing segment.
9. Reduce the width of the construction ROW to 75 feet on the island within the waterbody.
10. Contractor shall place stream trench spoil a minimum of 10 feet from the water's edge on the right-of-way and within the fenced TUA.
11. The stream will be backfilled with native material. Clean gravel or native cobbles will be used in the upper 1 foot of the trench backfill.
12. Contractor shall restore the stream bed and banks to approximate pre-construction contours after installation of the pipe segment.
13. Stream banks shall be stabilized with erosion control fabric or equivalent as soon as practical after completion of the crossing, but within 24 hours after completion of the crossing.
14. Contractor shall dispose of all excess spoil at a location approved to accept such waste.
15. Trenching, installing the pipe and backfilling activities are projected to take 48 to 72 hours to complete. Site specific conditions such as blasting may prolong the process. Every attempt to expedite the crossing duration will be implemented.
16. Contractor will also refer to Entrega's Site-Specific Construction and Revegetation Plan for riparian woodland communities for guidance regarding woodland existing at north platter river crossing summarized in section 4.2.1.
17. Minimum of one week (7 days) prior to commencing work at the North Platte River, the following individuals shall be notified:

    Mr. Scott Schmidt
    City of Rawlins Water Treatment plant
    Rawlins, WY
    307/328-4564

    Mr. Dean Cunningham, Water Plant Engineer
    Sinclair Refinery
    Sinclair, WY
    307/328-3532

    and/or

    Mr. Charlie Welch, Chief Operator, River Pump Station
    Sinclair Refinery
    Sinclair, WY
    307/328-3513

    Mr. Robert Jaure, Maintenance Foreman
    Wyoming Department of Transportation
    Rawlins, WY 82301
    307/328-4107

18. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to the standard equipment will be on hand with each construction and cleanup crews to allow the rapid containment and recovery of spilled materials and equipment leaks.
19. Rutting of wetlands within the construction right-of-way will be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
20. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used to restore wetlands.
21. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
22. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.
23. Public access along Carbon County Road 347, west of the North Platte River, will be maintain during construction by means leaving a lane of traffic open or providing a detour.

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

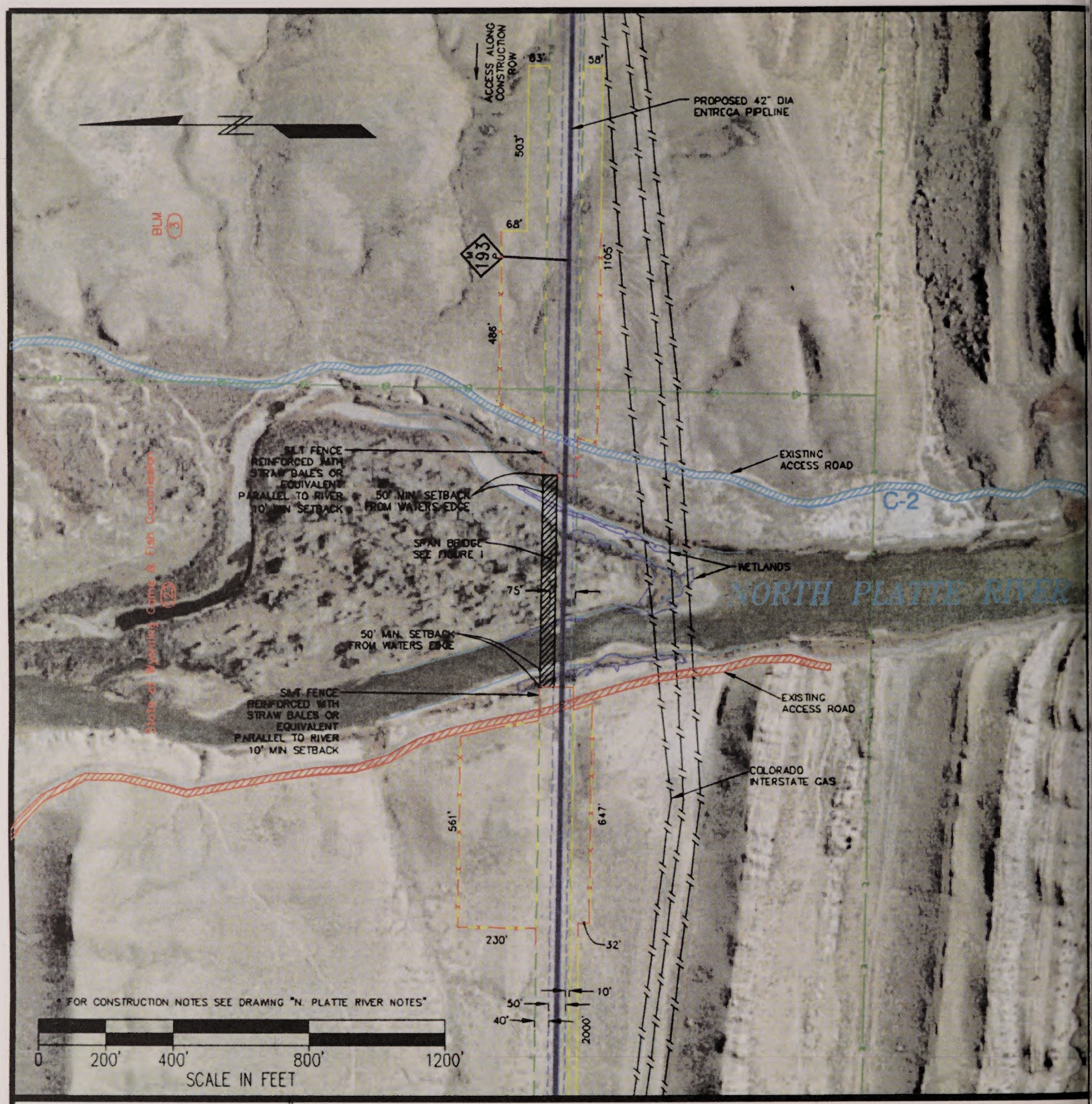
Crossing Notes – North Platte River MP 192.7

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: N/A | CLJ 12/16/04

TRIGON EPC • ENGINEERING • PROCUREMENT • CONSTRUCTION

DRAWING NUMBER: NORTH PLATTE RIVER NOTES | REV. A



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REVISIONS	
C	REVISED TUA
B	REVISED DELINEATED WETLAND DATA

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Open Cut Crossing Detail – North Platte River MP 192.7

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: 1"=400' | CLJ 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: NORTH PLATTE RIVER

REV.: C

Rock Creek, MP 237.3

1. The time windows outlined in Entrega's project-specific Procedures for crossing coldwater fisheries is June 1 through September 30. Entrega plans to start the crossing on or about July 15, 2005.
2. A minimum of one week (7 days) prior to instream work at Rock Creek, the following individual shall be notified:
   Mr. David Lemler - Chief Water Plant Operator
   Town of Rock River, WY
   Office: 307/378-2386
   Home: 307/378-2479
3. Access will be made along the right-of way on both sides of the river.
4. The river will be crossed using the open-cut method.
5. A railroad car or equivalent span bridge with or without supports will be installed for access across the river.
6. Equipment refueling and hazardous material storage will occur in approved areas only. No refueling within 100 feet of the water's or wetland edge.
7. Unless depicted otherwise on the site-specific drawings, the TUA will be set back from the water's edge a minimum of 50 feet. No clearing will occur between the TUA and 50 feet of the water's edge.
8. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and or embedded silt fence along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
9. Sediment control devices must be installed and maintained across the construction right-of-way, except during excavation and installation of the pipeline crossing segment. Sediment barriers must be installed between the spoil areas and the water's edge prior to in stream excavation. Erosion control devices must be functional across the right-of-way during non-working hours.
10. Contractor shall maintain hard or soft plugs in the trench until just prior to the installation of the crossing segment.
11. Contractor shall place stream trench spoil a minimum of 10 feet from the water's edge on the right-of-way and within the fenced TUA.
12. The stream will be backfilled with native material. Clean gravel or native cobbles will be used in the upper 1 foot of the trench backfill.
13. Contractor shall restore the stream bed and banks to approximate pre-construction contours after installation of the pipe segment.
14. Stream banks shall be stabilized with erosion control fabric or equivalent as soon as practical after completion of the crossing, but within 24 hours after completion of the crossing.
15. Contractor shall dispose of all excess spoil at a location approved to accept such waste.
16. Trenching, installing the pipe and backfilling activities are projected to take 48 to 72 hours to complete. Site specific conditions such as blasting may prolong the process. Every attempt to expedite the crossing duration will be implemented.
17. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to the standard equipment will be on hand with each construction and cleanup crews to allow the rapid containment and recovery of spilled materials and equipment leaks.
18. Rutting of wetlands within the construction right-of-way will be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
19. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used to restore wetlands.
20. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
21. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Crossing Notes – Rock Creek MP 237.3

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: N/A | CLJ 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: ROCK CREEK NOTES

REV.: A

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Open Cut Crossing Detail - Rock Creek MP 237.3

ENTREGA GAS PIPELINE — Carbon, Wyoming

SCALE: 1"=200' | CLJ | 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: ROCK CREEK

REV.: B

White River, MP 15.1

1. The White River will be crossed using the horizontal directional drill (HDD) crossing method. In the event the HDD method proves to be unsuccessful, Entrega will cross the Whiter River using the open cut method.
2. Prior to construction, the Contractor will post warning signs upstream of the crossing site visible to recreational users stating "Heavy construction equipment in use downstream within and near waterbody. Do not pass or use caution at crossing."
3. A railroad car or equivalent span bridge with or without supports may be installed for access across the river.
4. Equipment refueling and hazardous material storage will occur a minimum of 100 feet from the water's or wetland edge.
5. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and/or embedded silt fence across the right-of--way and along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
6. Sediment control devices must be installed and maintained across the construction right-of-way and haul road, except during excavation and installation of the pipeline crossing segment. Erosion control devices must be functional across the right-of-way during non-working hours.
7. Contractor shall dispose of all excess spoil and drilling fluid/cuttings at a location approved to accept such waste.
8. Jim Dewitt of the City of Rangeley to be notified of equipment liquid spills that may affect the city water intake ASAP 970-675-8221 or 911.
9. Scott Wansteadt, Blue Mtn. Energy, to be notified of equipment liquid spills that may affect the mine water intake. 970-675-8431/3607.
10. Contractor shall be responsible for clean-up of all drilling fluid releases. Contractor to provide equipment and personnel for immediate containment and clean-up of drill fluid release at all times during drilling operations (Entrega's Response Plan for Inadvertent Release of Drilling Fluid During HDD Activities).
11. The contractor, construction inspector, or environmental inspector will immediately notify Entrega's construction management personnel in the event of a drill fluid frac out. Entrega will notify the appropriate agencies, including the bureau of land management immediately upon discovery of an inadvertent release into a wetland or waterbody, detailing the location and nature of the release, corrective actions being taken, and whether the release poses any threat to public safety.
12. Containment and clean-up of drill fluid frac outs located outside of designated workspace and right-of-way shall be coordinated with Entrega construction management and environmental inspector.
13. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to standard equipment will be on hand with each construction and cleanup crew to allow the rapid containment and recovery of spilled materials and equipment leaks.
14. Rutting of wetlands within the construction right-of-way shall be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
15. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used in restoration of wetlands.
16. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
17. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.
18. Paleontological monitoring is required if trenching on South side of river extends into bedrock.

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ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

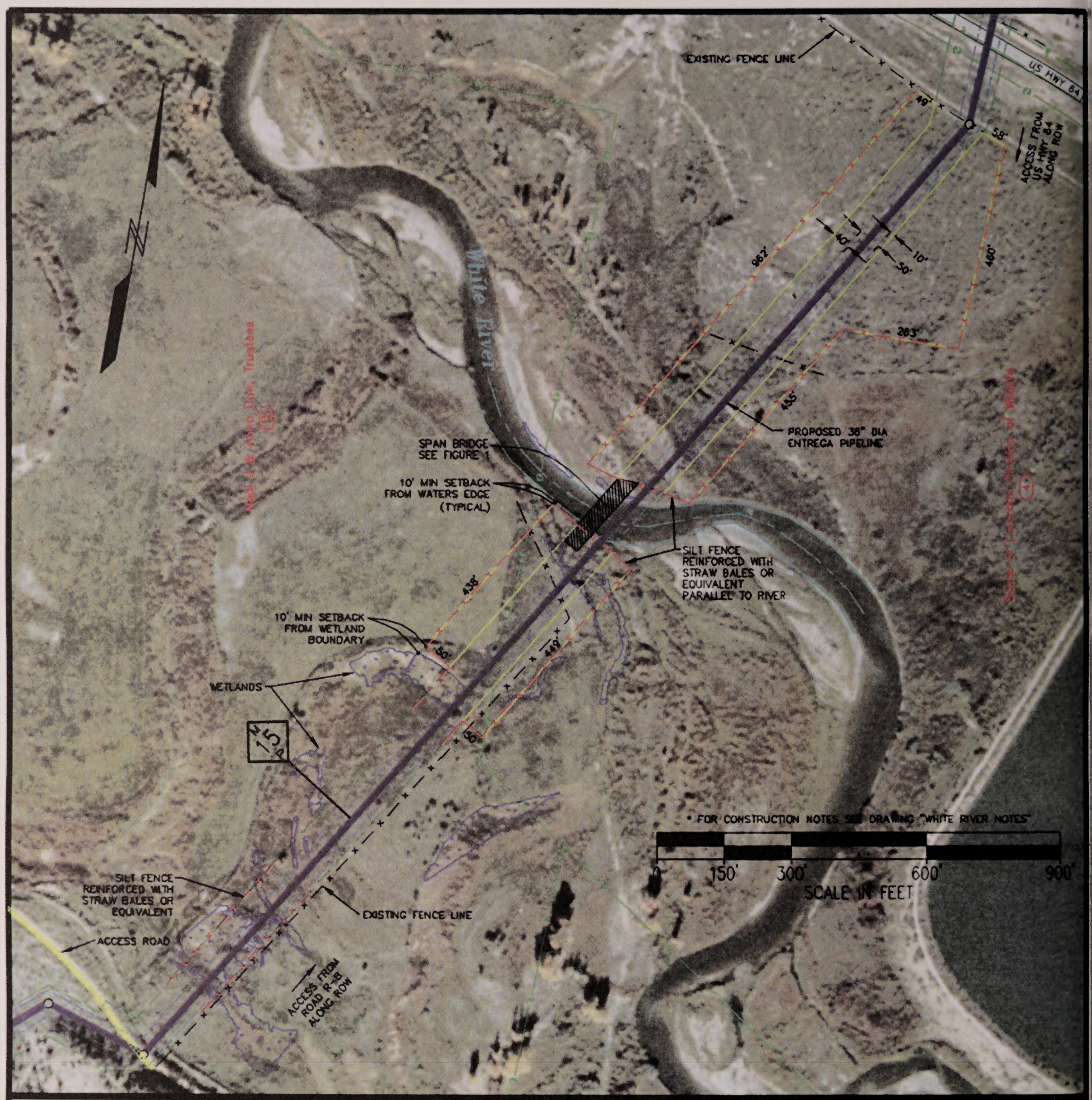
Crossing Notes – White River MP 15.1

ENTREGA GAS PIPELINE — Rio Blanco, Colorado

SCALE: N/A | CLJ 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: WHITE RIVER NOTES | REV.: A



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REVISIONS

C	REVISED TUA	
B	REVISED DELINEATED WETLAND DATA	

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

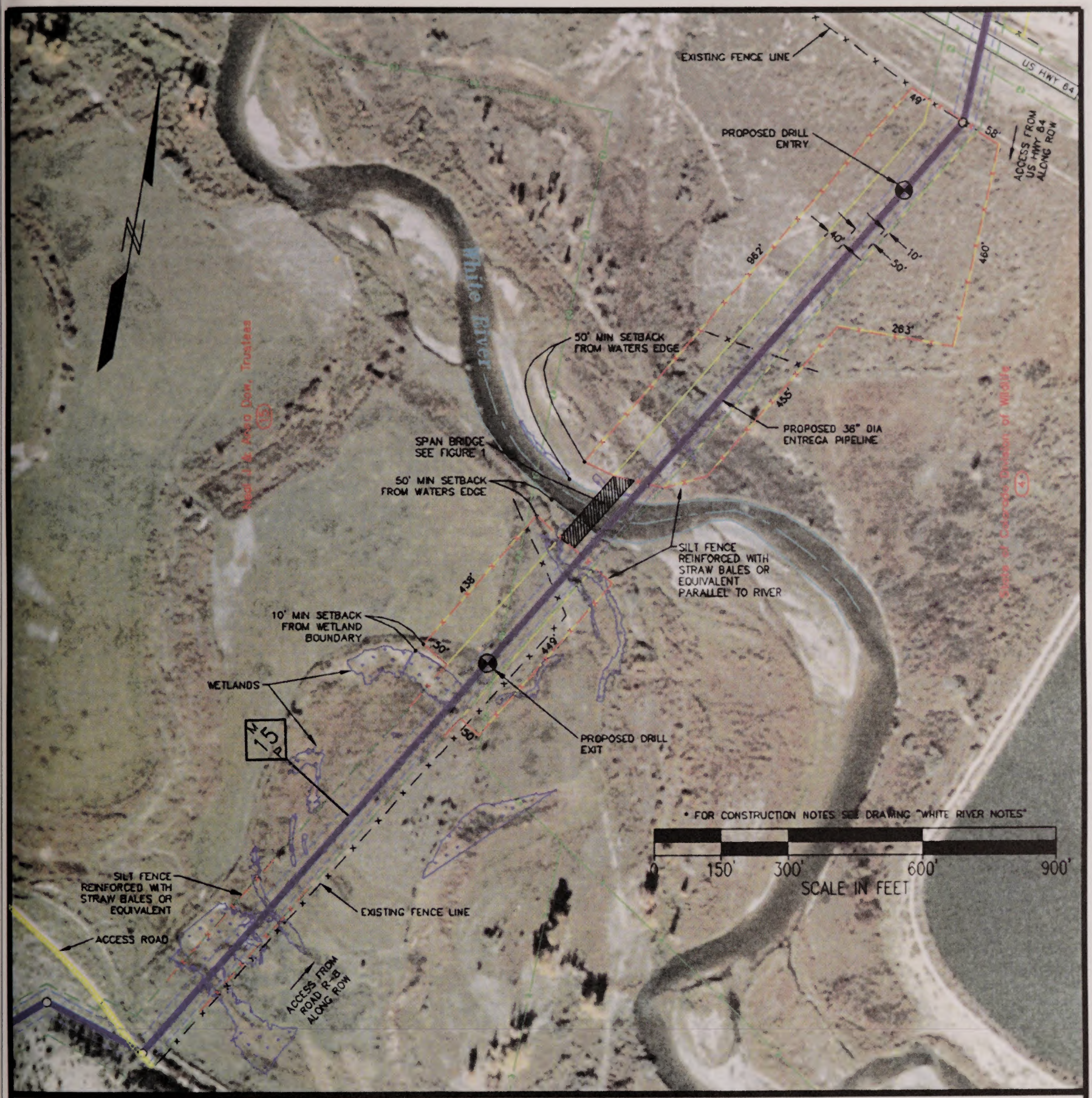
Open Cut Contingency Crossing Detail – White River MP 15.1

ENTREGA GAS PIPELINE — Rio Blanco, Colorado

SCALE: 1"=300' | CLJ | 12/16/04

TRIGON EPC • ENGINEERING • PROCUREMENT • CONSTRUCTION

DRAWING NUMBER: WHITE RIVER | REV.: C



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REVISIONS	
C REVISED TUA	
B REVISED DELINEATED WETLAND DATA	

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

HDD Crossing Detail – White River MP 15.1

ENTREGA GAS PIPELINE — Rio Blanco, Colorado

SCALE: 1"=300' | CLJ | 12/16/04

TRIGON EPC : ENGINEERING : PROCUREMENT : CONSTRUCTION

DRAWING NUMBER: WHITE RIVER | REV.: C

Yampa River, MP 50.5

1. The Yampa River will be crossed using the horizontal directional drill (HDD) crossing method. In the event the HDD method proves to be unsuccessful, Entrega will cross the Yampa River using the open cut method.
2. Prior to construction, the Contractor will post warning signs upstream of the crossing site visible to recreational users stating "Heavy construction equipment in use downstream within and near waterbody. Do not pass or use caution at crossing."
3. A railroad car or equivalent span bridge with or without supports may be installed for access across the river.
4. Equipment refueling and hazardous material storage will occur a minimum of 100 feet from the water's or wetland edge.
5. At a minimum, the contractor will supply, install and maintain sediment control devices of staked straw bales, and or embedded silt fence across the right-of--way and along the limits of the TUAs as depicted on the drawings, except if otherwise approved by the Environmental Inspector.
6. Sediment control devices must be installed and maintained across the construction right-of-way and haul road, except during excavation and installation of the pipeline crossing segment. Erosion control devices must be functional across the right-of-way during non-working hours.
7. Contractor shall dispose of all excess spoil and drilling fluid/cuttings at a location approved to accept such waste.
8. Contractor shall operate all equipment outside of the fenced environmentally sensitive avoidance areas as depicted on the plans. If the buffer cannot be maintained, construction activities will need to stop and the site will need additional mitigation measures before activities can resume in this area.
9. Contractor shall be responsible for clean-up of all drilling fluid releases. Contractor to provide equipment and personnel for immediate containment and clean-up of drill fluid release at all times during drilling operations (see Entrega's Response Plan for Inadvertent Release of Drilling Fluid During HDD Activities).
10. The contractor, construction inspector, or environmental inspector will immediately notify Entrega's construction management personnel in the event of a drill fluid frac out. Entrega will notify the appropriate agencies, including the bureau of land management immediately upon discovery of an inadvertent release into a wetland or waterbody, detailing the location and nature of the release, corrective actions being taken, and whether the release poses any threat to public safety.
11. Containment and clean-up of drill fluid frac outs located outside of designated workspace and right-of-way shall be coordinated with Entrega construction management and environmental inspector.
12. An adequate supply of booms, skimmers, absorbent spill pads, and plastic bags in addition to standard equipment will be on hand with each construction and cleanup crew to allow the rapid containment and recovery of spilled materials and equipment leaks.
13. Rutting of wetlands within the construction right-of-way shall be avoided. Timber riprap, prefabricated equipment mats, or terra mats will be used as needed for stability. Do not use rock, soil imported from outside the wetlands, tree stumps, or brush riprap to support equipment. If wetlands cannot be stabilized and access roads do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
14. Limit pulling of tree stumps within wetlands to directly over the trenchline. Segregate the top 1 foot of topsoil from the area disturbed by the trenchline, except in areas where standing water is present or soils are saturated or frozen. Restore the segregated topsoil to its original location during backfill. No fertilizer shall be used in restoration of wetlands.
15. During restoration, Entrega shall use seed that is tested to ensure compliance with federal and state seed requirements for weed control and certified for germination and pure live seed content. If the supply of a specific seed is limited or unavailable at the time of ordering, Entrega will obtain prior approval of the BLM or private land owner before ordering an alternative seed mix.
16. Contractor shall comply with all conditions as required by applicable permits and the company mitigation plans and procedures.
17. If the buffer cannot be maintained to protect the environmentally sensitive area, construction will need to stop in this area and the site will need to undergo further mitigation.

DRAWING ISSUED	
X	FOR REVIEW
	FOR APPROVAL
	FOR REFERENCE
	FOR PERMIT
	FOR BID
	FOR CONSTRUCTION
	FOR AS-BUILT

REVISIONS

A	PRELIMINARY ISSUE	
△		

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

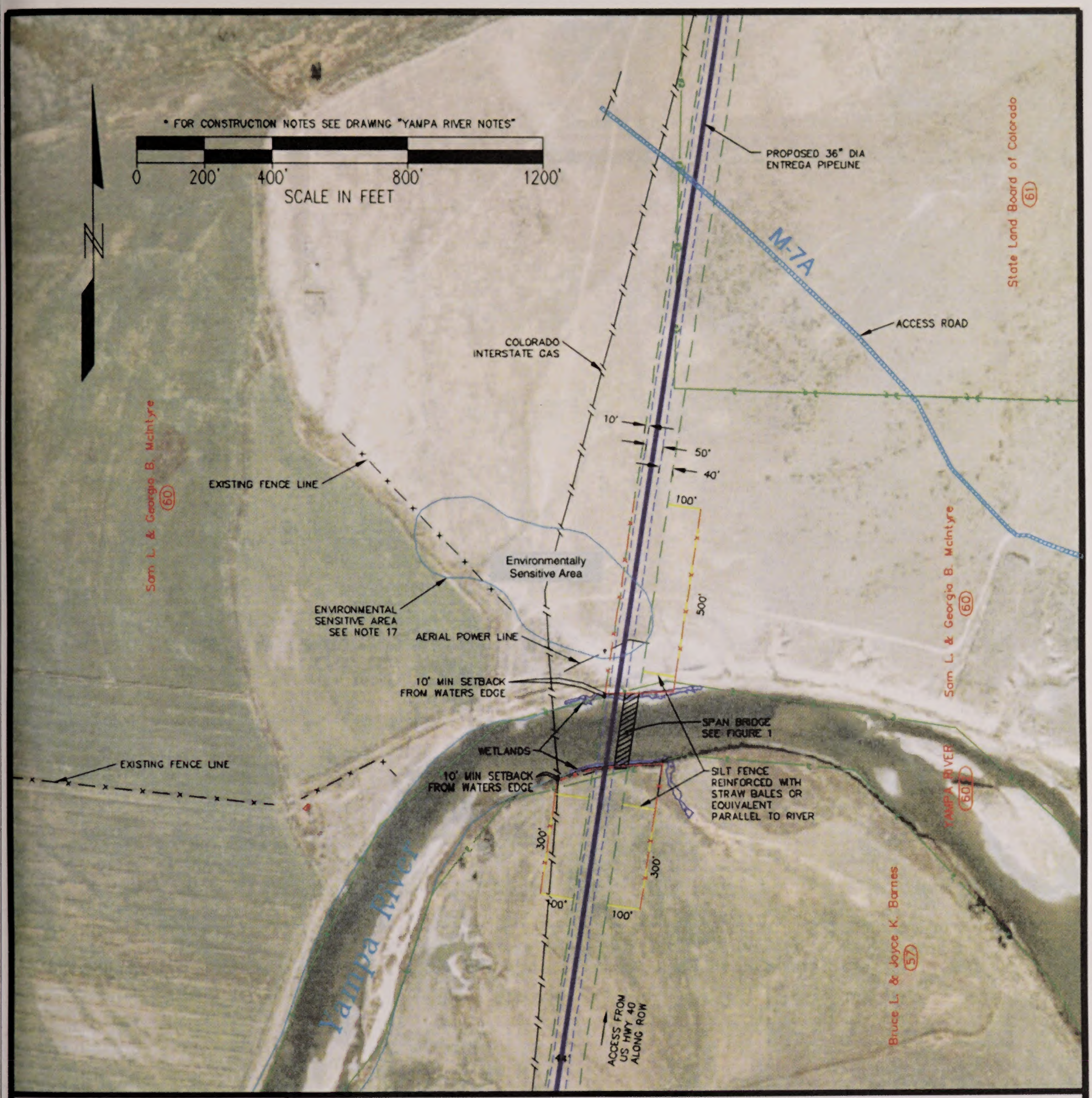
Crossing Notes – Yampa River MP 50.5

ENTREGA GAS PIPELINE — Moffat, Colorado

SCALE: N/A.	CLJ 12/16/04			

TRIGON EPC • ENGINEERING • PROCUREMENT • CONSTRUCTION

DRAWING NUMBER	REV.
YAMPA RIVER NOTES	A



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	FOR CONSTRUCTION
	FOR AS-BUILT

REVISIONS		
B	REVISED DELINEATED WETLAND DATA	
A	PRELIMINARY ISSUE	

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

Open Cut Contingency Crossing Detail – Yampa River MP 50.5

ENTREGA GAS PIPELINE — Moffat, Colorado

SCALE: 1"=400' | CLJ 12/16/04

TRIGON EPC • ENGINEERING • PROCUREMENT • CONSTRUCTION

DRAWING NUMBER: YAMPA RIVER

REV.: B

DRAWING ISSUED	
X	FOR REVIEW
	FOR APPROVAL
	FOR REFERENCE
	FOR PERMIT
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	FOR CONSTRUCTION
	FOR AS-BUILT

REVISIONS		
B	REVISED DELINEATED WETLAND DATA	
A	PRELIMINARY ISSUE	

ENTREGA GAS PIPELINE INC.

WATERBODY DETAIL

HDD Crossing Detail – Yampa River MP 50.5

ENTREGA GAS PIPELINE — Moffat, Colorado

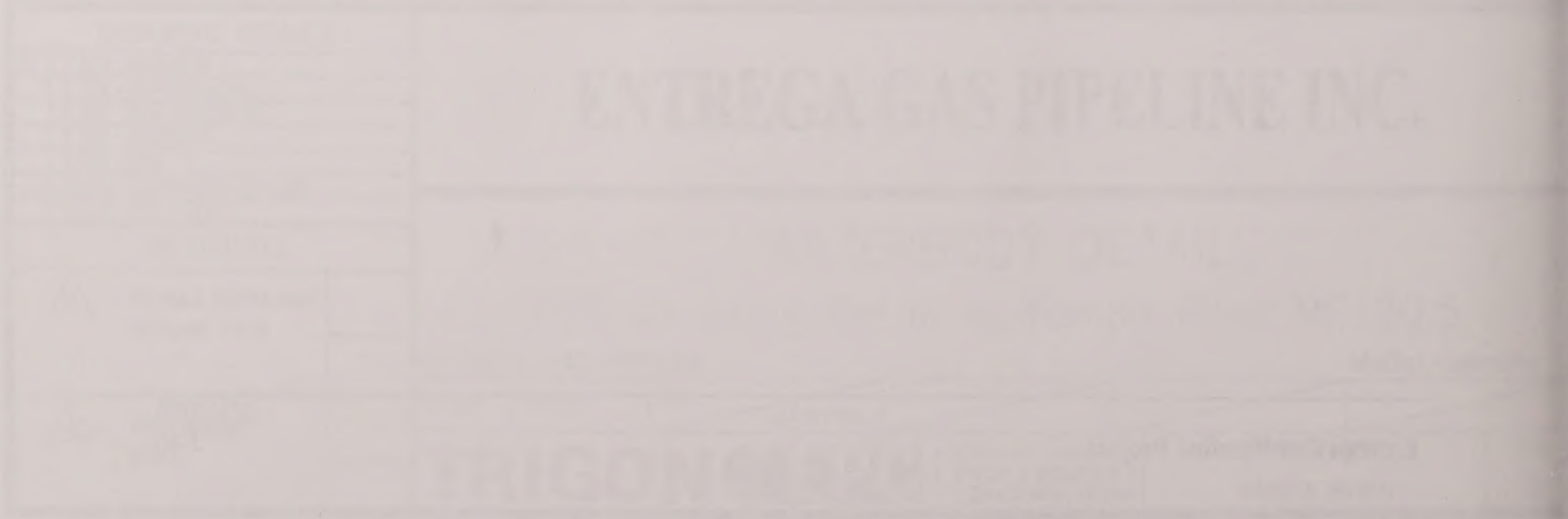
SCALE: 1"=400' | CLJ 12/16/04

TRIGON EPC • ENGINEERING • PROCUREMENT • CONSTRUCTION

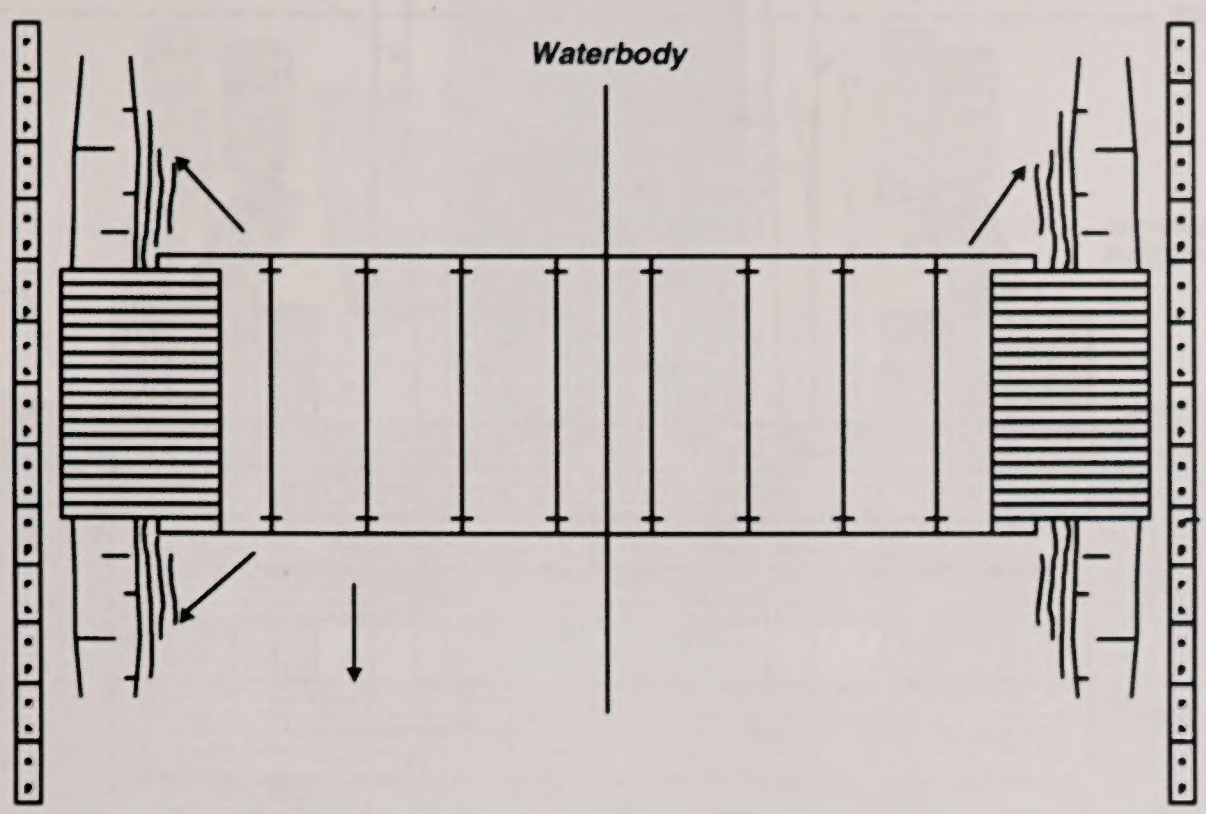
DRAWING NUMBER: YAMPA RIVER

REV.: B

Figures


ENTREGA GAS PIPELINE INC.

PLAN



PROFILE

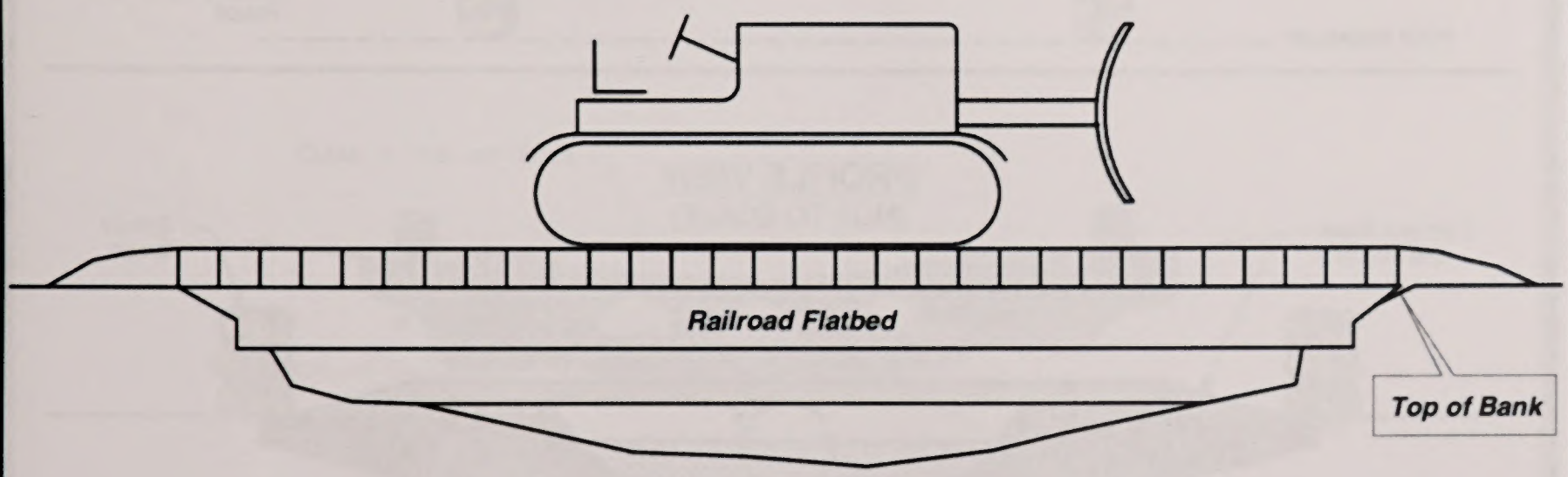


*Figure created from Trigon EPC.

ENTREGA GAS PIPELINE INC.	**Figure 1a** **Typical Railroad Bridge**	DATE: 12/21/04 REVISED: 12/21/04 SCALE: Not to Scale DRAWN BY:KJANDERSON M:\Clients\D-F\ENM\Feasibility_Autocad\Trigon\20041221\Flexi_Flo

PLAN VIEW
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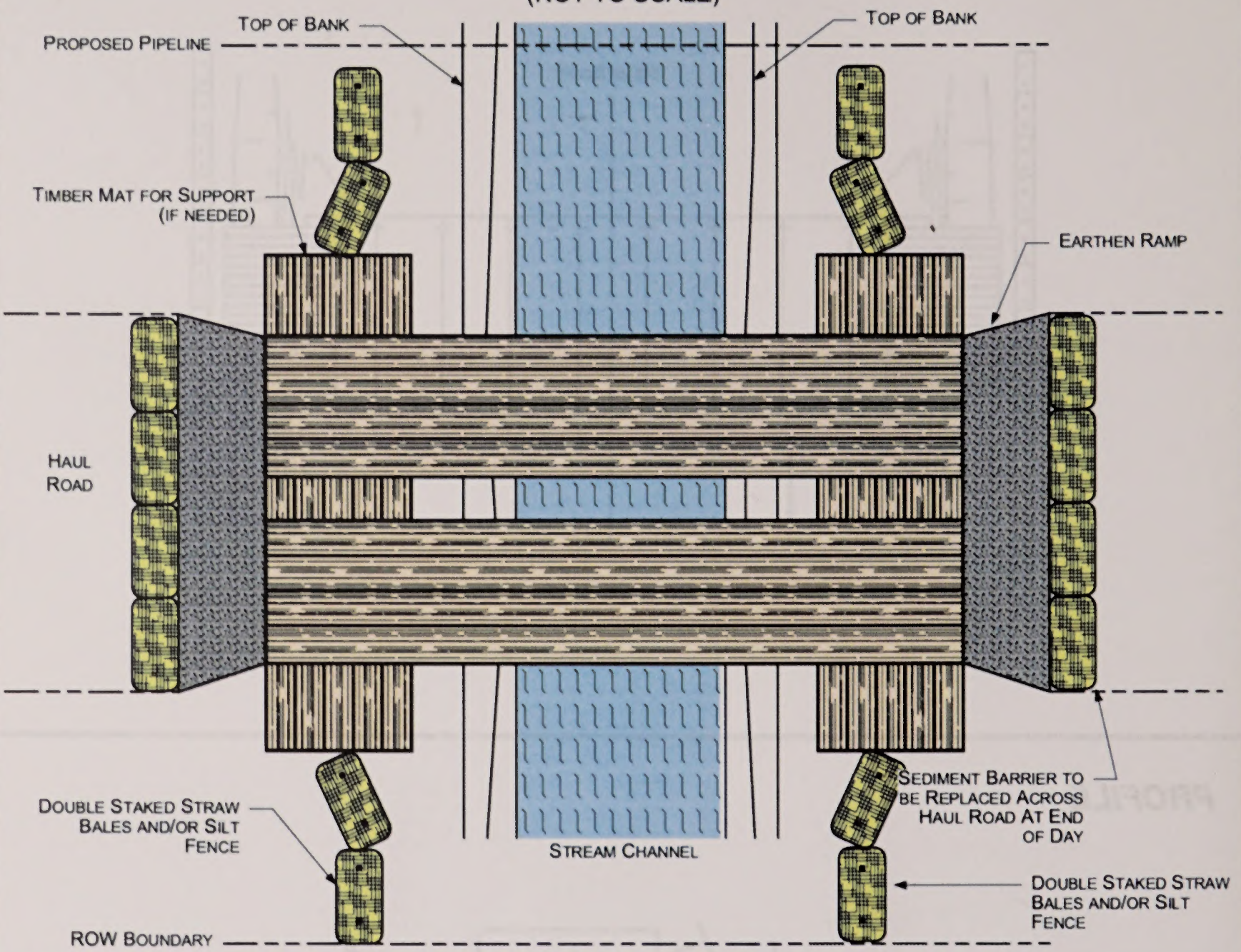
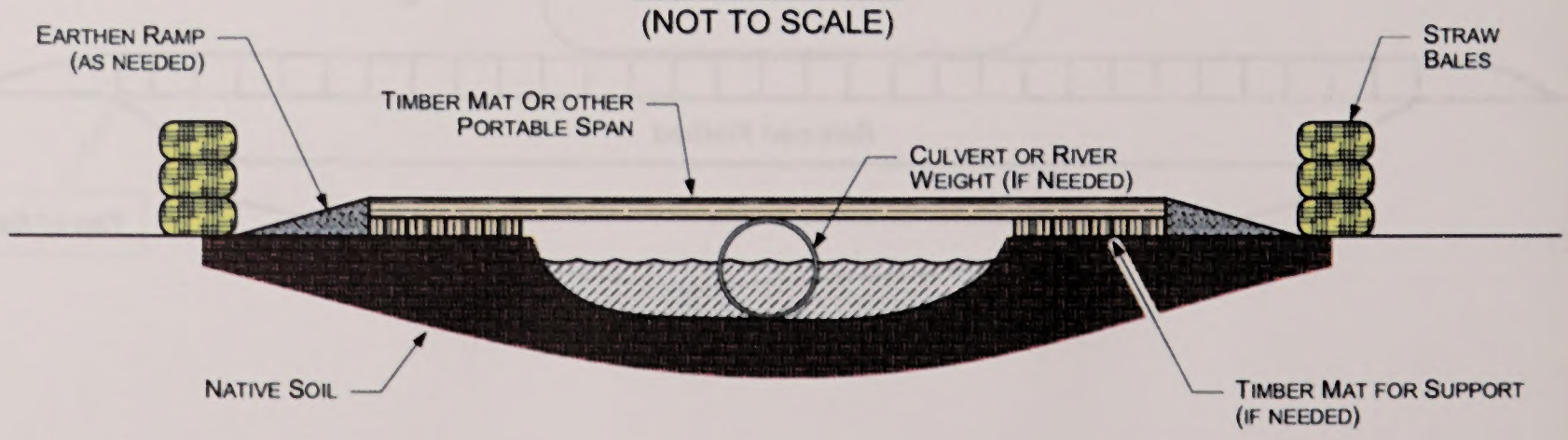
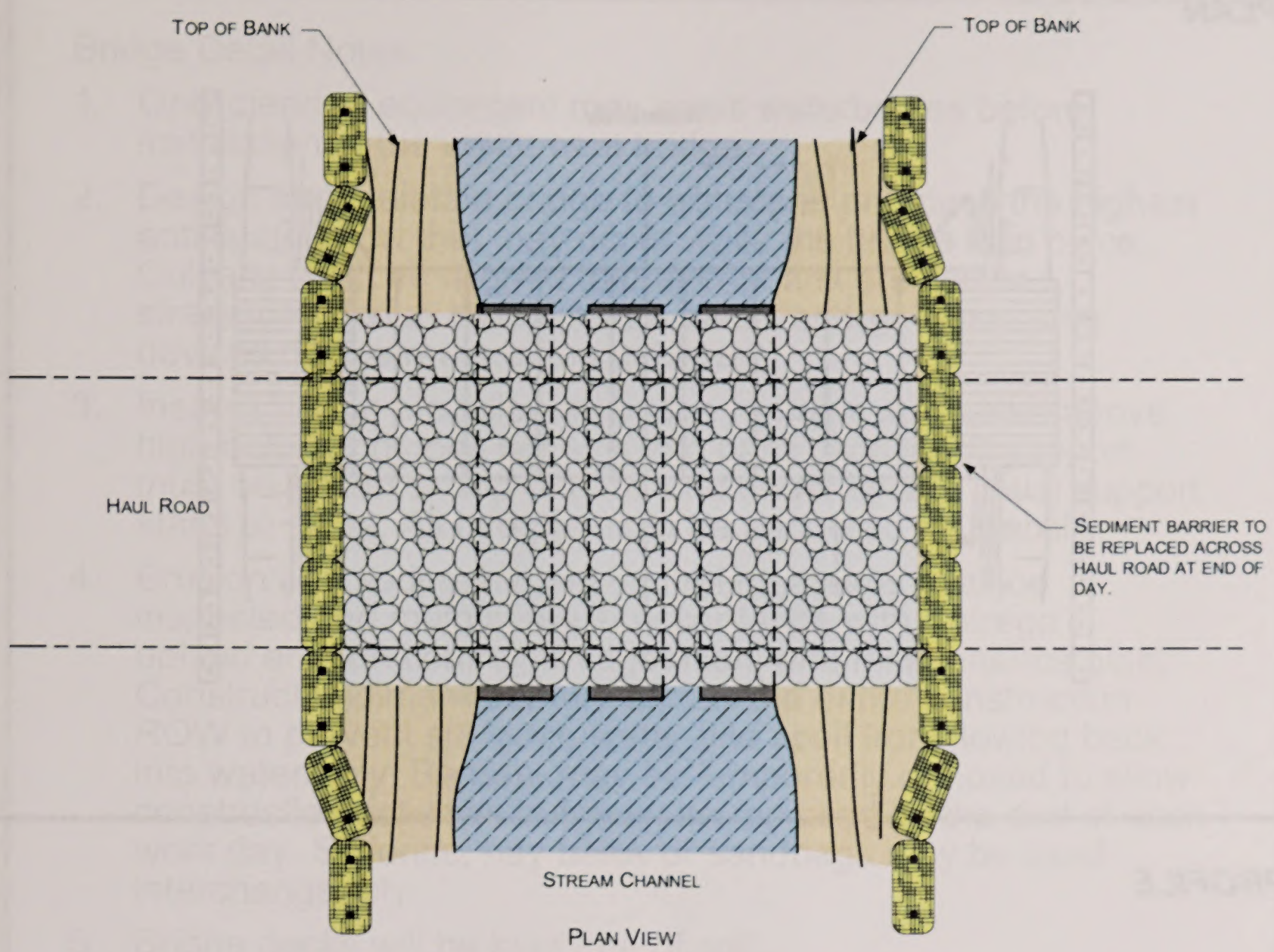


PROFILE VIEW
(NOT TO SCALE)

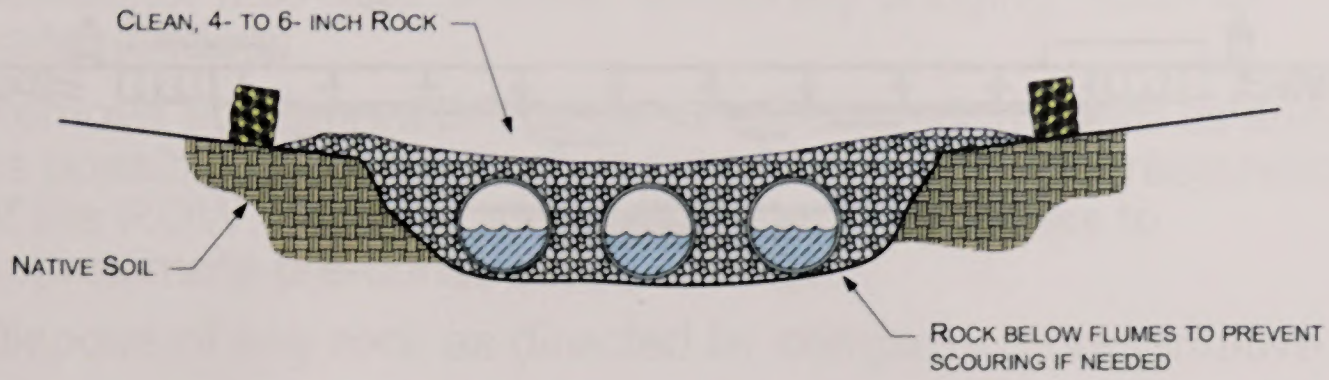


For environmental review purposes only.

