

FINAL Overland Pass Pipeline Company Piceance Basin Lateral Environmental Assessment

**Bureau of Land Management
EA No. CO-110-2007-092**

September 2008



White River Field Office, Little Snake Field Office, and Rawlins Field Office

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Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific, and cultural values.

CO-110-2007-092



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Washington, D. C. 20240

125 South 600 West

Price, UT 84501

<http://www.blm.gov>



IN REPLY REFER TO:

2880

CO-110-2007-092

(WO-350)

Dear Reader:

In accordance with the National Environmental Policy Act (NEPA) of 1969, this Environmental Assessment (EA) has been prepared for the Overland Pass Pipeline Piceance Basin Lateral Natural Gas Liquids Project as applied for by the Overland Pass Pipeline Company, LLC (OPPC). This EA analyzes impacts that would be expected from the Proposed Action and the No Action Alternative. The Bureau of Land Management (BLM) is the lead federal agency in the preparation of the Overland Pass Pipeline Piceance Basin Lateral Natural Gas Liquids Project EA. Approximately 48 percent of the total pipeline would be located on Federal lands administered by the BLM.

The proposed 152-mile natural gas liquids (NGL) pipeline project consists of construction, operation, and maintenance of a 14-inch diameter buried steel NGL pipeline and related facilities that would originate southwest of Meeker, Colorado and terminate southeast of Wamsutter, Wyoming. Facilities would include a 2,000-foot, 6-inch-diameter lateral, manual shut-off valves at regular intervals, pigging facilities, and two meter stations. The pipeline would transport a total of 100,000 barrels of Y-grade NGL per day. Initially, 20,000 to 30,000 barrels per day (bpd) would be transported; however, the pipe would be designed to hold more NGL as the need increases. Should volumes of NGL increase above approximately 70,000 bpd, a pump station would be constructed at the approximate midpoint of the pipeline route. With the pump station installed, the capacity of the pipeline would be 100,000 bpd. Approximately 96 percent of the proposed pipeline route would primarily run parallel to existing pipelines and/or other utility corridors.

Compact discs of the EA are available for review at the BLM offices listed below. The EA is also available for review and downloading from the BLM website at:

http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/EA/overland_pipeline.html

BLM White River Field Office
220 East Market Street
Meeker, CO 81641

BLM Little Snake River Field Office
455 Emerson Street
Craig, CO 81625

BLM Rawlins Field Office
1300 North Third
Rawlins, WY 82301

Comments will be accepted for thirty (30) days following public distribution and availability. The comment period will end at close of business August 13, 2008. Please send written comments to:

Bureau of Land Management
Attention: Mark Mackiewicz, Project Manager
125 South 600 West
Price, UT 84501

You may also submit comments electronically at the address shown below. Please put "Overland Pass Lateral" in the subject line.

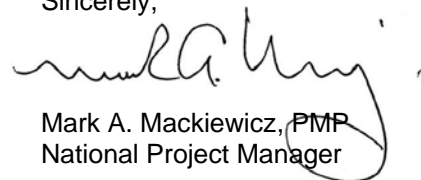
Overland_comments@blm.gov

Comments including names and street addresses of respondents will be available for public review in their entirety at the BLM White River Field Office at the address shown above during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays following the closing date of the comment period. Before including your address, phone number, e-mail address, or any other personal identifying information in your comment, be advised that your entire comment, including your personal identifying information, may be publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Copies of this EA have been sent to affected federal, state and local government agencies, and to those persons who have indicated that they wish to receive a copy of the EA. Copies of the EA are available for public inspection at the BLM offices listed above.

If you have any questions regarding the NEPA process used to prepare the EA or need additional information regarding the project, please contact Mark Mackiewicz at (435) 636-3616.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark A. Mackiewicz", with a stylized flourish at the end.

Mark A. Mackiewicz, PMP
National Project Manager

Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
amsl	above mean sea level
APE	area of potential effect
APEN	Air Pollution Emission Notice
AUM	animal unit month
bgs	below ground surface
BLM	Bureau of Land Management
BMP	Best Management Practices
BO	Biological Opinion
bpd	barrels per day
CAA	Clean Air Act
CAAQS	Colorado Ambient Air Quality Standards
CDOW	Colorado Division of Wildlife
CDP	Census-designated Place
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLIS	CERCLA Information System
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
CWA	Clean Water Act of 1972

DR	Decision Record
EA	environmental assessment
EFH	essential fish habitat
EIS	environmental impact statement
EO	Executive Order
ESA	Endangered Species Act
FBE	fusion bond epoxy
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FR	Federal Register
GHG	greenhouse gas
GLO	General Land Office
gpm	gallons per minute
GRP	Grassland Reserve Program
H ₂ S	hydrogen sulfide
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HDD	horizontal directional drilling
HEL	highly erodible lands
I-80	Interstate 80
km	kilometer
LSFO	Little Snake Field Office
MAOP	maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act
mg/l	milligram per liter
MLA	Mineral Leasing Act
MLRA	Major Land Resource Areas

MLV	mainline valve
MP	milepost
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGL	Natural Gas Liquids
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act of 1966 as amended
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
O ₃	ozone
OAHP	Office of Archaeology and Historic Preservation
OHV	off-highway vehicle
OPPC	Overland Pass Pipeline Company
OPS	Office of Pipeline Safety
Pb	lead
PCA	Potential Conservation Area
PEM	palustrine emergent
PHMSA	Pipeline and Hazardous Material Safety Administration
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
ppm	parts per million

ppmw	parts per million by weight
Project	Overland Pass Pipeline Piceance Basin Lateral NGL Project
PSD	Prevention of Significant Deterioration
PSS	palustrine scrub-shrub
RFO	Rawlins Field Office
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
RV	recreational vehicle
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasures Plan
SSURGO	Soil Survey geographic
STATSGO	State Soil Geographic database
SWA	State Wildlife Area
tcfy	trillion cubic feet per year
TCP	Traditional Cultural Property
TESS	threatened, endangered, and special status
TDS	total dissolved solids
TWA	Temporary Workspace Area
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
VOC	volatile organic compound
VRM	Visual Resource Management
WAAQS	Wyoming Ambient Air Quality Standards
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WIC	Wyoming Interstate Company, Ltd.
Williams	Williams Field Service Company, LLC
WRCC	Western Regional Climate Center
WRFO	White River Field Office
WRP	Wetland Reserve Program
WWE	West Water Engineering

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1.0 Introduction

On June 20, 2007, Overland Pass Pipeline Company (OPPC), a subsidiary of ONEOK, Inc. and Williams Field Service Company, LLC (Williams), filed an application with the Bureau of Land Management (BLM) to construct, own, and operate a 152-mile-long, 14-inch-diameter, buried steel natural gas liquids (NGL) pipeline and related facilities that would connect NGL production from the Piceance Basin in Colorado to the OPPC Overland Pass Pipeline in southern Wyoming.

The proposed Overland Pass Pipeline Piceance Basin Lateral NGL Project (Project) would include a 2,000-foot, 6-inch-diameter lateral, manual shut-off valves at regular intervals, pigging facilities, and 2 meter stations. **Figure 1.1-1** depicts the Project location. The pipeline would transport a total of 100,000 barrels of Y-grade NGL per day. Initially, 20,000 to 30,000 barrels per day (bpd) would be transported; however, the pipe would be designed to hold more NGL as the need increases. Should volumes of NGL increase above approximately 70,000 bpd, a pump station would be constructed at the approximate midpoint of the pipeline route near milepost (MP) 82.4. With the pump station installed, the capacity of the pipeline would be 100,000 bpd.