ENTREGA GAS PIPELINE INC.	**Figure 1b** Typical Timber Mat Bridge	DATE: 12/20/2004 REVISED: 12/21/2004 SCALE: NTS DRAWN BY: KJAnderson K:\360\060\TIMBER_MAT.VSD



PLAN VIEW
(NOT TO SCALE)



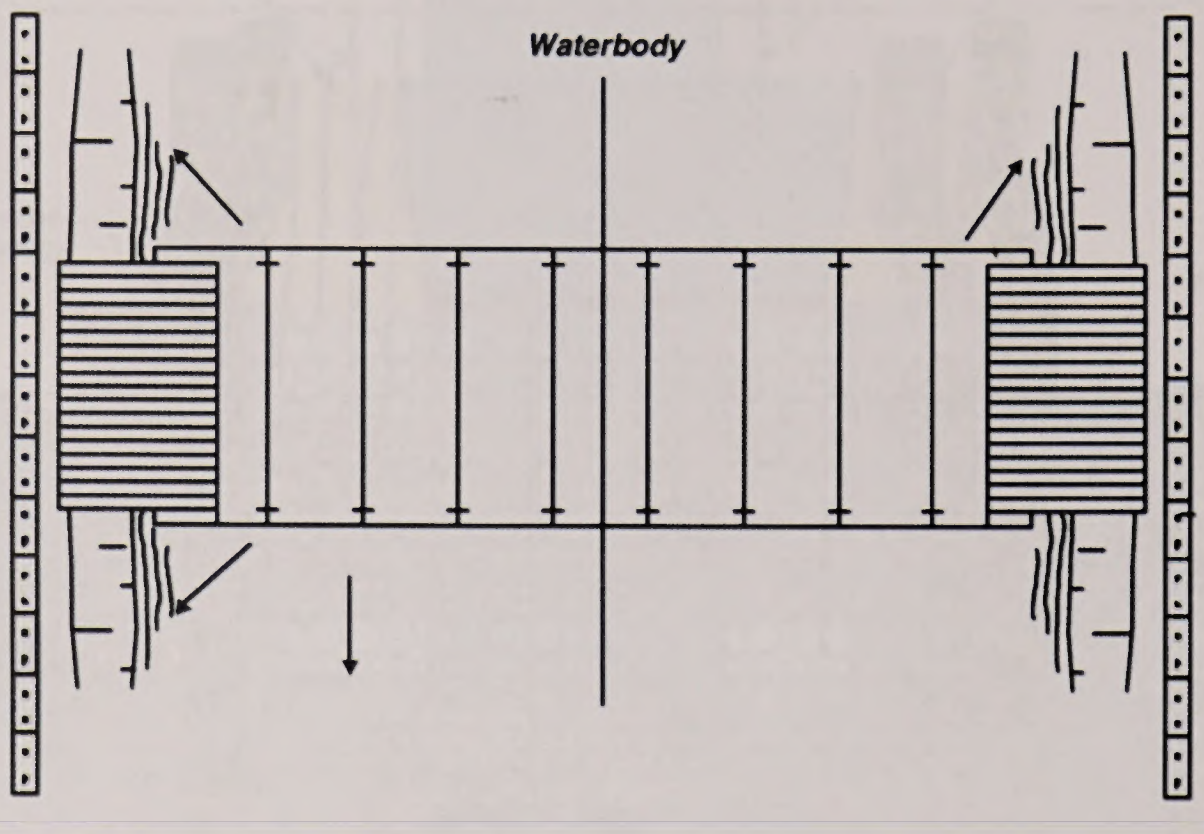
For environmental review purposes only

ENTREGA
GAS PIPELINE INC.

Figure 1c
Typical Rock Flume Bridge

DATE: 12/20/2004
REVISED: 12/21/2004
SCALE: NTS
DRAWN BY: KJAnderson
K:\366\060\ROCK_FLUME_BRIDGE.VSD

PLAN



PROFILE

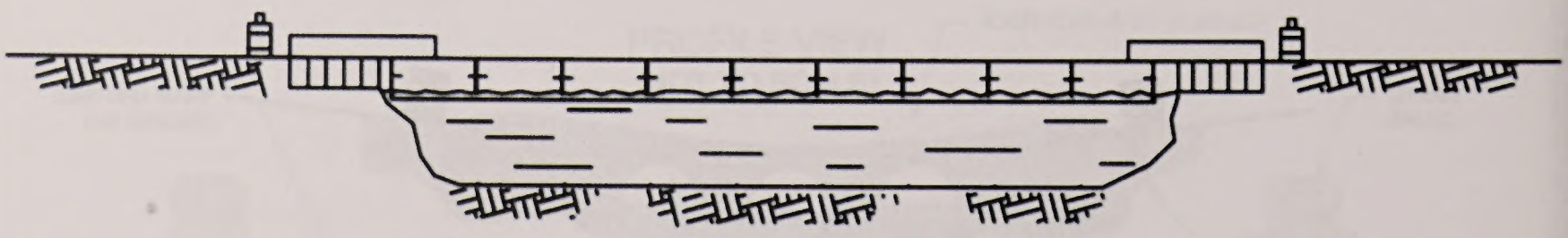


*Figure created from Trigon EPC.

ENTREGA GAS PIPELINE INC.	**Figure 1d** **Typical Flexi-Float Bridge**	DATE: 12/21/04 REVISED: 12/21/04 SCALE: Not to Scale DRAWN BY:KJANDERSON M:\Clients\D-F\ENM\Feasibility_Autocad\Trigon\20041221\Flexi_Flo

NATURAL RESOURCE GROUP, INC.

Bridge Detail Notes:

1. Only clearing equipment may cross waterbodies before installation of the equipment bridge.
2. Design and maintain bridge to withstand and pass the highest anticipated flow that may occur while the bridge is in place. Culverts must be aligned to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.
3. Inspect bridge elevation so bridge remains supported above high bank, and does not sink into bank. Additional support must be added on top of bank and under span if initial support starts to settle. All bridges must be anchored for stability.
4. Erosion and sedimentation control measures shall be inspected and maintained in accordance with Entrega's upland erosion control, revegetation, and maintenance plan. Construct sediment barriers across the entire construction ROW to prevent silt laden water and spoil from flowing back into waterbody. Barriers may be temporarily removed to allow construction activities but must be replaced by the end of each work day. Siltfence, hay bales or sandbags may be used interchangeably.
5. Bridge decks will be kept free of soil.
6. Equipment bridges will consist of one of the following: Clean rock placed over flume pipes; prefabricated construction mats; rail flat cars placed over the waterbody with or without a culvert; or flexi-float or other temporary bridging, such as bailey bridges.
7. Remove equipment bridges and associated material as soon as possible following permanent seeding and final restoration of the ROW. Restore and stabilize bed and banks to approximate pre-construction conditions.
8. Dispose of any rock as directed by company representative.
9. Contractor shall comply with all conditions as required by applicable permits.
10. Bridges are not required on dry washes.

For environmental review purposes only.

ENTREGA
GAS PIPELINE INC.

Notes for Bridge Detail Figure 1

DATE:	3/12/2003
REVISED:	12/21/2004
SCALE:	NTS
DRAWN BY:	KMK6792
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APPENDIX K

ENTREGA'S SITE-SPECIFIC CONSTRUCTION AND REVEGETATION PLAN FOR RIPARIAN WOODLAND COMMUNITIES

Site-Specific Construction and Revegetation Plan for Riparian Woodland Communities crossed by the Entrega Gas Pipeline Project

Entrega Gas Pipeline Inc. (Entrega) has developed this site-specific plan to identify existing locations of riparian woodland communities along the project route, mitigation measures to minimize construction through these areas, and measures to maximize revegetation potential within riparian woodland communities. Entrega will modify this plan for each of the six riparian woodland crossings prior to construction of Segment 2 (scheduled to begin in 2006).

Existing Environment

Entrega completed mapping of the general vegetation communities along the proposed project route by conducting a desktop review of 2003 aerial photographs, an aerial flyover, and limited ground-truthing of some community types. Riparian woodland was included in the mapping effort as a distinct vegetation community. Common species found within riparian woodlands typically include narrowleaf cottonwood (*Populus angustifolia*), various species of willow (*Salix* spp.), thinleaf alder (*Alnus incana* spp. *tenuifolia*), river birch (*Betula occidentalis*), red-osier dogwood (*Cornus sericea*), aspen (*Populus tremuloides*), wild rose (*Rosa* spp.), serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpos* spp.), and Rocky Mountain maple (*Acer glabrum*). Prior to construction Entrega will conduct site-specific surveys in identified woody riparian areas to determine the existing vegetation community composition and density.

Based on the general vegetation community mapping, riparian woodlands occupy about 0.7 mile of the proposed Entrega Gas Pipeline route at various locations between mileposts (MPs) 225.2 and 237.8, and on an island located in the middle of the North Platte River at about MP 192.8. In addition, temporary use areas originally located at MPs 225.4, 225.5, and 237.7 were previously located partially or entirely within riparian woodland communities, however, Entrega has since modified these temporary use areas so that they avoid riparian woodland.

Construction Impacts and Mitigation

The primary impact of the proposed project on riparian woodland communities will be the cutting, clearing, and/or removal of existing vegetation within the construction work area. Entrega will use industry standards and proven technology as identified in its Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures), with approved variances, for site stabilization and vegetation restoration in areas disturbed by construction. Additionally, Entrega will implement a Construction Mitigation and Reclamation (CM&R) Plan developed as Section 2 of its Plan of Development (POD) in support of obtaining a Right-of-Way Grant from the Bureau of Land Management (BLM). The CM&R Plan identifies the construction mitigation and reclamation measures that Entrega will implement to minimize impacts on environmental resources and promote successful reclamation of those resources affected by the project.

Entrega has attempted to locate the Entrega Gas Pipeline adjacent to existing pipeline corridors within riparian woodland communities. These existing corridors are currently maintained in an herbaceous state by periodic mowing or brush clearing, therefore, impacts resulting from construction of the Entrega Gas Pipeline will result in incremental and minimal effects on riparian woodland habitat.

To further minimize impacts on riparian woodland vegetation during construction, Entrega will:

- reduce the width of the construction right-of-way from 100 feet to 75 feet in riparian woodland areas;
- avoid the removal of trees located within these areas to the maximum extent practical;
- leave the root systems of small woody vegetation intact along the construction right-of-way by mowing or crushing vegetation in these areas, if blading is not required to level the right-of-way to create a safe work area; and,
- avoid the siting of staging or temporary use areas in woody riparian areas to the maximum extent practical.

Further, Entrega will implement the following reclamation measures during construction to maximize the restoration potential:

- preservation of topsoil, native seed sources, and root stock; and
- preparation of an adequate seedbed, including decompaction.

Construction of the Entrega Gas Pipeline will involve short-term impacts on approximately 6.2 acres of riparian woodlands within the construction right-of-way. Temporary impacts on riparian woodland communities crossed by the pipeline are included in table 1.

TABLE 1
Milepost Ranges of Riparian Woodland Community Crossed

Beginning Milepost	Ending Milepost	Length (feet)	Temporary Impact (acres) [a/]	Permanent Impact (acres) [b/]
192.80	192.84	220.00	0.38	0.21
225.21	225.22	40.34	0.07	0.05
225.26	225.59	1752.89	3.02	1.97
235.59	235.61	98.09	0.17	0.07
237.29	237.50	1082.32	1.86	1.22
237.76	237.84	412.84	0.71	0.43
	Total	**3,606.48**	**6.21**	**3.95**

[a/] Based on a 75-foot-wide construction right-of-way.
[b/] Based on a 10-foot-wide permanent right-of-way within 25 feet of waterbodies and a 50-foot-wide permanent right-of-way elsewhere, maintained in an herbaceous state.

In addition to the construction right-of-way, additional temporary use areas located at MPs 225.4 and 225.5 will impact 0.34 and 0.40 acres, respectively, of riparian woodland community. Therefore, construction of the project will result in a total of approximately 6.9 acres of temporary impacts on riparian woodlands.

Specifically, the area between MPs 192.80 and 192.84 represents the North Platte River. Based on aerial alignments, riparian woodlands extend approximately 220 feet on the island in the middle of the river along the construction right-of-way. The area between MPs 225.21 and 225.22 and the area between MPs 225.26 and 225.59 are associated with the Medicine Bow River. Based on aerial alignments, riparian woodlands extend approximately 193 feet east of the river and approximately 1,600 feet west of the river along the construction right-of-way. The area between MPs 235.59 and 235.61 is associated with a tributary to Foote

Creek, with riparian woodlands extending approximately 50 feet on either side of the tributary. The area between MPs 237.29 and 237.50 represents Rock Creek. Based on aerial alignments, riparian woodlands extend approximately 1,083 feet west of the second crossing of the river. The area between MP 237.76 and 237.84 is associated with One Mile Creek. Based on aerial alignments, riparian woodlands extend approximately 212 feet east of the river and approximately 200 feet west of the river along the construction right-of-way.

Post-Construction and Revegetation

Upon completion of construction, Entrega will restore, revegetate, and permanently maintain a 50-foot-wide corridor along the majority of its pipeline route in compliance with Entrega's Plan and Procedures and Entrega's CM&R Plan. The permanent right-of-way will be maintained to support primarily herbaceous or shrub dominated communities. In woody riparian areas, however, Entrega will reduce permanent impacts to riparian woodland by reducing the permanently maintained right-of-way to a 10-foot-wide corridor centered over the pipeline. Entrega will also reseed, plant, and/or allow for natural revegetation in the area disturbed by construction with tree and shrub species of similar type, diversity, and density.

Entrega will reduce permanent impacts to riparian woodland by limiting vegetation maintenance to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way in accordance with section V.D.1 of its Procedures. Entrega will maintain a reduced, 10-foot-wide corridor centered over the pipeline in riparian woody areas in an herbaceous state, also in accordance with section V.D.1 of its Procedures. Therefore, permanent impacts to riparian woodland vegetation will be limited to land cleared of woody species along the permanently maintained right-of-way, which includes about 3.95 acres, as identified in table 1. If conditions require, trees within 15 feet of the pipeline centerline that are greater than 15 feet in height may be selectively cut and removed from the right-of-way on an as-needed basis, not to exceed once every 3 years. Entrega will only use mechanical mowing or cutting along its right-of-way for normal vegetative maintenance. However, in those areas where the pipeline will parallel or be within adjacent rights-of-way, alternate means of vegetative maintenance may be used by the owner(s) of those areas. No herbicides or pesticides will be used within 100 feet of a waterbody.

To maximize the revegetation potential during restoration, Entrega will use seed mixtures compatible to the native vegetative community and soil conditions, and carefully monitor the seeding rate. Entrega will base the seed mixture on species found in pre-construction site-specific surveys, In addition, Entrega is in the process of consulting with the BLM, Rawlins Field Office, the Natural Resource Conservation Service, and the landowners of the properties containing riparian woodlands to develop seed mixes for reseeding in riparian woodland areas. Initial conversations with the BLM, Rawlins Field Office, identified species and/or soil conditions occurring at the North Platte, Medicine Bow, and Rock Creek crossings, and indicated that reseeding with site-specific species may be appropriate. Species occurring in the riparian woodlands at the crossing of the North Platte River may include Kentucky bluegrass, clover, red top, Nebraska sedge, smooth brome, or Timothy grass. Species occurring at the Medicine Bow River may include Timothy, Garrison, smooth brome, or orchard grasses. The BLM indicated that the soils at Rock Creek are so coarse that Entrega's upland seed mix would likely be appropriate for reseeding. Entrega will continue to work the land management agencies and landowners to develop seed mixes appropriate to the woody riparian areas.

In addition to reseeding with woody riparian seed mixes and where required by permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way. Based on results from pre-construction site-specific surveys, Entrega will plant fast growing species such as willow, cottonwood, or aspen. Willow species will be planted as non-rooted cuttings, while cottonwood species will be planted as rooted cuttings. Tree cuttings will be obtained from adjacent areas within the surveyed corridor that are identified and approved by the appropriate land-management agency. Locally obtained tree cuttings will be used to ensure that plants are adaptable to the environment. Tree cuttings will be between 16 and 24 inches long, obtained during the dormant season (February to May), and planted within two weeks of cutting or stored under refrigeration until needed. Willow and aspen cuttings will be spaced with an average of 10 feet-on-center and cottonwoods will be spaced as 15 feet-on-center. Plantings will be randomly placed to promote a natural distribution, but the recommended average plant density will be maintained. Species will not be planted within 15 feet of either side of the pipeline. Tree cuttings will be inserted into the ground approximately 6 inches and will be covered with a fine plastic netting to deter browsing. Entrega will prepare site-specific revegetation plans for each of the six riparian woodland crossings prior to construction of Segment 2 (scheduled to begin in 2006) as a supplement to this plan.

Natural growth will restore the unmaintained portions of the temporary construction right-of-way and temporary use areas back to a riparian woodland community. The rate of shrub and tree reestablishment within the riparian woodland communities will depend upon the species seeded or planted, the amount of precipitation, the length of growing season, and the natural fertility of the soils. Native shrub species associated with riparian woodlands crossed by the project have moderate to fast growing rates and include species such as serviceberry, snowberry, red-osier dogwood, wild rose, and some species of willow. It is anticipated that riparian shrub species will be reestablished within 3 years following construction. Native tree species associated with riparian woodlands crossed by the project include thinleaf alder, river birch, Rocky Mountain maple, cottonwood, aspen, and some species of willow. It is anticipated that saplings will be reestablished between 15 and 30 years following construction and mature trees will be reestablished between 50 and 70 years following construction.

APPENDIX L

ENTREGA'S FLOOD IRRIGATION RESTORATION PLAN

ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline
Flood Irrigation Restoration Plan

DRAFT

Prepared for:

Entrega Gas Pipeline Inc.
Republic Plaza Building
370 17th Street
Suite 1700
Denver, CO 80202

Prepared by:

NATURAL RESOURCE GROUP, INC.

May 6, 2005

Entrega Gas Pipeline
Floodplain Irrigation Restoration Plan

Entrega Gas Pipeline Inc. (Entrega) has prepared this Floodplain Irrigation Restoration Plan to establish procedures to identify and record location information of irrigation systems affected by pipeline construction, and to identify and describe procedures for the maintenance of irrigation systems during construction and the repair of irrigation systems following construction.

Implementation Plan References, Documentation, and Training

Entrega and its contractors and subcontractors will comply with conditions listed in the Federal Energy Regulatory Commission (FERC) Certificate (*e.g.*, Entrega's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan)), applicable federal and state permit conditions, and landowner agreements.

The FERC Certificate, applicable permits, and easement requirements (identified in the line list) will be retained at Entrega's field offices, contractor yards, and by Entrega's Environmental Inspectors during construction of the project and will be available for review by all project personnel.

Entrega will include the irrigation system maintenance and repair procedures as a component of the environmental training program for the project. Entrega personnel, Chief Inspector, craft inspectors, contractor and subcontractor employees, and other individuals involved with construction of the pipeline will participate in this training program. Additional training specific to irrigation system maintenance and repair will be provided to Craft Inspectors overseeing trenching and irrigation repair activities.

Identification of Existing Irrigation Systems

Entrega has identified areas, through its field surveys and through discussions with the landowners/tenants that have active surface ground irrigation systems that will be crossed by the pipeline. Information obtained from landowners and field observations has been compiled into a list of irrigation systems and irrigated lands crossed by the pipeline route (see attachment A). In addition, the location of irrigated lands will be indicated on the project alignment sheets (as part of the environmental bar information). This information will alert construction crews to the presence of irrigation systems so that the contractor and crews can make preparations for maintaining water flow during construction (if required). The list of irrigations systems in attachment A is based on preconstruction surveys. Other information on irrigation systems can be found separately in the ROW line lists.

Maintaining Flow of Irrigation Systems

During construction, downstream irrigation channel flow must be maintained if active during construction. This is typically accomplished by installing a flume across in the irrigation channel to maintain flow during clearing and grading operations. A ramp is constructed over the flume to allow passage of vehicles and equipment along the construction right of way. A hard plug will be left at the flume crossing until the time of lowering in the pipeline. Immediately prior to pipe lowering-in, temporary dams will be installed across the irrigation channels at the edges of the construction right of way and the flume removed for the very short period of time to lower

in and backfill the pipe. The flume will be re-installed after the pipe is lowered in to restore flow of irrigation water.

Restoration of Irrigated Agricultural Fields

Trench Compaction:
Entrega will use the following backfill compaction method (or other methods that may be proposed by its Contractor, subject to the review and approval of Entrega) across irrigated agricultural fields to minimize the potential for post-construction trenchline subsidence and diversion of flood irrigation water. This method is described as follows:

- Placement of backfill to up to a few inches above the pipe
- Watering down the backfill utilizing a tanker truck with water hose or water disperser to settle the soil around the pipe;
- Placement of 18" to 24" (measured from top of pipe) of backfill material in the ditch and leveled to allow compaction equipment to operate. Water will be added to the backfill material as necessary to get the required target compaction.
- Compacting the backfill utilizing compaction equipment ("Wacker" packers, flat vibratory plates (stand alone or mounted on a backhoe) or either vibratory or non-vibratory "sheepsfoot" rollers (stand alone or mounted on a backhoe)
- Additional lifts must be limited to a maximum of 12". If compaction is not acceptable, the lifts will be reduced to 8". The "aim for" target density is 92 to 95% Standard Proctor Dry Density in accordance with ASTM D698.

Extra care must be taken to avoid direct contact of the pipe with backfilling, leveling or compacting equipment.

Entrega will coordinate with the landowners and/or tenants affected by the temporary interruption of irrigation water due to project activities.

For irrigation channels that are dry at the time of crossing, Entrega will construct the crossing utilizing its upland construction techniques; however, provisions will be on site to install flume pipes should the irrigation channel begin to flow during construction.

Final Grade
Entrega will complete surveys prior to construction to determine the existing grade and contours of the hayfields. Restoration of these contours and the grade will be completed by the contractor to allow water to flow across the disturbed area as it did prior to construction activities. The contractor, at his option, may choose to use laser leveling to complete the restoration of the final grade.

Irrigation Ditches
Irrigation ditches that are used to feed the flood irrigated area, that are disturbed will be restored to their original condition and lined with geotextile materials or bentonite to prevent future degradation of the ditch.

Damage to Agricultural Areas Due to Interruption of Irrigation Systems

Entrega will repair disrupted flood irrigation as soon as possible and will compensate the landowner for damages and lost crop production resulting from flood irrigation system interruptions due to the construction of the project. Entrega will include this language as a special right-of-way stipulation in the construction contract

Post-construction Monitoring

Entrega will communicate with the landowners or tenants following construction and restoration to ensure that irrigation systems are functioning properly. Additional repair or remedial work will be performed if problems are observed or if requested by the landowner. Mitigation will be site-specific and based on agreements and/or easement conditions with the affected landowner or tenants. Based on negotiations between the landowner and Entrega, mitigation may include additional compensation for portions of fields that may be taken out of production for all or part of the season.

During the easement negotiation process, Entrega and a landowner(s) may agree that the landowner will conduct final grading of his/her fields with compensation from Entrega. In this case, Entrega will conduct post-construction monitoring of the irrigated area, coordinate with the landowner, and provide additional compensation if additional restoration is required.

Irrigated Hayfields and Associated Irrigation Ditches
Spread 1 of the Entrega Gas Pipeline Project
May 6, 2005

HAYFIELD # 1: Total Length = 0.09 MILES

3+84	STATION START		
	Milepost	Station	Irrigation Ditch ID
	0.2	3+84	wb 0.20a
8+84	STATION END		

HAYFIELD # 2: Total Length = 0.16 MILES

34+50	STATION START		
	Milepost	Station	Irrigation Ditch ID
	N/A	N/A	N/A
43+18	STATION END		

HAYFIELD # 3: Total Length = 0.16 MILES

47+43	STATION START		
	Milepost	Station	Irrigation Ditch ID
	N/A	N/A	N/A
56+07	STATION END		

HAYFIELD # 4: Total Length = 1.24 MILES

108+77	STATION START		
	Milepost	Station	Irrigation Ditch ID
	2.3	112+60	wb 2.30
174+31	STATION END		

Irrigated Hayfields and Associated Irrigation Ditches
Spread 1 of the Entrega Gas Pipeline Project
May 6, 2005

HAYFIELD # 5: Total Length = 0.67 MILES

197+03	STATION START		
	Milepost	Station	Irrigation Ditch ID
	3.9	197+03	wb 3.87
	3.9	197+83	wb 3.87
	3.9	198+97	wb 3.89
	4.1	209+78	wb 4.10
	4.1	215+38	wb 4.10
	4.2	218+67	wb 4.21
	4.3	232+14	wb 4.27
	4.5	232+29	wb 4.52
	4.7	239+42	wb 4.52
232+57	STATION END		

HAYFIELD # 6: Total Length = 0.41 MILES

239+42	STATION START		
	Milepost	Station	Irrigation Ditch ID
	4.7	239+58	wb 4.52
	4.7	243+48	wb 4.74
	4.7	246+94	wb 4.74
	4.8	250+14	wb 4.80
	4.9	252+80	wb 4.87
	4.9	256+22	wb 4.92
	5.0	258+31	wb 4.92
260+98	STATION END		

Irrigated Hayfields and Associated Irrigation Ditches
Spread 1 of the Entrega Gas Pipeline Project
May 6, 2005

HAYFIELD # 7: Total Length = 0.38 MILES

370+22	STATION START		
	Milepost	Station	Irrigation Ditch ID
	7.2	375+62	wb 7.24
	7.3	380+22	wb 7.24
	7.5	380+59	wb 7.45
	7.5	386+61	wb 7.45
	7.5	390+37	wb 7.52
390+37	STATION END		

HAYFIELD # 8: Total Length: 0.26 MILES

779+16	STATION START		
	Milepost	Station	Irrigation Ditch ID
	14.9	779+16	wb 14.87
792+75	STATION END		

HAYFIELD # 9: Total Length: 0.21 MILES

1549+97	STATION START		
	Milepost	Station	Irrigation Ditch ID
	29.6	1554+48	wb 29.56
	29.6	1555+32	wb 29.56
1561+16	STATION END		

Irrigated Hayfields and Associated Irrigation Ditches
Spread 1 of the Entrega Gas Pipeline Project
May 6, 2005

HAYFIELD # 10: Total Length: 1.54 MILES

1578+44 STATION START

Milepost	Station	Irrigation Ditch ID
30.3	1593+41	wb 30.29
30.4	1600+67	wb 30.43
31.0	1630+36	wb 31.00
31.2	1638+75	wb 31.00
31.3	1643+85	wb 31.00
31.4	1651+17	wb 31.50a
31.7	1668+89	wb 31.50a

1659+98 STATION END

HAYFIELD # 11: 0.23 MILES

2648+39 STATION END

Milepost	Station	Irrigation Ditch ID
50.3	2648+65	wb 50.42d
50.3	2649+99	wb 50.42d
50.4	2652+71	wb 50.42c
50.4	2654+61	wb 50.42b
50.4	2656+10	wb 50.42a

2660+75 STATION END

5.35 MILES Total Length of Hayfield Crossed on Spread 1

APPENDIX M

ENTREGA'S HYDROSTATIC TEST PLAN

Entrega Gas Pipeline
Hydrostatic Test Plan

1.0 EXECUTIVE SUMMARY

Entrega Gas Pipeline (Entrega) will test a proposed 327 mile pipeline in accordance with DOT 49 CFR 192. This process involves filling segments of line with water, pressuring the section to a pressure commensurate with the MAOP and class location, then maintaining that pressure for a period of 8 hours.

Entrega has identified several potential water sources and has been in consultation with the various agencies regarding the use of this water. Entrega will continue these consultations including those with the U.S. Fish and Wildlife Service regarding water depletion and potential downstream impacts on threatened and endangered species if hydrostatic test water is removed from sensitive water resources.

Entrega would plan to have its contractors withdraw water from the identified sources with the appropriately sized engine driven portable pumps. In order prevent the entrainment of fish or other species of concern screens and other measures will be implemented as described in the detailed environmental plans. Entrega will continue agency consultations to determine if there are any additional requirements regarding this issue.

Entrega would discharge the water from the sections through an appropriate energy dispersion device directly back into the source in order prevent scour and prohibit sediment release. Entrega plans to discharge hydrostatic test waters directly back to the source waters using a splash pup system (see attached figure). A splash pup is a smaller section of pipeline welded at the end of the discharge line at a 90-degree angle. The splash pup is suspended above the water, so that the water is sprayed into the air and allowed to "rain" back down onto the surface of the waterbody. It is an effective means of minimizing erosion and dissipating the energy to avoid increasing the turbidity of the waterbody from erosion and significant changes to the flow velocity of the river. The activities will be monitored by environmental and craft inspectors and the outflow rates adjusted if necessary so that erosion impacts will be avoided.

Please note the following:

1. Entrega will not add any chemicals to the hydrostatic test water.
2. The proposed start dates for the withdrawal of water and the testing are broad estimates only and is dependent on receipt of the FERC 7(c) Certificate and notices to proceed along with construction progress. The actual dates of withdrawal will be identified in the hydrostatic test water authorization issued by the appropriate state agency. Per recommendations from the U.S. Fish and Wildlife Service and Wyoming Game and Fish Department, Entrega will limit hydrostatic test withdrawals dates to the following:
    a. White River, Yampa River, and Little Snake River - October 1 to March 1
    b. North Platte River, Rock Creek, and Little Laramie River - August 1 to September 30.
3. The withdrawal durations listed are based on a maximum estimated withdrawal rate and may be longer if the rate of withdrawal is decreased.

The overall plan for testing is summarized as follows:.

2.0 TESTING PLAN

Segment 1, 135 miles of 36"

Section 1, 25.5 Miles, 6.8 million gallons

- The fill point on the pipeline will be at approximately MP 15.2 at the White River.
- The section will be filled within approximately 40-55 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 2 for testing.
- Sample the remaining water volume that was not transferred, then discharge as permitted back to the source at approximately MP 15.2.
- Note: The contractor may elect to separate this into two test sections divided by the White River depending on the progress and schedule needs.

Section 2, 22.1 Miles, 5.8 million gallons

- The fill point on the pipeline will be at approximately MP 25.5, via transfer from section 1.
- The section will be filled within approximately 12-24 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin returning the required water to section 1.
- Sample the water, then discharge as permitted back to the source at approximately MP 15.2.
- Approximately 640 feet of pipe needs to be tested for 1.25 MAOP or a minimum of 1,850psi, at MP 35.5. The required volume is approximately 32,000 gallons, and dependant on contractor as to whether water is hauled in to perform the test.

Section 3, 3.4 Miles, 895,000 gallons

- The fill point on the pipeline will be at approximately MP 50.5, at the Yampa River.
- The section will be filled within approximately 5-12 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, sample the water, then discharge as permitted back to the source at approximately MP 50.5.

Section 4, 33.5 Miles, 8.8 million gallons

- The fill point on the pipeline will be at approximately MP 50.5, at the Yampa River.
- The section will be filled within approximately 50-70 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, sample the water, then discharge as permitted back to the source at approximately MP 50.5.

Section 5, 22.7 Miles, 6.0 million gallons

- The fill point on the pipeline will be at approximately MP 84.5, at the Little Snake River.
- The section will be filled within approximately 90-120 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 6 for testing.

Section 6, 28.3 Miles, 7.4 million gallons

- The fill point on the pipeline will be at approximately MP 84.5, via transfer from section 5. Water will be sourced from the Little Snake River through section 5 via a fill point at approximately MP 84.5.
- The section will be filled within approximately 168-192 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin returning the required water to section 5.
- Sample the water, then discharge as permitted back to the source at approximately MP 84.5.

Segment 2, 192 miles of 42"

Section 7, 29.4 Miles, 10.5 million gallons

- The fill point on the pipeline will be at approximately MP 192.8, via transfer from section 8. Water will be sourced from the North Platte River through section 8 via fill point at MP 192.8.
- The section will be filled within approximately 48-72 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 8 testing.
- Sample the remaining water volume that was not transferred, then discharge as permitted back to the source at approximately MP 192.8.

Section 8 39.5 Miles, 14.1 million gallons

- The fill point on the pipeline will be at approximately MP 192.8 at the North Platte River.
- The section will be filled within approximately 96-120 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 9 for testing.
- Approximately 3,040 feet of Class 3 pipe needs to be tested at a minimum of 2,220 psi not to exceed 2,960 psi. This pipe will be installed between MP 178.7 and 179.3. The required volume is approximately 206,000 gallons.

Section 9, 28.6 miles, 10.2 million gallons

- The fill point on the pipeline will be at approximately MP 192.8, via transfer from section 8. Water will be sourced from the North Platte River through section 8 via fill point at MP 192.8.
- The section will be filled within approximately 48-72 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving volume to section 8 for discharge.
- Sample the water volume, then discharge as permitted at approximately MP 192.8.

Section 10, 27.0 Miles, 9.7 million gallons

- The fill point on the pipeline will be at approximately MP 237.3, via Rock Creek
- The section will be filled within approximately 322-350 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, sample the remaining water, then discharge as permitted back to the source at MP 237.3

Section 11, 28.0 Miles, 10.0 million gallons

- The fill point on the pipeline will be at approximately MP 260.9, via Little Laramie River.
- The section will be filled within approximately 108-132 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 12 for testing.

Section 12, 16.0 Miles, 5.7 million gallons

- The fill point on the pipeline will be at approximately MP 288.5, via transfer from section 11.
- The section will be filled within approximately 48-72 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving the required volume to section 13 for testing.

Section 13, 7.0 Miles, 2.5 million gallons

- The fill point on the pipeline will be at approximately MP 304.0 via transfer from section 11 through section 12.
- The section will be filled within approximately 24-48 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, sample the water, then discharge as permitted at approximately MP 313.0.

Section 14, 16.0 Miles, 5.7 Million gallons

- The fill point on the pipeline will be at approximately MP 311.0, via transfer from section 11 through sections 12 and 13.
- The section filled within approximately 48-72 hours.
- Immediately begin pressuring the line section to the required pressure then hold for the required 8 hour duration.
- Upon satisfactory completion of the test, begin moving volume to section 11 for discharge.
- Upon satisfactory completion of the test, sample the water, then discharge as permitted at approximately MP 260.9.

3.0 WATER USE PLAN

White River

Test Sections: Sections 1 and 2

Total Water Required from the White River: 6.8 million gallons (approximately)

Withdrawal Point: MP 15.2

Discharge Point: MP 15.2

Water Use/Transfer Plan:

Section 1 requires 6.8 million gallons and will be filled and tested first, once section 1 is successfully tested the required 5.8 million gallons of water required for section 2 will be transferred to section 2 and the remainder of the water (1.0 million gallons) will be discharged. Once section 2 is successfully tested the water will be transferred through section 1 and discharged.

Duration of Water Use:

Total Water from the White River, approximately 6.8 million gallons. It is estimated that 6.8 million gallons will be required for approximately 7 days. The remaining 1.0 millions gallons will be required for approximately 14 days.

Withdrawal Permits:

No permit is required to withdraw water from the White River, flow depletion would be limited.

Withdrawal Rates:

The maximum targeted withdrawal rate is 5,000 GPM which is approximately 4.1% of the average flow based on data from 1999 through 2003 for the months of September and October.

Discharge Permits:

A hydrostatic test water discharge permit was obtained from the CDPHE on April 20, 2005.

Yampa River

Test Sections: Section 3 and 4

Total Water Required from the Yampa River: 9.7 million gallons (approximately)

Withdrawal Point: MP 50.6

Discharge Point: MP 50.6

Water Use/Transfer Plan:

Water will not be transferred between sections 3 and 4 as these sections will be completed by separate contractors which will be there at different times. Section 3 requires 0.9 million gallons of water for testing, once section 3 is successfully tested the 0.9 million gallons required for that section will be discharged. Section 4 requires 8.8 million gallons of water for testing, once section 4 is successfully tested the 8.8 million gallons required for that section will be discharged.

Duration of Water Use:

Total Water from the Yampa River, approximately 9.7 million gallons. 0.9 million gallons will be required for approximately 7 days. An additional 8.8 million gallons will be required for approximately 10 days.

Withdrawal Permits:

No permit is required to withdraw water from the Yampa River, flow depletion would be limited.

Withdrawal Rates:

The maximum targeted withdrawal rate is 3,000 GPM which is approximately 4.2% of the average flow based on data from 1999 through 2003 for the months of September and October.

Entrega Gas Pipeline
Hydrostatic Test Plan

Discharge Permits:
A hydrostatic test water discharge permit was obtained from the CDPHE on April 20, 2005.

Little Snake River
Test Sections: Section 5 and 6
Total Water Required from the Little Snake River: 7.4 million gallons (approximately)
Withdrawal Point: MP 84.5
Discharge Point: MP 84.5
Water Use/Transfer Plan:
Section 6 requires 7.4 million gallons and will be filled through section 5 and tested first, once section 6 is successfully tested the required 6.0 million gallons of water required for section 5 will be transferred and the remainder of the water (1.4 million gallons) will be discharged. Once section 5 is successfully tested the 6.0 million gallons required for that section will be discharged.
Duration of Water Use:
Total Water from the Little Snake River, approximately 7.4 million gallons. 1.4 million gallons will be required for approximately 14 days. The remaining 6.0 million gallons will be required for approximately 20 days.
Withdrawal Permits:
No permit is required to withdraw water from the Little Snake River, flow depletion would be limited.
Withdrawal Rates:
The maximum targeted withdrawal rate is 1,000 GPM which is approximately 7.5% of the average flow based on data from 1999 through 2003 for the months of September and October.
Discharge Permits:
A hydrostatic test water discharge permit was obtained from the CDPHE on April 20, 2005.

North Platte River
Test Sections: Section 7, 8,and 9
Total Water Required from the North Platte River: 14.1million gallons (approximately)
Withdrawal Point: MP 192.8
Discharge Point: MP 192.8
Water Use/Transfer Plan:
Section 7 requires 10.5 million gallons and will be filled and tested first, once section 7 is successfully tested the required 14.1 million gallons of water required for section 8 will be transferred from section 7 and the river. Once section 8 is successfully tested the 10.2 million gallons required for section 9 will be transferred, the remaining 3.9 million will be discharged. Once section 9 is successfully tested the 10.2 million gallons required for that section will be discharged.
Duration of Water Use:
Total Water from the North Platte River, approximately 14.1 million gallons. 3.9 million gallons will be required for approximately 14 days. The remaining 10.2 million gallons will be required for approximately 20 days.
Withdrawal Permits:
No permit is required to withdraw water from the North Platte River, flow depletion would be limited. The Bureau of Reclamation (BOR) has water rights on the North Platte and has agreed to sell up to 32,149,547 gallons of water to Entrega for testing. The BOR considers this water as Municipal & Industrial (M&I), thus it is 100% consumptive.

Entrega Gas Pipeline
Hydrostatic Test Plan

Withdrawal Rates:
The maximum targeted withdrawal rate is 5,000 GPM which is approximately 4.0% of the average flow based on data from 1999 through 2003 for the months of August through October.
Discharge Permits:
Discharge permits will be required from the WYDEQ.

Rock Creek
Test Sections: Section 10
Total Water Required from the Rock Creek: 9.7million gallons (approximately)
Withdrawal Point: MP 225.5
Discharge Point: MP 225.5
Water Use/Transfer Plan:
Section 10 requires 9.7 million gallons of water for testing, once section 10 is successfully tested the 9.7 million gallons required for that section will be discharged.
Duration of Water Use:
Total Water from the Rock Creek, approximately 9.7 million gallons. 10.2 million gallons will be required for approximately 20 days.
Withdrawal Permits:
Pending.
Withdrawal Rates:
The maximum targeted withdrawal rate is 500 GPM which is approximately 8.3% of the average flow based on data from 1999 through 2003 for the months of August through October.
Discharge Permits:
Discharge permits will be required from the WYDEQ.

Little Laramie River
Test Sections: Sections 11, 12, 13 and 14
Total Water Required from the Little Laramie River: 13.9 million gallons (approximately)
Withdrawal Point: MP 260.9
Discharge Point: MP 260.9
Water Use/Transfer Plan:
Section 11 requires 10.0 million gallons and will be filled and tested first, once section 11 is successfully tested the required 5.7 million gallons of water required for section 12, the required 2.5 million gallons of water for section 13, and the 5.7 million gallons will be transferred from section 11 and the river. Once sections 12, 13, and 14 are successfully tested the 13.9 million gallons required for those sections will be discharged.
Duration of Water Use:
Total Water from the Little Laramie River, approximately 13.9 million gallons. 13.9 million gallons will be required for approximately 25 days.
Withdrawal Permits:
Pending.
Withdrawal Rates:
The maximum targeted withdrawal rate is 1,000 GPM which is approximately 8.9% of the average flow based on data from 1999 through 2003 for the months of August and September.
Discharge Permits:
Discharge permits will be required from the WYDEQ.

Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations
White River
Rio Blanco County, CO

Updated: April 6, 2005

TRIGON DEC

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Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations
Yampa River
Moffat County, CO

Updated: April 6, 2005

TRIGON EPC

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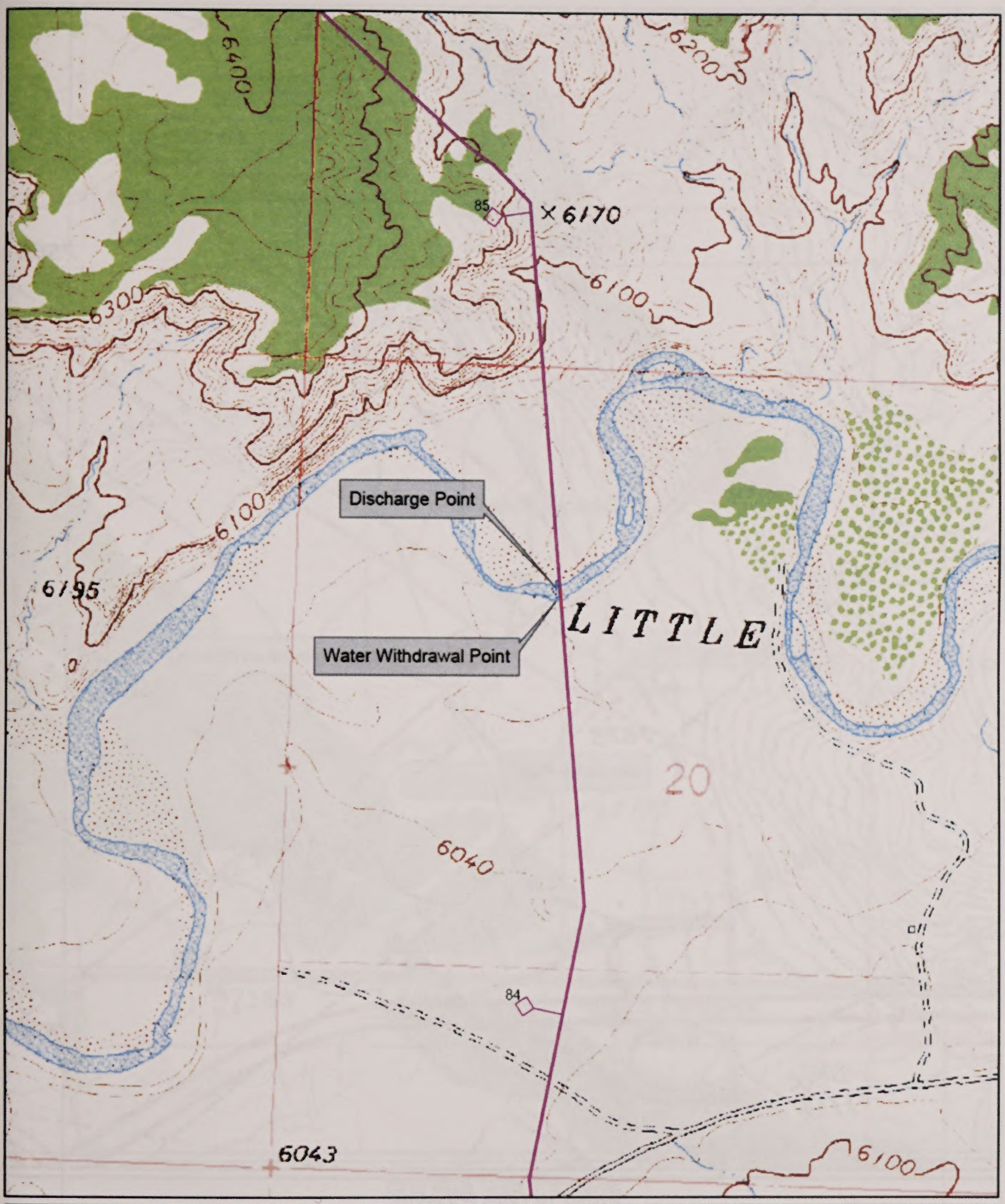
Entrega Gas Pipeline
Hydrostatic Test Plan



Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations
Little Snake River
Moffat County, CO

Updated: April 6, 2005

TRIGON EPC

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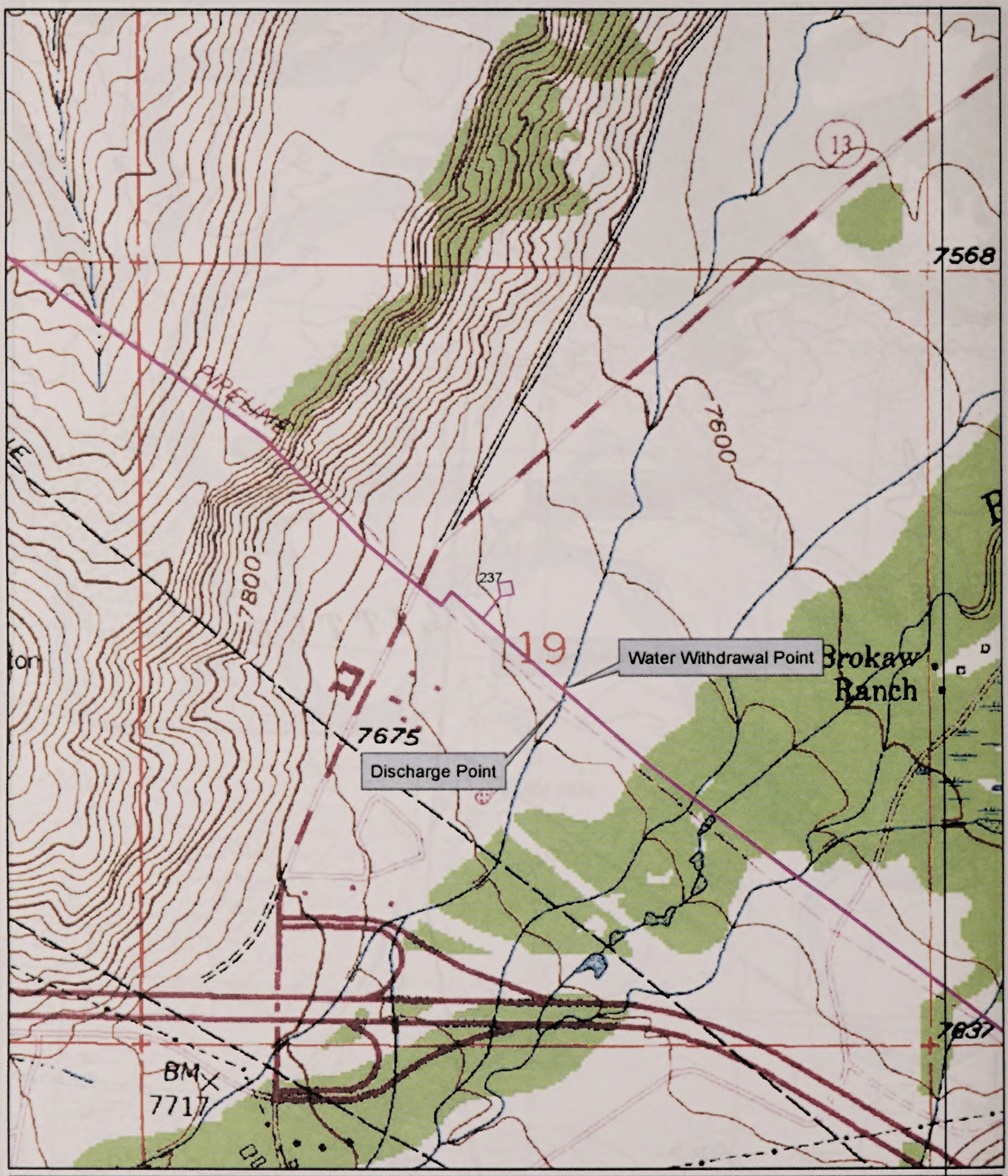
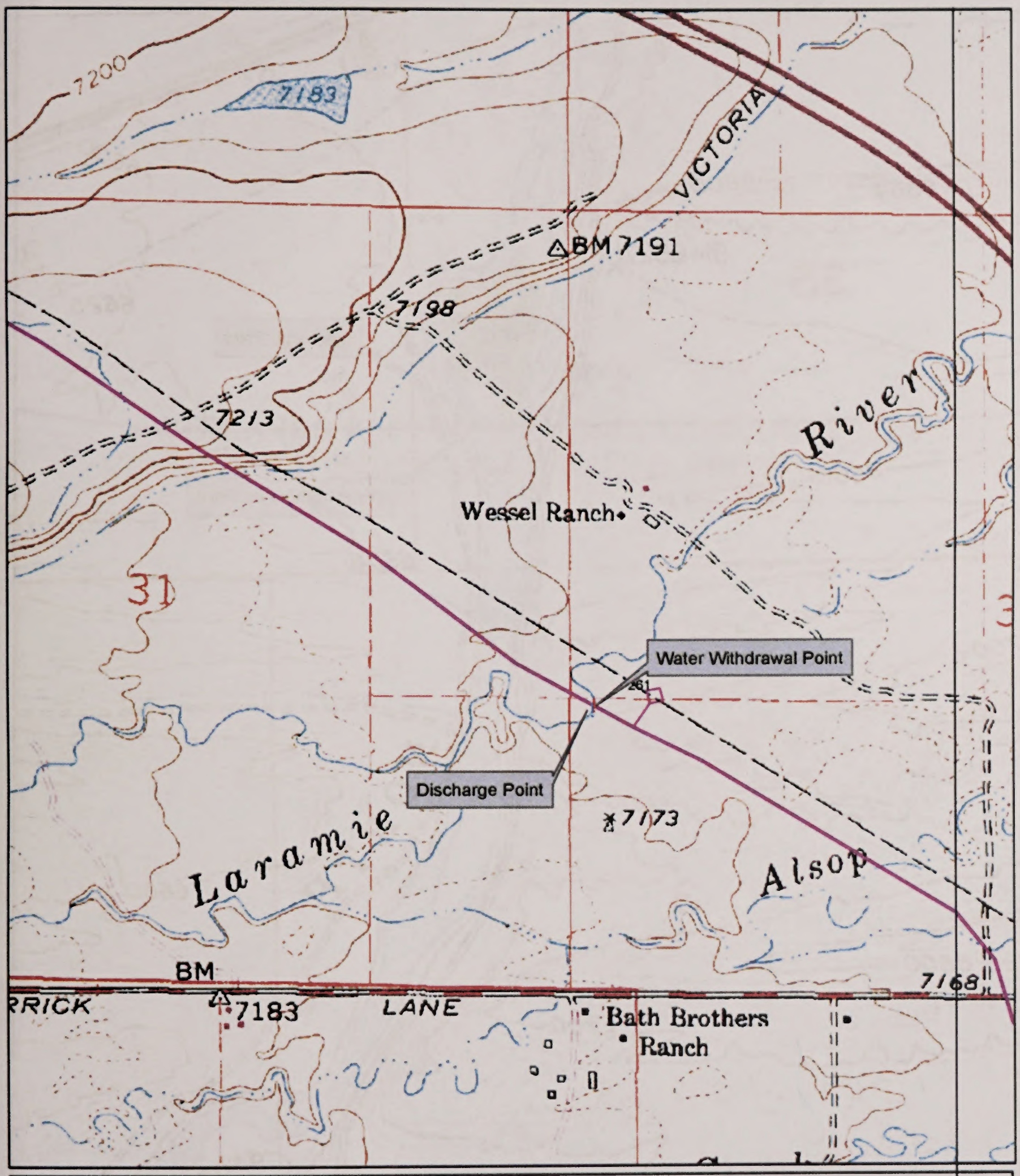


Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations
Rock Creek
Carbon County, CO

Updated: April 21, 2005

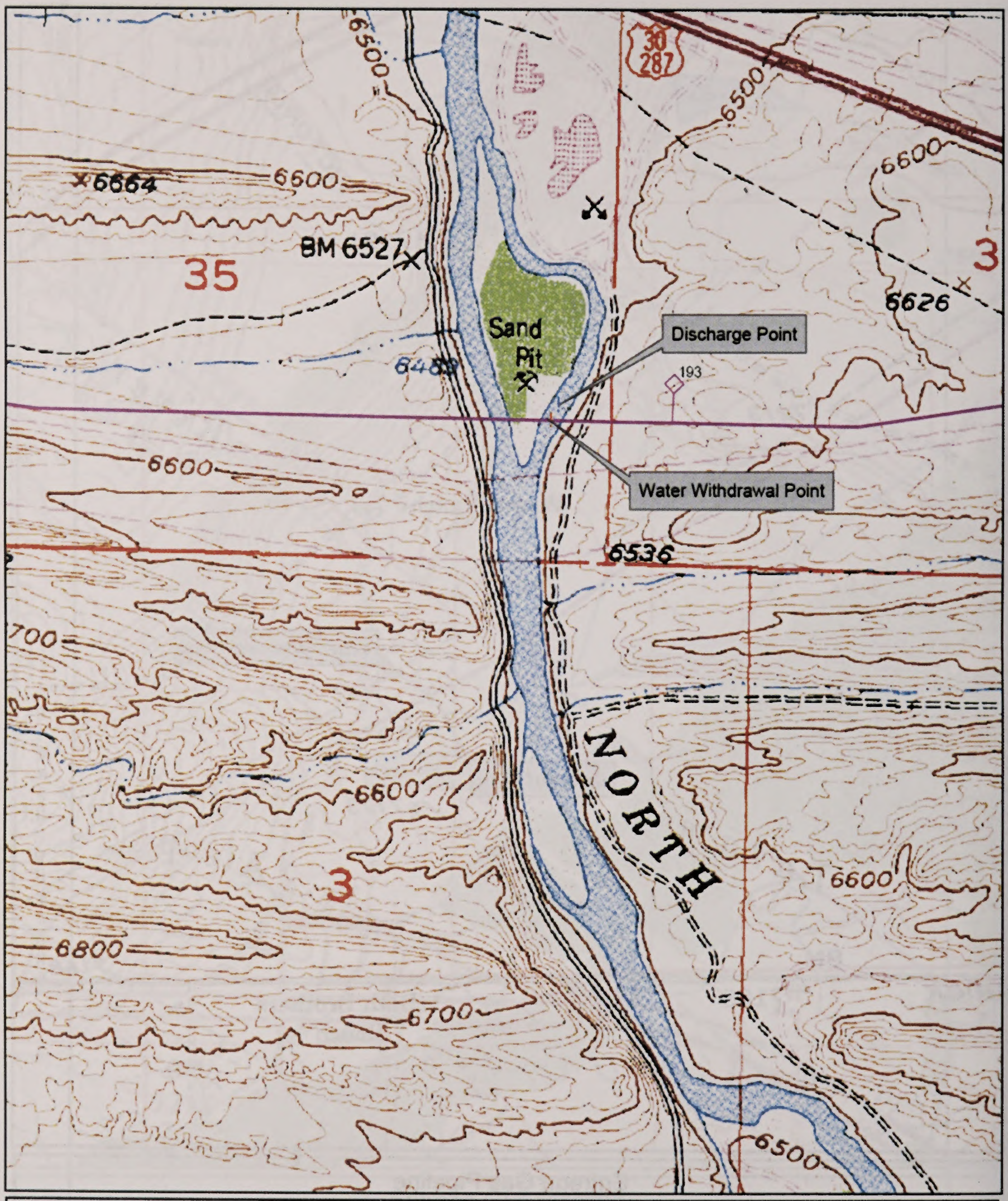
TRIGON



Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations
Little Laramie River
Albany County, CO

Updated: April 21, 2005

TRIGON



Entrega Gas Pipeline
Hydrostatic Test Withdrawal and Discharge Locations

Updated: April 6, 2005

North Platte River
Carbon County, WY

TRIGON EPC

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APPENDIX N

WETLANDS AFFECTED DURING CONSTRUCTION OF THE ENTREGA PIPELINE PROJECT

Entrega Pipeline Project
Wetlands Affected During Construction

Beginning Milepost [a/]	Disturbance Source (Pipeline, ATWS, or Aboveground Facilities)	County	Wetland Type [c/]	Crossing Length (feet)	Crossing Length (miles)	Acres Affected During Construction [d/]
COLORADO						
1.35	P	Rio Blanco	PEM	165.43	0.03133144	0.29
1.37	P	Rio Blanco	PEM	0	0	0.29
1.39	P	Rio Blanco	PEM	136.78	0.0259053	0.21
1.43	P	Rio Blanco	PEM	291.09	0.05513068	0.42
1.6	P	Rio Blanco	PEM	0	0	0.42
1.71	P	Rio Blanco	PEM	0	0	0.03
2.16	P	Rio Blanco	PEM	0	0	0.01
2.17	P	Rio Blanco	PEM	0	0	<0.01
3.44	P	Rio Blanco	PEM	0	0	<0.01
5.24	P	Rio Blanco	PEM	233.23	0.04417235	0.27
7.22	P	Rio Blanco	PEM	0	0	0.01
7.88	P	Rio Blanco	PEM	179.82	0.03405682	0.32
8.69	P, A	Rio Blanco	PEM	327.98	0.06211742	0.48
9.01	P	Rio Blanco	PEM	14.76	0.00279545	0.01
9.01	P	Rio Blanco	PEM	0	0	<0.01
10.06	P, A	Rio Blanco	PEM	150.34	0.02847348	0.29
10.12	P	Rio Blanco	PEM	4.83	0.00091477	0.01
10.56	P	Rio Blanco	PEM	0	0	0.01
10.57	P	Rio Blanco	PEM	25.24	0.0047803	0.01
10.59	P	Rio Blanco	PEM	0	0	<0.01
10.61	P	Rio Blanco	PEM	0	0	<0.01
13	P	Rio Blanco	PEM	15.09	0.00285795	0.08
13.01	P	Rio Blanco	PEM	7.07	0.00133902	0.02
13.74	P, A	Rio Blanco	PEM	34.85	0.00660038	0.02
14.9	P	Rio Blanco	PEM	0	0	0.24
14.9	P	Rio Blanco	PEM	0	0	0.24
14.92	P	Rio Blanco	PEM	170.44	0.0322803	0.24
14.94	P	Rio Blanco	PSS	9.81	0.00185795	0.02
14.96	P	Rio Blanco	PEM	0	0	<0.01
14.97	P	Rio Blanco	PEM	0	0	<0.01
15.06	P, A	Rio Blanco	PEM	5.05	0.00095644	0.04
15.13	P, A	Rio Blanco	PEM	24.81	0.00469886	0.04
15.17	P	Rio Blanco	PEM	0	0	<0.01
15.2	P	Rio Blanco	PEM	9.24	0.00175	0.01
27.53	P, A	Moffat	PEM	44.47	0.00842235	0.06
27.81	A	Moffat	PEM	8.35	0.00158144	0.02
27.82	P	Moffat	PEM	0	0	0.02
29.68	P	Moffat	PEM	15.28	0.00289394	0.02
30.09	P	Moffat	PEM	86.29	0.0163428	0.16
30.1	P	Moffat	PEM	0	0	0.16
30.25	P	Moffat	PEM	46.37	0.0087822	0.05

Beginning Milepost [a/]	Disturbance Source (Pipeline, ATWS, or Aboveground Facilities)	County	Wetland Type [c/]	Crossing Length (feet)	Crossing Length (miles)	Acres Affected During Construction [d/]
31.57	P	Moffat	PEM	471.68	0.08933333	0.81
35.32	P	Moffat	PEM	45.73	0.00866098	0.06
41.1	P	Moffat	PEM	6.8	0.00128788	0.01
41.11	P	Moffat	PEM	0	0	0.01
49.69	P	Moffat	PEM	6.82	0.00129167	0.02
49.69	P	Moffat	PEM	4.47	0.00084659	0.01
50.2	P	Moffat	PEM	28.4	0.00537879	0.04
50.45	P	Moffat	PEM	8.1	0.00153409	0.01
50.49	P	Moffat	PEM	10.07	0.0019072	0.02
68.83	P	Moffat	PEM	0	0	0.02
68.83	P	Moffat	PEM	0	0	<0.01
68.83	P	Moffat	PEM	0	0	<0.01
84.39	P	Moffat	PEM	20.6	0.00390152	0.03
WYOMING						
98.45	P	Sweetwater	PEM	42.36	0.00802273	0.07
174.84	P	Carbon	PEM	12.88	0.00243939	0.03
176.56	P	Carbon	PEM	19.28	0.00365152	0.19
176.76	P	Carbon	PEM	131.14	0.02483712	0.26
176.79	P	Carbon	PEM	0	0	<0.01
177.02	P	Carbon	PEM	27.41	0.00519129	0.04
177.1	P	Carbon	PEM	146.57	0.02775947	0.25
192.94	P, A	Carbon	PEM	7.22	0.00136742	0.02
192.97	P, A	Carbon	PEM	4.11	0.00077841	0.01
193.02	P, A	Carbon	PEM	0	0	0.01
193.03	P, A	Carbon	PEM	12.1	0.00229167	0.02
214.09	P	Carbon	PEM	23.79	0.00450568	0.04
217.68	P	Carbon	PEM	78.64	0.01489394	0.14
218.91	P	Carbon	PEM	16.97	0.00321402	0.03
225.54	P	Carbon	PEM	373.02	0.07064773	0.71
225.65	P	Carbon	PEM	0	0	0.71
225.67	P	Carbon	PEM	0	0	0.01
225.68	P	Carbon	PEM	11.43	0.00216477	0.01
225.74	P, A	Carbon	PEM	352.15	0.06669508	0.58
228.82	P	Carbon	PEM	0	0	<0.01
229.89	P	Carbon	PEM	31.79	0.00602083	0.06
229.89	P	Carbon	PEM	7.11	0.00134659	0.01
229.89	P	Carbon	PEM	7.11	0.00134659	0.06
229.89	P	Carbon	PEM	7.11	0.00134659	0.01
229.89	P	Carbon	PEM	7.11	0.00134659	0.06
229.91	P, A	Carbon	PEM	0	0	0
232.9	P, A	Carbon	PEM	13.67	0.00258902	0.02
235.42	P	Carbon	PSS	12.21	0.0023125	0.02
235.44	P	Carbon	PSS	54.55	0.01033144	0.1
235.76	P	Carbon	PSS	37.02	0.00701136	0.05

Beginning Milepost [a/]	Disturbance Source (Pipeline, ATWS, or Aboveground Facilities)	County	Wetland Type [c/]	Crossing Length (feet)	Crossing Length (miles)	Acres Affected During Construction [d/]
237.51	P	Carbon	PEM	4.14	0.00078409	0.02
237.52	P	Carbon	PEM	0	0	0.02
237.83	P	Carbon	PEM	56.18	0.01064015	0.74
237.85	P	Carbon	PSS	65.11	0.01233144	0.12
237.89	P, A	Carbon	PEM	401.08	0.07596212	0.74
237.94	P	Carbon	PFO	0	0	<0.01
237.98	P	Carbon	PFO	12.26	0.00232197	0.01
237.99	P	Carbon	PEM	0	0	0.01
238.43	P	Carbon	PEM	225.96	0.04279545	0.39
238.68	P	Carbon	PEM	102.52	0.01941667	0.16
239.48	P	Carbon	PEM	353.53	0.06695644	0.58
239.64	P	Carbon	PEM	0	0	<0.01
239.66	P	Carbon	PEM	0	0	0.11
239.7	P	Carbon	PEM	0	0	0.11
239.71	P	Carbon	PEM	56.2	0.01064394	0.11
239.98	P	Carbon	PEM	20.5	0.00388258	0.04
240.08	P, A	Carbon	PSS	15.44	0.00292424	0.03
241.14	P	Carbon	PEM	135.73	0.02570644	0.25
241.57	P	Carbon	PEM	117.17	0.02219129	0.2
241.91	P	Carbon	PEM	129.26	0.02448106	0.22
242.81	P	Carbon	PEM	83.64	0.01584091	0.31
242.82	P	Carbon	PEM	0	0	0.31
242.86	P	Carbon	PEM	0	0	0.31
243.27	P	Carbon	PEM	40.08	0.00759091	0.06
243.97	P	Carbon	PEM	1497.79	0.28367235	2.61
244.15	P	Carbon	PEM	143.05	0.0270928	0.3
244.18	P	Carbon	PEM	38.48	0.00728788	0.3
244.64	P	Carbon	PEM	159.69	0.03024432	0.27
246.11	P	Carbon	PEM	1764.15	0.33411932	3.08
246.57	P	Albany	PEM	101.07	0.01914205	0.17
246.58	P	Albany	PSS	59.8	0.01132576	0.2
246.6	P	Albany	PEM	0	0	0.17
246.6	P	Albany	PSS	12.61	0.00238826	0.2
246.61	P	Albany	PEM	107.4	0.02034091	0.18
246.62	A	Albany	PSS	24.75	0.0046875	0.2
246.69	P, A	Albany	PEM	656.96	0.12442424	1.14
246.79	P	Albany	PEM	2.43	0.00046023	0.01
247.04	P	Albany	PEM	516.27	0.09777841	0.91
247.09	P	Albany	PEM	0	0	0.91
247.1	P	Albany	PSS	113.66	0.02152652	0.15
247.16	P	Albany	PEM	599.27	0.11349811	1.03
247.25	P	Albany	PEM	0	0	0.01
247.49	P	Albany	PEM	441.66	0.08364773	0.76
247.66	P	Albany	PEM	8.86	0.00167803	0.01

Beginning Milepost [a/]	Disturbance Source (Pipeline, ATWS, or Aboveground Facilities)	County	Wetland Type [c/]	Crossing Length (feet)	Crossing Length (miles)	Acres Affected During Construction [d/]
250.09	P	Albany	PEM	158.83	0.03008144	0.27
250.11	P	Albany	PEM	11.87	0.00224811	0.02
250.17	P	Albany	PEM	29.76	0.00563636	0.04
250.19	P	Albany	PSS	79.7	0.0150947	0.14
250.2	P, A	Albany	PEM	40.46	0.00766288	0.07
250.22	P	Albany	PEM	85.19	0.01613447	0.14
250.53	P	Albany	PEM	77.72	0.0147197	0.14
252.34	P	Albany	PSS	100.26	0.01898864	0.11
252.35	P	Albany	PEM	0	0	0.04
252.39	P	Albany	PEM	0	0	0.01
253.48	P	Albany	PEM	114.61	0.02170644	0.17
257.6	P	Albany	PEM	42.89	0.00812311	0.05
260.78	P, A	Albany	PEM	2714.83	0.51417235	4.63
261.02	P	Albany	PEM	0	0	0.13
261.02	P	Albany	PEM	0	0	0.13
261.04	P	Albany	PEM	65.65	0.01243371	0.13
261.05	P	Albany	PEM	4.17	0.00078977	0.01
261.21	P, A	Albany	PEM	1645.13	0.31157765	2.8
261.45	P	Albany	PEM	79.3	0.01501894	0.14
261.53	A	Albany	PEM	143.57	0.02719129	0.57
261.59	P	Albany	PEM	195.71	0.03706629	0.57
261.63	P, A	Albany	PEM	70.63	0.01337689	0.12
261.7	P	Albany	PSS	15.65	0.00296402	0.03
261.8	P	Albany	PEM	45.98	0.00870833	0.09
261.83	P	Albany	PEM	0	0	0.01
261.88	P	Albany	PEM	367.18	0.06954167	0.61
261.97	P, A	Albany	PEM	64.76	0.01226515	0.11
262.35	P, A	Albany	PEM	12.11	0.00229356	2.81
262.47	P, A	Albany	PEM	0	0	0.16
262.5	P, A	Albany	PEM	431.82	0.08178409	0.68
262.68	P	Albany	PEM	11.89	0.00225189	0.02
262.93	P	Albany	PEM	18.62	0.00352652	0.04
264.92	P	Albany	PEM	476.38	0.09022348	0.86
265.2	P	Albany	PEM	285.04	0.05398485	0.48
265.43	P	Albany	PEM	268.42	0.05083712	0.45
273.34	P	Albany	PEM	9.76	0.00184848	0.01
274.39	P	Albany	PEM	176.43	0.03341477	0.22
274.45	P	Albany	PEM	0	0	0.03
274.46	P	Albany	PEM	0	0	0.03
274.47	P, A	Albany	PEM	16.24	0.00307576	0.03
274.51	P	Albany	PEM	12.44	0.00235606	0.03
274.53	P	Albany	PEM	87.17	0.01650947	0.11
274.55	P	Albany	PEM	38.58	0.00730682	0.07
274.56	P	Albany	PEM	0	0	<0.01

Beginning Milepost [a/]	Disturbance Source (Pipeline, ATWS, or Aboveground Facilities)	County	Wetland Type [c/]	Crossing Length (feet)	Crossing Length (miles)	Acres Affected During Construction [d/]
274.58	P, A	Albany	PEM	68.12	0.01290152	0.11
274.61	P	Albany	PEM	162.85	0.0308428	0.26
274.65	P	Albany	PEM	111.59	0.02113447	0.17
274.86	P	Albany	PEM	139.21	0.02636553	0.23
289.83	P	Albany	PEM	14.36	0.0027197	0.01
290.15	P	Albany	PEM	118.34	0.02241288	0.19
290.82	P	Albany	PEM	0	0	<0.01
290.82	P	Albany	PEM	0	0	0.01
290.86	P	Albany	PSS	24.13	0.00457008	0.05
291.45	P	Albany	PEM	0	0	0.02
295.67	P	Albany	PEM	44.42	0.00841288	0.05
304.41	P	Laramie	PEM	10.71	0.00202841	0.01
304.46	P	Laramie	PEM	336.74	0.06377652	0.46
304.46	P	Laramie	PEM	0	0	0.01
304.47	A	Laramie	PEM	0	0	0.01
COLORADO						
320.35	P	Weld	PEM	0	0	0.03
320.35	A	Weld	PEM	18.98	0.0035947	0.03
			Project Total	**21161**	4.00776515	**45.53**

[a] The identified milepost location is associated with the center of the wetland crossing.
[b] The wetland unique ID corresponds to results provided in Western EcoSystems Technology, Inc. wetland survey dated 2005.
[c] Wetland Types:
PEM Palustrine emergent
PSS Palustrine scrub-shrub
PFO Palustrine forested
[d] Construction impacts are based on a 75-foot-wide right-of-way centered over the pipeline. Some wetlands are not crossed by the centerline but are located within the construction right-of-way corridor.
[e] Palustrine emergent wetlands will not be affected during operation. Only a 10-foot-wide strip centered over the pipeline in palustrine scrub-shrub wetlands and a 30-foot-wide strip centered over the pipeline in palustrine forested wetlands will be permanently maintained. Some wetlands are not crossed by the centerline but are located within the permanent right-of-way.

APPENDIX O

ENTREGA CONSERVATION MEASURE PLAN AND SPECIAL STATUS SPECIES SURVEY PLAN, AND BLM CONSERVATION MEASURE PLAN AND BLM SENSITIVE SPECIES SURVEY PLAN

ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline
Conservation Measure Plan

Revision 1

Prepared for:

Entrega Gas Pipeline Inc.
Republic Plaza Building
370 17th Street
Suite 1700
Denver, CO 80202

Prepared by:

NATURAL RESOURCE GROUP, INC.

May 2005

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1.0 INTRODUCTION

Entrega Gas Pipeline Inc. (Entrega) is proposing to construct a 327-mile-long interstate natural gas transmission pipeline from the Meeker Hub southwest of Meeker, Colorado to an existing natural gas distribution hub (Cheyenne Hub) near the town of Rockport, Colorado (see figure 1). The project, referred to as the Entrega Gas Pipeline, will be designed to initially transport approximately 1.3 billion cubic feet of gas per day from the Uintah and Piceance Basins in Colorado, with pipeline interconnects at Meeker Hub, Wamsutter, and the Cheyenne Hub.

The project will require approval from the Federal Energy Regulatory Commission (FERC), thus the project constitutes a Federal action. Pursuant to 18 CFR 380.13, Entrega is acting as FERC's non-federal representative for purposes of complying with section 7(a) of the Endangered Species Act (ESA). Natural Resource Group, Inc. (NRG) is conducting special status species consultations for the proposed project on behalf of Entrega. During NRG's initial meeting with the U.S. Fish and Wildlife Service (FWS), the following federally listed endangered, threatened, proposed, or candidate species that could potentially occur in the proposed project area were identified: Preble's meadow jumping mouse, black-tailed prairie dog, black-footed ferret, bald eagle, Wyoming toad, Ute ladies'-tresses, Colorado butterfly plant, blowout penstemon, Dudley Bluffs twinpod, and Dudley Bluffs bladderpod. Also of concern to the FWS were the white-tailed prairie dog, mountain plover, and greater sage grouse. In addition, designated critical habitat for the Colorado pikeminnow occurs at the proposed Yampa River and White River crossing locations and the FWS expressed concern regarding the potential downstream impacts on federally listed species due to hydrostatic test water withdrawals from the Upper Colorado River Basin and Platte River Basin Watersheds. Survey methods to determine the presence or absence of the identified species of concern within the project area are detailed in Entrega's *Survey Plan*, which was approved by the FWS on June 23, 2004.

General measures to help avoid or minimize impacts on species within the proposed project area will include conducting environmental training for all construction workers, adhering to Entrega's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), and implementing Entrega's *Spill Prevention, Containment, and Countermeasure Plan* (SPCC Plan) and *Weed Management Plan*. Entrega's Plan and Procedures identify baseline mitigation measures for minimizing erosion and enhancing revegetation, and for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies, respectively. Specifically, the Plan and Procedures contain certain requirements, such as: ensuring the appropriate cultural and biological surveys have been conducted; having an Environmental Inspector (EI) present on each construction spread; locating extra workspaces at least 50 feet from wetlands and waterbodies and limiting the clearing of vegetation between each workspace and associated wetland or waterbody; using slope breakers, energy dissipating devices, and/or dewatering structures when appropriate to prevent or minimize erosion and sedimentation; abiding by fishery construction timing windows; grading the construction work areas to pre-construction contours following construction or to such other profile agreed to by all affected agencies; conducting restoration activities; and conducting appropriate monitoring and maintenance. Entrega's SPCC Plan describes preventative measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills; and mitigative measures, such as containment and

cleanup, to minimize potential impacts should a spill occur. Entrega's *Weed Management Plan* describes mitigation measures to minimize the introduction and/or spread of invasive plant species.

This *Conservation Measure Plan* outlines specific conservation measures to be implemented in the event one of the aforementioned species is identified along the proposed project route during surveys. Measures identified in this *Conservation Measure Plan* are specific to the protection of these species and take priority over measures identified in Entrega's Plan and Procedures. Specific locations where measures will be implemented are dependent on the results of the field surveys. The conservation measures presented within this plan were largely developed based on accepted practices and procedures, and are intended to facilitate a "not likely to adversely affect" determination.

2.0 MAMMALS

2.1 Preble's Meadow Jumping Mouse

The federally threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*) inhabits foothills and plains riparian areas immediately adjacent to perennial streams. Suitable habitat is usually distinguished by woody overstory vegetation, commonly willow, with a dense herbaceous understory. The Preble's meadow jumping mouse is currently being reviewed by the FWS to determine if it is a distinct species. If it is not a distinct species and is subsequently delisted, the following potential impacts and related conservation measures will no longer be applicable.

Potential direct impacts on the Preble's meadow jumping mouse during construction could include displacement, injury, or death of individuals at stream crossings during clearing, trenching, while the trench is open prior to pipe lowering-in and backfilling, and during general vehicle movement along the right-of-way. The most likely potential direct impact on the Preble's meadow jumping mouse is the permanent loss of habitat as a result of maintaining the vegetation within the pipeline corridor. Indirect impacts on the Preble's meadow jumping mouse may include the reduction of available forage from clearing, soil compaction limiting revegetation success, and a lack of streamside vegetation to protect the mice from predators after clearing.

If suitable habitat for the Preble's meadow jumping mouse is identified within the proposed project area, Entrega will evaluate the potential for a route realignment up- or downstream or a change to the right-of-way configuration (*e.g.*, using the opposite side of the right-of-way to operate vehicle traffic) to avoid the habitat. If a reroute or configuration change is not feasible, a field survey for the Preble's meadow jumping mouse will be conducted in accordance with the *Survey Plan*. If the surveys indicate a population of Preble's meadow jumping mouse in the project area, impacts on the mouse will be minimized by implementing the following measures:

- The width of the right-of-way will be reduced as practical.
- No equipment will be parked closer than 100 meters from the stream crossing.
- A biologist will be notified by the EI to clear the area of mice prior to the crossing. To do this, the biologist will search the area and trap it for one night prior to construction

initiation using live traps. Any Preble's mouse captured will be moved upstream or downstream at least 100 feet away from the edge of the right-of-way.

- If the crossing occurs during the breeding season (in June or July), captured adults will be released at the trap site and followed to attempt to determine if they have young in a nest. If a nest is located within the right-of-way, a decision will be made to move the right-of-way and avoid the nest or delay the crossing until late July when the young should be mobile and able to be trapped and moved from the immediate area.
- If the route is moved to avoid an identified nest but still occurs in suitable habitat, surveys will be conducted as necessary and the above measures will be implemented.
- Whenever a piece of equipment needs to cross the area, the biologist will walk in front of the equipment to clear the area. Each subsequent piece of equipment will have the biologist walk in front of it to make sure no mice have come back into the right-of-way.

Construction through areas of suitable habitat will be conducted as quickly as is practical. Following construction, areas of suitable habitat will be restored by broadcast seeding the banks with a seed mix that includes native species and is acceptable to the landowner, local Natural Resource Conservation Service office, or other applicable agencies. In addition, Entrega will replace plugs of willow and/or preexisting shrub species from the riparian area with one plant (willow sprig or bare root stock) every square foot. If it is possible for cattle to graze in replanted riparian areas and the landowner provides consent, Entrega will fence the area until vegetation is reestablished.

To prevent the permanent loss of Preble's meadow jumping mouse habitat, Entrega will modify its plan for long-term maintenance of the permanent right-of-way within suitable habitat. Entrega's Procedures require limited vegetation maintenance and permanent revegetation of native plant species across the entire construction right-of-way within the 25-foot-wide riparian strip on either side of a waterbody. However, the Procedures allow for a 10-foot-wide corridor centered over the pipeline to be maintained in an herbaceous state to facilitate periodic pipeline corrosion/leak surveys. In addition, trees that are located within 15 feet of the pipeline and are greater than 15 feet in height may be cut and removed from the permanent right-of-way. In modifying its plan for long-term maintenance, Entrega will allow for the revegetation of native shrub species, in addition to herbaceous species within the 10-foot-wide corridor, to provide suitable Preble's meadow jumping mouse habitat, and will only remove trees over 15 feet tall as necessary.

2.2 Prairie Dog

The black-tailed prairie dog (*Cynomys ludovicianus*) was a candidate species for Federal listing as threatened or endangered; however, the FWS recently determined that proposing a rule to list the species is not warranted and the species is no longer considered to be a candidate species for listing (Federal Register Vol. 69, No. 159, dated August 18, 2004). The white-tailed prairie dog (*Cynomys leucurus*) is a BLM-sensitive species. Both of these species are of concern to the FWS because prairie dog colonies can support black-footed ferrets (see section 2.3). Prairie dogs live in colonies and inhabit dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Fine to medium textured soils are preferred, presumably because burrows tend to retain their shape and strength better than in coarse, loose soils. White-tailed prairie dogs live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs.

The potential effects of construction through a prairie dog colony may include temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Direct mortality of prairie dogs could result if active burrows are occupied at the time of construction. If construction occurs later in the prairie dog's reproductive season, from late May to early June, most prairie dogs would be expected to be mobile and able to avoid construction traffic; however, some individual prairie dogs could possibly be injured or killed during construction. Following construction and restoration, the revegetated right-of-way would provide high quality foraging habitat for prairie dogs and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.

A field survey will be conducted in accordance with the *Survey Plan* to determine if prairie dog colonies occur within the proposed project area. If the surveys identify an active colony, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, using the opposite side of the right-of-way to operate vehicle traffic). If it is not possible to avoid the population, the area affected will be minimized by reducing the width of the right-of-way as practical given the extent of the colony. In addition, if the colony only occurs along an edge of the right-of-way, the area will be flagged or exclusion fencing will be placed around the edge of the colony to avoid the colony if possible. Entrega will avoid siting staging areas, temporary workspaces, or pipeyards within active colonies if possible. Following construction, areas of potential habitat will be restored to preconstruction conditions.

2.3 Black-Footed Ferret

The black-footed ferret (*Mustela nigripes*) is a federally endangered species that inhabits prairie dog colonies in grasslands or shrub lands. The black-footed ferret is also a Colorado endangered species.

The potential effects of construction on the black-footed ferret are similar to those for the black-tailed and white-tailed prairie dogs and may include temporary loss of shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Construction through a prairie dog colony inhabited by black-footed ferrets could result in injury or direct mortality of ferrets through crushing of occupied burrows.

If surveys for prairie dog towns indicate that a colony of suitable size and density to accommodate a black-footed ferret population occurs within the proposed project area, a field survey for the black-footed ferret will be conducted in accordance with the *Survey Plan*. If the surveys identify a black-footed ferret, Entrega will contact the FWS. Entrega will coordinate with the FWS to modify the project to avoid impacting the black-footed ferret. If a black-footed ferret is observed during construction, Entrega will stop work and contact the FWS.

3.0 BIRDS

3.1 Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is listed as federally threatened, as well as being a BLM-listed sensitive species and a Colorado threatened species. Breeding habitat for the bald eagle most commonly includes areas close (within 2.5 miles) to water, such as large rivers, lakes, reservoirs, coastal areas, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, and seabirds. Bald eagles nest in tall trees near the water, and in Colorado and Wyoming nest tree habitat has been found to vary from old-growth ponderosa pine to narrow strips of riparian vegetation surrounded by rangeland. In winter, bald eagles are often found in communal roosts, and they tend to use the same roosts each year. Winter roost sites typically consist of clusters of large trees associated with food sources that are in areas protected from harsh weather and human disturbance.

Potential direct impacts on bald eagles during construction could include displacement of individuals to adjacent habitats or damage to occupied and/or unoccupied nests. If construction were to occur during the nesting season, impacts could also include abandonment of eggs or nestlings, injury to nestlings, destruction of eggs, or mortality of nestlings. Additionally, construction could potentially affect bald eagles' food resources, thereby indirectly affecting individuals. Entrega will adhere to its Plan and Procedures to minimize potential impacts on waterbody crossings. Roosting bald eagles will not be affected if present in the project area during construction because other suitable roosting sites are present nearby. Suitable habitat for foraging and roosting is available upstream and downstream of river crossing locations. If roost trees are determined to be located within the area impacted by proposed construction activities, Entrega will consider measures to avoid or minimize impacts on roost trees if such trees may be affected during construction.