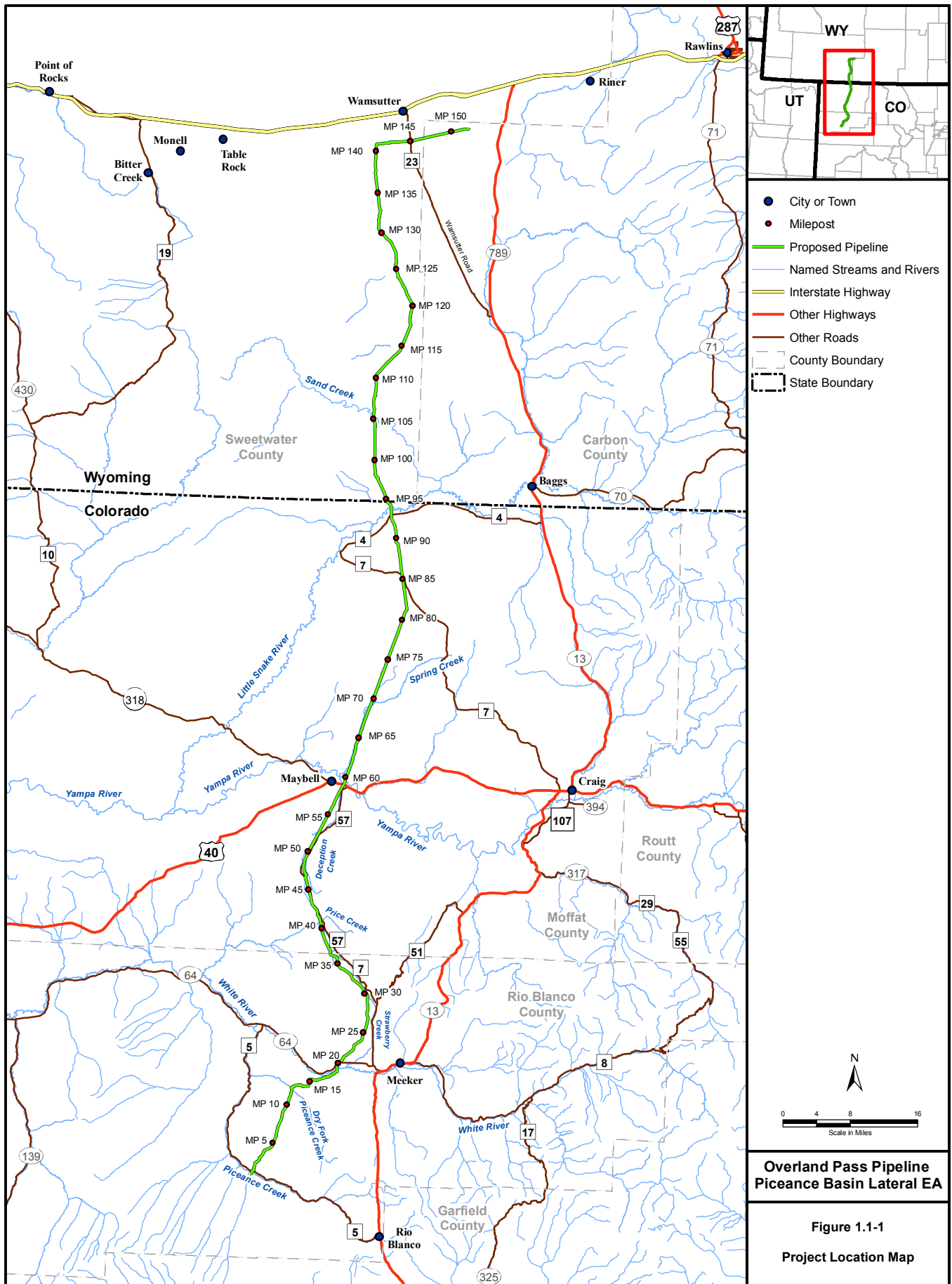
1.1 Purpose and Need for the Proposed Project

NGL are hydrocarbon liquids associated with the production and processing of natural gas. When natural gas is removed from the ground, it is compositionally different than what is transported through natural gas transmission systems and ultimately used by the public for such things as home heating and cooking. When removed from the ground, the mixture is predominately methane, but also includes heavier hydrocarbons and inert gases. Although the mixture can vary greatly, a typical stream may include 85 percent methane, 10 percent heavier hydrocarbons (NGL), and 5 percent inert gases. The NGL and inert gases must be removed to make the natural gas salable and transportable.

Once removed from the natural gas, the NGL must be transported under pressure by alternate pipelines to fractionators. The fractionators separate the NGL into purity products such as ethane, propane, and butane, which are used in the petrochemical, petroleum refining, and agricultural industries. Gas processing plants are much smaller, simpler facilities than fractionators and are more commonly located very near the natural gas drilling areas. Fractionators, on the other hand, are very complex facilities that are located in areas of the country with ready access to delivery markets and, typically, underground storage facilities.

As natural gas production increases typical NGL production also increases. Increased drilling activity and natural gas production in the Rocky Mountain region, and particularly in the Piceance Basin, are creating a corresponding increase in the amount of NGL that need to be carried out of the area to existing fractionators in the Midwest and Gulf Coast regions. An underground NGL pipeline located largely in existing pipeline rights-of-way (ROWs) would have considerable environmental and safety advantages over alternative means of transporting NGL out of the Piceance Basin, such as trucking or rail transport. Currently, existing NGL pipelines are operating at or near capacity. The proposed Project would address the needs of producers in Colorado by providing additional NGL pipeline capacity out of the Piceance Basin to fractionation facilities in Bushton and Conway, Kansas. Downstream customers would thereby gain access to the Piceance Basin supply. In summary, approval of the Project would meet the mutual needs of producers and downstream customers, and would further federal policy regarding the development of pipeline infrastructure in the Rocky Mountain region.

In addition to being necessary, the removal of NGL from the natural gas stream also can enhance the value of the components removed. Although only 10 percent of the stream by weight, the NGL can contribute approximately 15 percent of the energy of the stream.



Since NGL must be removed up to a certain level and are often removed in greater quantities for economic purposes, regional NGL production quantities track with regional natural gas production quantities. Specifically in the Rocky Mountain region of the United States (U.S.), as natural gas production grows, NGL production also grows.

According to the *Environmental Assessment (EA) for the Mid-America Pipeline Company, LLC (MAPL) Western Expansion Project* (BLM 2005), the Rocky Mountain region is a significant contributor to the supply of natural gas in the U.S., producing approximately 25 percent of the U.S. natural gas. Natural gas production in the Rocky Mountains increased 56 percent between 1999 and 2003. Some experts predict that the Rocky Mountain region's gas production could 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 2004). Notwithstanding the variance in supply predictions, industry experts agree that production from the Rocky Mountain region would be critical to serving the country's increasing energy needs. Using typical average NGL content (2 gallons per thousand cubic feet) and an average NGL recovery factor (50 percent), this increase in natural gas production would produce a substantial increase in NGL that would need to be moved.

The proposed Project is in the national interest in that it is a major energy facility that would provide significant and much needed NGL transmission capacity out of the Piceance Basin to the Overland Pass Pipeline. The Project would increase the flexibility and reliability of the interstate NGL grid by offering greater access to NGL supply sources and increased availability of NGL for anticipated projects.