A raptor nest survey, which includes the bald eagle, will be conducted in accordance with the *Survey Plan*. If the survey identifies a bald eagle nest within the project area, the appropriate spatial and seasonal buffers will be used to avoid impacts on the bald eagle, unless otherwise permitted by the FWS. If Entrega encounters a previously unidentified active bald eagle nest within 1 mile of the construction right-of-way, Entrega will notify the FWS. The spatial buffer for bald eagle nests is a 1-mile-wide radius and the seasonal buffer is from February 15 to August 15; however, Entrega will have an experienced monitor in raptor ecology monitor active bald eagle nests within the project area prior to construction to determine when young birds are no longer reliant on the natal nest and nest area. In the event the young birds are no longer reliant on the natal nest or nest area prior to August 15, Entrega will contact the FWS to coordinate initiating construction in that area. If an active bald eagle nest is observed during construction, Entrega will stop work and contact the FWS. All bald eagle nest trees identified during the survey will be avoided during construction. Impacts and mitigation for other raptors and raptor nests are included in detail in the *Conservation Measure Plan* submitted to the Bureau of Land Management.

3.2 Mountain Plover

The mountain plover (*Charadrius montanus*) was previously proposed for listing as a threatened species. In September 2003, the FWS determined that the population did not warrant listing;

however, this species is still of concern to the FWS. Additionally, the mountain plover is designated as a BLM sensitive species in Wyoming. The species inhabits prairie grasslands and arid plains and fields, and most often nests in shortgrass prairies grazed by prairie dogs, bison, cattle, and pronghorn; overgrazed tallgrass prairies; or fallow fields.

Depending on the timing of construction, the proposed project could potentially impact the mountain plover during its breeding season by temporarily decreasing the amount of nesting habitat available, destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. Mountain plover nesting and brood rearing typically occur between April and July, and based on the *Mountain Plover Survey Guidelines* (FWS, 2001), construction after July 10 would not be likely to affect mountain plovers. Direct impacts after July 10 would be short-term and associated with habitat disturbance.

Indirect impacts that could occur during construction include the reduction of available forage and shelter due to clearing and the potential increase in the susceptibility of individuals, particularly chicks, to predation due to a lack of vegetation cover along the right-of-way. However, these impacts will be temporary and the restored right-of-way will actually increase the amount of habitat that is available to the mountain plover, as it is known to inhabit bare or disturbed areas with short vegetation and low vegetation cover. The siting of permanent aboveground facilities within mountain plover habitat could also indirectly impact the species by providing perches for avian predators or deterring plovers from using preferred habitat. To minimize these impacts, Entrega will avoid siting aboveground facilities within mountain plover habitat to the extent possible based on project design and pipeline safety requirements.

If suitable habitat for the mountain plover is identified within the proposed project area, a field survey for mountain plover nests will be conducted in accordance with the *Survey Plan*. If an active mountain plover nest is found, the nest location will be recorded and reassessed immediately before construction if construction is expected to occur between April 10 and July 10. If the nest is still active at that time, construction equipment would be prohibited from working within 0.25 mile of the nest until the young have fledged. If a plover family group is identified during surveys or immediately before construction, the group would be monitored by a biologist to determine its use pattern. The area being used by the family group would be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the proposed centerline. Construction equipment would be allowed a one-time pass through the area with the biologist present to monitor plover location and response. Following construction, the project area will be restored to preconstruction conditions.

3.3 Greater Sage Grouse

The greater sage grouse (*Centrocercus urophasianus*) is designated as a sensitive species by the BLM, and is of concern to the FWS as several petitions have been submitted to list the greater sage grouse under the ESA. On April 21, 2004, the FWS determined that listing the sage grouse under the ESA may be warranted and initiated a 12-month review. The measures proposed below are intended to avoid or minimize impacts on sage grouse, regardless of Federal status. Sagebrush is the primary year-round source of food for the sage grouse. Sagebrush also serves as the critical component in leks (breeding grounds), nesting, feeding sites, rearing sites, and wintering grounds. Although the sage grouse typically prefers taller sagebrush plants and stands

for nesting and roosting cover, lekking grounds are generally open areas with low, sparse sagebrush, such as swales, meadows, and burned areas. Lekking grounds are generally surrounded by areas of 20 to 50 percent low-height, sagebrush cover. Secondary to sagebrush habitat, sage grouse require wet habitats (*i.e.*, riparian areas, irrigated hay fields, moist wetlands, and wet meadows) to aid in brood rearing.

Potential direct impacts of construction on sage grouse may include the loss of lekking grounds and other sage grouse habitat. Although the proposed project would not result in a permanent loss of habitat along the pipeline right-of-way, based on the condition of the existing right-of-way, the regeneration of sagebrush would likely be slow and could take up to several decades. However, potential impacts on sage grouse habitat would be minimized by locating the proposed right-of-way within previously disturbed areas (*i.e.*, adjacent to existing pipelines and/or roads) to the extent possible. Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline right-of-way would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the proposed project could potentially impact sage grouse during lekking activities or brood rearing, and could cause displacement, injury, or direct mortality of individuals. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds each morning and evening from early March to early May. Construction activities and associated noise occurring in early morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities. In addition, once breeding activities have concluded, sage grouse hens create their nests on the ground underneath sagebrush plants in proximity to the lekking grounds. The proposed project could potentially impact nesting sage grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. In addition, brood rearing habitat could potentially be impacted by causing injury or direct mortality to young.

Sage grouse could also be indirectly impacted as individuals flushed or otherwise relocated from construction activities may be required to occupy suitable, but lower quality habitat, or may be more susceptible to predation, either while in lower quality habitat or during relocation to that habitat. However, these factors are not anticipated to result in high levels of mortality as disturbance and movements would be temporary and habitat adjacent to the construction corridor would remain intact.

Because suitable habitat for the greater sage grouse occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan*. Aerial surveys conducted in April 2004 to provide preliminary information for project planning identified seven leks located within 2 miles of the proposed pipeline route, two of which were located within the construction right-of-way. Full surveys will be conducted during the year of construction. The following conservation measures will be implemented based on the location of the active lek identified during the surveys in relation to the project area:

- For an active lek identified by the surveys within 0.25 mile of the construction right-of-way, Entrega will minimize impacts on the lek and associated nesting habitat by beginning construction after June 30, or as otherwise permitted by the appropriate resource agency. In addition, Entrega will minimize impacts on the lek by reducing the width of the right-of-way through the lek as practical and avoiding permanent surface development within the lek.

- For suitable nesting habitat associated with an active lek identified by the surveys within 2 miles of the proposed project area, Entrega will minimize direct impacts on the nesting habitat by beginning construction after June 30 and reducing the width of the right-of-way as practical, or as otherwise permitted by the appropriate resource agency.

- For suitable brood-rearing habitat associated with an active lek identified by the surveys within 2 miles of the proposed project area, Entrega will minimize direct impacts on the brood-rearing habitat by beginning construction after July 15 and reducing the width of the right-of-way as practical, or as otherwise permitted by the appropriate resource agency.

- If low-intensity preconstruction (*e.g.*, surveying and staking) work is necessary within 2 miles of an active sage grouse lek between March 1 and June 30, activities will only occur between 9:00 a.m. and 4:00 p.m.

Following construction, the project area will be restored to preconstruction contours and areas of suitable habitat will be restored by broadcast seeding with a seed mix that includes native species and is acceptable to the landowner, local Natural Resource Conservation Service office, or other applicable agencies.

4.0 AMPHIBIAN

4.1 Wyoming Toad

The federally threatened Wyoming toad (*Bufo baxteri*) occurs in the vicinity of lakes and adjacent meadows, and may occur in wetlands in the Laramie River Valley.

The potential effects of construction on the Wyoming toad include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the proposed project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover along the right-of-way.

If suitable habitat for the Wyoming toad occurs within the proposed project area in close proximity to known locations of the toad, a field survey will be conducted in accordance with the *Survey Plan*. Although this species is unlikely to occur in the project area, if the surveys identify a Wyoming toad population, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, using the opposite side of the right-of-way to operate vehicle traffic or reducing the width of the right-of-way). If a reroute or configuration change is not possible, biological monitors will clear the right-of-way of Wyoming toads prior to construction and install exclusion fencing to a depth of 6 inches into the ground to keep the toads

from entering the right-of-way during construction. Following construction, the right-of-way will be restored to preconstruction conditions.

5.0 PLANTS

5.1 Ute Ladies'-tresses

Ute ladies'-tresses (*Spiranthes diluvialis*) is a federally threatened species that grows in areas of seasonally moist soils and wet meadows of drainages below 7,000 feet elevation; arid, intermontane valleys with saline soils that are also high in calcium carbonate; or floodplain wetlands that are part of a meandered wetland complex. The Ute ladies'-tresses' flower is required for identification, and blooming occurs from late July through September. The orchid can remain dormant for one or more growing seasons.

Potential direct impacts on the Ute ladies'-tresses caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at stream crossings or other potential habitat (*i.e.,* isolated wetlands) during clearing, trenching, or general vehicle movement along the right-of-way. Indirect impacts could include invasion of suitable habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species. Altered soil conditions within the right-of-way may also facilitate colonization of the area by rodents, which could increase herbivory on the orchid. These impacts are likely to be most apparent immediately following construction and revegetation, and would diminish with time. Changes to water flow and soil characteristics would be minimized by adhering to Entrega's Plan and Procedures, and they would be temporary because the disturbed areas would be returned to preconstruction conditions following installation of the pipeline. In addition, Entrega will separate topsoil in wetland areas in accordance with its Procedures.

If suitable habitat for the Ute ladies'-tresses occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way) to avoid the population. The potential for a reroute depends on site-specific conditions, such as the slope of the terrain. If avoidance of the Ute ladies'-tresses is not possible, Entrega will notify the FWS.

5.2 Colorado Butterfly Plant

The Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*) is federally listed as threatened. It is found in wet meadows in floodplains; subirrigated soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000 to 6,400 feet; and in low depressions or along bends in wide, meandering stream channels.

Potential direct impacts on the Colorado butterfly plant caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at stream crossings

or other potential habitat (*i.e.,* isolated wetlands) during clearing, trenching, or general vehicle movement along the right-of-way. Indirect impacts could include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species. Altered soil conditions within the right-of-way may also facilitate colonization of the area by rodents, which could increase herbivory on the plant. These impacts are likely to be most apparent immediately following construction and revegetation, and would diminish with time. Changes to water flow and soil characteristics would be minimized by adhering to Entrega's Plan and Procedures, and they would be temporary because the disturbed areas would be returned to preconstruction conditions following installation of the pipeline. In addition, Entrega will separate topsoil in wetland areas in accordance with its Procedures.

If suitable habitat for the Colorado butterfly plant occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way). The potential for a reroute depends on site-specific conditions, such as the slope of the terrain. If avoidance of Colorado butterfly plants is not possible, Entrega will notify the FWS.

5.3 Blowout Penstemon

The federally endangered blowout penstemon (*Penstemon haydenii*) inhabits sand dune habitat south of the Ferris Mountains, in the northeastern Great Divide Basin in Wyoming, and is found on sandy aprons or the lower half of steep sandy slopes deposited at the base of granitic or sedimentary mountains or ridges (between elevations of 6,680 and 7,440 feet). The blowout penstemon appears to bloom in alternate years, which may be tied to moisture cycles, and when it does bloom it produces large quantities of seed.

Potential direct impacts on the blowout penstemon caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at potential habitat (*i.e.,* sand dunes) during clearing, trenching, or general vehicle movement along the right-of-way. Indirect impacts may include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species.

If suitable habitat for the blowout penstemon occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way). The potential for a reroute depends on site-specific conditions, such as the slope

of the terrain. If avoidance of blowout penstemon plants is not possible, Entrega will notify the FWS.

5.4 Dudley Bluffs Twinpod & Dudley Bluffs Bladderpod

The Dudley Bluffs twinpod (*Physaria obcordata*), also known as the Piceance twinpod, is a federally threatened species. It is found in shale outcrops of the multimineral oil shale zone on barren white outcrops that have been exposed through erosion from the downcutting of streams. The flowers of the Dudley Bluffs twinpod, which are yellow, bloom in May and June.

The Dudley Bluffs bladderpod (*Lesquerella congesta*) is federally threatened and inhabits barren white outcrops of the Green River and Uintah Formations exposed along drainages through erosion from the downcutting of streams in the Piceance Basin. It grows on level surfaces at the points of ridges between 6,000 and 6,700 feet, and blooms in April and May with yellow flowers in a dense cluster.

Potential direct impacts on the Dudley Bluffs twinpod and/or bladderpod caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at potential habitat (*i.e.*, barren white shale outcrops) during clearing, trenching, or general vehicle movement along the right-of-way. This could result in a permanent loss of habitat. Indirect impacts may include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species.

If suitable habitats for the Dudley Bluffs twinpod and/or bladderpod occur within the proposed project area, field surveys will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way). The potential for a reroute depends on site-specific conditions, such as the slope or ruggedness of the terrain. If avoidance of the Dudley Bluffs twinpod and/or bladderpod is not possible, Entrega will notify the FWS.

6.0 FISH

6.1 Colorado Pikeminnow Critical Habitat

The Colorado pikeminnow (*Ptychocheilus lucius*) is a federally endangered species that inhabits medium to large rivers. The Colorado pikeminnow is also a BLM-listed sensitive species and a Colorado state-listed threatened species. The adults use deep, turbid, strongly flowing water, eddies, runs, flooded bottoms, or backwaters (especially during high flow), while the young prefer small, quiet backwaters. The Colorado pikeminnow potentially occurs in the Yampa River at the proposed crossing location. The pikeminnow and three additional Colorado endangered fish species, the razorback sucker (*Xyrauchen texanus*), bonytail (*Gila elegans*), and humpback chub (*Gila cypha*), may also occur downstream of the proposed Yampa and White River crossings. Additionally, designated critical habitat for the Colorado pikeminnow occurs within the proposed project area along the Yampa and White Rivers.

Potential effects of in-stream construction on the Colorado pikeminnow at the Yampa River crossing could include displacement of individuals from the construction area due to turbidity and sedimentation, and temporary loss of habitat. In-stream construction could cause localized changes in water temperature and light penetration, which could temporarily affect aquatic habitat and fish use patterns. In addition, construction activities could result in injury or direct mortality of individuals. Depending on the timing of construction activities, in-stream construction could adversely affect fish eggs and juvenile fish survival in the immediate area.

Potential effects of in-stream construction on the Colorado pikeminnow critical habitat may include increased erosion along streambanks and increased turbidity levels within the waterbody due to clearing and grading of vegetation within the construction right-of-way and extra workspaces during construction.

Potential effects of in-stream construction on downstream species may include a temporary increase of sedimentation and turbidity, generally occurring during periods of active construction within the waterbody, and potential water depletion associated with hydrostatic test water withdrawls (see section 6.2). The degree of impact on downstream species due to sedimentation will depend on sediment loads, stream velocity, turbulence, streambank composition, and sediment particle size.

Entrega proposes to cross the Yampa and White Rivers using the horizontal directional drill (HDD) crossing method, which will eliminate most potential impacts on Colorado pikeminnow that may occur at those crossing locations. HDD activities, including areas for bore pits, drill equipment, and pipe strings, will disturb a total of approximately 5 to 10 acres per crossing within the 100-year floodplain of the Yampa and White Rivers. These areas will be located within designated critical habitat for the Colorado pikeminnow. However, the HDD work areas will be located outside of the water level of the river, which will avoid in-stream impacts. Construction techniques and reclamation will be designed to minimize potential increased sedimentation during future high water events.

Entrega will minimize the potential for an accidental spill or discharge of any chemical or petroleum product into surrounding watershed systems by implementing its SPCC Plan. Additionally, in accordance with Entrega's Plan and Procedures, construction equipment fueling and servicing areas will be located at least 100 feet from surface waters and riparian zones and away from slopes that lead to those zones.

These measures will prevent the destruction or adverse modification of Colorado pikeminnow critical habitat.

6.2 Hydrostatic Test Water

Entrega will verify the integrity of the pipeline before placing it into service by conducting a series of hydrostatic tests. These tests involve filling the pipeline with water, pressurizing it, and then verifying that the pipeline maintains pressure for a specified period of time. Neither the exact volume of water required to hydrostatically test the entire pipeline nor the specific sources of test water have been determined. It is expected that the majority of the water for testing the

pipeline will be taken from surface waters, but along some portions of the route water may be purchased from a municipality or allocated water owner. As currently proposed, the pipeline will be divided into nine test sections to conduct hydrostatic testing. Table 6.2-1 identifies approximate water volumes required for each test section and potential sources of hydrostatic test water.

TABLE 6.2-1

Entrega Gas Pipeline
Currently Proposed Hydrostatic Test Water Volumes and Sources

Test Section	Start Milepost	End Milepost	Volume of Water (approximate gallons)	Potential Water Sources
1	0.0	25.5	6,800,000	White River
2	25.5	47.6	5,800,000	White River (Transfer from Section 1)
3	47.6	51	895,000	Yampa River
4	51	84.5	8,800,000	Yampa River
5	84.5	107.2	6,000,000	Little Snake River
6	107.2	135.5	7,400,000	Little Snake River (Transfer from Section 5)
7	135.5	164.9	10,500,000	North Platte River, (Transfer from Section 8)
8	164.9	204.4	14,100,000	North Platte River (Transfer from Section 7)
9	204.4	233	10,200,000	North Platte River (Transfer from Section 8)
10	233	260	9,7000,000	Rock Creek
11	260	288	10,000,000	Little Laramie River
12	288	304	5,700,000	Little Laramie River (Transfer from Section 11)
13	304	311	2,500,000	Little Laramie River (Transfer from Section 11 through Section 12)
14	311	327	5,700,000	Little Laramie River (Transfer from Section 11 through Sections 12 and 13)
		TOTAL	32,195,000[a]	

[a] Total is less than addition of above numbers due to transferring and sharing of water between sections. Total reflects that which will be appropriated for testing.

In a meeting with the FWS on October 7, 2003, the FWS expressed concerns about the potential downstream impacts on federally listed species due to hydrostatic test water withdrawals from the Upper Colorado River Basin and Platte River Basin watersheds. The major waterbodies within these systems are the White, Yampa, Little Snake, and North Platte Rivers. The White, Yampa, and Little Snake Rivers will be crossed by the proposed pipeline route at MPs 15.1, 50.5, and 84.5, respectively, and are part of the Upper Colorado River Basin watershed. This watershed supports several species of federally listed fish species: Colorado pikeminnow, razorback sucker, bonytail, and humpback chub. The North Platte River will be crossed by the proposed pipeline route at MP 192.7 and is part of the Platte River Basin watershed. Downstream of the proposed crossing locations of waterbodies within this watershed, the Platte River system provides habitat for six federally listed species: whooping crane (*Grus americana*), interior least tern (*Sterna antillarum athalassos*), piping plover (*Charadrius melodus*), Eskimo curlew (*Numenius borealis*), pallid sturgeon (*Scaphirhynchus albus*), and western prairie-fringed orchid (*Platanthera praeclara*). One of the primary concerns relating to the listed species within these two systems is water depletions.

The appropriation of large volumes of hydrostatic test water from surface water sources could temporarily affect the biological uses of the resource if the diversions constitute a large percentage of the source's total flow or volume. The diversion of large volumes of water from waterbodies could also result in the temporary loss of habitat, changes in water temperature and

dissolved oxygen levels, and entrainment or impingement of fish or other aquatic organisms. Entrega will minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in its Procedures. These measures include screening intake hoses to prevent the entrainment of fish and other aquatic organisms and regulating the rate of withdrawal of hydrostatic test water to avoid adverse impact on aquatic resources or downstream flows. Entrega will be testing only new pipe and no chemicals will be added to the water during hydrostatic testing. Additionally, Entrega will coordinate with the FWS on the timing of water withdrawal from the Colorado River drainage in order to avoid or minimize potential impact on Colorado River Endangered fish species.

Entrega plans to discharge hydrostatic test water withdrawn from surface waters directly back into those sources. If discharge rates are not carefully controlled, discharges into surface waters could cause erosion of the streambanks and streambottoms, resulting in a temporary increase of sediment load and destruction of habitat. Entrega will minimize the potential for these effects through the use of energy-dissipating devices that will disperse and slow the velocity of any discharges. The discharge of hydrostatic test water into surface waters could affect state-designated uses by contamination. Entrega will minimize the potential for contamination by testing only new pipe and not chemically treating the water.

Hydrostatic testing for the various test sections is currently planned to occur over a multiple-day period. The actual duration of hydrostatic testing for a given test section will be dependent on the rate of withdrawl and the section length, which will be as short as possible. Upon completion, Entrega will provide the FWS with a finalized hydrostatic testing plan. Although the FWS monitors individual depletions from the Upper Colorado and Platte River systems, depletions are often converted into net annual water depletions from the systems. The FWS generally considers a withdrawal to be a depletion if water removed from the system during a month is not returned to the system during the same month. If Entrega appropriates surface waters for hydrostatic testing, Entrega will not withdraw the hydrostatic test water from waterbodies at a rate that would alter the river's flow. Entrega will return the water to the same source immediately following hydrostatic testing. Discharges will be completed as fast as possible, but will be governed by the volume of water in a test section and the discharge rate. Because water withdrawn from the surface waters will be removed at a rate such that flow is not affected, and would be returned to the same system within the same month, Entrega's withdrawal, use, and discharge of hydrostatic test water from waterbodies within the Upper Colorado River and/or Platte River Basins, will not result in net depletions from these systems and will avoid adverse impact on downstream flows. Therefore, the proposed project will have no effect on downstream populations of federally listed species.

7.0 SUMMARY TABLE

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Preble's Meadow Jumping Mouse	Threatened	Riparian areas with mature vegetation east of the Laramie Range (MP 285 to 327)	Direct Impacts: Permanent loss of habitat	• Revising the project's long-term maintenance plan to allow revegetation of shrub species in addition to herbaceous species; therefore only tree species would be removed to maintain the permanent right-of-way.
			Direct Impacts: Displacement, injury, or death during construction at stream crossings	If it is not possible to avoid the population, direct impacts on the Preble's meadow jumping mouse will be minimized by: • The width of the right-of-way will be reduced as practical; • No equipment will be parked closer than 100 meters from the stream crossing; • A biologist will be notified by the EI to clear the area of mice prior to the crossing; • If the crossing occurs in June or July the biologist will determine if there are nests within the right-of-way that need to be avoided; • Whenever a piece of equipment needs to cross the area, the biologist will walk in front of the equipment to clear the area; and • Following construction, areas of potential habitat will be restored to preconstruction conditions by broadcast seeding the banks and replacing plugs of willow and/or preexisting shrub species from the riparian area with one plant every square foot. If it is possible for cattle to graze in replanted riparian areas and the landowner provides consent, Entrega will fence the area until vegetation is reestablished
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Black-tailed Prairie Dog	Candidate	East of the Laramie Range in southeastern Wyoming and northeastern Colorado (MP 300 to 327)	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	Colonies occurring along the edge of the right-of-way will be flagged or fenced and avoided if possible. If it is not possible to avoid the population, the area affected will be minimized by: • Reducing the width of the right-of-way through active prairie dog colonies as practical, given the extent of the colonies; • Locating staging areas, temporary workspaces, or pipeyards outside of active colonies if possible; and • Restoring areas of potential habitat to preconstruction conditions following construction.
			Indirect Impact: Increase in foraging habitat	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
White-tailed Prairie Dog	BLM Sensitive	Generally west of the Laramie Range (MP 0 to 300)	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	Colonies occurring along the edge of the right-of-way will be flagged or fenced and avoided. If it is not possible to avoid the population, the area affected will be minimized by: • Reducing the width of the right-of-way through active prairie dog colonies as practical, given the extent of the colonies; • Locating staging areas, temporary workspaces, or pipeyards outside of active colonies if possible; and • Restoring areas of potential habitat to preconstruction conditions following construction.
			Indirect Impact: Increase in foraging habitat	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
Black-footed Ferret	Endangered	Within prairie dog colonies, black-tailed or white-tailed (MP 86 to 152)	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	If field surveys identify a black-footed ferret, Entrega will contact the FWS and coordinate the modification of the project to avoid impacting the black-footed ferret. If a black footed ferret is observed during construction, Entrega will stop work and contact the FWS.
Bald Eagle	Threatened	Primarily at major stream/river crossings, but	Direct Impacts: Displacement of individuals; Damage to	• Adhering to the appropriate spatial (1.0 mile) and seasonal (February 15 to August 15) buffers unless otherwise permitted by the FWS;

Summary Table of Special Status Species and Associated Proposed Conservation Measures

Species	Status	Potential Location	Potential Impacts	Conservation Measures
		northeastern Colorado (MP 300 to 327)		be minimized by: • Reducing the width of the right-of-way through active prairie dog colonies as practical, given the extent of the colonies; • Locating staging areas, temporary workspaces, or pipeyards outside of active colonies if possible; and • Restoring areas of potential habitat to preconstruction conditions following construction.
			Indirect Impact: Increase in foraging habitat	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
White-tailed Prairie Dog	BLM Sensitive	Generally west of the Laramie Range (MP 0 to 300)	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	Colonies occurring along the edge of the right-of-way will be flagged or fenced and avoided. If it is not possible to avoid the population, the area affected will be minimized by: • Reducing the width of the right-of-way through active prairie dog colonies as practical, given the extent of the colonies; • Locating staging areas, temporary workspaces, or pipeyards outside of active colonies if possible; and • Restoring areas of potential habitat to preconstruction conditions following construction.
			Indirect Impact: Increase in foraging habitat	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
Black-footed Ferret	Endangered	Within prairie dog colonies, black-tailed or white-tailed (MP 86 to 152)	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	If field surveys identify a black-footed ferret, Entrega will contact the FWS and coordinate the modification of the project to avoid impacting the black-footed ferret. If a black footed ferret is observed during construction, Entrega will stop work and contact the FWS.
Bald Eagle	Threatened	Primarily at major stream/river crossings, but	Direct Impacts: Displacement of individuals; Damage to	• Adhering to the appropriate spatial (1.0 mile) and seasonal (February 15 to August 15) buffers unless otherwise permitted by the FWS;

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
		potentially in any larger trees along the corridor (MP 0 to 327)	occupied and/or unoccupied nests; Abandonment or destruction of eggs; Injury or death of nestlings	• Monitoring active nests to determine when young birds are no longer reliant on the natal nest or nest area; • Avoiding nest trees during construction; and • If a previously unidentified active bald eagle nest is observed during construction within 1 mile of the construction right-of-way, Entrega will stop work and contact the FWS.
			Direct Impacts: Disturbance of active winter roosts	• If roost trees are found within the construction area and may be affected during construction, measures to avoid or minimize impacts on the roost trees will be considered.
			Indirect Impact: Affecting the bald eagle's food resources	• Adhering to Entrega's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) when crossing waterbodies.
Mountain Plover	BLM Sensitive	Shortgrass areas throughout the project corridor (MP 95 to 327)	Direct Impacts: Displacement, injury, or death of individuals and eggs/young if during the breeding season	• If an active mountain plover nest is found and construction is expected to occur between April 10 and July 10, the nest location would be recorded and reassessed immediately before construction. If the nest is still active at that time, construction equipment would be prohibited from working within 0.25 mile of the nest until the young have fledged. • If a plover family group is identified during surveys or immediately before construction, the group would be monitored to determine its use pattern. The area being used by the family group would be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the proposed centerline. • Construction equipment would be allowed a one-time pass through the area with a biologist present to monitor plover location and response. • Following construction, the project area will be restored to preconstruction conditions.
			Indirect Impact: Temporary reduction of available habitat	• Restoring and revegetating the right-of-way will increase the amount of habitat that is available to the mountain plover.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
			Indirect Impact: Potential temporary increase in the susceptibility of individuals to predation	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Greater Sage Grouse	BLM Sensitive	Sagebrush habitat west of the Albany/Carbon County line (MP 40 to 237)	Direct Impacts: Long-term loss of lekking grounds and other sage grouse habitat	• Locating the proposed right-of-way within previously disturbed areas (*i.e.*, adjacent to existing pipelines and/or roads) to the extent possible.
			Direct Impacts: Potential disruption of lekking activities or brood rearing; displacement, injury, or death of individuals	• If an active lek is located within 0.25 mile of the project area, Entrega will begin construction after June 30, reduce the width of the right-of-way as practical through the lek, and avoid permanent surface development within the lek, unless otherwise permitted by the appropriate resource agency; • If suitable habitat associated with an active lek is located within 2 miles of the project area, Entrega will begin construction after June 30 and reduce the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency; • If suitable brood-rearing habitat associated with an active lek is located within 2 miles of the project area, Entrega will begin construction after July 15 and reduce the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency; • If low-intensity preconstruction (*e.g.*, surveying and staking) work is necessary within 2 miles of an active sage grouse lek between March 1 and June 30, activities will only occur between 9:00 a.m. and 4:00 p.m.; and • Following construction, the project area will be restored to preconstruction conditions and seeded by broadcast seeding with a seed mix that includes native species and is acceptable by the affected landowners and agencies.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
			Indirect Impact: Potentially flushed from project area into lower quality habitat; Potentially more susceptible to predation	• Impacts would be temporary and habitat adjacent to the construction corridor would remain intact.
Wyoming Toad	Threatened	Wetlands and riparian areas in the Laramie Basin; Only known locations are Hutton NWR and Mortenson NWR (Not Anticipated)	Direct Impacts: Displacement, injury, or death of individuals; Temporary loss of shelter	If avoidance of the Wyoming toad would not be possible, impacts would be minimized by: • Clearing of the right-of-way by biologists prior to construction to remove all Wyoming toads; and • Installing exclusion fencing to a depth of 6 inches in occupied habitat.
			Indirect Impact: Increasing the susceptibility of individuals to predation	• Removing toads from the construction right-of-way and placing them in appropriate habitat.
Ute Ladies'-tresses	Threatened	Streams and sub-irrigated meadows throughout the project corridor (MP 0 to 327)	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way will be fenced and avoided. If avoidance of the Ute ladies'-tresses would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
			Indirect Impact: Changes in water flow and soil characteristics	• Adhering to Entrega's Plan and Procedures.
Colorado Butterfly Plant	Threatened	Drainage bottoms and sub-irrigated soils on floodplains in southeastern Wyoming and northeastern Colorado (MP 300 to 327)	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way will be fenced and avoided. If avoidance of Colorado butterfly plants would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
			Indirect Impact: Changes in water flow and soil characteristics	• Adhering to Entrega's Plan and Procedures.
Blowout Penstemon	Endangered	Sand dune habitats (blowouts) in central and south-central Wyoming (Not Anticipated)	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way will be fenced and avoided. If avoidance of blowout penstemon plants would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Dudley Bluffs Twinpod	Threatened	Dudley Bluffs region of northern Colorado (MP 0.0 to 15.1)	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Dudley Bluffs twinpod would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Dudley Bluffs Bladderpod	Threatened	Dudley Bluffs region of northern Colorado (MP 0.0 to 15.1)	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Dudley Bluffs bladderpod would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Colorado Pikeminnow	Endangered	Yampa River crossing location (MP 50.5)	Direct Impacts: Displacement of individuals; Turbidity and sedimentation; Temporary loss of habitat; Injury or death of individuals and/or eggs and young	• Crossing the Yampa River using the Horizontal Directional Drilling (HDD) construction technique; • Adhering to Entrega's Plan and Procedures; and • Implementing an *Spill Prevention, Containment, and Countermeasure Plan* (SPCC Plan).

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Colorado Pikeminnow Critical Habitat	NA	Yampa River (MP 50.5) and White River (MP 15.1) crossing locations	Direct Impacts: Increased erosion along streambanks; Increased turbidity levels; Localized changes in water temperature and light penetration	• Adhering to Entrega's Plan and Procedures; • Crossing the Yampa and White Rivers using the HDD construction technique; and • Implementing an SPCC Plan.
Colorado Pikeminnow, Razorback Sucker, Bonytail Chub, and Humpback Chub	Endangered	Downstream of the Upper Colorado River Basin	Direct Impacts: Temporary increased sedimentation and turbidity; Potential water depletion	• Adhering to Entrega's Plan and Procedures; • Implementing an SPCC Plan; • Coordinating with the FWS on the timing, withdraw hydrostatic test water from waterbodies at a rate that would not alter the river's flow; and • Returning hydrostatic test water to the same source as quickly as possible following testing (within the same month as withdrawal).
Whooping Crane, Interior Least Tern, Piping Plover, Eskimo Curlew, Pallid Sturgeon, and Western Prairie-fringed Orchid	Endangered or Threatened	Downstream in the Platte River Basin	Direct Impacts: Potential water depletion	• Adhering to Entrega's Plan and Procedures; • Withdrawing hydrostatic test water from waterbodies at a rate that would not alter the river's flow; and • Returning hydrostatic test water to the same source as quickly as possible following testing (within the same month as withdrawal).

ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline

Special Status Species Survey Plan

Prepared for:

Natural Resource Group, Inc.
1000 IDS Center
80 South Eighth Street
Minneapolis, MN 55402

and

Entrega Gas Pipeline Inc.
950 17th Street
Suite 2600
Denver, CO 80202

Prepared by:

Clayton Derby, Elizabeth Lack, and Rhett Good
Western EcoSystems Technology, Inc.
2003 Central Ave.
Cheyenne, WY 82001

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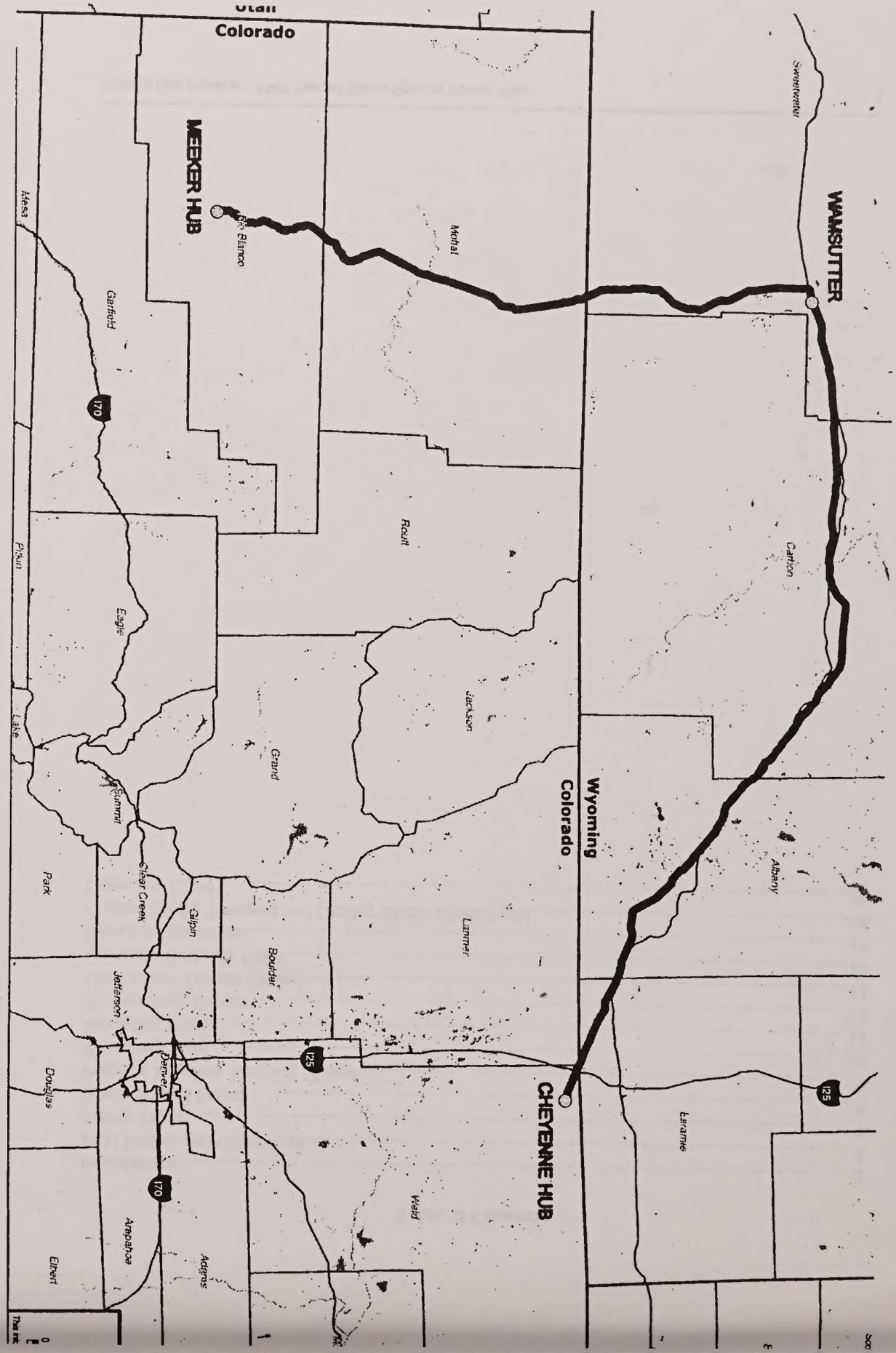
Introduction

Entrega Gas Pipeline Inc. (Entrega) is proposing to construct an approximately 327-mile pipeline from the Meeker Hub southwest of Meeker, Colorado to an existing natural gas distribution hub (Cheyenne Hub) near Rockport, Colorado (see attached map). The project, referred to as the Entrega Gas Pipeline, generally follows an existing pipeline corridor. The project will require a permit from the Federal Energy Regulatory Commission (FERC), thus the project constitutes a Federal action. Pursuant to 18 CFR 380.13, Entrega is acting as FERC's non-federal representative for purposes of complying with section 7(a) of the Endangered Species Act (ESA). Natural Resource Group, Inc. (NRG) has been contracted to prepare environmental review documents for the proposed project. NRG has held preliminary meetings with the U.S. Fish and Wildlife Service (FWS) to introduce the project, to request a species list, and to discuss compliance with Section 7 of the Endangered Species Act. The FWS provided a preliminary list of federally protected species potentially occurring along the proposed pipeline route. This list includes federally listed threatened and endangered species, proposed species, and other species as identified by the FWS as of concern (*e.g.*, sage grouse, mountain plover). Surveys for these species will be conducted along the proposed pipeline route. Under the direction of NRG, Western EcoSystems Technology, Inc. (WEST) has prepared the following survey plan outlining the survey methods proposed to determine the presence or absence of the 12 endangered, threatened, or proposed species or species groups potentially occurring along the proposed pipeline route. Upon approval of this survey plan by NRG and the FWS, WEST will conduct the surveys beginning in Spring 2004, or earlier as directed.

This survey plan includes specific protocols that will be used to determine the presence or absence of each species of concern potentially occurring along the pipeline route. A preliminary determination of whether suitable habitat is present along the pipeline route for each species will be completed based on a "desktop review" of existing data, including maps, aerial photographs, and information available from Federal and state agencies, natural resource databases, other sources as applicable, discussions with resource agencies, and a field reconnaissance. After determining if suitable habitat exists, appropriate field surveys will be initiated. Per direction from NRG, the survey corridor will be 250 feet wide (50 feet to the west/north of the proposed centerline and 200 feet to the east/south of the proposed centerline when following the existing pipeline or 125 feet either side of the centerline through greenfield areas), unless otherwise stated below for certain species or species groups. The survey corridor will also include extra workspaces and access roads. During the surveys, WEST will follow standard field procedures including completion of survey forms and field notes, marking up aerial photographs or other field maps (*e.g.*, U.S. Geological Survey topographical map), and taking photographs as applicable. If found, locations of target species will be recorded using Global Positioning System (GPS) technology as outlined in the GPS guidelines provided by NRG (*e.g.*, sub-meter accuracy for ground efforts). If species specific surveys can not be completed during the 2004 field season (*e.g.*, due to seasonal timing restrictions), suitable habitat for species will be mapped for use with follow-up surveys, if needed in the future, or to support pre-construction surveys, as applicable.

The following special status species list is based on a preliminary list provided by NRG of species potentially occurring along the pipeline corridor. The list was developed through discussions with the FWS. These species are protected under the Endangered Species Act and/or



the Migratory Bird Treaty Act with the exception of prairie dogs, which have not been formally listed as threatened or endangered. The black-tailed prairie dog is a candidate for listing and both black-tailed and white-tailed prairie dogs provide crucial habitat for the endangered black-footed ferret. Although the mountain plover was previously proposed for listing as a threatened species, the FWS recently determined the population did not warrant listing. Additionally, the FWS has received several petitions to list the sage grouse under the ESA, but the species is not yet protected under the Act. However, the FWS has requested that both the mountain plover and greater sage grouse be considered during the project's environmental reviews.

Thus, the special status species of concern to the FWS along the proposed project include:

- Bald eagle and other raptors (including burrowing owl)
- Prairie dog
- Black-footed ferret
- Preble's meadow jumping mouse
- Wyoming toad
- Mountain plover
- Sage grouse
- Ute ladies'-tresses
- Colorado butterfly plant
- Blowout penstemon
- Dudley Bluffs twinpod
- Dudley Bluffs bladderpod

This report describes survey plans for these species. Each species is discussed as a separate section. Within each section there is a discussion of the general habitat requirements for the species, and a description of what survey method(s) will be used for this project. Reports will be prepared at the end of each survey season and submitted to NRG and the FWS for review.

Bald Eagles and Other Raptors

Introduction

The bald eagle is currently listed as a threatened species under the Endangered Species Act. Bald eagles are generally associated with bodies of water that support populations of fish. During the breeding season, bald eagles nest in large trees within mature cottonwood riparian areas or coniferous forests near bodies of water. During the winter, bald eagles utilize relatively large bodies of open water, but will also utilize other habitats depending upon carrion availability. Large numbers of bald eagles may congregate on winter communal roosts, such as snags in coniferous forests or mature cottonwood riparian areas. Bald eagles are most sensitive to disturbance during the nesting period and when congregated on communal winter roosts. Bald eagles are known to nest in areas along the project corridor; however, it is not known if nests are in the immediate vicinity of the proposed pipeline alignment. It is also possible that riparian areas could have winter roosts.

In addition to the bald eagles, 18 other species of raptors may occur during nesting season within or near the proposed project area in a wide diversity of habitat types (Table 1). Raptors are

protected under the Migratory Bird Treaty Act and are considered by the FWS to be sensitive to human disturbance during the nesting period. Surveys for active raptor nests within one mile of the edge of the proposed pipeline right-of-way are recommended by FWS.

Table 1. Raptors and Nesting Habitat Potentially Occurring in the Project Area

Species	Nesting Habitat
American kestrel (*Falco sparverius*)	Open habitats; will nest mostly in cavities on cliffs, snags, or existing nest structures built by other raptors.
Prairie falcon (*Falco mexicanus*)	Open habitats; mostly nests in cliffs or rock outcrops, but will occasionally use existing nest structures on cliffs or in trees.
Merlin (*Falco columbarius*)	Open pine forest and open habitats; will nest in trees and old raptor or magpie nests.
Bald eagle (*Haliaeetus leucocephalus*)	Mature cottonwood riparian and coniferous forests near relatively large bodies of water, such as rivers and lakes that support fish populations.
Golden eagle (*Aquila chrysaetos*)	May nest in open forest, cliffs, or other open habitats. Will place nest structures on cliffs or in trees.
Red-tailed hawk (*Buteo jamaicensis*)	Open forest or open habitats. Will place nest structures on trees, cliffs, or rock outcrops.
Ferruginous hawk (*Buteo regalis*)	Open habitats; will place nest structures on trees, cliffs, rock outcrops, or on the ground.
Northern harrier (*Circus cyaneus*)	Open habitats; generally places nest structures on the ground or in shrubs.
Swainson's hawk (*Buteo swainsoni*)	Open habitats; generally places nest structures in trees or shrubs.
Cooper's hawk (*Accipiter cooperii*)	Forested areas or riparian areas; places nest structures in trees.
Northern goshawk (*Accipiter gentilis*)	Mature coniferous or aspen forests; places nest structures in trees.
Sharp-shinned hawk (*Accipiter striatus*)	Forested areas or riparian areas; places nest structures in trees.
Flammulated owl (*Otus flammeolus*)	Forested areas; generally nests in tree cavities.
Great-horned owl (*Bubo virginianus*)	Will nest in most habitats; places nest structures in trees, cavities in snags, cliffs, or rock outcrops.
Northern saw-whet owl (*Aegolius funereus*)	Forested areas or riparian habitats; generally nests in tree cavities.
Short-eared owl (*Asio flammeus*)	Open habitats. Places nest structures on the ground or in shrubs.
Burrowing owl (*Athene cunicularia*)	Open areas, generally limited to prairie dog towns. Places nests within prairie dog or other burrows.
Eastern screech owl (*Otus asio*)	Cottonwood riparian areas; places nest structures in tree cavities.
Long-eared owl (*Asio otus*)	Open habitats; places nest structures in trees or shrubs.

Survey Method

No formal survey guidelines are available from the FWS for bald eagle or raptor nest surveys. The following method incorporates guidance from the "Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances" (FWS, 2002) and past professional survey experience in the region.

Raptor Nests

Surveys for nesting raptors, including bald eagles, will be conducted within the 250-foot survey corridor as well as all areas within one mile of the outside edge of the pipeline right-of-way. A helicopter will be used to search for raptor nests in all suitable nesting habitats within the survey corridor, excluding dense coniferous forest. A helicopter offering the best visibility (*e.g.*, Hiller-Savoy) or one capable of at least two observers (*e.g.*, Jet Ranger) will be used, as available. A minimum transect pattern of 0.5-mile either side of the centerline will be flown to survey for suitable habitat. This would mean that suitable habitat would be looked for no further away than 0.5 mile from the transect line being flown. Where needed, based on density of habitat and nests found in previous surveys, more transects will be flown to survey for suitable habitat. Suitable habitats include trees, tall shrubs, rocks, cliffs, etc. Once suitable habitat is found, the helicopter will be moved into position to survey each piece of habitat. For example, if a rock outcrop is observed 0.5 mile away, the helicopter will be flown to the outcrop so that it can be surveyed for nests at the appropriate distance (*e.g.*, 100-200 m away and 50-100 m in altitude). Surveys will be conducted between April 15 and May 15, 2004 in order to identify occupied nest structures prior to leaf out and fledging (Table 2). Information for the 2004 nest survey effort will be used primarily by project engineers for planning and design. Aerial surveys will be conducted again during the appropriate period in the year of construction. Ground surveys conducted for other species during spring will also provide an opportunity to identify raptor nests along the proposed project (see burrowing owl discussion below). Additionally, an Environmental Inspector (EI) and/or biologist trained in raptor identification will be conducting ground surveys immediately ahead of construction crews and will provide another opportunity to identify raptor nests not identified during other efforts.

Table 2. Raptor Nesting Chronology*

Species	Courtship Begins	Egg Laying Period	Young Fledge By	Survey Period
Bald Eagle	February 15	March 15 - April 15	July 10	April 1 - May 15
Golden Eagle	February 15	March 15 - April 7	July 10	April 1 - May 15
Ferruginous Hawk	March 1	April 1 - April 21	July 7	April 15 - May 15
Prairie Falcon	March 1	April 1 - April 21	July 7	April 15 - May 15
Red-tailed Hawk	March 1	April 1 - April 21	July 7	April 15 - May 15
Swainson's Hawk	April 1	May 1 - May 21	August 7	April 15 - May 15
Great-horned Owl	January 21	February 21 - March 15	June 1	April 15 - May 15

*Based on unpublished data from southern Wyoming. Fledging dates could be extended with renesting birds.

If a nest structure is observed, the helicopter will be moved to a position where nest status can be determined. The coordinates, condition, and species of each nest will be recorded using a GPS unit. To minimize disturbance to nesting raptors, the helicopter will maintain the maximum distance from the nest at which the species can be determined. These distances vary depending upon nest location and wind conditions. Survey methods are designed to detect active nests of open country raptors, including bald eagle, golden eagle, red-tailed hawk, ferruginous hawk, Swainson's hawk, prairie falcon, and great-horned owl.

Burrowing owls will not be detected by the above-described survey method, however they could occur in or near the project corridor in prairie dog towns. During prairie dog mapping activities (May-July), black-footed ferret surveys (July-October), mountain plover surveys (May-June 15), and other survey efforts (*e.g.*, waterbody/wetland surveys), all burrowing owl sightings will be mapped and recorded. Additionally, during construction an EI and/or biologist trained in burrowing owl identification will be on location with the construction crews and will map and record any burrowing owls detected.

Winter Roosts

Because many communal bald eagle winter roosts have been previously identified in the western U.S., we will utilize existing data from the FWS, state wildlife agencies, and natural heritage databases to identify winter roost sites in or near (within one mile) the project area. If field surveys are required for bald eagle winter roosts, a ground-based survey is proposed. Surveys would be conducted during the winter months from January 1 to February 15. Areas containing suitable habitat, such as mature cottonwood riparian areas or mature coniferous forest, would be identified through review of maps, aerial photographs, previous survey efforts, and discussions with local resource agencies. Those areas containing potential winter roost sites would be searched during the early morning and late evening hours to observe eagles flying to and from roost sites. Flying eagles observed during surveys would be followed and roost sites identified. Surveys would be conducted using field glasses and spotting scopes. Care would be taken to identify roost sites from safe distances in order to avoid disturbing roosting eagles.

Prairie Dogs

Introduction

Both the white-tailed prairie dog (*Cynomys leucurus)* and black-tailed prairie dog (*Cynomys ludovicianus)* occur within the general project area. Neither species is listed under the Endangered Species Act as threatened or endangered, however the black-tailed prairie dog is a candidate for listing and the white-tailed prairie dog has been petitioned for listing. Both white-tailed and black-tailed prairie dog towns provide crucial habitat for the endangered black-footed ferret.

Prairie dogs generally occur within open grassland and sagebrush landscapes and are rare or absent within largely forested environments. Prairie dogs create underground burrows as shelters from weather and predators. Mounds of dirt are often associated with the burrows and are detectable from the ground and air.

Survey Method

No formal survey guidelines are available from the FWS for mapping prairie dog towns.

In Colorado, the FWS and the Bureau of Land Management (BLM) have indicated to NRG that on-the-ground prairie dog town surveys will not be required for the project (Bob Leachman, FWS, and Mike Albee, BLM, pers. comm. with J. Thommes, NRG). For the Colorado portion of the project, existing Geographic Information System (GIS) coverage of prairie dog towns will be used to identify prairie dog towns within the project corridor. Prairie dog towns identified in the GIS coverage will be included in the prairie dog survey report.

In Wyoming, the BLM has GIS coverage of prairie dog towns for the Continental Divide area that will be used to identify prairie dog towns within the project corridor. Like for Colorado, prairie dog towns identified in the GIS coverage will be included in the prairie dog survey report. For other portions of the project corridor (outside the Continental Divide area), prairie dog towns will be mapped if intersected by the 250-foot-wide corridor (corridor area described above).

The proposed pipeline corridor will be flown at approximately 250 to 500 feet above ground level (AGL) using a fixed-wing aircraft and surveyed for prairie dog towns. Once a town is spotted, the approximate boundary of the town will be flown and recorded with a GPS unit, if possible. A ground survey will follow the aerial survey to more accurately map the borders of the prairie dog towns. Prairie dog towns located within the 250-foot-wide corridor will be mapped. Where black-footed ferret surveys may be needed (*e.g.*, areas not block cleared, see Black-Footed Ferret section below), prairie dog towns intercepted by the 250-foot-wide corridor will be mapped in their entirety as practical, provided access permission can be obtained.

The burrow density of prairie dog towns will be determined from 1:6,000 aerial photography, which is available for the entire project corridor. Burrow density is needed in order to assess the potential for black-footed ferret habitat. If burrow density cannot be determined from aerial photography, an on-the-ground transect method will be used.

Black-Footed Ferret

Introduction

The black-footed ferret (*Mustela nigripes*) is listed as an endangered species. Black-footed ferrets rely almost exclusively on prairie dog towns for food and shelter. The prairie dog towns in Colorado have been "block-cleared" and surveys for black-footed ferrets are no longer required in these areas. The "block clearance" indicates the negligible likelihood of a wild population of ferrets in the area; it does not mean the area is free of all value to black-footed ferrets. In Wyoming, black-tailed prairie dog towns have also been "block-cleared", but not all white-tailed prairie dog towns have been cleared (per February 2, 2004 letter from Brian T. Kelly, FWS). Ferret surveys will be conducted in white-tailed towns not block-cleared using the following method.

Survey Method

The FWS has established guidelines for completing presence/absence surveys for black-footed ferrets (FWS 1989). The following survey plan is based largely on these guidelines.

Per the 1989 FWS Guideline, black-footed ferret surveys will be conducted in prairie dog towns that occur entirely within the 250-foot-wide survey corridor and larger towns intersected by the corridor where physical disturbance to the town cannot be avoided, except for those prairie dog towns that have been block-cleared, as described above. In addition, the white-tailed prairie dog towns must meet the following requirements to be included in a black-footed ferret survey:

1) White-tailed prairie dog towns or complexes greater than 200 acres in size. A complex is defined as at least two prairie dog towns within 4.34 miles (7 km) of each other.
2) All affected prairie dog towns must have a minimum burrow density of 20 burrows/hectare or 8 burrows/acre. Prairie dog holes do not need to be active to be counted in the density calculations.

If prairie dog towns are encountered that do not meet the above requirements (*i.e.*, small or low burrow density), the FWS will be contacted for guidance before it is determined that surveys will not be conducted.

Two methods may be used to survey for black-footed ferrets: a) Nocturnal Spotlight Surveys, or b) Diurnal Snow Tracking Surveys.

Nocturnal Spotlight Surveys

Nocturnal surveys may be conducted between July 1 and October 31. Two observers will continually spotlight the affected prairie dog towns for three consecutive nights. At least one of the observers in each crew will be trained and certified by the FWS in ferret survey techniques. Surveys will begin at dusk and end at dawn. Starting points for surveys will be changed each night. Surveys will be conducted from vehicles where possible. Where terrain does not permit access from vehicle (truck or 4-wheeler), surveys will be conducted on foot. All surveys will be conducted with hand held spotlights with at least 200,000-candle power. If a black-footed ferret is observed the location will be recorded, a detailed account written, and the FWS will be contacted immediately.

Diurnal Snow Tracking Surveys

Diurnal surveys may be conducted from December 1 to March 31. Surveys consist of walking or slowly driving visually overlapping transects and searching for signs of black-footed ferret occupancy, such as ferret scat, prairie dog skulls, ferret tracks and ferret diggings. At least three searches will be conducted at each town. Searches will be conducted when fresh snow has been present for at least 24 hours. Searches will be spaced at 10 + day intervals. If ferret sign is observed photographs, drawings, measurements and GPS coordinates will be recorded for each observation and reported immediately to the FWS. At least one of the observers in each crew will be trained and certified by the FWS in ferret survey techniques.

Preble's Meadow Jumping Mouse

Introduction

The Preble's meadow jumping mouse (*Zapus hudsonius preblei*) occurs within well-developed riparian areas along the Front Range in Colorado and Wyoming, generally below 7,600 feet. The Preble's meadow jumping mouse is listed as a threatened species.

Survey Method

The FWS has developed survey guidelines for determining the presence or absence of the Preble's meadow jumping mouse within an area (FWS 1999). The FWS recommends surveys for Preble's in suitable habitat in the following areas:

- In Colorado, Boulder, Douglas, El Paso, Adams, Arapahoe, Denver, Elbert, Larimer, Morgan, Weld, and Jefferson Counties, from 7,600 feet elevation on the western boundary to a north/south line drawn though Ft. Morgan on the eastern boundary
- In Wyoming, the North Platte River, South Platte River, and Lodgepole Creek 100-year floodplains and tributaries (and their associated wet meadow complexes) east of the Laramie Mountains and south of the North Platte River (northwest to approximately Douglas) in Albany, Converse, Goshen, Laramie, and Platte Counties.

Well-developed riparian areas are characterized by relatively lush and rank riparian vegetation with a well-developed shrub layer, such as willow. Preble's meadow jumping mouse may also occur within native hayfields. Standing or flowing water is usually present in occupied sites.

Areas containing suitable habitat for Preble's meadow jumping mouse that can not be avoided by construction will be surveyed using standard live trapping techniques, as recommended by the FWS (1999). Parallel trap lines will be placed approximately 15 feet apart along both sides of the affected waterway. Transect lines will generally follow the meander of the waterbody. Traps will be non-folding aluminum and steel traps (3 inches by 3.5 inches by 9 inches). Each trap will be baited with rolled oats, along with a small ball of polyester quilt batting. Each site will be trapped for a total of 400 to 1,000 trap nights, depending on the availability of suitable habitat, consistent with FWS guidelines. Trapping will occur on at least three consecutive nights at each site from June 1 to August 30. If trapping occurs between September 1 to 15, surveys will be conducted for at least 6 consecutive nights at a minimum of 1,000 trap nights. No surveys will be conducted from September 15 to May 31.

Traps will be set within 3 hours of sunset and checked within 3 hours of sunlight. Care will be taken to place traps in shaded locations to avoid excessive thermal stress. If members of the *Zapus* genus are captured, one to two mice will be euthanized and delivered to the FWS office in Cheyenne for final identification of sub-species from each site.

Wyoming Toad

Introduction

The Wyoming toad (*Bufo baxteri*) historically occurred along seeps, drainages, lakes and rivers within the Laramie Basin in Albany County, Wyoming. The current known distribution is

restricted to a few lakes in the Laramie Basin. Much of Albany County has been surveyed for the presence/absence of Wyoming toads (Young 1995). The Wyoming toad is listed as an endangered species.

Survey Method

The need for conducting surveys for Wyoming toads will be evaluated if the project corridor approaches within two miles of either the Mortenson Lake National Wildlife Refuge or the Hutton Lake National Wildlife Refuge. These areas are the two remaining locations known to contain, or have recently contained, Wyoming toads. The current proposed pipeline alignment does not occur within two miles of either refuge and therefore, no surveys are currently proposed for Wyoming toads. However if any realignments are necessary, the following survey method will be followed if the realignment occurs within two miles of either refuge.

Surveys for the Wyoming toad will be conducted within a 250-foot-wide survey corridor (survey corridor described above) in suitable habitat. The proposed method for surveys was derived from personal communications with Michelle VanFleet, FWS Wyoming Toad Recovery Coordinator, and the protocol used by Young (1995).

A variety of methods may be used to determine if Wyoming toads are present including flushing surveys and taped breeding call surveys. Surveys will be conducted during May and June. Surveys will be conducted only during relatively warm weather (60° to 70° F), little to no wind (0 to 15 mph), and no snow cover. At least three surveys will be conducted, spaced at a minimum of three-day intervals. All survey crews will be accompanied by at least one qualified observer with experience identifying Wyoming toads.

Diurnal flushing surveys will be the primary technique used to determine Wyoming toad presence or absence. Two to five people will walk the perimeter of lakes and streams attempting to flush Wyoming toads from vegetative cover. Each species of amphibian flushed will be identified and recorded.

Mountain Plover

Introduction

The mountain plover (*Charadrius montanus*) occurs within relatively flat short-grass prairie or low shrub habitats containing relatively large amounts of bare ground. Vegetation is generally 6 inches in height or lower. Mountain plovers are often associated with prairie dog towns, and may also occur within cultivated areas. Mountain plover habitat is often heavily grazed. The mountain plover was previously proposed for listing as a threatened species, however, the FWS recently determined the population did not warrant listing. Nonetheless, the FWS requested that this species be considered during the project's environmental review and the mountain plover also remains a species of concern to the Bureau of Land Management (BLM).

Survey Method

Surveys for mountain plover will follow a two-pronged approach. First, potential habitat in the project area will be mapped in 2004. This mapping effort will be completed during prairie dog town mapping, black-footed ferret surveys, and other survey efforts along the project corridor as well as species specific mapping where other efforts are not of sufficient coverage to ensure all potential mountain plover habitat is mapped. Resource agency input and literature review will also be used to identify potential habitat. Areas mapped as potential habitat in 2004 will be surveyed for presences/absences prior to construction.

The following survey plan is based on survey guidelines developed by the FWS for large scale/long term, linear projects (FWS 2002) and will be implemented during the year of construction. If construction occurs between May 1 and June 15, surveys for mountain plovers will be conducted in the potential habitat identified in 2004. Mountain plover habitat will be surveyed three times during the survey window, with each survey separated by at least 14 days, if possible. Project initiation should occur as near to completion of the survey as possible. Surveys will be conducted within 0.25-mile of the proposed pipeline. Surveys will be conducted by driving visually overlapping transects and scanning the survey area from vehicles or 4-wheelers. Surveys will be conducted from sunrise to 10:00 a.m. and 5:30 p.m. to sunset. Surveys will not be conducted during inclement weather (*i.e.,* steady precipitation, excessive winds). During the nesting period, all mountain plovers detected will be observed to determine if a nest is present.

Greater Sage Grouse

Introduction

The greater sage grouse (*Centrocerus urophasianus*) is dependent on sagebrush habitats year-round. The FWS has received several petitions to list the sage grouse under the ESA and subsequently has requested that this species be considered during the environmental review of the project. The greater sage grouse has declined rangewide, and the reasons for the decline are not completely understood, although habitat loss and degradation, as well as loss of population connectivity, are potentially important factors.

Survey Method

A lek survey will be conducted based on recommendations provided by the BLM and the Wyoming Game and Fish Department (WGFD). Lek count data provide information on relative population levels and long and short-term trends. Known leks within or near the pipeline corridor (based on information provided by state and federal agencies) will be mapped. During the spring of 2004, one aerial survey of potential lek habitat will be conducted to verify occupancy at historic leks and identify new leks. The 2004 lek survey will serve to provide preliminary information to project engineers on the location of sage grouse leks for project planning. A full survey will be conducted during the year of construction, which will include the recommended three surveys (at least one survey every 7 to 10 days over a three to four week period).

Sage grouse lek surveys will be conducted between April 1 and May 15 throughout suitable lek habitat along the pipeline corridor. Surveys will be conducted by air using either a helicopter or

fixed-wing airplane. Suspected breeding habitat will be flown with line transects spaced so that complete visual coverage is obtained, about one km (0.6 mile) apart. Transects will cover an approximate four-mile corridor (two miles on either side of the edge of the pipeline right-of-way). Transects will be flown at about 300 to 450 AGL. Surveys will be conducted from approximately ½ hour before to one hour after sunrise. A minimum of two observers will conduct the surveys (in addition to the pilot). Surveys will be conducted on calm, clear mornings with winds less than 15 mph and no more than scattered cloud cover. High winds affect strutting behavior and cloud cover reduced observability. Special attention will be paid to old lakebeds, stock-watering areas, and other relatively open sites surrounded by sagebrush.

For all leks identified within the survey area, the location (*i.e.*, approximate center point) will be mapped and recorded using a GPS. Per a recommendation from the BLM, a 0.25-mile-wide buffer will be placed around the center point of each lek and will be considered the lek boundary for management purposes. The surveyors will not disturb grouse in order to map or record leks.

Ute Ladies'-Tresses Orchid

Introduction

Ute ladies'-tresses orchid (*Spiranthes diluvialis*) is a threatened species, listed under the Endangered Species Act in 1992.

Ute ladies'-tresses orchid is endemic to moist soils near springs, lakes, or perennial streams (FWS, 1995). The elevational range of known orchid occurrences is 4,200 to 7,000 feet. Most of the occurrences are in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows in the floodplains of perennial streams, but some locations are near freshwater lakes or springs. The orchid appears to require moisture in the rooting zone, typically provided by a high groundwater table, through the growing season and into late summer or early autumn. The orchid is well adapted to disturbances caused by stream movement through floodplains over time, and is tolerant of other disturbances, such as grazing, that may mimic natural disturbances in their effects on riparian habitat. Suitable potential habitat is typically found along streams that experience heavy spring runoff of sufficient magnitude to create movement and reshaping of the stream channel. Plants usually occur as small scattered groups and occupy relatively small areas within the riparian system. It is not known how, under what conditions, and in what time frame the orchid is dispersed and new viable colonies become established. The orchid is generally intolerant of deep shade and strongly alkaline or clay soils, and cannot compete with aggressive rhizomatous species or exotic species.

Survey Method

Survey methods for this project are based on the FWS guidelines (FWS 1995). Survey conditions are based on potential habitat and timing (*i.e.*, the flowering period).

Surveys are required when Ute ladies'-tresses orchid is currently documented as occurring within a watershed or is documented as having occurred within the watershed within the past 50 years (Category 1). Surveys are recommended if Ute ladies'-tresses orchid may have occurred within the watershed or in nearby similar watersheds but historical records are incomplete and the

orchid is not now known to occur (Category 2). Surveys are encouraged in watersheds within the known distribution of the orchid and if the character of the watershed is such that it is possible that the orchid could be discovered (Category 3). The survey guidelines list Category 1 through 3 survey areas for both Colorado and Wyoming based on USGS Hydrologic Maps (FWS 1995).

Ute ladies'-tresses orchid can only be reliably found and identified when it is flowering, which typically occurs sometime during the period from mid-July through mid-September. Surveys conducted at other times of the year are not reliable and are therefore generally not acceptable to the FWS for purposes of clearance under Section 7 of the Endangered Species Act. Surveys are conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering stalks. Surveys will focus only on good potential habitat as described above that occurs within the 250-foot corridor in areas that cannot be avoided by construction. Surveys will be conducted by knowledgeable botanists trained in conducting rare plant surveys. Surveys will be conducted in 2004 along the entire length of the pipeline, and if construction allows, follow-up surveys will be conducted in potential habitat during the year of construction to gather multiple-year data.

Colorado Butterfly Plant

Introduction

Colorado butterfly plant (*Gaura neomexicana* spp. *coloradensis*) is a threatened species, listed under the Endangered Species Act in 2000.

Typical Colorado butterfly plant habitat is described as follows based on information provided in the 2000 Federal Register listing the species as threatened (Federal Register Vol. 65, No. 202, October 18, 2000). Colorado butterfly plant occurs on subirrigated, alluvial (stream deposited) soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000 to 6,400 feet. Colonies are often found in low depressions or along bends in wide, active, meandering stream channels a short distance upslope of the actual channel. The plant requires early- to mid-succession riparain (river bank) habitat. Colorado butterfly plant habitat is usually intermediate in moisture between wet, streamside communities dominated by sedges, rushes, and cattails and dry, upland shortgrass prairie. Typical habitat is open, without dense or overgrown vegetation. Coyote willow (*Salix exigua*) and Canada thistle (*Cirsium arvense*) may become dominant in habitats that are not periodically flooded or otherwise disturbed. The plant occurs on soils derived from conglomerates, sandstones, and tuffaceous mudstones and siltstones of the Tertiary White River, Arikaree, and Oglalla Formations. These soils are common in eastern Colorado and Wyoming.

Survey Method

The FWS has not developed specific guidelines for Colorado butterfly plant surveys (M. Carter, FWS, pers. comm.). In general, survey conditions are based on potential habitat and timing (*i.e.*, the flowering period).

Colorado butterfly plant can only be reliably found and identified when it is flowering. It begins to flower in late June or early July and continues until the first hard frost of autumn, usually late September or early October. Surveys conducted at other times of the year are not reliable. Surveys are conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering stalks. Surveys will focus only on good potential habitat as described above that occurs within a 250-foot corridor in areas that cannot be avoided by construction. Surveys will be conducted by knowledgeable botanists trained in conducting rare plant surveys. Surveys will be conducted in 2004 along the entire length of the pipeline, and if construction allows, follow-up surveys will be conducted in potential habitat during the year of construction to gather multiple-year data.

Blowout Penstemon

Introduction

Blowout penstemon (*Penstemon haydenii*) was listed under the Endangered Species Act in 1987 as an endangered species.

Information on habitat for blowout penstemon was obtained from the Wyoming Natural Diversity Database (WYNDD). According to WYNDD, blowout penstemon is restricted to sparsely vegetated, early successional, shifting sand dunes and the lee slopes of blowout depressions created by wind erosion. In Wyoming, this species is found primarily on sandy aprons or the lower half of steep sandy slopes deposited at the base of granitic or sedimentary mountains or ridges. On unstable windward slopes, blowout penstemon is found in communities of *Redfeldia flexuosa, Psoralidium lanceolatus*, or on barren slopes above small stands of *Prunus virginiana* and *Urtica dioica* associated with seep springs. Populations on more stable, lee slopes occur in similar communities with vegetative cover reaching 15 to 40 percent. Occasionally, populations may be found on choppy dunes associated with *Artemisia cana* and *Elymus lanceolatus* with less than 5 percent vegetative cover. Blowout penstemon is absent from gently undulating dune fields that are not associated with steep mountain slopes or rocky ridges. These sites are probably too dry and lack supplemental water sources from springs or enhanced runoff from adjacent slopes. Wyoming populations occur at elevations of 6,680 to 7,440 feet.

Survey Method

The FWS has not prepared guidelines for surveys for this species. Survey Conditions are based on potential habitat and timing (*i.e.*, the flowering period).

Blowout penstemon can only be reliably found and identified when it is flowering, which typically occurs sometime during the period from mid-June to early July. Surveys conducted at other times of the year are not reliable. Surveys are conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering stalks. Surveys will focus only on good potential habitat as described above that occurs within a 250-foot corridor in areas that cannot be avoided by construction. Surveys will be conducted by knowledgeable botanists trained in conducting rare plant surveys. Surveys will be conducted in 2004 along the entire

length of the pipeline, and if construction allows, follow-up surveys will be conducted in potential habitat during the year of construction to gather multiple-year data.

Dudley Bluffs Twinpod and Dudley Bluffs Bladderpod

Introduction

Dudley Bluffs twinpod (*Physaria obcordata*) and Dudley Bluffs bladderpod (*Lesquerella congesta*) are both threatened species, listed under the Endangered Species Act in 1990.

Typical habitat for both the Dudley Bluffs twinpod and the Dudley Bluffs bladderpod is described as follows based on information provided in the 1990 Federal Register listing the species as threatened (Federal Register Vol. 55, No. 25, February 6, 2000). These two species grow on barren white outcrops exposed along drainages through erosion from downcutting of streams in the Piceance Basin. Each species, however, has a slightly different microenvironment. The twinpod grows on steep slideslopes and the bladderpod grows above it on level surfaces at the points of ridges or where narrow outcrops of level white shale are exposed. Elevational ranges for these species are 6,140 to 6,640 feet for the bladderpod and 5,960 to 7,440 feet for the twinpod. The surrounding hills and mesas support pinyon-juniper woodlands.

Survey Method

Survey conditions for these species are based on potential habitat and timing (*i.e.*, the flowering period). Surveys for Dudley Bluffs twinpod and Dudley Bluffs bladderpod should be conducted when the species are flowering or fruiting and can most reliably be found and identified. The flowering period for Dudley Bluffs twinpod is May through June and the flowering period for the Dudley Bluffs bladderpod is April through May. The fruiting period for Dudley Bluffs twinpod is June through August and the fruiting period for the Dudley Bluffs bladderpod is late May through June. Surveys are conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering or fruiting stalks. Surveys should focus only on good potential habitat as described above that occurs within a 250-foot corridor in areas that cannot be avoided by construction. Surveys will be conducted by knowledgeable botanists trained in conducting rare plant surveys. Surveys will be conducted in 2004 along the entire length of the pipeline, and if construction allows, follow-up surveys will be conducted in potential habitat during the year of construction to gather multiple-year data.

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ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline
BLM Conservation Measure Plan

Revision 1

Prepared for:

Entrega Gas Pipeline Inc.
Republic Plaza Buildling
370 17th Street
Suite 1700
Denver, CO 80202

Prepared by:

NATURAL RESOURCE GROUP, INC.

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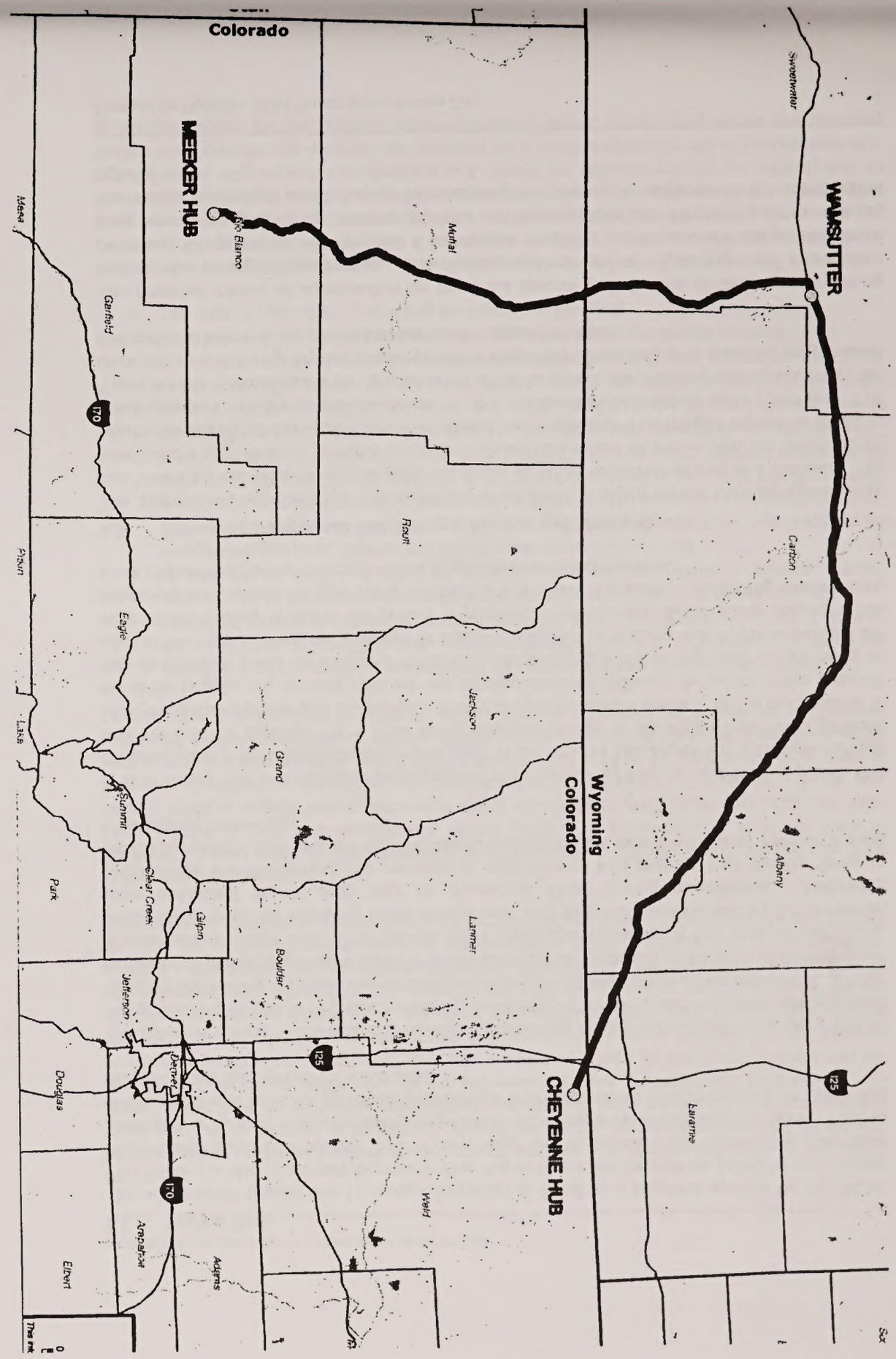
1.0 INTRODUCTION

Entrega Gas Pipeline Inc. (Entrega) is proposing to construct a 327-mile-long interstate natural gas transmission pipeline from the Meeker Hub near the town of Meeker, Colorado to an existing natural gas distribution hub (Cheyenne Hub) near the town of Rockport, Colorado (see figure 1). The project, referred to as the Entrega Gas Pipeline, will be designed to initially transport approximately 1.3 billion cubic feet of gas per day from the Uintah and Piceance Basins in Colorado, with pipeline interconnects at Meeker Hub, Wamsutter, and the Cheyenne Hub.

Natural Resource Group, Inc. (NRG) is conducting special status species consultations for the proposed project on behalf of Entrega. During NRG's initial consultations with the Bureau of Land Management (BLM) Rawlins, Little Snake, and White River Field Offices, the following BLM sensitive species were identified as being likely to occur within the project area: swift fox, white-tailed prairie dog, Townsend's big-eared bat, fringed myotis, Yuma myotis, raptors, burrowing owl, mountain plover, greater sage grouse, northern leopard frog, Great Basin spadefoot, midget faded rattlesnake, Debris milkvetch, Nelson milkvetch, narrow-stem gilia, Piceance bladderpod, Rollins cryptanth, Gibbens' penstemon, Laramie false sagebrush, bluehead sucker, flannelmouth sucker, and mountain sucker. Also of concern to the BLM were the black-footed ferret, black-tailed prairie dog, Preble's meadow jumping mouse, Wyoming toad, Ute ladies'-tresses, Colorado butterfly plant, Dudley Bluffs bladderpod, and Piceance (Dudley Bluffs) twinpod. Survey methods to determine the presence or absence of the identified species of concern within the project area are detailed in Entrega's *BLM Survey Plan*.

General measures to help avoid or minimize impacts on species within the proposed project area will include conducting environmental training for all construction workers, adhering to Entrega's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), and implementing Entrega's *Spill Prevention, Containment, and Countermeasure Plan* (SPCC Plan) and *Weed Management Plan*. Entrega's Plan and Procedures identify baseline mitigation measures for minimizing erosion and enhancing revegetation, and for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies, respectively. Specifically, the Plan and Procedures contain certain requirements, such as: ensuring the appropriate cultural and biological surveys have been conducted; having an Environmental Inspector (EI) present on each construction spread; locating extra workspaces at least 50 feet from wetlands and waterbodies and limiting the clearing of vegetation between each workspace and associated wetland or waterbody; using slope breakers, energy dissipating devices, and/or dewatering structures when appropriate to prevent or minimize erosion and sedimentation; abiding by fishery construction timing windows; grading the construction work areas to pre-construction contours following construction or to such other profile agreed to by all affected agencies; conducting restoration activities; and conducting appropriate monitoring and maintenance. Entrega's SPCC Plan describes preventative measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills; and mitigative measures, such as containment and cleanup, to minimize potential impacts should a spill occur. Entrega's *Weed Management Plan* describes mitigation measures to minimize the introduction and/or spread of invasive plant species.



This *BLM Conservation Measure Plan* outlines specific conservation measures to be implemented in the event one of the aforementioned species of concern is identified along the proposed project route during surveys. Measures identified in this *BLM Conservation Measure Plan* are specific to the protection of these species of concern and take priority over measures identified in Entrega's Plan and Procedures. Specific locations where measures will be implemented are dependent on the results of the field surveys, and the implementation of measures will be dependent on the pipeline location in relation to existing land use and disturbance (*e.g.*, Interstate-80). The conservation measures presented within this plan were largely developed based on accepted practices and procedures, and are intended to reduce impacts such that the project will not result in a loss of viability, nor cause a trend to Federal listing or a loss of species viability rangewide.

2.0 MAMMALS

2.1 Swift Fox

The swift fox (*Vulpes velox*) is listed as a BLM sensitive species in Wyoming. The swift fox is an animal of grasslands and occupies short grass prairies over most of the Great Plains, including eastern Colorado. They use dens or burrows when they are inactive during the winter, either dug by themselves or made by other mammals (*i.e.*, prairie dogs) and enlarged by foxes. The dens are typically located in sandy soil on high ground such as hill tops in open prairies, along fencerows, or in plowed fields.

Impacts on the swift fox could include temporary loss of potential habitat, short-term disruption of foraging activity, and permanent loss of dens. Depending on the timing of construction, the proposed project could potentially cause injury or direct mortality to young. The area within the construction right-of-way, including temporary extra workspaces, would not be available for burrow excavation or foraging during construction. Dens within the right-of-way, particularly along the trenchline, would likely be permanently lost. If construction occurs after June 1, juveniles would be expected to be emerged from their natal dens and would also be expected to relocate away from dens located on the right-of-way. Construction activities could displace rodents, which may increase the foraging success of individual foxes. Additionally, the loosening of the soil associated with trenching and backfilling would provide an optimal substrate for fox to excavate new dens.

Occurrences of the swift fox within the proposed project area will be documented in accordance with the BLM Survey Plan. Although construction could disturb individual swift foxes, Entrega will limit the extent of potential impacts while constructing through potential habitat by implementing general protection measures and best management practices (BMPs). For an active den identified within the construction right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reduce the width of the right-of-way) to avoid the den. For an active den identified outside of the construction right-of-way, Entrega will minimize impacts on the den by reducing the width of the right-of-way in the area, as practical, to minimize impacts on foraging habitat. Following construction, areas of potential habitat will be restored to preconstruction conditions. Although the proposed project may adversely impact individuals, by implementing these measures, is not likely to result in a loss of viability, nor cause a trend to Federal listing or a loss of species viability rangewide.

2.2 Prairie Dogs

The white-tailed prairie dog (*Cynomys leucurus*) is listed as a sensitive species by the BLM. This species is also of concern because prairie dog colonies can support the federally endangered black-footed ferret (see section 2.4). Prairie dogs live in colonies and inhabit dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Fine to medium textured soils are preferred, presumably because burrows tend to retain their shape and strength better than in coarse, loose soils.

The potential effects of construction through a prairie dog colony may include temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Direct mortality of prairie dogs could result if active burrows are occupied at the time of construction. If construction occurs later in the prairie dog's reproductive season, in late May to early June, most prairie dogs are expected to be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. Following construction and restoration, the revegetated right-of-way will provide high quality foraging habitat for prairie dogs and the unconsolidated soils along the trench will likely provide a good substrate for burrowing.

A field survey will be conducted in accordance with the Survey Plan to determine if prairie dog colonies occur within the proposed project area. If the surveys identify an active colony, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, using the opposite side of the right-of-way to operate vehicle traffic). If it is not possible to avoid the population, the area affected will be minimized by reducing the width of the right-of-way as practical given the extent of the colony. In addition, if the colony only occurs along an edge of the right-of-way, the area will be flagged or exclusion fencing will be placed around the edge of the colony to avoid the colony if possible. Entrega will avoid siting staging areas, temporary workspaces, or pipe yards within active colonies if possible. Following construction, areas of potential habitat will be restored to preconstruction conditions.

2.3 Townsend's Big-eared Bat, Fringed Myotis, and Yuma Myotis

The Townsend's big-eared bat (*Corynorhinus townsendii*), fringed myotis (*Myotis thysanodes*), and Yuma myotis (*Myotis yumanensis*) are listed as BLM sensitive species in Colorado. The Townsend's big-eared bat is found in caves or abandoned mines located within salt desert scrub, sagebrush steppe, and pinyon-juniper woodland communities. The fringed myotis is found in ponderosa pine woodlands and salt desert shrub communities at elevations up to 7,500 feet. The Yuma myotis is associated with riparian lands of the western United States, although some of the areas may be relatively dry and shrubby, and is frequently associated with semiarid canyonlands and mesas at lower elevations in southern and western Colorado.

The potential effects of construction on these bat species include loss of shelter and roosting habitats due to vegetation clearing. The clearing and removal of vegetation could also reduce cover and forage habitat for the bats. Construction activities and noise could temporarily drive these species away from the construction area and adjacent habitats. Depending on the season, construction activities could disrupt the maternity colonies on or adjacent to the construction right-of-way.

Only minor impacts on these species in the proposed project area are expected, and no impacts on bats at a community or regional level are anticipated as a result of the proposed project. Although construction could impact individuals, Entrega will limit the extent of potential impacts while constructing by avoiding preferred bat roosting habitats (*e.g.*, caves and abandoned mines) and by implementing BMPs. Much of the project (86 percent) will be constructed adjacent to or within previously disturbed areas. Additionally, because vegetation cover and forage habitats affected by construction are relatively abundant in the areas adjacent to the construction right-of-way, the small numbers of bats displaced during construction will relocate, either temporarily or permanently, to suitable habitat nearby. Following construction, areas of potential foraging habitat will be restored to preconstruction conditions.

2.4 Black-footed Ferret

The black-footed ferret (*Mustela nigripes*) is a federally endangered species that inhabits prairie dog colonies in grasslands or shrub lands.

The potential effects of construction on the black-footed ferret are similar to those for prairie dogs and include temporary loss of shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Construction through a prairie dog colony inhabited by black-footed ferrets could result in injury or direct mortality of ferrets through crushing of occupied burrows.

If surveys for prairie dog towns indicate that a colony of suitable size and density to accommodate a black-footed ferret population occurs within the proposed project area, a field survey for the black-footed ferret will be conducted in accordance with the Survey Plan. If the surveys identify a black-footed ferret, Entrega will contact the FWS. Entrega will coordinate with the FWS to modify the project to avoid impacting the black-footed ferret. If a black-footed ferret is observed during construction, Entrega will stop work and contact the FWS.

2.5 Preble's Meadow Jumping Mouse

The federally threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*) inhabits foothills and plains riparian areas immediately adjacent to perennial streams. Suitable habitat is usually distinguished by woody overstory vegetation, commonly willow, with a dense herbaceous understory. The Preble's meadow jumping mouse is currently being reviewed by the FWS to determine if it is a distinct species. If it is not a distinct species and is subsequently delisted, the following potential impacts and related conservation measures will no longer be applicable.

Potential direct impacts on the Preble's meadow jumping mouse during construction could include displacement, injury, or death of individuals at stream crossings during clearing, trenching, while the trench is open prior to pipe lowering-in and backfilling, and during general vehicle movement along the right-of-way. The most likely potential direct impact on the Preble's meadow jumping mouse is the permanent loss of habitat as a result of maintaining the vegetation within the pipeline corridor. Indirect impacts on the Preble's meadow jumping mouse may include the reduction of available forage from clearing, soil compaction limiting revegetation success, and a lack of streamside vegetation to protect the mice from predators after clearing.

If suitable habitat for the Preble's meadow jumping mouse is identified within the proposed project area, Entrega will evaluate the potential for a route realignment up- or downstream or a change to the right-of-way configuration (*e.g.*, using the opposite side of the right-of-way to operate vehicle traffic) to avoid the habitat. If a reroute or configuration change is not feasible, a field survey for the Preble's meadow jumping mouse will be conducted in accordance with the *Survey Plan*. If the surveys indicate a population of Preble's meadow jumping mouse in the project area, impacts on the mouse will be minimized by implementing the following measures:

- The width of the right-of-way will be reduced as practical.
- No equipment will be parked closer than 100 meters from the stream crossing.
- A biologist will be notified by the environmental inspector to clear the area of mice prior to the crossing. To do this, the biologist will search the area and trap it for one night prior to construction initiation using live traps. Any Preble's mouse captured will be moved upstream or downstream at least 100 feet away from the edge of the right-of-way.
- If the crossing occurs during the breeding season (in June or July), captured adults will be released at the trap site and followed to attempt to determine if they have young in a nest. If a nest is located within the right-of-way, a decision will be made to move the right-of-way and avoid the nest or delay the crossing until late July when the young should be mobile and able to be trapped and moved from the immediate area.
- If the route is moved to avoid an identified nest but still occurs in suitable habitat, surveys will be conducted as necessary and the above measures will be implemented.
- Whenever a piece of equipment needs to cross the area, the biologist will walk in front of the equipment to clear the area. Each subsequent piece of equipment will have the biologist walk in front of it to make sure no mice have come back into the right-of-way.

Construction through areas of suitable habitat will be conducted as quickly as is practical. Following construction, areas of suitable habitat will be restored by broadcast seeding the banks with a seed mix that includes native species and is acceptable to the landowner, local Natural Resource Conservation Service office, or other applicable agencies. In addition, Entrega will replace plugs of willow and/or preexisting shrub species from the riparian area with one plant (willow sprig or bare root stock) every square foot. If it is possible for cattle to graze in replanted riparian areas and the landowner provides consent, Entrega will fence the area until vegetation is reestablished.