1.2 Relationship to Policies, Plans, and Programs

The proposed Project would cross federal lands managed by the BLM as well as state lands in Colorado and Wyoming. The BLM is the lead federal agency for the Project. The proposed Project would affect public land administered by the BLM White River Field Office (WRFO) in Meeker, Colorado; the Little Snake Field Office (LSFO) in Craig, Colorado; and the Rawlins Field Office (RFO) in Rawlins, Wyoming.

Consistent with federal regulations found in 43 Code of Federal Regulations (CFR) 2804.25, the BLM is required to complete a National Environmental Policy Act (NEPA) analysis before issuing a ROW grant. Due to the nature and scope of the proposed Project, the BLM decided to prepare an EA to assess potential impacts.

The controlling guidance and source documents for preparation of this EA include: 1) the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR Parts 1500-1508); 2) the BLM NEPA Handbook H-1790-1 (BLM 2008); 3) the Resource Management Plans (RMPs) for the three regional BLM field offices; and 4) OPPC Plan of Development (POD) (CH2M Hill Trigon, Inc. 2008), which describes how and where the Project would be constructed and operated and how the ROW would be reclaimed.

1.2.1 BLM Authorizing Actions and Conformance to Land Use Plans

The BLM is responsible for issuing ROW grants across federal lands in accordance with 43 CFR 2880. Specifically, 43 CFR 2881.11 requires a BLM ROW grant for any oil or gas pipeline or related facility that crosses federal land under BLM jurisdiction or under the jurisdiction of two or more federal agencies. Subpart 2884 describes the application filing, content, processing, and decision steps in granting a ROW under these regulations.

The BLM has the authority and responsibility under the Mineral Leasing Act (MLA) of 1920, as amended (30 United States Code [USC] Section 185) to grant ROWs for pipelines and is responsible for imposing stipulations and regulations, as needed, to protect public safety and the environment. OPPC-committed environmental protection measures specific to BLM-administered federal lands are presented in this EA. As such, in order to obtain a ROW grant and temporary use authorization from the BLM, OPPC would be subject to terms of use that are specific to federal lands managed by BLM. OPPC-committed environmental protection measures were based on common pipeline best management practices (BMPs) recently used on other

regional pipeline projects, such as the Wyoming Interstate Company, Ltd. (WIC) Piceance Basin Project. These measures, where applicable, also would be implemented during construction and operation on private lands.

BLM would prepare a Decision Record (DR) to document its decision to either approve or not approve the proposed Project. If approved, any necessary and applicable documentation regarding environmental protection measures, additional mitigation measures, or permit conditions required by the BLM would be included in the DR. A concurrence letter or Biological Opinion (BO) from the U.S. Fish and Wildlife Service (USFWS); and concurrence letters with the proposed treatment of cultural resources from the Wyoming and Colorado State Historic Preservation Officers (SHPOs) also would be taken into account when preparing the DR.

The proposed Project and alternatives presented in this EA are consistent with the management decisions in the White River RMP (BLM 1997), the Little Snake RMP (BLM 1989), the Oil and Gas Amendment to the Little Snake RMP (BLM 1991), and the Rawlins RMP and Final EIS (BLM 2008a). The management goals for oil and gas minerals management for the three BLM resource areas as stated in their respective RMPs include:

- White River RMP – to make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values.
- Little Snake RMP – to maximize the availability of the federal oil and gas estate for exploration and development, and to facilitate orderly, economic, and environmentally sound exploration and development of oil and gas resources using balanced multiple-use management.
- Rawlins RMP – to manage mineral resources from available BLM-administered public lands and federal minerals while minimizing the impacts to the environment, public health and safety, and other resource values and uses.

Additionally, the White River RMP and Rawlins RMP identify existing ROW corridors as the likely location for placement and development of new delivery pipelines for oil and gas. The proposed Project generally follows these existing ROW corridors. Therefore, development of the proposed Project would be in conformance with the management directives identified in the RMPs for oil and gas minerals management and utility ROW development.

1.2.2 Permits and Relationship to Non-federal Policies, Plans, and Programs

Key federal, state, or local agencies that have permit, approval, or consultation authority for portions of the Project are identified in **Table 1.2-1**. Tribal governments that were consulted under Section 106 of the National Historic Preservation Act of 1966 as amended (NHPA) also are included in the table. Individual road crossing and road use permits have not been included in this table, since such permits would be a standard requirement in all counties crossed.

Table 1.2-1 Major Permits, Approvals, and Consultations for the Project

Agency	Permit/Approval/Consultations	Agency Action
Federal¹		
BLM	ROW Grant for the pipeline and all related facilities located on federal land under the authority of the MLA	Consider issuance of a ROW Grant for the portion of the Project on federal land.
	Temporary Use Permit for temporary workspace areas and temporary access roads under the authority of the MLA	Consider the issuance of a Temporary Use Permit for the portion of the Project on federal land.

Table 1.2-1 Major Permits, Approvals, and Consultations for the Project

Agency	Permit/Approval/Consultations	Agency Action
USFWS	Section 7 Consultation under the Endangered Species Act (ESA)	Consider lead agency finding of impact on federally listed or proposed species. Provide BO if the Project is likely to adversely affect federally listed or proposed species, or their habitats.
Natural Resource Conservation Service (NRCS) Wyoming and Colorado	Consultation	Consultation regarding erosion control recommendations, revegetation specifications, and identification of Conservation Reserve Program lands.
U.S. Army Corps of Engineers (USACE) –Sacramento District (Colorado) and Omaha District (Wyoming)	Section 404, Clean Water Act (CWA)	Consider issuance of Section 404 permits for working in navigable waters of the U.S. and the placement of dredge or fill material into all waters of the U.S., including wetlands.
Advisory Council on Historic Preservation (ACHP)	Section 106 Consultation, NHPA	Has the opportunity to comment on the undertaking.
U.S. Environmental Protection Agency (USEPA) Region 8	Section 401, CWA, Water Quality Certification	In conjunction with states, consider issuance of water use and water crossing permits.
	Section 402, CWA, National Pollutant Discharge Elimination System (NPDES)	In conjunction with states, review and issue NPDES permit for discharge of hydrostatic test water and discharge of groundwater associated with construction activities.
	Section 404, CWA (veto power for wetland permits issued by the USACE)	Review CWA, Section 404 wetland dredge-and-fill applications for the USACE with Section 404 veto power for permits issued by the USACE.
	Storm Water Discharge Permit	In conjunction with states, review and issue storm water permit for activities associated with pipeline and aboveground facilities construction.
State - Colorado		
Colorado Department of Natural Resources - Division of Wildlife	State Listed Species Consultation	Review and comment on activities potentially affecting listed state species.
	Temporary Use Permit	Consider issuance of a Temporary Use Permit to conduct environmental and engineering surveys.
	Long-term Use Permit	Consider the issuance of a Long-term Use Permit for the portion of the Project on state land.
- State Land Board	Trust Land Permit	Consider issuance of permit to occupy state-owned land.