To prevent the permanent loss of Preble's meadow jumping mouse habitat, Entrega will modify its plan for long-term maintenance of the permanent right-of-way within suitable habitat. Entrega's Procedures require limited vegetation maintenance and permanent revegetation of native plant species across the entire construction right-of-way within the 25-foot-wide riparian strip on either side of a waterbody. However, the Procedures allow for a 10-foot-wide corridor centered over the pipeline to be maintained in an herbaceous state to facilitate periodic pipeline corrosion/leak surveys. In addition, trees that are located within 15 feet of the pipeline and are greater than 15 feet in height may be cut and removed from the permanent right-of-way. In modifying its plan for long-term maintenance, Entrega will allow for the revegetation of native shrub species, in addition to herbaceous species within the 10-foot-wide corridor, to provide suitable Preble's meadow jumping mouse habitat, and will only remove trees over 15 feet tall as necessary.

3.0 BIRDS

3.1 Raptors

The following raptor species have been identified by the BLM as potentially occurring within the proposed project area: the bald eagle, golden eagle, northern goshawk, ferruginous hawk, Swainson's hawk, peregrine falcon, and burrowing owl (addressed separately below). Other raptors potentially occurring within the project area include the American kestrel, prairie falcon, merlin, red-tailed hawk, northern harrier, Cooper's hawk, sharp-shinned hawk, flammulated owl, great-horned owl, northern saw-whet owl, short-eared owl, eastern screech owl, and long-eared owl. All raptors and their nests are protected from take or disturbance under the Migratory Bird Treaty Act (16 USC, § 703 et seq.). Bald and golden eagles and their nests are also protected under the Bald and Golden Eagle Protection Act, amended in 1978 (16 USC, § 668-668d et seq.).

Habitat types used by raptors that occur along the project include sagebrush steppe, sagebrush scrub, short grass prairie, pinyon-juniper woodland, wetland, and ponderosa pine communities. Raptors use various hunting, nesting, migration, and wintering areas within these habitat types. Table 3.1-1 provides specific habitat and location information for each special status species.

TABLE 3.1-1

Special Status Raptor Species Information

Species	Nesting Habitat	Foraging Habitat	Wintering Habitat	Seasonal occurrence in project area	Potential location in project area
Bald Eagle *Haliaeetus leucocephalus*	Dead limbs of tall trees near water	Shorelines and surface waters; below dams and reservoirs	Rivers, lakes, marshes, semi-deserts, and grasslands near prairie dog towns	Year-round	Throughout project area
Burrowing Owl *Athene cunicularia*	Existing small-mammal burrows in cropland or native pasture, natural cavities in rocks	Areas of tall vegetation, cropland, pasture, prairie dog colonies and fallow fields	N/A – birds migrate to Mexico and Central America	Spring, early fall	Throughout project area
Ferruginous Hawk *Buteo regalis*	Open areas of grasslands and arid shrub country; trees along waterways	Open countryside largely devoid of trees	Open grasslands and arid shrub country	Year-round	Throughout project area
Golden Eagle *Aquila chrysaetos*	Rock ledges and cliffs in close proximity to prey	Semi-desert, grasslands, pinyon-juniper, ponderosa woodlands, alpine tundra, cliffs, canyons	Rock ledges and cliffs in close proximity to prey	Year-round	Throughout project area
Northern Goshawk *Accipter gentilis*	Tree tops in old growth forests	Forests, open meadows, streams, tundra, estuaries	Tree tops in old growth forests	Unlikely within project area	Mature pinyon-juniper habitats
Peregrine Falcon *Falco peregrinus*	Cliffs	Coniferous and riparian forests adjacent to nesting sites	N/A – birds migrate to east coast of U.S. and South America	Spring, early fall	Throughout project area
Swainson's Hawk *Buteo swainsoni*	Sage-steppe plains, grasslands,	Wide open landscapes, grass	N/A – birds migrate to Mexico and	Spring, early fall	Throughout project area

TABLE 3.1-1

Special Status Raptor Species Information

Species	Nesting Habitat	Foraging Habitat	Wintering Habitat	Seasonal occurrence in project area	Potential location in project area
	agricultural regions, large native trees such as cottonwoods and willows	dominated and desert areas	Central America		

Potential impacts on raptors caused by construction of the project could include disruption of foraging and breeding activities and loss of foraging and breeding habitats. Construction activities will limit raptor foraging activities within the construction right-of-way because foraging habitat will be temporarily removed. However, this could displace rodents from the construction right-of-way into adjacent lands, which could increase foraging success of raptors hunting near the construction right-of-way. The greatest potential impact on raptors will be the lowering of reproductive success through the disruption of nesting or breeding activities. Construction near active nests along the corridor during brood rearing could result in nest abandonment; overheating, chilling, or desiccation of unattended young causing nestling mortality; premature fledging; and ejection of eggs or young from the nest. Depending on the timing of construction, the proposed project could also potentially impact raptors during their breeding season by temporarily decreasing the amount of nesting habitat available and destroying nests.

Entrega conducted aerial raptor nest surveys between April 23 and May 4, 2004 to provide preliminary information for project planning. As indicated in table 3.1-2, 22 active nests of special status species raptors were identified.

TABLE 3.1-2

Potentially Occurring Special Status Raptor Species

Species	No. of species/ nests found in 2004	Spatial Buffer (mile) / Constraint Period– Wyoming BLM	Spatial Buffer (mile) / Constraint Period – WGFD	No Surface Occupancy (mile) – Colorado BLM	Spatial Buffer (mile) / Constraint Period – Colorado BLM	Spatial Buffer (mile) / Constraint Period – CDOW
Bald Eagle	2	1.00 2/1 - 7/31	1.00 2/1 - 7/31	0.25	0.50 12/15 - 7/15	0.50 11/15 - 7/31
Burrowing Owl	0	0.75 2/1 - 7/31	0.50 2/1 - 7/31	0.125	0.50 2/1 - 8/15	75 yards 4/1 - 7/31
Ferruginous Hawk	9	1.00 2/1 - 7/31	1.00 2/1 - 7/31	0.125	1.00 2/1 - 8/15	0.25 2/1 - 7/15
Golden Eagle	11	1.00 2/1 - 7/31	1.00 2/1 - 7/31	0.125	0.50 2/1 - 8/15	0.25 1/1 - 7/15
Northern Goshawk	0	0.75 2/1 - 7/31	0.50 2/1 - 7/31	0.25	0.75 2/1 - 8/15	0.50 3/1 - 9/30
Northern Harrier	0	0.75 2/1 - 7/31	0.50 2/1 - 7/31	0.125	0.50 2/1 - 8/15	2/1 – 8/15
Peregrine Falcon	0	0.75 2/1 - 7/31	0.50 2/1 - 7/31	0.125	0.75 2/1 - 8/15	0.50 3/15 - 7/31
Swainson's Hawk	0	0.75 2/1 - 7/31	0.50 2/1 - 7/31	0.125	0.75 2/1 - 8/15	0.25 4/1 - 7/15

In addition to the nests identified for special status raptors, the surveys identified 14 active red-tailed hawk nests and 3 active great-horned owl nests located within the agency-identified spatial buffer. In Colorado, the BLM has designated a 0.125-mile no surface occupancy stipulation for common raptor nests. As detailed in the BLM Survey Plan, Entrega intends to conduct additional raptor nest surveys between April 21 and May 15, 2005, prior to construction. Entrega will adhere to the appropriate measures to protect active nest sites identified during the aerial surveys, such as adhering to spatial buffers and seasonal constraints as presented in table 3.1-2, unless otherwise permitted by the applicable agencies as determined on a site (nest)-specific basis. Appropriate protection measures will depend on site-specific variables (*e.g.*, species, nest location, topography, breeding phenology, vegetation).

Entrega's electrical service provider will adhere to the following protection measures to minimize potential collision and electrocution impacts to migrating and foraging bird species on BLM lands:

- The electrical service providers will incorporate standard, safe designs as outlined in Suggested Practice for Raptor Protection on Power Lines (APLIC 1996) into the design of electrical distribution lines in areas of identified avian concern to prevent electrocution of raptor species attempting to perch on the power poles and lines. These measures would include, but would not be limited to, a 60-inch separation between conductors and/or grounded hardware and recommended use of insulating materials and other applicable measures depending on line configuration (APLIC 1996).
- The electrical service providers will incorporate standard raptor-proofing designs as outlined in Mitigating Bird Collision with Power Lines (APLIC 1994) into the design of the electrical distribution lines to prevent collision to foraging and migrating raptors within the project area, as applicable.
- The electrical service provider will use adequate raptor proofing designs to minimize the potential use of power poles by foraging raptors that cross sage grouse habitat and prairie dog colonies.

3.2 Burrowing Owl

The burrowing owl is listed as a BLM sensitive species in Wyoming and is state-listed as threatened in Colorado. Burrowing owls inhabit open, dry grasslands, deserts, and scrublands characterized by low-growing vegetation. Habitat types used by burrowing owls that occur along the project include sagebrush steppe, sagebrush scrub, and short grass prairie. Burrowing owls are subterranean nesters that typically use burrows made by small mammals, such as prairie dogs.

The potential impacts of the project on burrowing owls may include disturbance of foraging habitat, destruction of active burrows, and displacement, injury, or mortality of individuals. Destruction of burrows could result in displacement of owls into less suitable habitats, potentially increasing susceptibility to predation, reducing cover or forage habitat, or reducing reproductive success. Displacement, injury, or direct mortality could result if active burrows are occupied at the time of destruction.

If suitable habitat for the burrowing owl occurs within the proposed project area, incidental sightings will be recorded during other survey efforts in accordance with the BLM Survey Plan. If active burrows are identified during other surveys, the potential for impacts on the burrowing owl will be minimized by adhering to the appropriate spatial and seasonal buffers. The spatial buffer for burrowing owl nests is a 0.75-mile-wide radius and the seasonal buffer is from February 1 to July 31.

3.3 Mountain Plover

The mountain plover (*Charadrius montanus*) is designated as a BLM sensitive species in Wyoming. Additionally, the mountain plover was previously proposed for listing as a threatened species. In September 2003, the FWS determined that the population did not warrant listing; however, this species is still of concern to the FWS. The species inhabits prairie grasslands and arid plains and fields, and most often nests in shortgrass prairies grazed by prairie dogs, bison, cattle, and pronghorn; overgrazed tallgrass prairies; or fallow fields.

Depending on the timing of construction, the proposed project could potentially impact the mountain plover during its breeding season by temporarily decreasing the amount of nesting habitat available, destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. Mountain plover nesting and brood rearing typically occur between April and July, and based on the Mountain Plover Survey Guidelines (USFWS, 2001), construction after July 10 would not be likely to affect mountain plovers. Direct impacts after July 10 would be short-term and associated with habitat disturbance.

Indirect impacts that could occur during construction include the reduction of available forage and shelter due to clearing and the potential increase in the susceptibility of individuals, particularly chicks, to predation due to a lack of vegetation cover along the right-of-way. However, these impacts will be temporary and the restored right-of-way will actually increase the amount of habitat that is available to the mountain plover, as it is known to inhabit bare or disturbed areas with short vegetation and low vegetation cover. The siting of permanent aboveground facilities within mountain plover habitat could also indirectly impact the species by providing perches for avian predators or deterring plovers from using preferred habitat. To minimize these impacts, Entrega will avoid siting aboveground facilities within mountain plover habitat to the extent possible based on project design and pipeline safety requirements.

If suitable habitat for the mountain plover is found to occur within the proposed project area, a field survey for mountain plover nests will be conducted in accordance with the BLM Survey Plan. If an active mountain plover nest is found, the nest location will be recorded and reassessed immediately before construction if construction is expected to occur between April 10 and July 10. If the nest is still active at that time, construction equipment will be prohibited from working within 0.25 mile of the nest until the young have fledged. If a plover family group is identified during surveys or immediately before construction, the group will be monitored by a biologist to determine its use pattern. The area being used by the family group will be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the proposed centerline. Construction equipment will be allowed a one-time pass through the area with the biologist present to monitor plover location and response. Following construction, the project area will be restored to preconstruction conditions.

3.4 Greater Sage Grouse

The greater sage grouse (*Centrocercus urophasianus*) is designated as a sensitive species by all three BLM districts, and is of concern to the FWS as several petitions have been submitted to list the greater sage grouse under the ESA. On April 21, 2004, the FWS determined that listing the sage grouse under the ESA may be warranted and initiated a 12-month review. The measures proposed below are intended to avoid or minimize impacts on sage grouse, regardless of Federal status. Sagebrush is the primary year-round source of food for the sage grouse. Sagebrush also serves as the critical component in leks (breeding grounds), nesting, feeding sites, rearing sites, and wintering grounds. Although the sage grouse typically prefers taller sagebrush plants and stands for nesting and roosting cover, lekking grounds are generally open areas with low, sparse sagebrush, such as swales, meadows, and burned areas. Lekking grounds are generally surrounded by areas of 20 to 50 percent low-height, sagebrush cover. Secondary to sagebrush habitat, sage grouse require moist wetland and wet meadows to aid in brood rearing.

Potential direct impacts of construction on sage grouse may include the loss of lekking grounds and other sage grouse habitat. Although the proposed project would not result in a permanent loss of habitat along the pipeline right-of-way, based on the condition of the existing right-of-way, the regeneration of sagebrush would likely be slow and could take up to several decades. However, potential impacts on sage grouse habitat would be minimized by locating the proposed right-of-way within previously disturbed areas (*i.e.*, adjacent to existing pipelines and/or roads) to the extent possible. Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline right-of-way would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the proposed project could potentially impact sage grouse during lekking activities or brood rearing, and could cause displacement, injury, or direct mortality of individuals. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds each morning and evening from early March to early May. Construction activities and associated noise occurring in early morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities. In addition, once breeding activities have concluded, sage grouse hens create their nests on the ground underneath sagebrush plants in proximity to the lekking grounds. The proposed project could potentially impact nesting sage grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young. In addition, brood rearing habitat could potentially be impacted by causing injury or direct mortality to the young.

Sage grouse could also be indirectly impacted as individuals flushed or otherwise relocated from construction activities may be required to occupy suitable, but lower quality habitat, or may be more susceptible to predation, either while in lower quality habitat or during relocation to that habitat. However, these factors are not anticipated to result in high levels of mortality as disturbance and movements would be temporary and habitat adjacent to the construction corridor would remain intact.

Because suitable habitat for the greater sage grouse occurs within the proposed project area, a field survey will be conducted in accordance with the Survey Plan. Aerial surveys conducted in April 2004 to provide preliminary information for project planning identified seven leks located

within 2 miles of the proposed pipeline route, two of which were located within the construction right-of-way. Table 3.4-1 provides a summary of the 2004 preliminary sage grouse lek survey results.

TABLE 3.4.2-4

Summary of 2004 Preliminary Sage Grouse Lek Survey Results

Milepost	Distance from the Centerline (feet)	Direction from the Centerline	New/Historic Lek	Estimated Number of Birds on the Lek
56.6	3638.5	East	new	4
82.8	7320.2	West	new	25 to 30
92.0	3559.4	West	new	3
205.9	6069.7	North	historic	12
210.7	5126.7	South	historic	16
211.0	223.6	North	historic	22
216.8	359.7	North	historic	20 to 30

Full surveys will be conducted during the year of construction. The following conservation measures will be implemented based on the location of the active lek identified during the surveys in relation to the project area:

- For an active lek identified by the surveys within 0.25 mile of the construction right-of-way, Entrega will minimize impacts on the lek and associated nesting habitat by beginning construction after June 30, or as otherwise permitted by the appropriate resource agency. In addition, Entrega will minimize impacts on the lek by reducing the width of the right-of-way through the lek as practical and avoiding permanent surface development within the lek.

- For suitable nesting habitat associated with an active lek identified by the surveys within 2 miles of the proposed project area, Entrega will minimize direct impacts on the nesting habitat by beginning construction after June 30 and reducing the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency.

- For suitable brood-rearing habitat associated with an active lek identified by the surveys within 2 miles of the proposed project area, Entrega will minimize direct impacts on the brood-rearing habitat by beginning construction after July 15 and reducing the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency.

- If low-intensity preconstruction (*e.g.*, surveying and staking) work is necessary within 2 miles of an active sage grouse lek between March 1 and June 30, activities will only occur between 9:00 a.m. and 4:00 p.m.

Following construction, the project area will be restored to preconstruction contours and areas of suitable habitat will be restored by broadcast seeding with a seed mix that includes native species and is acceptable to the landowner, local Natural Resource Conservation Service office, or other applicable agencies.

4.0 AMPHIBIAN

4.1 Northern Leopard Frog

The northern leopard frog (*Rana pipiens)* is listed as a BLM sensitive species in Colorado. This species inhabits wet meadows and the banks and shallows of marshes, ponds, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. It is found throughout Colorado, excluding most of the southeastern and east-central portions of the state. It can be found at elevations ranging from below 3,500 feet in northeastern Colorado to above 11,000 feet in southern Colorado.

The potential effects of construction on the northern leopard frog include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the proposed project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover along the construction right-of-way.

Occurrences of the northern leopard frog within the proposed project area will be documented in accordance with the BLM Survey Plan. Although this species is unlikely to occur in the proposed project area, if a northern leopard frog population is identified, biological monitors will clear the construction right-of-way of northern leopard frogs prior to construction and install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the population to keep the frogs from entering the construction right-of-way. Following construction, the right-of-way will be restored to preconstruction conditions.

4.2 Great Basin Spadefoot

The Great Basin spadefoot (*Spea intermontana*) is listed as a BLM sensitive species in Colorado. The Great Basin spadefoot inhabits pinyon-juniper woodlands, sagebrush steppe and scrub communities, and semidesert shrublands. This species ranges from the bottoms of rocky canyons to broad dry basins and stream floodplains and digs burrows in loose soils or uses the burrows of other animals.

The potential effects of construction on the Great Basin spadefoot may include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the proposed project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover and destruction of burrows along the construction right-of-way.

Occurrences of the Great Basin spadefoot within the proposed project area will be documented in accordance with the BLM Survey Plan. If a Great Basin spadefoot population is identified, biological monitors will clear the construction right-of-way of the Great Basin spadefoot prior to construction and install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the population to keep the spadefoot from entering the construction right-of-way during construction. Following construction, the right-of-way will be restored to preconstruction conditions.

4.3 Wyoming Toad

The federally threatened Wyoming toad (*Bufo baxteri*) occurs in the vicinity of lakes and adjacent meadows, and may occur in wetlands in the Laramie River Valley.

The potential effects of construction on the Wyoming toad include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the proposed project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover along the right-of-way.

If suitable habitat for the Wyoming toad occurs within the proposed project area in close proximity to known locations of the toad, a field survey will be conducted in accordance with the *Survey Plan*. Although this species is unlikely to occur in the project area, if the surveys identify a Wyoming toad population, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration. If a reroute or configuration change is not possible, biological monitors will clear the right-of-way of Wyoming toads and install exclusion fencing to a depth of 6 inches into the ground to keep the toads from entering. Following construction, the right-of-way will be restored to preconstruction conditions.

5.0 REPTILES

5.1 Midget Faded Rattlesnake

The midget faded rattlesnake (*Crotalus viridis concolor)* is listed as a BLM sensitive species in Colorado. This species is found primarily on the ground, but will occasionally climb into trees and shrubs. When inactive during cold weather, individuals occupy mammal burrows, crevices, or caves where they sometimes congregate in large numbers.

Potential impacts on this species resulting from construction could include direct mortality due to crushing by construction equipment, reduction of suitable habitat, and temporary disturbance and displacement; however, these impacts are not expected to be significant.

Occurrences of the midget faded rattlesnake within the proposed project area will be documented in accordance with the BLM Survey Plan. If this species is documented within the construction right-of-way, biological monitors will clear the construction right-of-way of the midget faded rattlesnake prior to construction and install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the poplulation to keep the rattlesnakes from entering the construction right-of-way during construction. Following construction, the right-of-way will be restored to preconstruction conditions.

6.0 PLANTS

Eleven BLM sensitive plant species and four federally listed species (described individually below) have been identified as potentially occurring within the proposed project area. Of the 11 BLM sensitive plants, 4 are likely to only occur outside of the project area based on habitat requirements as noted on the table below. Table 6.0-1 lists the plant species and their associated habitat information.

TABLE 6.0-1

Potentially Occurring Special Status Plant Species

Species	Status	Habitat Information
Debris Milkvetch *Astragalus detritalis*	BLM - S (Colorado)	Found on rocky or sandy soils on alluvial terraces with cobbles. Occurs from near Meeker into northeastern Utah.
Nelson Milkvetch *Astragalus nelsonianus*	BLM-S (Wyoming)	Found in gullies and flats on seleniferous soils in sparsely vegetated sagebrush.
Colorado Butterfly Plant *Guara neomexicana spp Coloradensis*	FT	Wet meadows in floodplains; subirrigated soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000 to 6,400 feet; and in low depressions or along bends in wide, meandering stream channels.
Park Rockcress *Boechera fernaldiana*	BLM - S (Colorado)	Occurs on Weber sandstone as well as limestone outcrops in extreme western Moffat County, Colorado (outside of the project area).
Ephedra Buckwheat *Eriogonum ephedroides*	BLM - S (Colorado)	Occurs on the Green River Formation on Raven Ridge, approximately 30 miles west of the project area (outside of the project area).
Utah Genetian *Gentianella tortuosa*	BLM - S (Colorado)	Occurs on barren shale outcrops of the Green River Formation at elevations of 8,500 to 10,800 feet above mean sea level (elevations higher than found in the project area).
Narrow-stem Gilia *Gilia stenothyrsa*	BLM -S (Colorado)	Occurs on silty or gravelly loam soils derived from the Green River or Uinta Formations.
Dudley Bluffs Bladderpod *Lesquerella congesta*	FT	Inhabits barren white outcrops of the Green River and Uintah Formations exposed along drainages through erosion from the downcutting of streams in the Piceance Basin.
Piceance Bladderpod *Lesquerella parviflora*	BLM - S (Colorado)	Found on shale outcrops of the Green River Formation at elevations from 6,200 to 8,600 feet above mean sea level.
Narrow-leaf Evening Primrose *Oenothera acutissima*	BLM - S (Colorado)	Found in seasonally wet areas, usually in sandy, gravely or rocky soils. No populations are known to occur as far southeast as the Piceance Basin (outside of the project area).
Rollins Cryptanth *Oreocarya rollinsii*	BLM - S (Colorado)	Occurs on white shale slopes of the Green River Formation in western Rio Blanco and Moffat Counties, Colorado, at elevations between 5,300 and 5,800 feet above mean sea level.
Gibbens' Penstemon *Penstemon gibbensii*	BLM - S (Wyoming)	Found in sparsely vegetated shale or sandy-clay slopes of the Browns Park Formation. Associated vegetation is typically pinyon-juniper woodland, sagebrush communities, or salt desert shrub.
Piceance (Dudley Bluffs) Twinpod *Physaria obcordata*	FT	Found in shale outcrops of the multimineral oil shale zone on barren white outcrops that have been exposed through erosion from the downcutting of streams.
Laramie False Sagebrush *Sphaeromeria simplex*	BLM-S (Wyoming)	Found in cushion plant communities on rocky limestone ridges.
Ute Ladies'-tresses *Spiranthes diluvialis*	FT	Seasonally moist soils and wet meadows of drainages below 7,000 feet elevation; arid, intermontane valleys with saline soils that are also high in calcium carbonate; or floodplain wetlands that are part of a meandered wetland complex.

6.1 BLM Sensitive Plants

Potential direct impacts on the BLM sensitive plants caused by construction may include injury to or destruction of the plants; seed displacement occurring within areas of potential habitat during clearing, trenching, or general vehicle movement along the construction right-of-way; or permanent loss of habitat. Indirect impacts may include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species.

If suitable habitat for these plants occurs within the proposed project area, a field survey will be conducted in accordance with the BLM Survey Plan. If plants are identified during the survey

adjacent to the construction right-of-way, exclusion fencing will be placed around the plants so they are avoided by construction activities. If plants are identified within the right-of-way, Entrega will evaluate the potential to change the right-of-way configuration to avoid plants located on the edge of the construction right-of-way. If a reconfiguration is not possible, Entrega will coordinate with the BLM to determine if additional mitigation measures or other appropriate actions would be required to reduce potential impacts to the population. Entrega will monitor topsoil segregation for ditchline and spoil storage areas containing sensitive plants to ensure adequate topsoil is segregated and will replace the topsoil to ensure the seed bank is returned to the affected area.

6.2 Ute Ladies'-tresses

Ute ladies'-tresses (*Spiranthes diluvialis*) is a federally threatened species that grows in areas of seasonally moist soils and wet meadows of drainages below 7,000 feet elevation; arid, intermontane valleys with saline soils that are also high in calcium carbonate; or floodplain wetlands that are part of a meandered wetland complex. The Ute ladies'-tresses flower is required for identification, and blooming occurs from late July through September. The orchid can remain dormant for one or more growing seasons.

Potential direct impacts on the Ute ladies'-tresses caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at stream crossings or other potential habitat (*i.e.,* isolated wetlands) during clearing, trenching, or general vehicle movement along the right-of-way. Indirect impacts could include invasion of suitable habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species. Altered soil conditions within the right-of-way may also facilitate colonization of the area by rodents, which could increase herbivory on the orchid. These impacts are likely to be most apparent immediately following construction and revegetation, and would diminish with time. Changes to water flow and soil characteristics would be minimized by adhering to Entrega's Plan and Procedures, and they would be temporary because the disturbed areas would be returned to preconstruction conditions following installation of the pipeline. In addition, Entrega will topsoil in wetland areas in accordance with its Procedures.

If suitable habitat for the Ute ladies'-tresses occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan.* If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way) to avoid the population. The potential for a reroute depends on site-specific conditions, such as the slope of the terrain. If avoidance of the Ute ladies'-tresses is not possible, Entrega will notify the FWS.

6.3 Colorado Butterfly Plant

The Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*) is federally listed as threatened. It is found in wet meadows in floodplains; subirrigated soils on level or slightly

sloping floodplains and drainage bottoms at elevations of 5,000 to 6,400 feet; and in low depressions or along bends in wide, meandering stream channels.

Potential direct impacts on the Colorado butterfly plant caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at stream crossings or other potential habitat (*i.e.*, isolated wetlands) during clearing, trenching, or general vehicle movement along the right-of-way. Indirect impacts could include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species. Altered soil conditions within the right-of-way may also facilitate colonization of the area by rodents, which could increase herbivory on the plant. These impacts are likely to be most apparent immediately following construction and revegetation, and would diminish with time. Changes to water flow and soil characteristics would be minimized by adhering to Entrega's Plan and Procedures, and they would be temporary because the disturbed areas would be returned to preconstruction conditions following installation of the pipeline. In addition, Entrega will topsoil in wetland areas in accordance with its Procedures.

If suitable habitat for the Colorado butterfly plant occurs within the proposed project area, a field survey will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way). The potential for a reroute depends on site-specific conditions, such as the slope of the terrain. If avoidance of Colorado butterfly plants is not possible, Entrega will notify the FWS.

6.4 Dudley Bluffs Twinpod and Dudley Bluffs Bladderpod

The Dudley Bluffs twinpod (*Physaria obcordata*), also known as the Piceance twinpod, is a federally threatened species. It is found in shale outcrops of the multimineral oil shale zone on barren white outcrops that have been exposed through erosion from the downcutting of streams. The flowers of the Dudley Bluffs twinpod, which are yellow, bloom in May and June.

The Dudley Bluffs bladderpod (*Lesquerella congesta*) is federally threatened and inhabits barren white outcrops of the Green River and Uintah Formations exposed along drainages through erosion from the downcutting of streams in the Piceance Basin. It grows on level surfaces at the points of ridges between 6,000 and 6,700 feet, and blooms in April and May with yellow flowers in a dense cluster.

Potential direct impacts on the Dudley Bluffs twinpod and/or bladderpod caused by construction of the project include injury to or destruction of the plants or seed displacement occurring at potential habitat (*i.e.*, barren white shale outcrops) during clearing, trenching, or general vehicle movement along the right-of-way. This could result in a permanent loss of habitat. Indirect impacts may include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Implementation of Entrega's *Weed Management Plan* will minimize the introduction and/or spread of invasive plant species.

If suitable habitats for the Dudley Bluffs twinpod and/or bladderpod occur within the proposed project area, field surveys will be conducted in accordance with the *Survey Plan*. If plants are identified during the survey that occur along the edge of the right-of-way, exclusion fencing will be placed around the plants so they would be avoided by construction activities. If plants are identified during the survey that occur in the middle or across the right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, reducing the width of the right-of-way). The potential for a reroute depends on site-specific conditions, such as the slope or ruggedness of the terrain. If avoidance of the Dudley Bluffs twinpod and/or bladderpod is not possible, Entrega will notify the FWS.

7.0 FISH

7.1 Bluehead Sucker, Flannelmouth Sucker, and Mountain Sucker

Three BLM sensitive fish species have been identified by the White River Field Office as potentially occurring within the proposed project area: the bluehead sucker, flannelmouth sucker, and mountain sucker.

The bluehead sucker (*Catostomus discobolus*) is found in a wide variety of areas from headwater streams to large rivers. It is absent in areas of standing water, as it requires water of moderate to fast velocity. The bluehead sucker prefers a rock substrate, and in areas where the river substrate is composed of sand, bluehead suckers are found where rock shoals created by talus slopes reach into the water. In Colorado, this species is restricted to western slope waters.

The flannelmouth sucker (*Catostomus latipinnis*) occurs only in the Colorado River basin and inhabits a variety of river habitats including riffles, runs, eddies, and backwaters. This species is found only in the western slope waters in Colorado.

The mountain sucker (*Catostomus platyrynchus*) inhabits smaller rivers and streams with gravel, sand, and mud bottoms. Colorado specimens are found in areas of undercut banks, eddies, small pools, and in areas of moderate current.

Potential effects of in-stream construction on these fish species include potential displacement of individuals from the construction area due to turbidity and sedimentation, and injury or direct mortality of individuals within the proposed project area. Depending on the timing of construction activities, in-stream construction could adversely affect fish eggs and juvenile fish survival in the immediate area. Construction could further impact the fish habitat by increasing erosion along streambanks and turbidity levels within the waterbody due to clearing and grading of vegetation during construction, and temporarily altering water temperature and nutrients.

To minimize impacts on these sensitive fish species, Entrega will complete waterbody crossings in accordance with its Procedures. To minimize impacts associated with sedimentation and turbidity during open-cut waterbody crossings, Entrega will store trench spoil at least 50 feet from the streambank; use sediment barriers such as silt fence to prevent or significantly reduce runoff into a stream; and complete construction as quickly as possible to shorten the duration of sedimentation and turbidity. In addition, Entrega will adhere to the appropriate construction timing windows to avoid or minimize potential sedimentation and turbidity impacts on aquatic species during spawning seasons.

8.0 SUMMARY TABLE

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Swift Fox	BLM Sensitive	Shortgrass areas throughout the project corridor	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	• For an active den identified within the construction right-of-way, Entrega will evaluate the potential for a route realignment or change to the right-of-way configuration to avoid the den. • For an active den identified outside of but adjacent to the construction right-of-way, Entrega will minimize impacts on the den by reducing the width of the right-of-way as practical, and avoiding permanent surface development.
			Indirect Impact: Increase in foraging habitat	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
White-tailed Prairie Dog	BLM Sensitive	Generally west of the Laramie Range	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	If it is not possible to avoid the colony, the area affected would be minimized by: • Reducing the width of the right-of-way as practical through active prairie dog colonies; • For colonies located only along the edge of the right-of-way, the area will be flagged or exclusion fencing will be placed around the edge of the colony. • Locating staging areas, temporary workspaces, or pipeyards outside of active colonies if possible. • Restoring areas of potential habitat to preconstruction conditions following construction.
			Indirect Impact: Increase in foraging habitat and burrowing substrate	• Restoring and revegetating the right-of-way would provide high quality foraging habitat and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.

Entrega will minimize the potential for an accidental spill or discharge of any chemical or petroleum product into surrounding watershed systems by implementing its SPCC Plan. Additionally, in accordance with Entrega's Plan and Procedures, construction equipment fueling and servicing areas will be located at least 100 feet from surface waters and riparian zones and away from slopes that lead to those zones.

To minimize impacts associated with streambank erosion during construction, Entrega will use mats and pads to support equipment that must cross waterbodies or work in saturated soils adjacent to waterbodies. In accordance with its Procedures and where topography allows, Entrega will locate temporary extra workspaces at least 50 feet from the edge of flowing waterbodies, except where site-specific approval is granted, and limit clearing of vegetation between extra workspaces and the edge of each waterbody to the certificated construction right-of-way.

Following completion of construction at waterbodies, Entrega will immediately stabilize the construction site, including the streambanks, and return all project areas to preconstruction contours. Additionally, buffer zones of undisturbed vegetation along the waterbodies will be maintained in accordance with Entrega's Plan and Procedures. These measures will minimize the potential for impacts on these fish species.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Townsend's Big-eared Bat	BLM Sensitive	Caves and abandoned mines	Direct Impacts: Permanent loss of habitat, potential reduction in reproductive success	• Implementation of Entrega's BMPs while constructing through potential habitat would limit the extent of potential impacts
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Fringed Myotis	BLM Sensitive	Caves, abandoned mines, rock crevices	Direct Impacts: Permanent loss of habitat, potential reduction in reproductive success	• Implementation of Entrega's BMPs while constructing through potential habitat would limit the extent of potential impacts
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Yuma Myotis	BLM Sensitive	Caves, abandoned mines, rock crevices, swallow's nests	Direct Impacts: Permanent loss of habitat, potential reduction in reproductive success	• Implementation of Entrega's BMPs while constructing through potential habitat would limit the extent of potential impacts
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Black-footed Ferret	Endangered	Within prairie dog colonies, black-tailed or white-tailed	Direct Impacts: Displacement, injury, or death; Temporary loss of forage and shelter	If field surveys identify a black-footed ferret, Entrega will contact the FWS and coordinate the modification of the project to avoid impacting the black-footed ferret. If a black-footed ferret is observed during construction, Entrega will stop work and contact the FWS.
Preble's Meadow Jumping Mouse	Threatened	Riparian areas in southeastern Wyoming and northeastern Colorado	Direct Impacts: Permanent loss of habitat	• Revising the project's long-term maintenance plan to include shrub species in addition to herbaceous species; therefore only tree species would be removed to maintain the permanent right-of-way.
			Direct Impacts: Displacement, injury, or death during construction	If it is not possible to avoid the population, direct impacts on the Preble's meadow jumping mouse will be minimized as follows: • The width of the right-of-way will be reduced as practical;

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
		Colorado	at stream crossings	• No equipment will be parked closer than 100 feet from the stream crossing; • A biologist will be notified by the environmental inspector to clear the area of mice prior to the crossing; • If the crossing occurs in June or July the biologist will determine if there are nests within the right-of-way that need to be avoided; • Whenever a piece of equipment needs to cross the area, the biologist will walk in front of the equipment to clear the area; and • Following construction, areas of potential habitat will be restored to preconstruction conditions by broadcast seeding the banks and replacing plugs of willow and/or preexisting shrub species from the riparian area with one plant every square foot. If it is possible for cattle to graze in replanted riparian areas and the landowner provides consent, Entrega will fence the area until vegetation is reestablished.
			Indirect Impact: Reduction of available forage and habitat	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Special Status Raptor Species (Bald Eagle, Golden Eagle, Ferruginous Hawk, Northern Goshawk, Peregrine Falcon, Swainson's Hawk, Northern Harrier	BLM Sensitive, Threatened (Bald Eagle only)	See table in text	Direct Impacts: Lowering of reproductive success through the disruption of nesting or breeding activities; Displacement of individuals	• Adhering to the appropriate spatial and seasonal buffers unless otherwise permitted by the applicable agencies as determined on a site (nest)-specific basis. See table in text (3.1-2) for species specific buffers and dates; • Bald Eagle specific conservation measures are included in the Conservation Measure Plan..
			Indirect Impact: Disruption of foraging and breeding activities and loss of foraging and breeding habitats	• Adhering to Entrega's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) when crossing waterbodies.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Burrowing Owl	BLM Sensitive		Direct Impacts: Displacement of individuals; Damage to occupied and/or unoccupied burrows; Reduction in reproductive success	• Adhering to the appropriate spatial (0.75 mile) and seasonal (February 1 to July 31) buffers
Mountain Plover	BLM Sensitive	Shortgrass areas throughout the project corridor	Direct Impacts: Displacement, injury, or death of individuals and eggs/young if during the breeding season	• If an active mountain plover nest is found and construction is expected to occur between April 10 and July 10, the nest location would be recorded and reassessed immediately before construction. If the nest is still active at that time, construction equipment would be prohibited from working within 0.25 mile of the nest until the young have fledged. • If a plover family group is identified during surveys or immediately before construction, the group would be monitored to determine its use pattern. The area being used by the family group would be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the proposed centerline. • Construction equipment would be allowed a one-time pass through the area with a biologist present to monitor plover location and response. • Following construction, the project area will be restored to preconstruction conditions.
			Indirect Impact: Temporary reduction of available habitat	• Restoring and revegetating the right-of-way will increase the amount of habitat that is available to the mountain plover.
			Indirect Impact: Potential temporary increase in the susceptibility of individuals to predation	• Successfully revegetating disturbed areas following construction would mitigate the temporary impact.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Greater Sage Grouse	BLM Sensitive	Sagebrush areas, moist wetland and wet meadow areas	Direct Impacts: Long-term loss of lekking grounds and other sage grouse habitat	• Collocating the proposed right-of-way within previously disturbed areas (*i.e.*, adjacent to existing pipelines and/or roads) to the extent possible.
			Direct Impacts: Potential disruption of lekking activities or brood rearing; displacement, injury, or death of individuals	• If an active lek is located within 0.25 mile of the the project area, Entrega will begin construction after June 30, reduce the width of the right-of-way as practical through the lek, and avoid permanent surface development within the lek, unless otherwise permitted by the appropriate resource agency. • If suitable habitat associated with an active lek is located within 2 miles of the project area, Entrega will begin construction after June 30 and reduce the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency. • If suitable brood-rearing habitat associated with an active lek is located within 2 miles of the project area, Entrega will begin construction after July 15 and reduce the width of the right-of-way as practical, unless otherwise permitted by the appropriate resource agency. • If low-intensity preconstruction (*e.g.*, surveying and staking) work is necessary within 2 miles of an active sage grouse lek between March 1 and June 30, activities will only occur between 9:00 a.m. and 4:00 p.m. Following construction, the project area will be restored to preconstruction conditions and seeded by broadcast seeding sagebrush seed.
			Indirect Impacts: Increasing the susceptibility of individuals to predation; relocation to lower quality habitat	• Restoring and revegetating the right-of-way will increase the amount of habitat that is available to the sage grouse. • Successfully revegetating disturbed areas following construction would mitigate the temporary impact.
Northern Leopard Frog	BLM Sensitive	Wet meadows and banks	Direct Impacts: Displacement, injury, or death of individuals;	If avoidance of the Northern leopard frog would not be possible, impacts would be minimized by: • Clearing of the right-of-way by biologists prior to construction to

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
		and shallows of marshes, and ponds.	Temporary loss of shelter	remove all individuals; and • Installing exclusion fencing to a depth of 6 inches in occupied habitat.
			Indirect Impact: Increasing the susceptibility of individuals to predation	• Removing individuals from the construction right-of-way and relocating them to appropriate habitat.
Great Basin Spadefoot	BLM Sensitive		Direct Impacts: Displacement, injury, or death of individuals; Temporary loss of shelter	If avoidance of the Great Basin spadefoot would not be possible, impacts would be minimized by: • Clearing of the right-of-way by biologists prior to construction to remove all individuals; and • Installing exclusion fencing to a depth of 6 inches in occupied habitat.
			Indirect Impact: Increasing the susceptibility of individuals to predation	• Removing individuals from the construction right-of-way and relocating them to appropriate habitat.
Wyoming Toad	Threatened	Wetlands and riparian areas in the Laramie Basin; Only known locations are Hutton NWR and Mortenson NWR	Direct Impacts: Displacement, injury, or death of individuals; Temporary loss of shelter	If avoidance of the Wyoming toad would not be possible, impacts would be minimized by: • Clearing of the right-of-way by biologists prior to construction to remove all Wyoming toads; and • Installing exclusion fencing to a depth of 6 inches in occupied habitat.
			Indirect Impact: Increasing the susceptibility of individuals to predation	• Removing toads from the construction right-of-way and relocating them to appropriate habitat.
Midget Faded Rattlesnake	BLM Sensitive	Found on ground and occasionally in shrubs and trees	Direct Impact: Direct mortality due to crushing by construction equipment; reduction of suitable habitat; and temporary disturbance	• If identified, biological monitors will clear the construction right-of-way of the midget faded rattlesnake prior to construction and install exclusion fencing to a depth of 6 inches into the ground to keep the rattlesnakes from entering the construction right-of-way during construction.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
			and displacement.	
			Indirect Impact: Temporary reduction of available habitat	• Restoring and revegetating the right-of-way will increase the amount of habitat.
BLM Sensitive Plants (Debris milkvetch, Nelson milkvetch, Narrow-stem gilia, Piceance bladderpod, Rollins cryptanth, Gibbens' penstemon, and Laramie false sagebrush)	BLM Sensitive	See table in text	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the plants would not be possible, impacts would be minimized by: • Coordinating with the BLM to determine if additional mitigation measures or other appropriate actions would be required to reduce potential impacts to the population; and • Monitoring topsoil segregation for ditchline and spoil storage areas containing sensitive plants to ensure adequate topsoil is segregated and replacing the topsoil to ensure the seed bank is returned to the affected area.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Ute Ladies'-tresses	Threatened	Wetlands and riparian areas throughout the project corridor	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Ute Ladies'-tresses would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
			Indirect Impact: Changes in water flow and soil characteristics	• Adhering to Entrega's Plan and Procedures.

Summary Table of Special Status Species and Associated Proposed Conservation Measures				
Species	**Status**	**Potential Location**	**Potential Impacts**	**Conservation Measures**
Colorado Butterfly Plant	Threatened	Wetlands and riparian areas in southeastern Wyoming and northeastern Colorado	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Colorado butterfly plant would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
			Indirect Impact: Changes in water flow and soil characteristics	• Adhering to Entrega's Plan and Procedures.
Dudley Bluffs Bladderpod	Threatened	Dudley Bluffs region of northern Colorado	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Dudley Bluffs bladderpod would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Dudley Bluffs Twinpod	Threatened	Dudley Bluffs region of northern Colorado	Direct Impacts: Injury, destruction, or seed displacement	Plants identified along the edge of the right-of-way would be fenced and avoided. If avoidance of the Dudley Bluffs twinpod would not be possible, Entrega will notify the FWS.
			Indirect Impact: Invasion of habitat by weedy plant species	• Implementing Entrega's *Weed Management Plan.*
Bluehead Sucker, Flannelmouth Sucker, and Mountain Sucker	BLM Sensitive	Various – see text	Direct Impacts: Potential displacement of individuals due to temporary increased sedimentation and turbidity	• Adhering to Entrega's Plan and Procedures; • Implementing an *Spill Prevention, Containment, and Countermeasure Plan* (SPCC Plan);

ENTREGA
GAS PIPELINE INC.

Entrega Gas Pipeline
BLM Sensitive Species Survey Plan

Prepared for:

Natural Resource Group, Inc.
1000 IDS Center
80 South Eighth Street
Minneapolis, MN 55402

and

Entrega Gas Pipeline Inc.
950 17th Street
Suite 2600
Denver, CO 80202

Prepared by:

Clayton Derby, Elizabeth Lack, and Kurt Flaig
Western EcoSystems Technology, Inc.
2003 Central Ave.
Cheyenne, WY 82001

July, 2004

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1.0 INTRODUCTION

Entrega Gas Pipeline Inc. (Entrega) is proposing to construct an approximately 327-mile pipeline from the Meeker Hub southwest of Meeker, Colorado to an existing natural gas distribution hub (Cheyenne Hub) near Rockport, Colorado (see attached map). The project, referred to as the Entrega Gas Pipeline, generally follows an existing pipeline corridor. The project crosses lands managed by the Bureau of Land Management (BLM) in both Colorado and Wyoming. In Colorado, the project crosses lands managed by two field offices, the White River Field Office and the Little Snake Field Office. In Wyoming, the project crosses lands managed by the Rawlins Field Office. Natural Resource Group, Inc. (NRG) has been contracted to prepare environmental review documents for the project. NRG has contacted each BLM Field Office to introduce the project, to request sensitive species lists, and to discuss issues or concerns the BLM may have with the project.

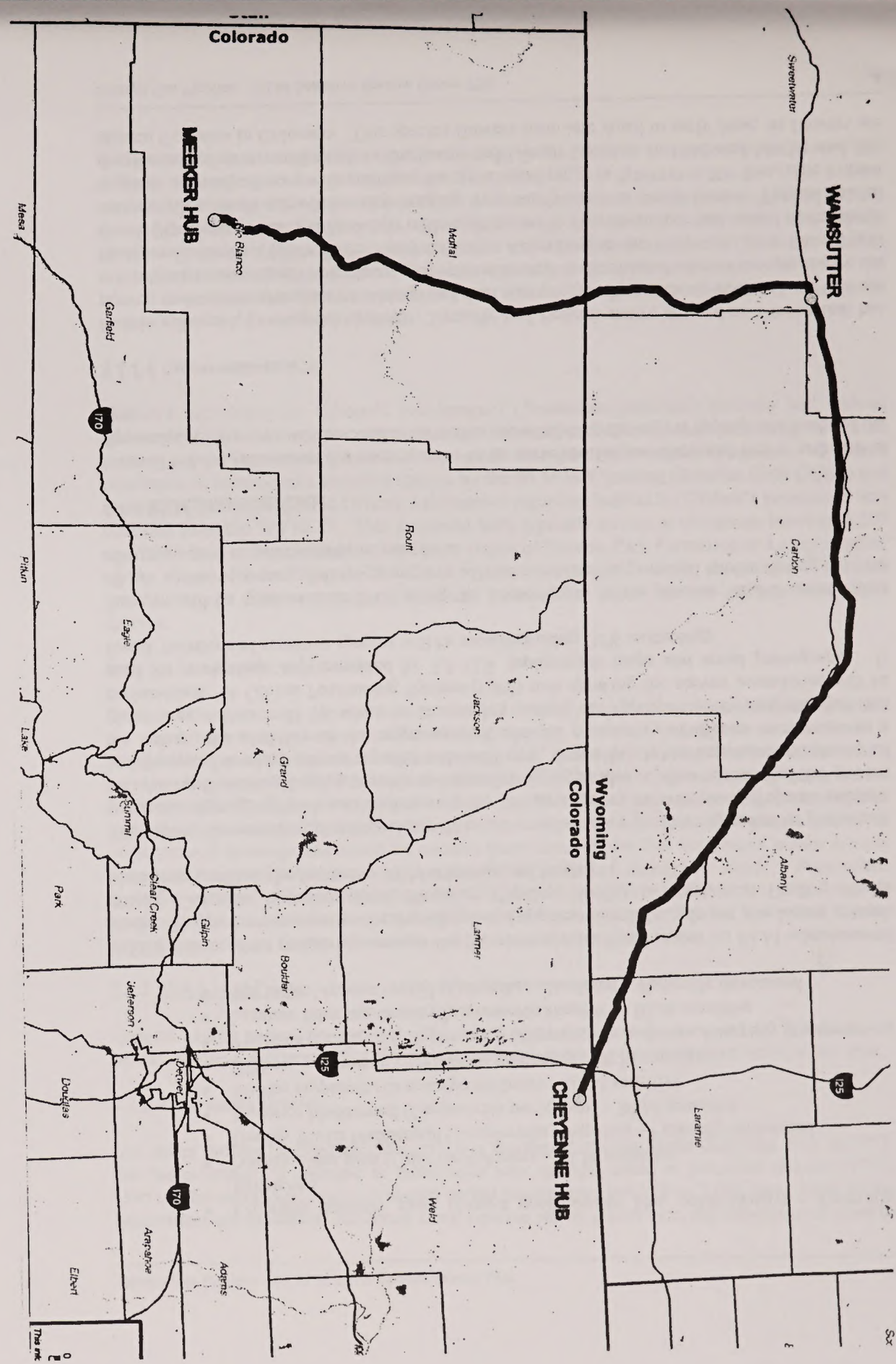
Under the direction of NRG, Western EcoSystems Technology, Inc. (WEST) has prepared the following survey plan outlining the methods proposed to identify BLM sensitive species along the pipeline corridor. Overall, the plan incorporates standard BLM or U.S. Fish and Wildlife (FWS) survey guidelines where possible or standard survey methodologies where agency guidelines do not exist. Upon approval of this survey plan by NRG and the BLM, WEST will conduct the surveys beginning in spring 2004.

2.0 BLM SENSITIVE SPECIES LIST AND SCREENING

BLM web pages were reviewed to identify all BLM sensitive species listed for each Field Office crossed by the pipeline in Colorado and Wyoming (White River, Little Snake, and Rawlins). This list was narrowed through discussions with biologists at each BLM Field Office providing NRG a list of sensitive plant and animal species that could potentially occur in the vicinity of the pipeline. Each species identified by the White River, Little Snake, and Rawlins Field Office biologists was reviewed to determine if specific habitat requirements are met along the pipeline corridor and if site-specific surveys are needed (Appendix A and Appendix B).

2.1 BLM Plants

For plants, the screening process consisted of gathering available information about each species with an emphasis on the habitats in which they occur, elevational ranges, and known occurrences. Information was obtained from literature (*e.g.*, the Wyoming and Colorado Rare Plant Field Guides), database searches (the Wyoming Natural Diversity Database and the Colorado Natural Heritage Program), and contact with resource specialists. For those sensitive plant species that occur in habitats found along the pipeline route and in the elevational range in which the pipeline occurs, surveys are proposed. Habitats present along the pipeline route were identified based on a review of existing data, including: maps; aerial photographs; information available from Federal and state agencies, natural resource databases, other sources as applicable; discussions with resource agencies; and field reconnaissance. Appendix A summarizes the screening process and provides the reason why a plant is or is not included in the field survey. Survey methods are described in Section 3.0. The Little Snake Field Office has indicated that none of the plants on their sensitive species list would occur in the pipeline



corridor, so these species have been eliminated from the need for specific surveys (H. Seim, Rangeland Specialist, BLM Little Snake Field Office, pers. comm.).

2.2 BLM Animals

A similar screening process was used for animal species as was used for plant species. Available information was gathered for each species with an emphasis on habitat requirements. Information was obtained from literature (*e.g.*, field guides), database searches (the Wyoming Natural Diversity Database and the Colorado Natural Heritage Program), and contact with resource specialists. For those animal species that occur in habitats found along the pipeline route, either incidental observations will be recorded or specific surveys are proposed. Appendix B summarizes the screening process and provides the reason why an animal is or is not included as part of a specific survey. Survey methods are described in Section 3.0.

3.0 SURVEY METHODS

The following sections describe specific survey methods that will be used to identify BLM sensitive species occurring along the pipeline route. Surveys for BLM sensitive species will be conducted on BLM lands only. For BLM sensitive species not specifically discussed below, incidental observations and use information will be recorded during other survey efforts. These species are identified in Appendix A and B.

The following sections also describe specific survey methods that will be used to identify species listed as threatened, endangered, or candidate under the Endangered Species Act (ESA). For species protected under the ESA, all appropriate habitats will be surveyed regardless of land ownership (assuming access can be obtained). Surveys will be conducted by WEST personnel, who are well-qualified and experienced at conducting botanical and wildlife surveys. Concurrence with survey methods for species listed under the ESA is being sought from the U.S. Fish and Wildlife Service (FWS).

Per direction from NRG, the survey corridor will be 250 feet wide (50 feet to the west/north of the proposed centerline and 200 feet to the east/south of the proposed centerline when following an existing pipeline or 125 feet either side of the centerline through greenfield areas), unless otherwise stated below for certain species or species groups. The survey area will also include extra workspaces and access roads. During the surveys, WEST will follow standard field procedures including completion of survey forms and field notes, marking up aerial photographs or other field maps (*e.g.*, U.S. Geological Survey topographical map), and taking photographs as applicable.

3.1 Plant Surveys

Based on the screening process described above, a total of 11 BLM sensitive and ESA listed plant species could occur in the pipeline corridor and therefore require surveys to determine their presence or absence in the corridor. These species include:

- Debris milkvetch (*Astragalus detritalis*) – BLM sensitive
- Nelson milkvetch (*Astragalus nelsonianus*) – BLM sensitive

- Colorado butterfly plant (*Gaura neomexicana* spp. *coloradensis*) – Federally threatened
- Narrow-stem gilia (*Gilia stenothysra*) – BLM sensitive
- Dudley Bluffs bladderpod (*Lesquerella congesta*) – Federally threatened
- Piceance bladderpod (*Lesquerella parviflora*) – BLM sensitive
- Rollins cryptanth (*Oreocarya rollinsii*) – BLM sensitive
- Gibbens penstemon (*Penstemon gibbensii*) – BLM sensitive
- Piceance (Dudley Bluffs) twinpod (*Physaria obcordata*) – Federally threatened
- Laramie false sagebrush (*Spaeromeria simplex*) – BLM sensitive
- Ute ladies'-tresses orchid (*Spiranthes diluvialis*) – Federally threatened

WEST will conduct pedestrian surveys for the plant species listed above on BLM-administered lands. The pedestrian surveys for the ESA listed species, which include the Ute ladies'-tresses orchid, Colorado butterfly plant, Piceance (Dudley Bluffs) twinpod, and Dudley Bluffs bladderpod, will not be limited to BLM-administered lands.

The survey for sensitive plant species will be accomplished by performing meander pedestrian transects, zigzagging back and forth across the 250-foot survey corridor in appropriate habitats and during flowering/fruiting periods as identified in Appendix A. The intensity of the pattern and the speed at which the surveyor(s) walk will vary, depending on the structural complexity of the habitat, the visibility of the target species, and the probability of species occurrence in a given area. Care will be taken to thoroughly search all appropriate features and habitats encountered. A Global Positioning System (GPS) unit showing the survey boundaries will be used for navigation, supplemented by 7.5 U.S. topographic maps and aerial photographs. If found, locations of sensitive species will be recorded using GPS technology.

Surveys will be conducted in 2004 along the entire length of the pipeline, and if construction allows and as necessary, follow-up surveys will be conducted in potential habitat during the year of construction to gather multiple-year data.

3.1.1 BLM Sensitive Plants

General habitat parameters for each species to be surveyed for are discussed below and also in Appendix A. Surveys will be conducted within these habitats during the appropriate times of the year.

3.1.1.1 Debris milkvetch

Debris milkvetch (*Astragalus detrialis*) formally had Federal status, defined as a taxon that has proven to be more abundant or widespread than was previously believed, and/or those that are not subject to any identifiable threat. Debris milkvetch is considered a sensitive species by the BLM in Colorado (White River Field Office). According to the *Colorado Rare Plant Field Guide* (Spackman *et al.* 1997), debris milkvetch occurs in pinyon-juniper and mixed desert shrub communities. Soils are often rocky ranging from sandy clays to sandy loams. Typical habitat includes alluvial terraces with cobbles. Its elevational range is 5,400 to 7,200 feet. The known distribution of debris milkvetch is Duchesne and Uintah Counties in Utah and Moffat and Rio Blanco Counties in Colorado. This species flowers from late April to early June; its flowers are

vivid purple-pink in color. It fruits from late May through June and the pods are laterally compressed, linear-oblong, slightly incurved, sparsely strigose, erect and sessile.

3.1.1.2 Nelson milkvetch

Nelson's milkvetch (*Astragalus nelsonianus*) is considered a sensitive species by the BLM in Colorado (Little Snake Field Office) and Wyoming (Rawlins Field Office). Information regarding habitat for Nelson's milkvetch was obtained from the WYNDD. This perennial herb typically occurs on alkaline, often seleniferous, clay flats, shale bluffs and gullies, pebbly slopes and volcanic cinders. Known occurrences of this species have been reported primarily from sparsely vegetated sagebrush and cushion plant communities at elevations ranging from 5,200 to 7,600 feet (WYNDD). There are 28 recent known occurrences and 4 historical records for the species, a number of the known occurrences are located west of Wamsutter in the Great Basin. The distribution of Nelson's milkvetch is regionally endemic, limited to southwest and central Wyoming, northwest Colorado, and northeast Utah.

3.1.1.3 Narrow-stem gilia

Narrow-stem gilia (*Gilia stenothyrsa*) is considered a sensitive species by the BLM in Colorado (White River Field Office). According to the *Colorado Rare Plant Field Guide* (Spackman *et al.* 1997), narrow-stem gilia occurs in silty to gravelly loam soils derived from the Green River or Uinta formations in grassland, sagebrush, mountain-mahogany, or pinyon-juniper communities. Its elevational range is 5,000 to 6,000 feet. The known distribution of narrow-stem gilia is Utah and Colorado. This species flowers from late May through June. It is the only *Gilia* with cream-colored flowers. Its fruiting period is late June to early July. It is a biennial to perennial herb with deeply dissected leaves and stems and calices that are densely covered with small glandular hairs.

3.1.1.4 Piceance bladderpod

Piceance bladderpod (*Lesquerella parviflora*) formally had Federal status, defined as a taxon that has proven to be more abundant or widespread than was previously believed, and/or those that are not subject to any identifiable threat. Piceance bladderpod is considered a sensitive species by the BLM in Colorado (White River Field Office). According to the *Colorado Rare Plant Field Guide* (Spackman *et al.* 1997), Piceance bladderpod occurs in shale outcrops of the Green River Formation, on ledges and slopes of canyons in open areas. Its elevational range is 6,200 to 8,600 feet. This species is endemic to Colorado. Its known distribution is the Piceance Basin in Garfield, Mesa, and Rio Blanco counties. Piceance bladderpod flowers in June to early July. Its fruiting period is July and the fruits are recurved, two-seeded siliques on pedicels. The plant is covered in silvery, star-shaped hairs. The basal leaves are generally dentate or somewhat angular.

3.1.1.5 Rollins cryptanth

Rollins cryptanth (*Oreocarya rollinsii*) formally had Federal status, defined as a taxon for which current information indicates that proposing to list as threatened or endangered is possible, but appropriate or substantial biological information is not on file to support an immediate ruling.

Rollins cryptanth is considered a sensitive species by the BLM in Colorado (White River Field Office). According to the *Colorado Rare Plant Field Guide* (Spackman *et al.* 1997), Rollins cryptanth occurs in white shale slopes of the Green River Formation, in pinyon-juniper or cold desert shrubland communities. Its elevational range is 5,300 to 5,800 feet. Its known distribution includes Wyoming, Utah, and Moffat and Rio Blanco counties in Colorado. Rollins cryptanth flowers in May and June. The plant is usually single-stemmed, between 10 and 35 cm tall. Flowers occur in dense racemes and are white. The plant is a biennial or short-lived perennial and is densely bristly hispid.

3.1.1.6 Gibbens penstemon

Gibben's penstemon (or Gibben's beardtongue) (*Penstemon gibbensii*) formally had Federal status, defined as a taxa for which current information indicates that proposing to list as endangered or threatened is possible, but more biological information is needed. Gibben's penstemon is considered a sensitive species by the BLM in Wyoming (Rawlins Field Office) and Colorado (White River Field Office). Information regarding habitat for Gibben's penstemon was obtained from the WYNDD. This perennial herb typically occurs at elevations between 6,200 and 7,700 feet, on barren shale or sandstone slopes of Browns Park Formation or Laney member of the Green River shale (WYNDD). Populations generally occur in sparsely vegetated grasslands with *Elymus spicatus, Oryzopsis hymenoides, Stipa comata*, and scattered shrub species.

3.1.1.7 Laramie false sagebrush

Laramie false sagebrush (*Sphaeromeria simplex*) formally had Federal Status, defined as a taxa for which current information indicates that proposing to list as endangered or threatened is possible, but more biological information is needed. Laramie false sagebrush is considered a sensitive species by the BLM in Wyoming (Rawlins Field Office). Information regarding habitat for Laramie false sagebrush was obtained from the WYNDD. This mat-forming, perennial herb typically occurs on gentle slopes or rims of dry, rocky limestone-sandstone "pebble plains" in wind scoured openings dominated by cushion plant communities that are located within densely vegetated juniper, limber pine, big sagebrush, or mountain mahogany stands. Populations typically occur at elevations ranging from 7,200 to 8,760 feet. This species is endemic to southeast Wyoming, in the western foothills of the Laramie Range, Shirley Basin, and Shirley Mountains (Albany, Carbon, Converse, and Natrona counties) (WYNDD).

3.1.2 ESA Listed Plants

General habitat parameters for each ESA listed plant species to be surveyed for are discussed below. Surveys will be conducted within these habitats during the appropriate times of the year.

3.1.2.1 Ute ladies'-tresses

Ute ladies'-tresses (*Spiranthes diluvialis*) is a threatened species, listed under the ESA in 1992. Ute ladies'-tresses is endemic to moist soils near springs, lakes, or perennial streams (FWS, 1995). The elevational range of known orchid occurrences is 4,200 to 7,000 feet. Most of the occurrences are in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to

wet meadows in the floodplains of perennial streams, but some locations are near freshwater lakes or springs. The orchid appears to require moisture in the rooting zone, typically provided by a high groundwater table, through the growing season and into late summer or early autumn. The orchid is well adapted to disturbances caused by stream movement through floodplains over time, and is tolerant of other disturbances, such as grazing, that may mimic natural disturbances in their effects on riparian habitat. Suitable potential habitat is typically found along streams that experience heavy spring runoff of sufficient magnitude to create movement and reshaping of the stream channel. Plants usually occur as small scattered groups and occupy relatively small areas within the riparian system. It is not known how, under what conditions, and in what time frame the orchid is dispersed and new viable colonies become established. The orchid is generally intolerant of deep shade and strongly alkaline or clay soils, and cannot compete with aggressive rhizomatous species or exotic species.

Surveys are required when Ute ladies'-tresses orchid is currently documented as occurring within a watershed or is documented as having occurred within the watershed within the past 50 years (Category 1). Surveys are recommended if Ute ladies'-tresses orchid may have occurred within the watershed or in nearby similar watersheds but historical records are incomplete and the orchid is not now known to occur (Category 2). Surveys are encouraged in watersheds within the known distribution of the orchid and if the character of the watershed is such that it is possible that the orchid could be discovered (Category 3). The survey guidelines list Category 1 through 3 survey areas for both Colorado and Wyoming based on USGS Hydrologic Maps (FWS 1995).

3.1.2.2 Colorado butterfly plant

Colorado butterfly plant (*Gaura neomexicana* spp. *coloradensis*) is a threatened species, listed under the ESA in 2000. Typical Colorado butterfly plant habitat is described as follows based on information provided in the 2000 Federal Register listing the species as threatened (Federal Register Vol. 65, No. 202, October 18, 2000). Colorado butterfly plant occurs on subirrigated, alluvial (stream deposited) soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000 to 6,400 feet. Colonies are often found in low depressions or along bends in wide, active, meandering stream channels a short distance upslope of the actual channel. The plant requires early- to mid- succession riparain (river bank) habitat. Colorado butterfly plant habitat is usually intermediate in moisture between wet, streamside communities dominated by sedges, rushes, and cattails and dry, upland shortgrass prairie. Typical habitat is open, without dense or overgrown vegetation. Coyote willow (*Salix exigua*) and Canada thistle (*Cirsium arvense*) may become dominant in habitats that are not periodically flooded or otherwise disturbed. The plant occurs on soils derived from conglomerates, sandstones, and tuffaceous mudstones and siltstones of the Tertiary White River, Arikaree, and Oglalla Formations. These soils are common in eastern Colorado and Wyoming. The FWS has not developed specific guidelines for Colorado butterfly plant surveys (M. Carter, FWS, pers. comm.).

3.1.2.3 Piceance (Dudley Bluffs) twinpod and Dudley Bluffs bladderpod

Piceance twinpod (*Physaria obcordata*) (also known as Dudley Bluffs twinpod) and Dudley Bluffs bladderpod (*Lesquerella congesta*) are both threatened species, listed under the ESA in 1990. Typical habitat for both species is described as follows based on information provided in

the 1990 Federal Register listing the species as threatened (Federal Register Vol. 55, No. 25, February 6, 2000). These two species grow on barren white outcrops exposed along drainages through erosion from downcutting of streams in the Piceance Basin. Each species, however, has a slightly different microenvironment. The twinpod grows on steep slideslopes and the bladderpod grows above it on level surfaces at the points of ridges or where narrow outcrops of level white shale are exposed. Elevational ranges for these species are 5,960 to 7,440 feet for the twinpod and 6,140 to 6,640 feet for the bladderpod. The surrounding hills and mesas support pinyon-juniper woodlands. The FWS has not prepared guidelines for surveys for this species.

3.1 Animal Surveys

Species-specific surveys will be conducted for the following:

- Bald eagle and other raptors (*Various sp.*) – Various designations
- White-tailed prairie dog (*Cynomys leucurus*) – BLM sensitive
- Black-tailed prairie dog (*Cynomys ludovicianus*) – Federal candidate species
- Black-footed ferret (*Mustella nigripes*) – Federally endangered and BLM sensitive
- Preble's meadow jumping mouse (*Zapus hudsonius preblei*) – Federally threatened
- Wyoming toad (*Bufo baxteri*) – Federally endangered
- Mountain plover (*Charadrius montanus*) – BLM sensitive
- Greater sage grouse (*Centrocercus urophasianus*) – BLM sensitive

Survey methods for these species are described within each section below.

As described in Appendix B, incidental observations of all other BLM sensitive animal species will be recorded during the course of biological fieldwork for the project (*e.g.*, other animal surveys, plant surveys, wetland and other waters of the U.S. delineations). All WEST biologists working on the project will be made aware of BLM sensitive animal species, will be familiar with species identification, and will record any incidental observations during other fieldwork.

3.2.1 BLM Sensitive Species

3.2.1.1 Bald Eagles and Other Raptors

The bald eagle is currently listed as a threatened species under the ESA; other raptors are protected under the Migratory Bird Treaty Act and are considered by the FWS to be sensitive to human disturbance during the nesting period. Many raptors are identified as BLM sensitive species. In addition to the bald eagle, the following raptor species have been identified by the BLM as potentially occurring within the proposed project area: the golden eagle, northern goshawk, northern harrier, ferruginous hawk, red-tailed hawk, Swainson's hawk, peregrine falcon, prairie falcon, and burrowing owl. Surveys for active raptor nests within one mile of the edge of the proposed construction right-of-way will be conducted; winter roost surveys for bald eagles may also be conducted. In addition to documenting raptor nests for the species identified by the BLM biologists, Entrega will record and report any other raptor nest sites observed during surveys (Table 1).

Raptor Nests

The following method incorporates guidance from the "Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances" (FWS, 2002) and past professional raptor nest survey experience in the region.

Surveys for nesting raptors, including bald eagles, will be conducted within the 250-foot survey corridor as well as all areas within one mile of the outside edge of the construction right-of-way. A helicopter will be used to search for raptor nests in all suitable nesting habitats within the survey area, excluding dense coniferous forest. Suitable habitats include trees, tall shrubs, rocks, cliffs, etc. Surveys will be conducted between April 15 and May 15, 2004 in order to identify occupied nest structures prior to leaf out and fledging. Information for the 2004 nest survey effort will be used primarily by project engineers for planning and design. Surveys will be conducted again during the spring prior to construction.

If a nest structure is observed, the helicopter will be moved to a position where nest status can be determined. The coordinates, condition, and species of each nest will be recorded using a GPS unit. To minimize disturbance to nesting raptors, the helicopter will maintain the maximum distance from the nest at which the species can be determined. These distances vary depending upon nest location and wind conditions. Survey methods are designed to detect active nests of open country raptors, including bald eagle, golden eagle, red-tailed hawk, ferruginous hawk, Swainson's hawk, prairie falcon, great-horned owl, and goshawk in aspen forest. In the event the nesting bird becomes distressed due to the proximity of the helicopter, the survey will be halted and the survey crew will revisit the site by ground to collect additional data, if necessary.

In areas of mature pinyon-juniper habitat, ground surveys will be conducted for all *Accipiter spp.* 300 feet from the edge of the right-of-way when the pipeline follows an existing pipeline corridor. Where the pipeline does not follow an existing corridor (greenfield areas) surveys will be conducted up to 2000 feet from the edge of the right-of-way for the portion of pinyon-juniper habitat being dislocated from the stand by the pipeline, and 300 feet from the edge of the right-of-way for the stand portion of the habitat. Surveys will be completed when the birds are either sitting on eggs or when chicks are present. Surveyors will observe for birds "sneaking" or "gliding" away from nests, birds following surveyors through the woods, debris piles of old nest material under nest trees, and adults defending territories.

Burrowing owls and northern harriers will not be detected by the above-described aerial survey method; however, they could occur in or near the project corridor. Burrowing owls could potentially be found prairie dog towns and northern harriers in areas of taller, dense vegetation (*e.g.*, wetland areas, draws). During prairie dog mapping activities, black-footed ferret surveys, mountain plover surveys, wetland/waterbody surveys, and other survey efforts, all burrowing owl and northern harrier sightings will be mapped and recorded. Additionally, during construction, an Environmental Inspector and/or biologist familiar with raptor identification will be on location with the construction crews and will map and record any burrowing owls detected.

Winter Roosts

Because many communal bald eagle winter roosts have been previously identified in the western U.S., existing data from the FWS, state wildlife agencies, and natural heritage databases will be used to identify winter roost sites within one mile of the project corridor. If field surveys are required for bald eagle winter roosts, a ground-based survey is proposed. Surveys would be conducted during the winter months from January 1 to February 15. Areas containing suitable habitat, such as mature cottonwood riparian areas or mature coniferous forest, would be identified through review of maps, aerial photographs, previous survey efforts, and discussions with local resource agencies. Those areas containing potential winter roost sites would be searched during the early morning and late evening hours to observe eagles flying to and from roost sites. Flying eagles observed during surveys would be followed and roost sites identified. Surveys would be conducted using field glasses and spotting scopes. Care would be taken to identify roost sites from safe distances in order to avoid disturbing roosting eagles.

Table 1. Raptors and Nesting Habitat Potentially Occurring in the Project Area

Species	Nesting Habitat
American kestrel (*Falco sparverius*)	Open habitats; will nest mostly in cavities on cliffs, snags, or existing nest structures built by other raptors.
Prairie falcon (*Falco mexicanus*)	Open habitats; mostly nests in cliffs or rock outcrops, but will occasionally use existing nest structures on cliffs or in trees.
Peregrine falcon (*Falco peregrinus*)	Grassland, mountain meadows, marshes and riparian habitat; cliff nesting species, typically in woodland habitats
Merlin (*Falco columbarius*)	Open pine forest and open habitats; will nest in trees and old raptor or magpie nests.
Bald eagle (*Haliaeetus leucocephalus*)	Mature cottonwood riparian and coniferous forests near relatively large bodies of water, such as rivers and lakes that support fish populations.
Golden eagle (*Aquila chrysaetos*)	May nest in open forest, cliffs, or other open habitats. Will place nest structures on cliffs or in trees.
Red-tailed hawk (*Buteo jamaicensis*)	Open forest or open habitats. Will place nest structures on trees, cliffs, or rock outcrops.
Ferruginous hawk (*Buteo regalis*)	Open habitats; will place nest structures on trees, cliffs, rock outcrops, or on the ground.
Northern harrier (*Circus cyaneus*)	Open habitats; generally places nest structures on the ground or in shrubs.
Swainson's hawk (*Buteo swainsoni*)	Open habitats; generally places nest structures in trees or shrubs.
Cooper's hawk (*Accipiter cooperii*)	Forested areas or riparian areas; places nest structures in trees.
Northern goshawk (*Accipiter gentilis*)	Mature coniferous or aspen forests; places nest structures in trees.
Sharp-shinned hawk (*Accipiter striatus*)	Forested areas or riparian areas; places nest structures in trees.
Flammulated owl (*Otus flammeolus*)	Forested areas; generally nests in tree cavities.
Great-horned owl (*Bubo virginianus*)	Will nest in most habitats; places nest structures in trees, cavities in snags, cliffs, or rock outcrops.
Northern saw-whet owl (*Aegolius funereus*)	Forested areas or riparian habitats; generally nests in tree cavities.
Short-eared owl (*Asio flammeus*)	Open habitats. Places nest structures on the ground or in shrubs.
Burrowing owl (*Athene cunicularia*)	Open areas, generally limited to prairie dog towns. Places nests within prairie dog or other burrows.
Eastern screech owl (*Otus asio*)	Cottonwood riparian areas; places nest structures in tree cavities.
Long-eared owl (*Asio otus*)	Open habitats; places nest structures in trees or shrubs.

3.2.1.2 Prairie dogs

The black-tailed prairie dog (*Cynomys ludovicianus*) is a candidate species for Federal listing as threatened or endangered and the white-tailed prairie dog (*Cynomys leucurus*) is a BLM-listed sensitive species. Both of these species are also of concern to the FWS because prairie dog colonies can support black-footed ferrets (see Black-Footed Ferret section). In Colorado, the FWS and the BLM have indicated to NRG that on-the-ground prairie dog town surveys will not be required for the project (Bob Leachman, FWS, and Mike Albec, BLM, pers. comm. with J. Thommes, NRG). For the Colorado portion of the project, existing Geographic Information System (GIS) coverage of prairie dog towns will be used to identify prairie dog towns within the project corridor. Prairie dog towns identified in the GIS coverage will be included in the prairie dog survey report.

In Wyoming, the BLM has GIS coverage of prairie dog towns for the Continental Divide area that will be used to identify prairie dog towns within the project corridor. Similar to Colorado, prairie dog towns identified in the GIS coverage will be included in the prairie dog survey report. For other portions of the project corridor (outside the Continental Divide area), prairie dog towns will be mapped if intersected by the 250-foot-wide corridor (corridor area described above).

The proposed pipeline corridor will be flown at approximately 250 to 500 feet above ground level (AGL) using a fixed-wing aircraft and surveyed for prairie dog towns. Once a town is spotted, the approximate boundary of the town will be flown and recorded with a GPS unit, if possible. A ground survey will follow the aerial survey to more accurately map the borders of the prairie dog towns. Prairie dog towns located within the 250-foot-wide corridor will be mapped. Where black-footed ferret surveys may be needed (e.g., areas not block cleared, see Black-Footed Ferret in section 3.2.2 below), prairie dog towns intercepted by the 250-foot-wide corridor will be mapped in their entirety as practical, provided access permission can be obtained.

The burrow density of prairie dog towns will be determined from aerial photography, which is available for the entire project corridor. Burrow density is needed in order to assess the potential for black-footed ferret habitat. If burrow density cannot be determined from aerial photography, an on-the-ground transect method will be used.

3.2.1.3 Mountain plover

The mountain plover (*Charadrius montanus*) is designated as a BLM sensitive species. The mountain plover was also previously proposed for listing as a threatened species by the FWS. In September 2003, the FWS determined that the population did not warrant listing; however, this species is still of concern to the FWS. The mountain plover occurs within relatively flat short-grass prairie or low shrub habitats containing relatively large amounts of bare ground. Vegetation is generally 6 inches in height or lower. Mountain plovers are often associated with prairie dog towns, and may also occur within cultivated areas. Mountain plover habitat is often heavily grazed.

Surveys for mountain plover will follow a two-pronged approach. First, potential habitat in the project area will be mapped in 2004. This mapping effort will be completed during prairie dog town mapping, black-footed ferret surveys, wetland/waterbody surveys, and other survey efforts along the project corridor as well as species-specific mapping where other efforts are not of sufficient coverage to ensure all potential mountain plover habitat is mapped. Resource agency input and literature review will also be used to identify potential habitat. Second, areas mapped as potential habitat in 2004 will be surveyed for presences/absences prior to construction.

The following survey plan is based on survey guidelines developed by the FWS for large scale/long term, linear projects (FWS 2002) and will be implemented during the year of construction. If construction occurs between April 10 and July 10, surveys for mountain plovers will be conducted in the potential habitat identified in 2004. Mountain plover habitat will be surveyed three times during the survey window, with each survey separated by at least 14 days, if possible. Project initiation should occur as near to completion of the survey as possible. Surveys will be conducted within 0.25-mile of the pipeline. Surveys will be conducted by driving visually overlapping transects and scanning the survey area from vehicles or 4-wheelers. Surveys will be conducted from sunrise to 10:00 a.m. and 5:30 p.m. to sunset. Surveys will not be conducted during inclement weather (*i.e.*, steady precipitation, excessive winds). During the nesting period, all mountain plovers detected will be observed to determine if a nest is present. Active nest locations will be recorded on aerial photographs and with GPS equipment.

3.2.1.4 Greater sage grouse

The greater sage grouse (*Centrocercus urophasianus*) is designated as a sensitive species by the BLM. The greater sage grouse is dependent on sagebrush habitats year-round. Known leks within or near the pipeline corridor (based on information provided by state and federal agencies) will be mapped. During the spring of 2004, one aerial survey will be conducted in potential sage grouse lek habitat to verify occupancy at historic leks and identify new leks. The 2004 lek survey will serve to provide preliminary information to project engineers on the location of sage grouse leks for project planning. A full survey will be conducted during the year of construction, which will include the recommended three surveys (at least one survey every 7 to 10 days over a three to four week period).

Sage grouse lek surveys will be conducted between April 1 and May 15 throughout suitable habitat along the pipeline corridor (*i.e.*, in large sagebrush areas west of the Albany/Carbon county line). Surveys will be conducted by air using either a helicopter or fixed-wing airplane. Suspected breeding habitat will be flown with line transects spaced so that complete visual coverage is obtained, about one km (0.6 mile) apart. Transects will cover an approximate four-mile corridor (two miles on either side of the edge of the pipeline right-of-way). Transects will be flown at about 300 to 450 feet AGL. Surveys will be conducted from ½ hour before to one hour after sunrise. A minimum of two observers will conduct the surveys (in addition to the pilot). Surveys will be conducted on calm, clear mornings with winds less than 15 mph and no more than scattered cloud cover. High winds affect strutting behavior and cloud cover reduces observability. Special attention will be paid to old lakebeds, stock-watering areas, and other relatively open sites surrounded by sagebrush.

For all leks identified, the location (*i.e.*, point) will be mapped and recorded using a GPS. For leks within 0.25-mile of the right-of-way, a 0.25 mile buffer around a central point within the lek will be applied, mapped, and recorded. Additionally, for those leks located within two miles of the project area, a ground survey will be conducted to identify nesting habitat.

3.2.2 ESA Listed Animals

3.2.2.1 Black-footed ferret

The black-footed ferret (*Mustela nigripes*), listed as an endangered species under the ESA, relies almost exclusively on prairie dog towns for food and shelter. The prairie dog towns in Colorado have been "block-cleared" and surveys for black-footed ferrets are no longer required in these areas. The "block clearance" indicates the negligible likelihood of a wild population of ferrets in the area; it does not mean the area is free of all value to black-footed ferrets. In Wyoming, black-tailed prairie dog towns have also been "block-cleared", but not all white-tailed prairie dog towns have been cleared (per February 2, 2004 letter report from Brian T. Kelly, FWS to J. Thommes, NRG). Ferret surveys will be conducted in white-tailed prairie dog towns not block-cleared using guidelines established by the FWS for determining presence/absence of black-footed ferrets (FWS 1989).

Per the 1989 FWS Guideline, black-footed ferret surveys will be conducted in prairie dog towns that occur entirely within the 250-foot-wide survey corridor and larger towns intersected by the corridor where physical disturbance to the town cannot be avoided, except for those prairie dog towns that have been block-cleared, as described above. In addition, the white-tailed prairie dog towns must meet the following requirements to be included in a black-footed ferret survey:

1) White-tailed prairie dog towns or complexes greater than 200 acres in size. A complex is defined as at least two prairie dog towns within 4.34 miles (7 km) of each other.
2) All affected prairie dog towns must have a minimum burrow density of 20 burrows/hectare or 8 burrows/acre. Prairie dog holes do not need to be active to be counted in the density calculations.

If prairie dog towns are encountered that do not meet the one or both of the above two requirements (*i.e.*, small or low burrow density), the FWS will be contacted for guidance before it is determined that surveys will not be conducted.

Two methods may be used to survey for black-footed ferrets: a) Nocturnal Spotlight Surveys, or b) Diurnal Snow Tracking Surveys.

Nocturnal Spotlight Surveys

Nocturnal surveys are conducted between July 1 and October 31 and are the preferred method of survey by the BLM. Two observers continually spotlight the prairie dog town for three consecutive nights. At least one of the observers in each crew will be trained and certified by the FWS in ferret survey techniques. Surveys will begin at dusk and end at dawn. Starting points for surveys will be changed each night. Surveys will be conducted from vehicles where possible. Where terrain does not permit access from vehicle (truck or 4-wheeler), surveys will be

conducted on foot. All surveys will be conducted with hand held spotlights with at least 200,000-candle power. If a black-footed ferret is observed the location will be recorded, a detailed account written, and the FWS will be contacted immediately.

Diurnal Snow Tracking Surveys

Diurnal surveys are conducted from December 1 to March 31 and shall be used as a back-up method of survey in the event the nocturnal spotlight survey method is not feasible. Diurnal surveys consist of walking or slowly driving visually overlapping transects and searching for signs of black-footed ferret occupancy, such as ferret scat, prairie dog skulls, ferret tracks, and ferret diggings. At least three searches will be conducted at each town. Searches will be conducted when fresh snow has been present for at least 24 hours. Searches will be spaced at greater than 10-day intervals. If ferret sign is observed, photographs, drawings, measurements and GPS coordinates will be recorded for each observation and reported immediately to the FWS. At least one of the observers in each crew will be trained and certified by the FWS in ferret survey techniques.

3.2.2.2 Preble's meadow jumping mouse

The Preble's meadow jumping mouse (*Zapus hudsonius preblei*), listed as a threatened species under the ESA, occurs within well-developed riparian areas along the Front Range in Colorado and Wyoming, generally below 7,600 feet. The FWS has developed survey guidelines for determining the presence or absence of the Preble's meadow jumping mouse within an area (FWS 1999). The FWS recommends surveys for Preble's in suitable habitat in the following areas:

- In Colorado: Boulder, Douglas, El Paso, Adams, Arapahoe, Denver, Elbert, Larimer, Morgan, Weld, and Jefferson Counties, from 7,600 feet elevation on the western boundary to a north/south line drawn though Ft. Morgan on the eastern boundary.

- In Wyoming: the North Platte River, South Platte River, and Lodgepole Creek 100-year floodplains and tributaries (and their associated wet meadow complexes) east of the Laramie Mountains and south of the North Platte River (northwest to approximately Douglas) in Albany, Converse, Goshen, Laramie, and Platte Counties.

Well-developed riparian areas are characterized by relatively lush and rank riparian vegetation with a well-developed shrub layer, such as willow. Preble's meadow jumping mouse may also occur within native hayfields. Standing or flowing water is usually present in occupied sites.

Areas containing suitable habitat for Preble's meadow jumping mouse that cannot be avoided by construction will be surveyed using standard live trapping techniques. Parallel trap lines will be placed approximately 15 feet apart along both sides of the affected waterway. Transect lines will generally follow the meander of the waterbody. Traps will be non-folding aluminum and steel traps (3 inches by 3.5 inches by 9 inches). Each trap will be baited with rolled oats, along with a small ball of polyester quilt batting. Each site will be trapped for a total of 400 to 1,000 trap nights, depending on the availability of suitable habitat, consistent with FWS guidelines. Trapping will occur on at least three consecutive nights at each site from June 1 to August 30. If trapping occurs between September 1 to 15, surveys will be conducted for at least 6 consecutive nights at a minimum of 1,000 trap nights. No surveys will be conducted from September 15 to May 31.

Traps will be set within 3 hours of sunset and checked within 3 hours of sunrise. Care will be taken to place traps in shaded locations to avoid excessive thermal stress. If members of the *Zapus* genus are captured, one to two mice will be euthanized and delivered to the FWS office in Cheyenne for final identification of sub-species from each site.

3.2.2.3 Wyoming toad

The Wyoming toad (*Bufo baxteri*), listed as an endangered species under the ESA, historically occurred along seeps, drainages, lakes and rivers within the Laramie Basin in Albany County, Wyoming. The current known distribution is restricted to a few lakes in the Laramie Basin. Much of Albany County has been surveyed for the presence/absence of Wyoming toads (Young 1995).

The need for conducting surveys for Wyoming toads will be evaluated if the project corridor approaches within two miles of either the Mortenson Lake National Wildlife Refuge or the Hutton Lake National Wildlife Refuge. These areas are the two remaining locations known to contain, or have recently contained, Wyoming toads. The current proposed pipeline alignment does not occur within two miles of either refuge and therefore, no surveys are currently proposed for Wyoming toads. However if any realignments are necessary, the following survey method will be followed if the realignment occurs within two miles of either refuge.

Surveys for the Wyoming toad will be conducted within a 250-foot-wide survey corridor (survey corridor described above) in suitable habitat. The proposed method for surveys was derived from personal communications with Michelle VanFleet, FWS Wyoming Toad Recovery Coordinator, and the protocol used by Young (1995).

A variety of methods may be used to determine if Wyoming toads are present including flushing surveys and taped breeding call surveys. Surveys will be conducted during May and June. Surveys will be conducted only during relatively warm weather (60° to 70° F), little to no wind (0 to 15 mph), and no snow cover. At least three surveys will be conducted, spaced at a minimum of three-day intervals. All survey crews will be accompanied by at least one qualified observer with experience identifying Wyoming toads.

Diurnal flushing surveys will be the primary technique used to determine Wyoming toad presence or absence. Two to five people will walk the perimeter of lakes and streams attempting to flush Wyoming toads from vegetative cover. Each species of amphibian flushed will be identified and recorded.

Appendix A. Plant species screening table.

Common Name	Scientific Name	BLM District	Habitat	Elevation	Flowering/ Fruiting Period	Include in Survey?	Reason
Debris milkvetch	*Astragalus detritalis*	Little Snake, CO White River, CO	Pinion-juniper (PJ) and mixed desert shrub (alluvial terraces w/ cobbles)	5,400-7,200 feet	Late April-early June/late May-June	No (LS) Yes (WR)	BLM (LS) direction: no habitat for species within LS District; potential suitable habitat present within project area on WR District
Nelson milkvetch	*Astragalus nelsonianus*	Little Snake, CO Rawlins, WY	Gullies and flats on seleniferous soils in sparsely vegetated sagebrush	6,000-7,000 feet	Flowers late May-August (fruit often persistent over winter)	No in CO Yes in WY	BLM (LS) direction: no habitat for species within LS District; suitable habitat present and known occurrences documented (WYNDD) within project area townships in Rawlins District
Park rockcress	*Boechera fernaldiana* var. *fernaldiana*	White River, CO	PJ and mixed desert shrub (limestone and sandstone outcrops, usually on Weber sandstone)	5,800-6,000 feet	April/May-early July	No	Known range of occurrences is Uintah County, Utah and extreme western Colorado (outside the project area).
Ephedra buckwheat	*Eriogonum ephredoides*	White River, CO	Open PJ, shadscale, and mixed desert shrub on Green River Formation shales	5,000-8,500 feet	Flowers May	No	Species found on Raven Ridge, west of Rangely, approximately 30 miles west of project area.
Colorado butterfly plant	*Gaura neomexicana* spp. *coloradensis*	Not limited to a BLM district	Sub-irrigated alluvial soils of drainage bottoms surrounded by mixed grass prairie	5,800-6,200 feet	June-September/ July-October	Yes	Suitable habitat for this species present within the project area
Utah gentian	*Gentianella tortuosa*	White River, CO	Barren shale knolls and slopes (Green River Formation)	8,500-10,800 feet	July-August/August September	No	Species occurs at higher elevations than those found in the project area.
Narrow-stem gilia	*Gilia stenothysra*	White River, CO	PJ, grassland, sagebrush, mountain mahogany on silty to gravelly loam soils (Green River and Uintah Formations)	5,000-6,000 feet	Late May-June/late June-early July	Yes	Suitable habitat for this species present within the project area

4.0 LITERATURE USED FOR SURVEY AND SPECIES INFORMATION

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Appendix A. Plant species screening table.