Table 1.2-1 Major Permits, Approvals, and Consultations for the Project

Agency	Permit/Approval/Consultations	Agency Action
Colorado Department of Public Health and Environment (CDPHE) - Air Quality Control Division	Air Pollution Emission Notice	Consider issuance of a permit to construct with the potential for fugitive dust.
- Division of Water Resources - Water Quality Control Division	Section 401, CWA, Water Quality Certification	Consider issuance of a permit for stream and wetland crossings (blanketed under USACE Section 404 permits).
	Construction Storm Water Discharge Permit	Consider issuance of a permit regulating discharge of storm water from the construction work area.
	Construction Dewatering Wastewater Discharge	Consider issuance of a permit regulating dewatering of groundwater from the construction work area.
	Hydrostatic Test Water Discharge Permit	Consider issuance of a permit regulating hydrostatic test water discharge, and construction dewatering to waters of the state.
Colorado State Engineers Office	Consultation on Surface Water Rights	Consider use of surface waters for appropriations required for hydrostatic testing.
Colorado Historical Society SHPO	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
State - Wyoming		
Department of Environmental Quality (WDEQ) - Water Quality Division	NPDES Storm Water Permit Program - General Permit for Construction Storm Water Discharge	Consider issuance of a permit regulating discharge of storm water from the construction work area.
	Water and Wastewater Program - General Permit for Temporary Discharge	Consider issuance of a permit regulating temporary discharges of wastewaters to surface waters of the state associated with hydrostatic testing of pipes, tanks, or other similar vessels; construction dewatering; other.
- Watershed Management Section	Temporary Turbidity Increase Permit	Consider issuance of a permit for temporary increases in turbidity as a result of construction activities.
	Section 401 Certification	Consider issuance of a permit for stream and wetland crossings (blanketed under USACE Section 404 authorization).
Wyoming Department of State Parks and Cultural Resources - SHPO	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
- Wyoming Game and Fish (WGFD)	Consultations	Consultations regarding listed state species.

Table 1.2-1 Major Permits, Approvals, and Consultations for the Project

Agency	Permit/Approval/Consultations	Agency Action
Tribal Governments		
Eastern Shoshone	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
Northern Arapaho	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
Northern Ute	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
Shoshone Bannock	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
Southern Ute	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.
Ute Mountain Ute	Consultation under Section 106 of the NHPA	Review and comment on activities potentially affecting cultural resources.

¹Federal agencies also must review the proposed Project for consistency with the following federal Executive Orders (EO): Invasive Species (Federal Register [FR] 1999) and Migratory Birds (FR 2001).

1.3 Scoping and Public Involvement

Scoping is a process of actively acquiring initial input from the public and other interested federal, state, tribal, and local agencies to determine the scope of issues to be addressed. It is used to identify key issues related to a proposed project. Information gained during scoping assists the lead agency in identifying potential environmental issues, alternatives, and mitigation measures associated with development of the proposed Project. The process provides a mechanism for narrowing the scope of issues so that the EA can focus the analysis on areas of high interest and concern.

From February 22 to March 14, 2008, the BLM published a scoping notice on their website describing the proposed Project and providing information on deadlines and contact information for comment submittal. The BLM also issued a press release on February 26, 2008, which appeared in three local newspapers: the Craig Daily Press, the Rio Blanco Herald Times, and the Rawlins Daily Times. Additionally, a postcard was mailed to 700 parties of interest announcing the proposed Project, providing instructions on how to submit comments, and directing the recipients to the BLM website for further information. This postcard was distributed to various federal, state, and local agencies; elected officials; tribes; landowners; media outlets and libraries throughout the Project area; other non-government agencies; and other individuals that have expressed interest in NEPA-related projects in the three BLM field offices. Two scoping comment submittals (e.g., letter, email) were received: one letter from a landowner in Sweetwater County, Wyoming, and one from the WGFD.

An interagency meeting was held on February 27, 2008, in Craig, Colorado, to identify potential issues and key concerns along the proposed pipeline route. Attendance to this meeting included representatives from each of the three BLM Field Offices (WRFO, LSFO, and RFO), USFWS, USACE, Colorado Division of Wildlife (CDOW), and the Colorado State Land Board. The WGFD was invited, but did not attend.

1.4 Issues

Based on comments received during scoping and from various agencies, as well as information gathered from the two projects recently constructed in the area (Entrega and WIC Piceance), the following key issues and concerns associated with the proposed Project have been identified:

- Reclamation and revegetation in the existing pipeline corridor;
 - Reclamation, particularly reseeding of the ROW, was conducted at the wrong time of year on WIC Piceance and Entrega. Lessons learned from these two projects should be incorporated into the proposed reclamation plan.
 - Post-construction monitoring reports should be completed for at least 5 years or until ROW native cover is reestablished.
 - Cooperation between all companies in the pipeline corridor should be considered to address reclamation of the entire corridor.
 - Wash stations need to be located at access points to control the spread of noxious weeds.
 - Compaction and reclamation of silty soils north of Maybell needs to be addressed.
 - Reestablishment of critical forage species (i.e., bitter brush plant in the Bitter Brush State Wildlife Area [SWA]) following construction of the previous two pipelines has not been successful.
- Impacts to fish habitat, surface water quality, and bank stabilization;
 - Depletions in the Colorado Basin would have downstream native fish implications, particularly regarding threatened and endangered fish in the Yampa River.
 - Water bar spacing should be minimal to prevent erosion on steep slopes.
 - New roads are impacting water quality in upland areas.
- Impacts to threatened, endangered, and special status species and habitat;
 - Within non-block cleared areas in the Rawlins RMP Planning Area, white-tailed prairie dog towns that qualify as black-footed ferret habitat need to be mapped and surveyed as necessary.
 - There are at least 6 greater sage-grouse leks within 0.5 mile of the Project in the LSFO.
 - Land bridges and escape ramps need to be used in Big Game Winter Range areas and along migration routes.
 - There are historical mountain plover sightings along the Little Snake River.
 - Greater sage-grouse, raptor nesting, big game crucial winter range, mountain plover (potential and occupied habitat) would occur along Project and would require seasonal stipulations.
 - Avoid (not transplant) sensitive plant species populations.
- Impacts to local and regional infrastructure including transportation networks, available housing, and emergency services; and
 - Heavy traffic on roads not designed for that use (particularly County Road 5/Piceance Creek Road) needs to be addressed. It would be preferred to have no new roads and to have widened roads reclaimed back to original width/condition.
 - Civil surveys need to stay on existing roads and trails; if not, personnel need to go out and back on foot.
 - Trash left by work crews needs to be cleaned up.

- There is limited housing supply for construction workers.
 - Availability and impact on emergency services needs to be addressed.
 - Economic impacts to hunters and outfitters needs to be addressed.
 - Cattle guards and fences must be restored after construction.
- Winter Construction.
 - Snow removal damage to adjacent areas needs to be addressed.

2.0 Alternatives Including the Proposed Action

When choosing alternative routes for the proposed Project, OPPC also considered issues and concerns addressed during construction of pipelines recently completed in the area. As such, the Final Environmental Impact Statements (EISs) for the Entrega Pipeline Project (Entrega) (Federal Energy Regulatory Commission [FERC] 2005a), the WIC Piceance Basin Expansion Project (WIC Piceance) (FERC 2005b), and the OPPC Overland Pass NGL Pipeline Project (BLM 2007a) provided background information on the Project area and NGL transport during the development of this EA.

The alternatives considered and analyzed in detail include the Proposed Action and the No Action Alternative. In the application submitted by OPPC, variations from the proposed pipeline route also were presented, including a South Connector Route Alternative and a North Connector Route Alternative. However, upon further consideration, these alternatives were eliminated from detailed analysis because of problems encountered during construction of previous pipelines (Entrega and WIC Piceance) and/or anticipated undesirable residual impacts associated with the alternative route(s). The alternatives that were considered but eliminated are discussed in more detail in Section 2.3.

All activities associated with the proposed Project are consistent with the following land use plans:

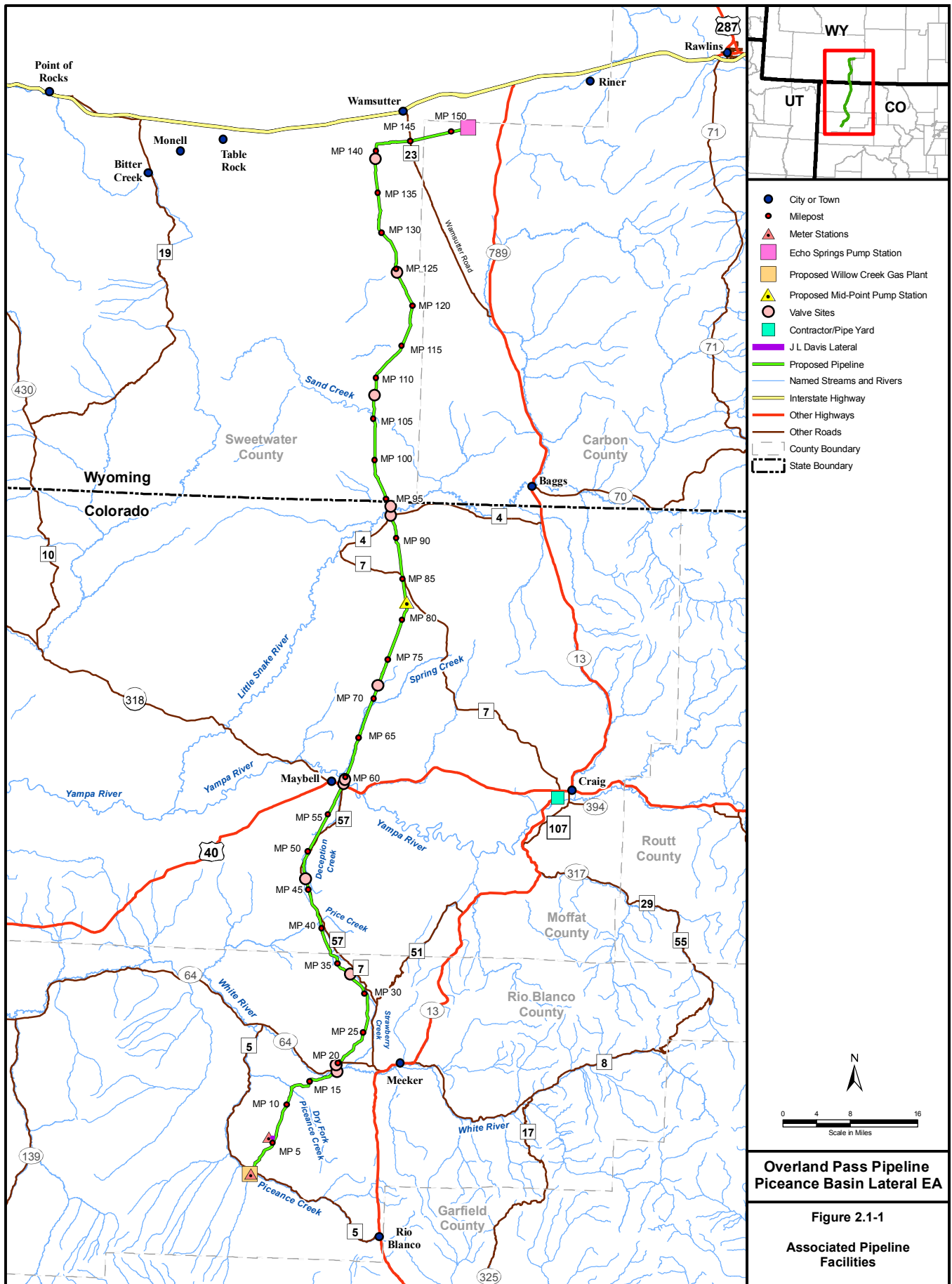
- White River Record of Decision (ROD) and Approved RMP (BLM 1997);
- Little Snake RMP and ROD (BLM 1989);
- ROD for the Oil and Gas Plan Amendment to the Little Snake RMP/EIS (BLM 1991); and
- Rawlins RMP and Final EIS (BLM 2008a).

2.1 Proposed Action

OPPC proposes to construct and operate a 152-mile-long, 14-inch-diameter NGL pipeline that would begin at the recently approved Willow Creek Gas Plant southwest of Meeker, Colorado, and end at the existing Echo Springs pump station southeast of Wamsutter, Wyoming. OPPC proposes to begin construction of the pipeline and associated facilities in September 2008 and be in service in July 2009. Construction is estimated to take approximately 6 months. An overview map showing the location of pipeline and associated facilities for the Proposed Action is provided in **Figure 2.1-1**.

2.1.1 Pipeline

The pipeline would be engineered and constructed in conformance with the requirements of U.S. Department of Transportation (USDOT) regulations (49 CFR Part 195). The 14-inch pipe would be constructed with high-strength steel pipe (grade 5L X70) with factory-applied, fusion-bonded epoxy (FBE) external coating with a wall thickness of 0.219 inch. Cathodic protection would be provided by an impressed current system. The pipeline would be manufactured, constructed, and operated in accordance with applicable local, state, and federal regulations.



2.1.2 Ancillary Facilities

Additional facilities associated with the Proposed Action would include one 6-inch-diameter lateral, 2 meter stations, 1 possible future pump station, 12 mainline valves (MLVs), 5 pigging facilities, 1 contractor/pipe yard, 1 new access road, and possible future electrical powerlines. **Table 2.1-1** summarizes the facilities and their proposed locations.

Table 2.1-1 Proposed Facilities Associated with the Project

Facility Name	MP	County, State
Pipeline		
Willow Creek Gas Plant to Echo Springs Pump Station (14-inch diameter)	0.0 – 152.2	Rio Blanco and Moffat counties, Colorado; Sweetwater and Carbon counties, Wyoming
J. L. Davis Lateral (6-inch-diameter)	5.6	Rio Blanco County, Colorado
Meter and Pump Stations		
Meter Stations	0.0, 5.6	Rio Blanco County, Colorado
Pump Station (future)	82.4	Moffat County, Colorado
MLVs		
MLVs 1 – 3	18.9	Rio Blanco County, Colorado
	19.6	
	32.9	
MLVs 4 – 9	46.3	Moffat County, Colorado
	59.1	
	59.7	
	71.7	
	92.8	
	93.9	
MLVs 10 – 12	107.9	Sweetwater County, Wyoming
	124.6	
	139.1	
Pigging Facilities		
Willow Creek Gas Plant – Launcher	0.0	Rio Blanco County, Colorado
J. L. Davis Tie-in – Launcher (6-inch)	L0.0 ¹	Rio Blanco County, Colorado
J. L. Davis Tie-in – Receiver (6-inch)	5.6	Rio Blanco County, Colorado
Mid-point – Launcher/Receiver	82.4	Moffat County, Colorado
Echo Springs Pump Station – Receiver	152.2	Carbon County, Wyoming
Yards		
Craig Contractor/Pipe Yard (existing)	NA ²	Moffat County, Colorado

Table 2.1-1 Proposed Facilities Associated with the Project

Facility Name	MP	County, State
Access Road		
New (0.4 mile long by 15 feet wide)	19.3	Rio Blanco County, Colorado
Electrical Power Lines (future)		
White River (approximately 0.5 mile)	19.2	Rio Blanco County, Colorado
Yampa River (200 feet)	59.0	Moffat County, Colorado
Midpoint (approximately 3.8 miles)	82.2	Moffat County, Colorado
Little Snake (approximately 6.7 miles)	92.9	Moffat County, Colorado and Carbon County, Wyoming

¹The launcher at the J. L. Davis tie-in would be located at the origination point of the J. L. Davis Lateral (MP L0.0).