Common Name	Scientific Name	BLM District	Habitat	Elevation	Flowering/ Fruiting Period	Include in Survey?	Reason
Dudley Bluffs bladderpod	*Lesquerella congesta*	Not limited to a BLM district	Barren white outcrops exposed along drainages	6,140-6,640 feet	April-May/late May-Junc	Yes	Suitable habitat for this species present within the project area
Piceance bladderpod	*Lesquerella parviflora*	White River, CO	Shale outcrops on ledges and slopes of canyons	6,200-8,600 feet	June-early July/ July	Yes	Suitable habitat for this species present within the project area
Narrowleaf evening primrose	*Oenothera acutissima*	Little Snake, CO White River, CO	Seasonally wet sandy, rocky, gravelly soils; along arroyos in sagebrush scrub and mix conifer	5,300-8,500 feet	Flowers late May-June	No	BLM (LS) direction: species not expected to occur within project area. Known range is limited to Daggett and Uintah counties, Utah and Moffat County, Colorado; no populations are known as far southeast as Piceance Basin.
Rollins cryptanth	*Oreocarya rollinsii*	White River, CO	PJ and cold desert shrub (white shale slopes of the Green River Formation)	5,300-5,800 feet	Flowers May-June	Yes	Suitable habitat for this species present within the project area
Gibbens penstemon	*Penstemon gibbensii*	Little Snake, CO Rawlins, WY	PJ, sagebrush, greasewood-saltbush (sparsely vegetated shale or sandy-clay slopes on Browns Park Formation)	5,500-7,700 feet	June-September	No in CO Yes in WY	BLM (LS) direction: species not expected to occur in LS District within project area; suitable habitat present and known occurrences documented (WYNDD) within project area townships in Rawlins District
Blowout penstemon	*Penstemon haydenii*	Not limited to a BLM district	Sparsely vegetated, early successional, shifting sand dunes and lee slopes of blowout depressions created by wind erosion	6,680-7,440 feet	Flowers mid June-early July	No	No suitable habitat within project area, species restricted to sand dunes
Piceance (Dudley Bluffs) twinpod	*Physaria obcordata*	Not limited to a BLM district	Barren white outcrops exposed along drainages	6,140-6,640 feet	May-June/June-August	Yes	Suitable habitat for this species present within the project area

Appendix A. Plant species screening table.

Common Name	Scientific Name	BLM District	Habitat	Elevation	Flowering/ Fruiting Period	Include in Survey?	Reason
Laramie false sagebrush	*Sphaeromeria symplex*	Rawlins, WY	Cushion plant communities on rocky limestone ridges	7,500-8,600 feet	May-August	Yes	Suitable habitat for this species present within the project area
Ute ladies'-tresses	*Spiranthes diluvialis*	Not limited to a BLM district	Sub-irrigated alluvial soils along streams, floodplains, wet meadows	4,500-6,800 feet	Flowers July-September	Yes	Suitable habitat for this species present within the project area

Appendix B. Animal species screening table.

Common Name	Scientific Name	BLM District	Habitat	Survey? (Yes/No)	How Addressed?
Mammals					
Townsend's big-eared bat	*Corynorhinus townsendii*	White River, CO Rawlins, WY	PJ, desert shrub, and dry coniferous forest throughout Wyoming; day roosts and hibernates in caves and abandoned mines, forages over water	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Fringed myotis	*Myotis thysanodes*	White River, CO Rawlins, WY	Grassland, desert and woodland throughout the western states, near readily available drinking water; roost in caves, mines, buildings and sometimes bridges and rock crevices	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Yuma myotis	*Myotis yumanensis*	White River, CO	Dry basins of the Green, Bighorn, and Wind rivers; roost in caves, mines, buildings and bridges; open water for foraging	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Black-footed ferret	*Mustela nigripes*	Not limited to a BLM district	Prairie dog colonies	Yes	Species specific surveys, see Section 3
Black-tailed prairie dog	*Cynomys ludovicianus*	Not limited to a BLM district	Open grassland and sagebrush landscapes in parts of Colorado, Wyoming, , New Mexico, Texas, Nebraska and Montana	Yes	Species specific surveys, see Section 3
White-tailed prairie dog	*Cynomys leucurus*	Rawlins, WY	Open grassland and sagebrush landscapes in parts of Colorado, Wyoming, Utah and Montana	Yes	Species specific surveys, see Section 3

Appendix B. Animal species screening table.

Common Name	Scientific Name	BLM District	Habitat	Survey? (Yes/No)	How Addressed?
Swift fox	*Vulpes velox*	Rawlins, WY	Open and flat prairies and arid plains with flat to rolling terrain and sparse vegetation; southeastern and southcentral Wyoming and eastern Colorado	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Not limited to a BLM district	Plains and foothill riparian areas with high vegetation cover	Yes	Species specific surveys, see Section 3
Big game species		NA	Primarily winter range	No	Existing range information used
Birds					
Bald eagle	*Haliaeetus leucocephalus*	Not limited to a BLM district	Primarily at major stream/river crossings, but potentially in any larger trees along the corridor	Yes	Species specific surveys, see Section 3
Golden eagle	*Aquila chrysaetos*	Little Snake, CO	Open forest, cliffs, or other open habitats	Yes	Species specific surveys, see Section 3
Northern goshawk	*Accipiter gentilis*	Little Snake, CO White River, CO Rawlins, WY	Occurs in variety of habitats but prefers dense conifer or aspen near water for breeding, also range into low woodlands, riparian forest and sagebrush communites	Yes	Species specific surveys, see Section 3
Ferruginous hawk	*Buteo regalis*	Little Snake, CO White River, CO Rawlins, WY	Grassland, sagebrush and mountain meadows, especially where ground squirrels are present; nest in small conifers, cliff ledges and rock outcrops	Yes	Species specific surveys, see Section 3

Appendix B. Animal species screening table.

Common Name	Scientific Name	BLM District	Habitat	Survey? (Yes/No)	How Addressed?
Peregrine falcon	*Falco peregrinus*	Rawlins, WY	Grassland, mountain meadows, marshes and riparian habitat; cliff nesting species, typically in woodland habitats	Yes	Species specific surveys, see Section 3
Swainson's hawk	*Buteo swainsoni*	Little Snake, CO	Open habitats	Yes	Species specific surveys, see Section 3
Burrowing owl	*Athene cunicularia*	Rawlins, WY	Plains and basins, particularly in prairie dog towns where they nest in abandoned burrows	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Greater sage grouse	*Centrocercus urophasianus*	White River, CO Little Snake, CO Rawlins, WY	Occurs in sagebrush habitat; sagebrush provides primary food source and nesting cover	Yes	Species specific surveys, see Section 3
Mountain plover	*Charadrius montanus*	White River, CO Little Snake, CO Rawlins, WY	Short grass prairie or short sagebrush plains, typically found in areas historically or currently used by prairie dogs, bison, and pronghorn	Yes	Species specific surveys, see Section 3
Yellow-billed cuckoo	*Coccyzus americanus*	Not limited to a BLM district	Large tracts of cottonwood/willow habitats with dense sub-canopies at Yampa River.	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Fish					
Razorback sucker	*Xyrauchen texanus*	Not limited to a BLM district	Rivers within the Colorado River basin	No	Use of existing information.
Colorado pikeminnow	*Ptychocheilus lucius*	Not limited to a BLM district	Rivers within the Colorado River basin	No	Use of existing information.
Bonytail	*Gila elegans*	Not limited to a BLM district	Rivers within the Colorado River basin	No	Use of existing information.

Appendix B. Animal species screening table.

Common Name	Scientific Name	BLM District	Habitat	Survey? (Yes/No)	How Addressed?
Humpback chub	*Gila cypha*	Not limited to a BLM district	Rivers within the Colorado River basin	No	Use of existing information.
Bluehead sucker	*Catostomus discobolus*	White River, CO Rawlins, WY	Occurs in the Colorado, Green, Little Snake, Snake, and Bear River basins	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Flannelmouth sucker	*Catostomus latipinnis*	Little Snake, CO White River, CO Rawlins, WY	Native to the Colorado River drainage basin, occurs in the Little Snake and Green River drainages in Wyoming	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Mountain sucker	*Catostomus platyrynchus*	Little Snake, CO White River, CO	In Wyoming, common in all drainages west of the Continental Divide, and in the northern and northeastern counties' drainages east of the divide; extremely rare, or probably extirpated from the North Platte River drainage	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Reptiles					
Midget faded rattlesnake	*Crotalus viridis concolor*	White River, CO Little Snake, CO	Typically occurs in sagebrush communities in northwestern Colorado and southwestern Wyoming	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information
Amphibians					
Wyoming toad	*Bufo baxteri*	NA	Wetlands in Laramie Basin	Yes	Species specific surveys, see Section 3
Northern leopard frog	*Rana pipiens*	White River, CO Rawlins, WY	Occurs near permanent water sources on the plains, foothills, and montane zones;	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information

Appendix B. Animal species screening table.

Common Name	Scientific Name	BLM District	Habitat	Survey? (Yes/No)	How Addressed?
Great Basin spadefoot	*Spea intermontana*	White River, CO Little Snake, CO Rawlins, WY	Typically occurs in lower elevation sagebrush communities in the Wyoming basin and the Green River Valley	No	Under BLM direction, recorded incidentally during other survey efforts; use of existing information

Appendix P
Special Status Species Identified for the Entrega Pipeline Project

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
MAMMALS						
Townsend's big-eared bat	*Plecotus townsendii*	BLM-WY; BLM-CO	This species inhabits dry coniferous forests, juniper woodlands, deciduous forests, basins, desert shrublands, and grasslands. Roost sites typically include caves and abandoned mines, but rock outcrops and buildings also will be used.	Low. This species could occur within suitable habitats in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Fringed myotis	*Myotis thysanodes*	BLM-WY; BLM-CO	This species primarily inhabits coniferous forests, woodland-chaparral, and basin-prairie shrublands, but have been documented in spruce-fir habitats. Roost sites include caves, abandoned mines, rock crevices, and buildings.	Low. This species could occur within suitable habitats along the western portion of the project route in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Yuma myotis	*Myotis yumanensis*	BLM-CO	This species inhabits Basin-prairie shrublands, riparian shrub, grassland, barren areas, cliffs, and rock outcrops. Roosts primarily in human-built structures (building and bridges), and occasionally in mines and caves.	Low. This species could occur within suitable habitats in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
Swift fox	*Vulpes velox*	BLM-WY	This species is found in short-, mid-, and mixed-grass prairies with gently rolling hills. Den sites are typically located on flat areas or along slopes or ridges that provide a good view. Young are born in late March, April, or early May.	Low. This species could occur within suitable habitats in Wyoming and in eastern Colorado.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Black-footed ferret	*Mustela nigripes*	FE; CO-E; WY-S	Suitable habitat consists of black-tailed prairie dog colonies or complexes (80 acres or greater) or White-tailed prairie dog colonies or complexes (200 acres or greater). Most litters are born in May and emerge from their nursery dens in July.	Low. No black-footed ferret observations or sign were identified during the 2004 field surveys.	No. Potentially suitable habitat for this species could occur within 11 prairie dog colonies or complexes of suitable size and density between MPs 87.0 and 147.0.	FWS 1989.
White-tailed prairie dog	*Cynomys leucurus*	BLM-WY BLM-CO[3]	This species occupies basin-prairie and mountain-foothill shrublands, sagebrush-grasslands, barren and overgrazed areas, and agricultural areas.	High. A total of 43 active white-tailed prairie dog colonies were identified along the project ROW. In addition, 42 white-tailed prairie dog colonies were identified along proposed access roads.	No. Larger prairie dog colonies have been located in the project vicinity between MPs 86.0 and 152.0. Smaller prairie dog colonies have been located between MPs -0.5 and 86.0 and between MPs 152.0 and 300.0.	WGFD 2004; Fitzgerald et al. 1994.
Black-tailed prairie dog	*Cynomys ludovicianus*	FC	This species Inhabits short-grass or mixed grasslands that contain suitable upland soil types	High. One active black-tailed prairie dog colony was identified along the	No.	WGFD 2004; Fitzgerald et al. 1994.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			for constructing burrow systems.	project ROW.		
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT; CO-T	This subspecies occurs in habitats consisting of well-developed plains riparian vegetation with dense herbaceous vegetation that include of a variety of grasses, forbs, and thick shrubs in close proximity to water. Suitable habitat can occur along stream channels, vegetated irrigation canals, ditches, and riparian and wetland areas.	Moderate. This subspecies could occur within suitable habitats along the eastern portion of the project route in Wyoming and Colorado.	No. Potentially suitable habitat for this subspecies was identified at 8 areas along the project ROW between MPs 289.7 and 320.3. Habitat also was located along two Class A access roads for the project.	FWS 2004.
BIRDS						
Northern goshawk	*Accipiter gentilis*	BLM-WY; BLM-CO	This species occupies mature, closed-canopied coniferous and aspen forests habitats. This species nests open older-aged class coniferous forests and aspen stands.	None.	Yes. No suitable breeding or foraging habitat would occur along the project route.	Kingery 1998; WGFD 1996, 2004.
Golden eagle	*Aquila chrysaetos*	BLM-WY; BLM-CO	This species occurs in a variety of habitats including grassland, pinyon-juniper woodland, coniferous and deciduous forests, shrubland, and rock outcrop. Nest sites are usually on located on cliffs and occasionally in large trees in open habitats.	High. This species could occur within suitable habitats along the project route.	No. A total of 21 nests have been identified within 1 mile of the project ROW.	Kingery 1998; WGFD 2004.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
Ferruginous hawk	*Buteo regalis*	BLM-WY; BLM-CO	This species occurs in open semi-arid habitats including basin-prairie shrubland, mountain-foothills, badlands, and grassland. Nest sites include trees, ledges, and rock outcrops in sagebrush valleys and rolling grassland habitat.	High. This species could occur within suitable habitats along the project route.	No. A total of 25 nests have been identified within 1 mile of the project ROW.	Kingery 1998; WGFD 1996, 2004.
Swainson's hawk	*Buteo swainsoni*	BLM-CO	This species typically occurs in arid and semi-arid grassland habitats and in agricultural areas with scattered trees and shrubs. Nest sites typically occur in isolated trees, but will sometimes nest on cliffs or rock outcrops.	Moderate. This species could occur within suitable habitats along the project route.	No. One nest site has been documented within 1 mile of the project ROW.	Kingery 1998; WGFD 2004.
Bald eagle	*Haliaeetus leucocephalus*	FT[2]; CO-T; WY-S	This species typically occurs near large bodies of water that support suitable roosting and foraging habitat. Nests are commonly built in mature cottonwoods or conifers along lakes or other large bodies of water.	High. This species could occur within suitable habitats along the project route.	No. Two nest sites and winter roost areas have been identified in the vicinity of the project ROW. Winter withdrawals from the Platte River Drainage also could potentially affect suitable riverine habitat for this species downstream from proposed	Kingery 1998; WGFD 1996, 2004.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
					hydrostatic testing activities in Carbon County, Wyoming.	
American peregrine falcon	*Falco peregrinus*	BLM-WY	This species typically breeds in foothills and mountainous areas. Nest sites are often located on ledges of high, steep-walled cliffs. Preferred foraging habitat includes marshes, lakes, rivers, and wet meadows.	Low. No falcon nest sites have been identified as occurring within the vicinity of the project route.	No.	Kingery 1998; WGFD 2004.
Greater sage-grouse	*Centrocercus urophasianus*	BLM-WY; BLM-CO[4]	The sage grouse is a sagebrush obligate species. Lek sites are generally located in open areas such as broad ridges, grassy areas, and disturbed sites, adjacent to suitable nesting habitat. Nesting occurs within sagebrush stands with adequate height and canopy cover, and food source.	High. This species could occur within suitable habitats along the project route. Occurrence by this species has been documented within the project vicinity in Wyoming and in western Colorado. A total of 35 historic lek sites have been identified as occurring within 2 miles of the project ROW.	No. Potentially suitable breeding habitat for this species could occur between MPs 40.0 and 237.0. In addition, a total of 7 active lek sites have been documented within 2 miles of the project ROW during the 2004 surveys. Sage grouse were observed at five different locations along the project ROW during the 2004 surveys.	Connelly et al. 2004; Kingery 1998; WGFD 2004; 70 FR 2244.
Whooping crane	*Grus americana*	FE; CO-E	During migration, this species feeds and roosts in a variety of habitats including croplands,	None. Occurrence by this species along the project route would be	No. This species is not expected within the project vicinity. However, water	BCD 2002; USGS [no date].

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			large and small freshwater marshes, the margins of lakes and reservoirs, and submerged sandbars in rivers.	limited to accidentals from the Aransas-Wood Buffalo population. The Grays Lake population is thought to be extinct.	withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing locations in Carbon County, Wyoming.	
Piping plover	*Charadrius melodus circumcinctus*	FT; CO-T	Breeding habitat for this species consists of open sand, gravel, or cobble beaches located on broad sandy beaches along rivers, lakes, and reservoirs.	None. This species is considered as an accidental in Wyoming. This species has been observed in Laramie County, Wyoming. No breeding records have recorded in the project vicinity in Colorado.	No. This species is not expected within the project vicinity. However, water withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing locations in Carbon County, Wyoming.	66 FR 36037; Kingery 1998; WGFD 2004; WYNND 2003.
Mountain plover	*Charadrius montanus*	BLM-WY; BLM-CO	This species inhabits flat, short-grass prairie in areas often grazed by livestock and in areas occupied by prairie dog colonies.	High. This species could occur within suitable habitats along the project route. Occurrence by this species has been documented within the project	No. Potentially suitable habitat for this species occurs at disjunct locations between MPs 44.0 and 327.0. This species also was observed	Kingery 1998; WGFD 1996, 2004.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
				vicinity in Wyoming and in eastern Colorado.	during the 2004 field surveys between MPs 113.3 and 124.2 and between MPs 264.9 and 325.0.	
Eskimo curlew	*Numenius borealis*	FE	This species is a rare spring migrant that feeds and rests in burned-over prairies, agricultural areas, and marshes.	None. This species would not occur along the project route.	No. This species is not expected within the project vicinity. However, water withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing locations in Carbon County, Wyoming.	USGS [no date].
Interior least tern	*Sterna antillarum athalassos*	FE; CO-E	This subspecies breeds along prairie rivers, lakes, and reservoirs. Nests sites occur in open, sandy areas, gravelly patches, and on alkali flats.	None. This species has been observed in Laramie County, Wyoming. No breeding records have recorded in the project vicinity in Colorado.	No. This species is not expected within the project vicinity. However, water withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing	Kingery 1998; WGFD 2004.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
					locations in Carbon County, Wyoming.	
Yellow-billed cuckoo	*Coccyzus americanus*	FC; BLM-WY; BLM-CO; WY-S	This species inhabits lowland deciduous woodlands, willow and alder thickets, mature cottonwood-riparian woodlands, deserted farmlands, and orchards. Breeding typically occurs in riparian woodlands.	Low. The dense riparian habitat necessary to support yellow-billed cuckoos is not present in the project area.	Yes.	Kingery 1998; WGFD 1996, 2004; WYNND 2003.
Western burrowing owl	*Athene cunicularia hypugea*	BLM-WY; CO-T	This species nest in non-riparian habitats including abandoned burrows of prairie dogs, ground squirrels, foxes, and badgers in grassland, open shrubland, and woodland communities.	High. This subspecies could nest within potentially suitable habitat along the project route.	No. Burrowing owls were observed at six different locations along the project ROW during the 2004 field surveys.	Kingery 1998; WGFD 2004; WYNND 2003.
Loggerhead shrike	*Lanius ludovicianus*	BLM-WY	This species typically inhabits open riparian areas, agricultural areas, grasslands, and shrublands (especially semidesert shrublands). Nest sites usually occur in isolated trees or large shrubs.	Moderate. This species could nest within suitable habitat along the project route.	No. This species was identified at six locations along the project ROW between MPs 81.0 and 172.0.	Kingery 1998; WGFD 2004.
AMPHIBIANS						
Great Basin spadefoot toad	*Spea intermontana*	BLM-WY; BLM-CO	This species inhabits pinon-juniper woodlands, sagebrush, and semi-desert shrubland. This species uses both permanent and temporary	Low. This species could occur within suitable habitats along the project route. This species has been observed	No.	Baxter and Stone 1980; Hammerson 1999; WGFD 2004; WYNND 2003.

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			water sources for breeding. Breeding occurs in May through July.	western Colorado and in Sweetwater County, Wyoming.		
Western boreal toad	*Bufo boreas boreas*	FC; CO-E; BLM-WY; WY-S	This species typically occupies damp conditions in the vicinity of marshes, wet meadows, streams, beaver ponds, kettle ponds, and lakes. Breeds in still to slow moving waters. Breeding occurs in May through August depending on elevation.	Low. This species could occur within counties crossed by the project; however, suitable habitat (based on known occurrence records) is likely not crossed.	Yes.	Baxter and Stone 1980; Hammerson 1999; WGFD 2004; WYNND 2003.
Wyoming toad	*Bufo baxteri*	FE; WY-S	This species inhabits floodplains, ponds, and small seepage lakes in shortgrass communities of the Laramie Basin. Requires some deep soft soil for burrowing. Breeding occurs in May through August.	Low. The proposed route does not cross suitable habitat for this species, based on presently known geographic range and occurrence records.	No.	Baxter and Stone 1980; WGFD 2004; WYNND 2003.
Northern leopard frog	*Rana pipiens*	BLM-WY; BLM-CO	This species inhabits marshes, ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. Breeding occurs in March through mid-September.	High. This species has been identified within suitable habitat along the project route.	No. This species was identified at multiple locations between MPs -0.5 and 14.0 during the 2004 field surveys.	Baxter and Stone 1980; WGFD 2004; WYNND 2003.
REPTILES						
Midget faded rattlesnake	*Crotalus viridis concolor*	BLM-CO	This species inhabits rock outcrops in the sagebrush communities.	Low. This species could occur within suitable habitats along the project	No.	Baxter and Stone 1980; WGFD 2004; WYNND 2003.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
				route in Sweetwater County, Wyoming.		
FISHES						
Bonytail	*Gilia elegans*	FE	This rare species occur in larger river channels of Green, Colorado, Yampa, and Gilia Rivers in Colorado River drainage. This species primarily occupies pools and eddies rather than areas with swift current. Spawning typically occurs in June and July when water temperatures are approximately 64°F.	None. No known populations occur in Colorado. The last occurrence by this species in Yampa River was recorded at the confluence of the Green River in 1979.	No. Although it is highly unlikely that this species would occur along the project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	Lee et al. 1980; USFWS 1990, 1993; Woodling 1985.
Bluehead sucker	*Catostomus discobolus*	BLM-WY; BLM-CO	This species is found in a variety of fluvial habitats, ranging from cold, clear trout streams to warm, turbid streams, with moderate-to-fast velocity. This species prefers areas with riffles over a rocky substrate. Spawning occurs in late spring or early summer at water temperatures of at least 61°F.	Low. This species is known to occur in riverine habitats on the western slope of Colorado including the Yampa and Little Snake Rivers and along the Little Snake River in Wyoming.	No.	Baxter and Simon 1970; Lee et al. 1980; Woodling 1985.
Colorado pikeminnow	*Ptychocheilus lucius*	FE; CO-T	This species occurs in big, deep-water riverine habitats at a variety of depths and velocities over silt, sand, gravel, and boulder substrates.	High. The project would intersect critical habitat for this species at the White River and Yampa River	No.	59 FR 13374; FWS 1993; Woodling 1985.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			Spawning occurs in run, eddy, and pool habitats in from June through August at water temperatures ranging from 71° to 77°F. Young fish primarily inhabit shallow, backwater areas over silt and sand bottoms.	crossings. Potential water depletions from the Colorado River Drainage also could impact suitable habitat.		
Flannelmouth sucker	*Catostomus latipinnis*	BLM-WY; BLM-CO	This species inhabits large streams and rivers in all habitat types including riffles, runs, pools, eddies, and backwaters. This species also enters mouths of small tributary streams. Spawning occurs in spring and early summer on riffles with coarse gravel bottoms at water temperatures near 55°F.	Low. This species could potentially occur at or near the crossing of the White River and Yampa River.	No.	FWS 1993; Woodling 1985.
Humpback chub	*Gilia cypha*	FE	This species occupies a variety of riverine habitats including in deep water pools riffles and eddies over silt, sand, boulder, and bedrock substrate. Spawning typically occur after the highest spring flows when water temperatures approach 68°F. Young fish utilize shallow areas in backwaters, eddies, and runs.	None. The closest known population occurs more than 40 miles west of the Yampa River crossing at the confluence of the Yampa and Green Rivers.	No. Although it is highly unlikely that this species would occur along the project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	Lee et al. 1980; FWS 1993; Woodling 1985.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
Roundtail chub	*Gila robusta*	BLM-CO; BLM-WY	This species inhabits pools, eddies, runs, and ruffles in moderate to large rivers. Spawns in spring and early summer.	Moderate. This species could potentially occur at the White and Yampa River crossings.	No.	Karp and Tyus 1990; Woodling 1985.
Mountain sucker	*Catostomus platyrhynchus*	BLM-CO	This species is found in smaller rivers and streams with gravel, sand, and mud substrates. It typically occupies undercut banks, eddies, small pools, and areas of moderate current. Spawning occurs in late spring and early summer.	Moderate. This species could potentially occur at river and stream crossing within the project area in western Colorado and in Sweetwater and Carbon in Wyoming.	No.	Baxter and Simon 1970; Lee et al. 1980; Woodling 1985.
Pallid sturgeon	*Scaphirhynchus albus*	FE	This species is almost entirely restricted to main river channels in areas of string current over a firm sand substrate. Spawns in June and July.	None. This species would not occur along the project route.	No. This species is not expected within the project vicinity. However, water withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing locations in Carbon County, Wyoming.	Lee et al. 1980.
Razorback sucker	*Xyrauchen texanus*	FE; CO-E	This species is found in backwaters, eddies, pools, and flat-water areas in the main	None. The closest known population occurs more than 40 miles west of the	No. Although it is highly unlikely that this species would occur along the	FWS 1993; Woodling 1985.

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			channel. Sand or silt substrates with low water velocity are preferred. Spawning occurs over mixed substrate in the spring with rising water levels and increasing temperatures ranging from 48° to 63°F. Young fish utilize quiet, shallow backwaters and river margins.	Yampa River crossing at the confluence of the Yampa and Green Rivers.	project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	
PLANTS						
Debris milkvetch	*Astragalus detritalis*	BLM-CO	This species is found on rocky or sandy soils on alluvial terraces with cobbles in pinyon-juniper and mixed desert shrub communities. Flowering period: Late April-early June. Elevation: 5,400-7,200 feet.	Moderate. This species could occur along the project route in Rio Blanco and Moffat Counties, Colorado.	No. This species could occur within potentially suitable habitat from MPs -0.5 to 35.4.	Spackman et al. 1997.
Nelson milkvetch	*Astragalus nelsonianus*	BLM-WY; BLM-CO	This species is found in gullies and flats on seleniferous soils in sparsely vegetated sagebrush. Flowering period: late May-August. Elevation: 6,000-7,000 feet.	Low. This species could occur along the project route in Sweetwater County, Colorado.	No. This species could occur within potentially suitable habitat from MPs -0.5 to 35.4 and from MPs 85.6 to 318.5.	Spackman et al. 1997.
Park rockcress	*Boechera fernaldiana*	BLM-CO	This species occurs on limestone and sandstone outcrops (usually Weber sandstone) in mixed desert shrub and pinyon-	None.	Yes. This species occurs outside of the project area in the extreme western portion of	Spackman et al. 1997.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			juniper communities, often in pine duff in shade.		Moffat County, Colorado.	
Ephedra buckwheat	*Eriogonum ephredoides*	BLM-CO	This species occurs on sparsely vegetated slopes on white shales of the Green River Formation and soils derived from them.	None.	Yes. This species occurs outside of the project area in the extreme western portion of Rio Blanco County, Colorado.	Spackman and Anderson 2002.
Colorado butterfly plant	*Gaura neomexicana ssp. coloradensis*	FT	Occurs in wet meadows and sub-irrigated soils on level or slightly sloping floodplains and drainage bottoms. Flowering period: June-September. Elevation: 5,800-6,200 feet.	Low. This species could occur within potentially suitable habitat along the project route in Laramie County, Wyoming, and in Weld County, Colorado.	No. Potentially suitable habitat for this species could occur between MPs 289.0 and 327.0.	Fertig 1994; Spackman et al. 1997.
Utah genetian	*Gentianella tortuosa*	BLM-CO	This species occurs on barren shale knolls and slopes of the Green River Formation. Flowering period: July-August. Elevation: 8,500-10,800 feet.	None.	Yes. This species does not occur within the elevational range of this species in Rio Blanco County, Colorado.	Spackman et al. 1997.
Narrow-stem gilia	*Gilia stenothyrsa*	BLM-CO	This species occurs in grassland, sagebrush, mountain-mahogany, or pinyon-juniper communities on silty to gravelly loam soils derived from the Green River and Uinta formations. Flowering	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. This species could occur within potentially suitable habitat from MPs -0.5 to 35.4.	Spackman et al. 1997.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			period: Late May-June. Elevation: 5,000-6,000 feet.			
Dudley Bluffs bladderpod	*Lesquerella congesta*	FT	This species inhabits barren white shale outcrops of the Green River and Uinta formations exposed along drainages through erosion from the downcutting of streams in the Piceance Basin. Flowering period: April-May. Elevation: 6,000-6,700 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. Potentially suitable habitat for this species could occur between MPs -0.5 and 15.1.	Spackman et al. 1997.
Piceance bladderpod	*Lesquerella parviflora*	BLM-CO	This species occupies shale outcrops of the Green River Formation, on ledges and slopes of canyons in open area. Flowering period: June-early July. Elevation: 6,200-8,600 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. This species could occur within potentially suitable habitat from MPs -0.5 to 35.4.	Spackman et al. 1997.
Narrow-leaf evening primrose	*Oenothera acutissima*	BLM-CO	This species is found in sandy, gravelly or rocky soils, in seasonally wet areas; in meadows, depressions, or along arroyos in habitats ranging from mixed conifer forest to sagebrush scrub.	None.	Yes. This species occurs outside of the project area in western Moffat County, Colorado.	Spackman et al. 1997.
Rollins cryptanth	*Oreocarya rollinsii*	BLM-CO	This species occurs on white shale slopes of the Green River Formation in pinyon-juniper or cold	None.	Yes. This species occurs outside of the project area in western Moffat	Spackman et al. 1997.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			desert shrubland communities.		County, Colorado.	
Gibben's beardtongue	*Penstemon gibbensii*	BLM-WY; BLM-CO	This species is found in sparsely vegetated shale or sandy-clay slopes of the Brown's Park Formation. Associated vegetation includes pinyon-juniper woodland, sagebrush, or salt desert shrub communities. Flowering period: June-September. Elevation: 5,500-7,700 feet.	Low. This species could occur within potentially suitable habitat along the project route in Sweetwater and Carbon Counties, Wyoming.	No. This species could occur within potentially suitable habitat from MPs 86.0 to 220.0. This species was identified in the project vicinity during the 2004 field surveys.	Fertig 1994; Spackman et al. 1997.
Blowout penstemon	*Penstemon haydenii*	FE	This species occurs on steep, northwest-facing slopes of active, blowout sand dunes with sparse vegetative cover. Flowering period: May-June. Elevation: 6,680-7,440 feet.	Low. Only one known population has been documented south of the Ferris Mountains in northwestern Carbon County.	No.	Fertig 2000.
Dudley Bluffs twinpod	*Physaria obcordata*	FE	This species is found on barren white outcrops and steep slopes exposed by creek downcutting. It is restricted to the Parachute Creek Member of the Green River Formation. Flowering period: May-June. Elevation: 5,900-7,500 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. Potentially suitable habitat for this species could occur between MPs -0.5 and 13.0. This species was identified in the project vicinity during the 2004 field surveys.	Spackman et al. 1997.
Western prairie-fringed orchid	*Platanthera praeclara*	FT	This orchid occurs most often in mesic to wet	None. This species would not occur	No. This species is not expected within	Bjugstad and Bjugstad 1989.

Appendix P (Continued)

Common Name	Scientific Name	Status[1]	Habitat Association	Potential for Occurrence Within the Project Area	Eliminated From Detailed Analysis	References
			unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.	along the project route.	the project vicinity. However, water withdrawals from the Platte River Drainage could potentially affect suitable riverine habitat for this species downstream from proposed hydrostatic testing locations in Carbon County, Wyoming.	
Laramie false sagebrush	*Sphaeromeria symplex*	BLM-WY	This species is found in cushion plant communities on rocky limestone ridges and gentle slopes. Flowering period: May-August. Elevation: 7,500-8,600 feet.	Low. This species could occur within potentially suitable habitat along the project route in eastern Wyoming.	No. This species could occur within potentially suitable habitat from MPs 85.6 to 318.5.	Fertig 1994.
Ute ladies'-tresses	*Spiranthes diluvialis*	FT	This species is found in sub-irrigated alluvial soils along streams, and in open meadows in flood plains. Flowering period: July-September. Elevation: 4,500-6,800 feet.	Low. This species could occur within potentially suitable habitat along the project route in eastern Wyoming and eastern Colorado.	No.	Fertig 1994; Spackman et al. 1997.

Appendix P (Continued)

[1]Status:
FE = Federally listed as endangered.
FT = Federally listed as threatened.
FC = Federal candidate.
CO-E = State-listed as endangered in Colorado.
CO-T = State-listed as threatened in Colorado.
WY-S = Wyoming sensitive.
BLM-WY = Wyoming BLM sensitive.
BLM-CO = Colorado BLM sensitive.
[2] Proposed to be de-listed.
[3] Petitioned to be federally listed as threatened and endangered.
[4] The FWS determined that listing this species as threatened or endangered is not warranted.

LIST OF PREPARERS AND REVIEWERS

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The EIS was prepared by ENSR, a third-party contractor, under the direction of the FERC Staff. Representatives from the BLM also contributed to and participated in the preparation of this document and the NEPA review process. The following presents the names of individuals who prepared and/or reviewed the EIS and their area or areas of responsibility.

Preparers/Reviewers for the FERC and BLM

Name	Education	Responsibility
FERC		
L. J. Sauter, Jr.	M.S., Engineering/Environmental Chemistry, 1979, University of Maryland, College Park B.S., Civil Engineering, 1974, University of Maryland, College Park	Environmental Project Manager; Project Description, Alternatives, Cumulative Impacts, Conclusions, others
David Swearingen	M.S., Marine Biology, 1996, University of North Carolina, Wilmington B.S., Zoology, 1992, Louisiana State University	Assistant Project Manager; Biology (Vegetation, Wildlife, Fisheries, T&E), others
Laurie Boros	B.A., Anthropology/Archaeology, 1980, Queens College, C.U.N.Y.	Cultural and Paleontologic Resources, others
Eric Tomasi	B.S. Aerospace Engineering, 1994, Boston University	Air Quality, Noise, Reliability and Safety
Joanne Wachholder	M.S., Crop and Soil Sciences/ Environmental Toxicology, 1997, Michigan State University B.S., Environmental Biology, 1994, University of Wisconsin, Stevens Point	Water Resources, Wetlands
Wallace D. Laffoon	B.S., Fisheries and Wildlife, 2000, Virginia Polytechnic Institute and State University	Soils, Socioeconomics, Land Use, Recreation, Visual Resources, others

Name	Responsibility
BLM	
Tom Hurshman	Project Manager, BLM WO
Janelle Wrigley	Realty Specialist, Rawlins Field Office
Heath Cline	Wildlife Biologist, Rawlins Field Office
Nina Trapp	Archaeologist, Rawlins Field Office
Dave Simons	Planning and Environmental Coordination, Rawlins Field Office
Bob Lange	Hydrology, Rawlins Field Office
Mark Newman	Geology, Paleontology, Rawlins Field Office
Susan Foley	Soils, Invasive Weeds, Rawlins Field Office
Krystal Clair	Recreation, Rawlins Field Office
Mike Jensen	Engineering and Transportation, Rawlins Field Office
Louise McMinn	Realty Specialist, Little Snake Field Office
Hal Keesling	Archaeologist, Little Snake Field Office
Rob Ernst	Paleontology, Geology, Little Snake Field Office
Ole Olsen	Soil, Water Quality, Air Quality, Little Snake Field Office

LIST OF PREPARERS AND REVIEWERS

Name	Responsibility
BLM (Continued)	
Rob Schmitzer	Transportation, Recreation, VRM, Little Snake Field Office
Tim Novotny	Wildlife, Little Snake Field Office
Hunter Seim	Range, Vegetation, Reclamation, Little Snake Field Office
Desa Ausmus	Invasive Weeds, Little Snake Field Office
Penny Brown	Realty Specialist, White River Field Office
Tamara Meagley	Natural Resource Specialist, T&E Plants Species, White River Field Office
Michael Selle	Archaeology and Paleontology, White River Field Office
Lisa Belmonte	Wildlife, T&E Animals, White River Field Office
Caroline Hollowed	Environmental Coordination, Hydrology, Soils, White River Field Office
Chris Ham	Recreation, Transportation, White River Field Office
Mark Hafkenshiel	Range, Vegetation, White River Field Office
Dan Haas	Archaeology, Colorado State Office
Harley Armstrong	Paleontology, Colorado State Office
Dale Hanson	Paleontology and Geology, Wyoming State Office

Preparers/Reviewers for ENSR and Subcontractors

Name	Education	Responsibility
ENSR Corporation		
Scott Ellis	B.A., Biology and English, 1971, Cornell University	Principal-in-Charge, Alternatives, Cumulative
Heidi Tillquist	M.S., Environmental Toxicology/ Fisheries Biology, 1992, Colorado State University B.S., Wildlife Biology, 1986, Colorado State University	Project Manager, Project Description, Public Safety, others
Todd White	MDP Masters in Community Planning, 1999, University of Cincinnati MEn Masters in Environmental Science, 1992, Miami University M.A., Anthropology, 1989, CU Boulder B.A., Geology, 1988, Miami University	GIS, Land Use
Scott Duncan	M.S., Biology, 1984, Northern Arizona University B.A., Biology, 1978, Colgate University	Project Coordinator, Quality Assurance, others
Jim Burrell	M.S., Civil Engineering, 1989, Colorado State University B.S., Forest Management, 1974, Colorado State University	Water Resources, Soils
Charles Johnson	M.S., Biology, 1997, University of Northern Colorado B.S., Wildlife Biology, 1988, Humboldt State	Wildlife, Fisheries, Threatened and Endangered Species
Chad Barnes	B.S., Biology , 1996, University of Arizona, Tuscon	Vegetation
Kim Munson	M.A., Anthropology, 1997, Colorado State University B.A., Anthropology, 1994, Colorado State University	Cultural Resources, Native American Concerns, Paleontology

Name	Education	Responsibility
ENSR Corporation (Continued)		
Joe Sanders	M.S., Public and Occupational Health, 1985, University of Alabama B.S., Physics, 1981, Auburn University	Noise
Vince Scheetz	M.S., Systems Management, 1970, University of Southern California B.S., Mathematics/Meteorology, 1964, Regis University, Denver	Air Quality, Climate
Doree Dufresne	B.S., Biology, 1990, Colorado State University	Database Coordination, Quantitative Analysis
Molly Giere	MBA Administration, University of Dayton B.S. Biology, The Ohio State University	Public Meetings, Databases
Allison Grow	B. S., Rangeland Ecosystem Science, 2004, Colorado State University B. S., Soil and Crop Science, 2004, Colorado State University	Noxious and Invasive Weeds
Sue Coughenour	Western Illinois University	Document Production Supervisor
Adele Gard	HS Diploma	Document Production
Others		
Ron Dutton – Sammons/Dutton, LLC	M.S., Economics, 1976, University of Wyoming B.S., Economics, 1974, University of Wyoming	Socioeconomics
Lee Meacham – Carbon County Commissioner		General review

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GLOSSARY

GLOSSARY

alluvial	material composed of riverbed or delta material.
ancillary facilities	facilities associated with the pipeline system, including compressor stations, valves, and metering stations.
aquifer	a layer of underground sand, gravel, or porous rock in which water collects; a source of groundwater.
cathodic protection	a method to reduce external corrosion by placing a small electrical charge on the steel pipe.
corrosion	an electrochemical process that occurs when steel is exposed to an electrolyte, such as soil or water. Corrosion can occur along the internal or external surfaces of the pipe. External corrosion is reduced by cathodic protection and pipeline coatings. Corrosion is monitored by internal inspection tools (internal and external corrosion) and corrosion coupons (internal corrosion).
depth of cover	in new construction areas, the burial depth typically would be 36 inches from the top of the pipe to the natural grade. No depth of cover is specified for existing pipe under OPS regulations.
easement	a legal instrument, usually negotiated with the landowner, that is used to convey a ROW to the pipeline company. The easement gives the pipeline company the right to operate and maintain its pipeline in the permanent ROW and, in return, compensates the landowner for the use of the land.
eminent domain	the right of the government to take private property for public use after providing just compensation by virtue of the sovereign power over all lands within its jurisdiction.
fugitive dust	a non-point source of air pollution, such as from unpaved roads, agricultural croplands, and construction sites.

High Consequence Areas (HCAs)	OPS-defined areas subject to the Integrity Management Rule. HCAs include high-density population areas, waters where commercial navigation occurs, and areas that are unusually sensitive to environmental damage.
horizontal directional drilling	technology used for vertical drilling has been modified for the horizontal installation of pipelines beneath major obstacles, such as rivers, railroads, and highways.
hydrostatic testing	pressure testing of a pipeline to test its structural integrity. Typically the line is tested to at least 125 percent of the MAOP and the pressure is held for 8 hours. Hydrostatic testing is a destructive test to evaluate the integrity of the pipe. A pipe that passes this test is considered safe to operate at pressures less than or equal to the MAOP.
Integrity Management Rule	as defined in 49 CFR 192, this OPS rule increases requirements for inspection, enhanced damage protection, improved emergency response, and other measures to prevent and mitigate pipeline leaks in HCAs.
internal inspection tool	a "smart pig"; tools that assess the pipeline's integrity. At this time, there are three primary types of internal inspection tools: caliper pigs, magnetic leak flux pigs, and ultrasonic pigs.
L_{dn}	Day-night (average sound) level.
liquefaction	The process by which water-saturated sediments lose strength and may fail during strong earthquake induced ground shaking. Liquefaction can result in the loss of ground bearing capacity or lateral spreading, both of which could potentially damage pipelines and ancillary facilities. Soil liquefaction hazards are associated with unconsolidated alluvial soils with a high water table.
Maximum Allowable Operating Pressure (MAOP)	a rating indicating the maximum pressure at which a pipeline or segment of a pipeline may be operated under the DOT regulations in normal conditions.

metering stations	devices that measure the amount of natural gas transported and delivered.
pig	a plug designed to be pushed along the inside of a pipeline. Pigs can be used to separate materials, clean, or inspect the pipeline's surface.
pig launcher/receiver	a short section of pipe controlled by valves that interconnect with the main pipeline to launch and receive cleaning and inspection tools ("pigs") that travel inside the pipeline.
right-of-way (ROW)	a legal right of passage over another's property. Typically, the ROW would consist of a 50-foot-wide permanent ROW and, during construction, an additional 50-foot construction ROW.
ROW grant	as defined in 43 CFR 288. A document authorizing a non-possessory, non-exclusive right to use specified federal lands for the limited purpose of construction, operation, purpose of construction, operation, maintenance, and termination of a pipeline. Typically, the grant includes agency stipulations, conditions imposed on the project as a result of the NEPA review, a complete POD, and approvals from other federal agencies.
SCADA	Supervisory Control and Data Acquisition; computerized system that monitors and analyses the pressure within the pipeline every 3 to 5 seconds, notifying operators of any operating abnormalities.
seasonal constraints	time periods when construction may be restricted, such as constraint periods associated with breeding birds.
smart pig	An internal inspection tool that passes inside a pipe and contains electronic devices capable of measuring pipe integrity.
well head protection areas	areas where land uses are managed to protect and maintain the quality of groundwater.

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