²NA = not applicable; the contractor/pipe yard is located off of the pipeline ROW.

Under the Proposed Action, OPPC would construct two meter stations; one at the southern terminus of the pipeline and one at the origination point of a 2,000-foot, 6-inch-diameter lateral within the grounds of the existing J. L. Davis gas treatment facility. The station at MP 0.0 would serve as a custody transfer and system check station to measure the volume of NGL transported over the pipeline. When complete, it would be approximately 0.5 acre (100 feet by 200 feet) partially within the pipeline ROW, with the additional space extending to the northeast. This facility would consist of a meter building with communication, a meter skid, a pig launcher, and filtration traps.

The potential future midpoint pump station would be constructed in two phases, as needed. Phase 1 would be built concurrent with the construction of the pipeline and would include construction of the launcher/receiver and MLV. Phase 2 would only be built at some date in the future should the volume of NGL transported through the pipe increase above 70,000 bpd. The pump station would enable OPPC to maintain the required pressure for firm NGL deliveries and to restore the drop in pressure that would otherwise occur as the NGL flows through the pipeline. Should the pump station be built in the future, it would be approximately 1.8 acres (274 feet by 284 feet), partially within the proposed pipeline ROW with the additional space extending to the southeast, away from the ROW of the existing pipelines in the corridor. This facility would consist of a pump building, utility building, and parking area for station personnel. The station would operate on locally purchased power for electricity for lights, heating, communication, and valves in the buildings, and would be fully automated for unmanned operation. Remote start/stop, set point controls, unit monitoring equipment, and station information would be installed. The pipeline entering and exiting the pump facility would be below grade as practicable, but would come aboveground before entering and exiting the pump building.

The Proposed Action would include the construction of 12 MLVs: 9 block valves and 3 check valves. All 12 MLVs would be constructed within the permanent 50-foot ROW. Block valves are located at key river crossings as well as at various other points along the route and would be installed to enable shut-off of the pipeline for safety purposes. Check valves would generally be located downstream of the key river crossings and are designed to prevent backflow of NGL.

One pig launcher would be located at the southern origin of the pipeline at MP 0.0, one at the origin of the J. L. Davis lateral within the existing J. L. Davis gas facility, and one at the mid-point location at MP 82.4. Pig receivers would be located at the J. L. Davis tie-in at MP 5.6, at the mid-point location at MP 82.4, and at the northern terminus at MP 152.2. All launchers and receivers would be within the 50-foot-wide permanent ROW or within the footprint of existing facilities. The pigging facilities launch and receive a device that moves through

the length of the pipeline to clean it. The pipeline would be cleaned approximately monthly during operation of the pipeline. The pigging also would be used for smart pigging, which would be done once every 5 years.

OPPC would use an existing contractor/pipe yard southwest of Craig, Colorado, to store pipe and other construction materials and equipment during construction of the Project. This approximately 51.6-acre yard is located at Township 6 North (T6N), Range 91 West (R91W), Section 2 and was used as a pipe yard for the Entrega Pipeline Project (FERC 2005a).

The potential future electric powerlines would be constructed, operated, and maintained by local power providers to provide power for the proposed future pump station and remotely activated valves located along the proposed pipeline route. A maximum of four locations have been identified as potentially needing electrical power at some time in the future. The White River location would be constructed by the White River Electric Association and the other three would be constructed by the Yampa Valley Electric Association. These would all be 7.2-kilovolt lines constructed with 12- to 15-inch-diameter vertical poles within a 30-foot temporary construction ROW and a 20-foot permanent operational ROW. Average span between poles would be 300 to 350 feet. If determined necessary at a future time, all siting, permitting, and clearances necessary for the construction and operation of these powerlines would be the responsibility of the local power provider and would not be included in the ROW grant application for approval by BLM for the proposed Project described in this EA.

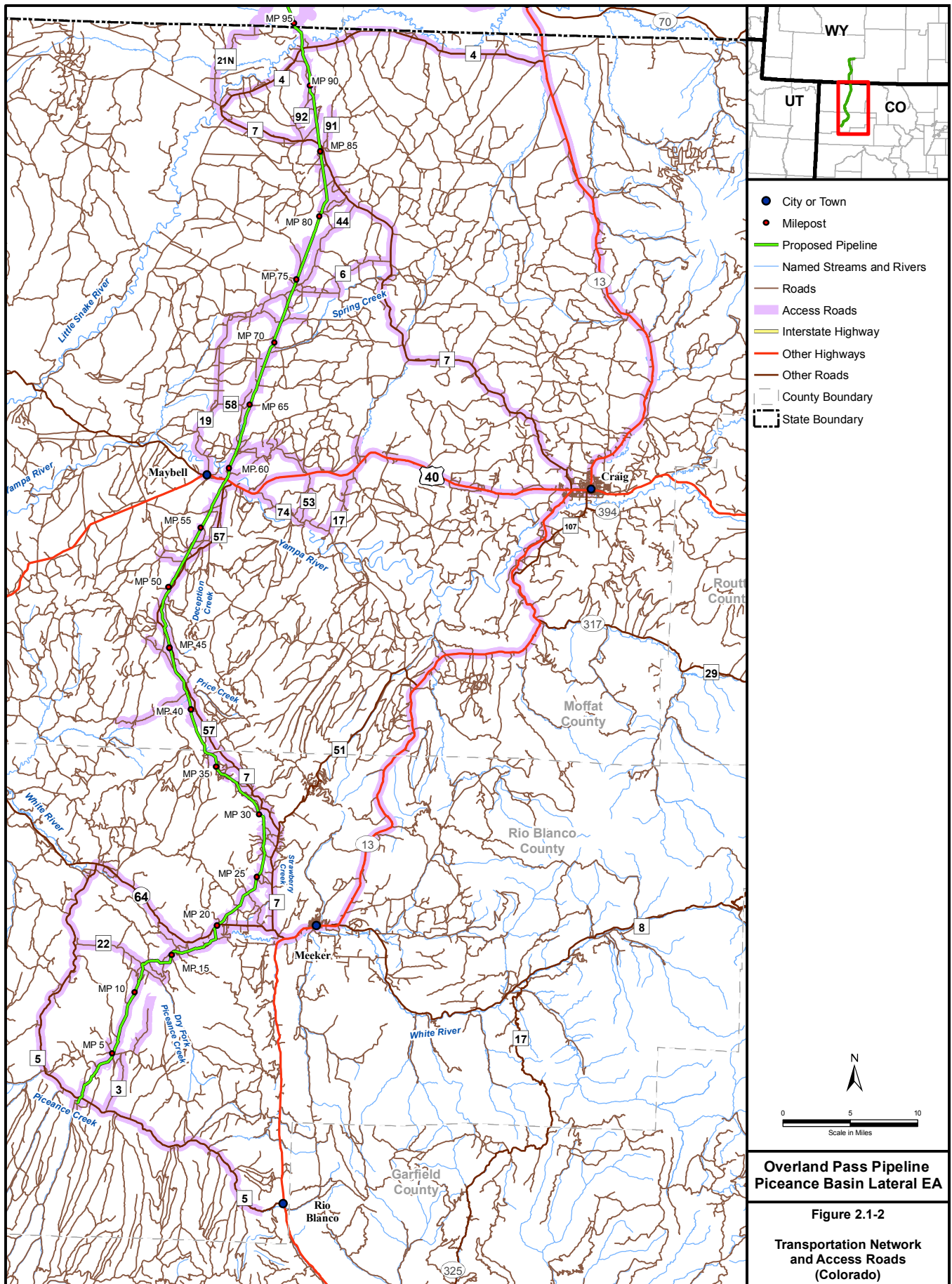
2.1.3 Access Roads

With the exception of one new access road proposed to be built on fee land, OPPC proposes using a combination of existing state, county, private, and BLM roads to access the ROW during construction. These existing roads were used on the recently constructed Entrega and WIC Piceance pipelines. The one new access road would be constructed on the south side of the White River crossing at the request of the landowner and would be 15 feet wide by approximately 0.4 mile long encompassing 0.7 acre.

Equipment and materials would be hauled in accordance with state requirements. Some of the existing roads might require modifications, including grading and/or widening, to make them usable for pipeline construction. OPPC would maintain the roads, which would include blading throughout the construction period to keep roads level and not rutted. For those areas where improvements would occur outside the pre-construction roadway, all areas of new impact would be reclaimed and reseeded using the reclamation techniques and seeding mixes proposed in the *Environmental Protection Plan*, which is an appendix to the POD for this Project (CH2M Hill Trigon, Inc. 2008). Temporary access along the ROW would be reclaimed at the end of construction. Operations and maintenance activities could require year-round access post construction. The locations of identified access roads and proposed modifications are listed in the POD as part of the *Transportation Management Plan*. **Figures 2.1-2** and **2.1-3** show the access roads to be used in Colorado and Wyoming, respectively. **Table 2.1-2** lists all access roads proposed to be constructed or potentially widened along with the acres of impact.

2.1.4 Land Requirements

Table 2.1-3 summarizes the land requirements for the Proposed Action. The Proposed Action would primarily run parallel to the existing Entrega/WIC Piceance pipeline corridor. The pipeline would generally be constructed within 50 feet of the existing pipeline centerline (25-foot off-set from the edge of the existing ROW), where applicable, but could be increased or decreased depending on the site-specific circumstances as required. The construction ROW would be 75 feet wide for the majority of the proposed pipeline route with additional width as needed at temporary work areas (TWAs) such as steep slopes or side slopes, at major road and river crossings, and for truck turn-around areas. After construction, OPPC proposes a 50-foot-wide



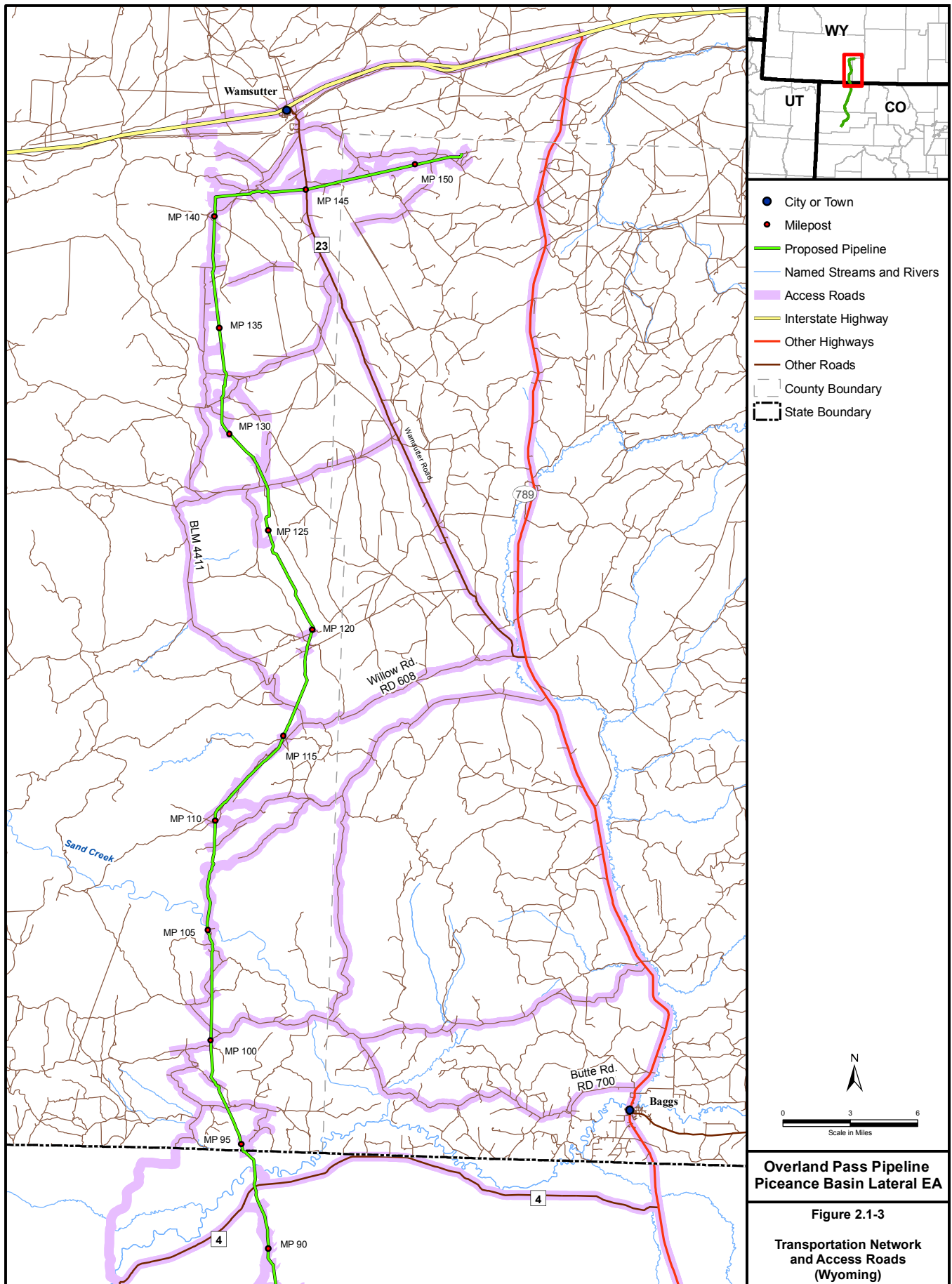


Table 2.1-2 Access Roads Proposed to be Constructed or Potentially Widened

County/ State	MP at Centerline	Class ¹	Existing Surface	Length (feet)	Approximate Existing Road Width (feet)	Additional Width Needed (feet)	Estimated Acres Impact (acres) ²
Rio Blanco County, CO	6.1	C	Dirt	5,061	10	2	0.2
	10.9	C	Dirt	10,257	10	2	0.5
	16.5	C	Dirt - 2-track	393	8	4	0.0
	16.7	C	Dirt - 2-track	1,228	8	4	0.1
	17.1	C	Dirt	172	8	4	0.0
	17.2	C	Dirt	81	8	4	0.0
	19.3	New	NA ³	2,040	0	15	0.7
	24.8	B	Dirt	8,920	10	2	0.4
	24.9	C	Dirt	431	10	2	0.0
	29.0	C	Dirt - 2-track	7,562	10	2	0.4
	33.7	C	Dirt	8,197	10	2	0.4
	34.1	C	Dirt	5,821	10	2	0.3
Moffat County, CO	36.2	C	Dirt	3,582	10	2	0.2
	53.1	C	Dirt	2,213	10	2	0.1
	53.2	C	Dirt	10,411	10	2	0.5
	57.0	C	Dirt	3,315	8	4	0.3
	59.6	C	Dirt - 2-track	41,135	11	1	0.9
	65.0	C	Dirt	3,104	10	2	0.1
	74.6	C	Dirt	599	10	2	0.0
	75.1	C	Dirt	290	10	2	0.0
	76.2	C	Dirt	777	10	2	0.0
	77.2	C	Dirt	145	10	2	0.0
	90.6	C	Dirt	1,365	10	2	0.1
	91.9	C	Dirt - 2-track	588	6	6	0.1
	93.6	C	Dirt	5,138	10	2	0.2
Sweetwater County, WY	95.2	B	Dirt	2195	8	4	0.2
	98.0	B	Dirt (Cherokee Trail Rd.)	6,610	8	4	0.6
Total (acres)							6.3

¹All access roads proposed for use during the proposed Project have been designated as follows:

Class A = well maintained and need little or no improvement; gravel or paved with bar ditches; and all-weather roads.

Class B = maintained dirt road with little or no gravel that may not be all-weather road or 4-wheel-drive only in bad conditions.

Class C = not-maintained 2-track road with grass in center.

²All impacts associated with widening existing roads to be temporary; new access road assumed to be permanent.

³NA = not applicable.

Table 2.1-3 Summary of Land Requirements Associated with the Proposed Action

State/Facility	MP	Land Affected During Construction (acres) ¹	Land Affected During Operation (acres) ²
Colorado			
Pipeline Facilities			
Pipeline ROW	0.0 - 94.7	873.8	573.9
Additional TWAs	Various	130.0	0.0
J. L. Davis Lateral	5.6	3.4	2.3
Aboveground Facilities ³			
Willow Creek Meter Station ⁴	0.0	0.0	0.2
J. L. Davis Meter Station ⁵	5.6	0.0	0.0
Mid-point Pump Station ⁶	82.4	0.0	0.0
MLVs	Various	0.0	0.0
Launchers and Receivers	Various	0.0	0.0
Contractor/Pipe Yard	Off-ROW	51.6	0.0
Access Roads ⁷	Various	5.5	0.7
<i>Colorado Subtotal^{7,8}</i>		<i>1,064.3</i>	<i>577.1</i>
Wyoming			
Pipeline Facilities			
Pipeline ROW	94.7 - 152.2	522.8	348.6
Additional TWAs	Various	69.3	0.0
Aboveground Facilities ³			
MLVs	Various	0.0	0.0
Receiver	152.2	0.0	0.0
Access Roads ⁷	Various	0.8	0.0
<i>Wyoming Subtotal^{7,8}</i>		<i>592.9</i>	<i>348.6</i>
Project Total^{7,8}		1,657.2	925.7

¹Standard construction ROW would be 75 feet wide with extra width as needed to accommodate construction in rough terrain, on side slopes, for topsoil segregation, and for preparation of road and waterbody crossings.

²Standard operation ROW would be 50 feet wide.

³Construction and operational land use impacts for several aboveground facilities (e.g., MLVs) would occur entirely within the ROW and therefore are included with the pipeline ROW and additional TWA totals.

⁴Does not include total temporary disturbance of 0.5 acre during construction and additional 0.3 acre of permanent disturbance during operations already accounted for under pipeline facilities.

⁵Construction and operational land use impacts would occur entirely within the existing J. L. Davis gas processing facility.

⁶Does not include the potential disturbance of 1.8 acres for construction and operation of the potential future build-out of the midpoint pump station.

⁷Values include one new access road and existing access and haul roads that would need to be widened for construction.

⁸Slight discrepancies in acreage totals are due to rounding.

permanent easement centered on the proposed pipeline centerline. This permanent ROW would be maintained (e.g., by periodic clearing) by OPPC for aerial observation and maintenance of the pipeline. Of the ancillary facilities described previously, only the new and widened access roads, the J. L. Davis lateral, and the potential future pump station would require new land disturbance; the remaining facilities would be constructed within the permanent ROW for the pipeline or within already disturbed areas associated with existing facilities.

Of the approximately 1,599 acres total necessary for construction of the proposed ROW (excluding the contractor/pipe yard and access roads), approximately 673 acres are considered temporary disturbance for construction. All acreage would be reclaimed. However, a 50-foot-wide permanent ROW would be maintained encompassing approximately 926 acres. Low-growing grasses, shrubs, and forbs would be allowed. Trees over the pipeline may be removed to allow for aerial inspections.

Approximately 47.5 percent of the proposed pipeline route would cross federal land managed by the BLM, 5.8 percent would cross state land (SWAs or state trust lands) and 46.7 percent would cross private land.

Approximately 96 percent of the pipeline route is adjacent to existing pipeline or other utility corridors. In these areas, the pipeline would be constructed such that a 25-foot-wide offset is maintained from the edge of the nearest pipeline or utility easement. This offset area would not be used for equipment during construction of the Project. Disturbed lands would be restored and allowed to revert to former use. **Table 2.1-4** lists locations where the proposed pipeline route would not be collocated with other existing pipeline or utility corridors and would therefore be crossing land not previously developed, hereafter referred to as greenfields. Within the first 5 miles of the route, the pipeline would cross greenfields before joining with the existing WIC Piceance pipeline ROW. The remaining deviations from existing ROWs are limited to areas where site-specific environmental or engineering constraints justify routing away from the existing ROW.

Table 2.1-4 Pipeline Segments not Collocated with Other Pipeline or Utility ROWs

Begin MP	End MP	Length (miles)
0.8	3.1	2.3
3.2	4.7	1.5
18.9	20.8	1.9
92.5	93.0	0.5
142.5	143.0	0.5
Total New ROW		6.7

Most of the aboveground facilities associated with the pipeline would be constructed within the pipeline ROW. Only part of the mid-point pump station, the J. L. Davis lateral, one new access road, and the existing contractor/pipe yard to be used would be outside of the pipeline ROW. The new access road would require 0.7 acre of newly disturbed, private land. The 2,000-foot-long J. L. Davis lateral would require a 75-foot-wide construction ROW and a 50-foot-wide operational ROW for 3.4 acres and 2.3 acres, respectively, on previously disturbed land paralleling existing pipelines. The contractor/pipe yard is an existing yard located in Craig, Colorado, on private land. No new disturbances would be needed for this facility.

The mid-point pump station would be constructed in two stages. Phase 1 would be constructed concurrent with construction of the pipeline and utilize an area 75 feet wide and 200 feet long that would be centered along the pipeline centerline at MP 82.4. During construction, this area would exist within the temporary construction ROW. During operation, this facility would remain within the permanent ROW. During Phase 2, approximately 1.8 acres would be required to construct the pump station. This 274-foot by 284-foot area would encompass the Phase 1 area and would extend beyond the 75-foot ROW disturbed during construction.

In addition to the 75-foot nominal construction ROW, OPPC would utilize an additional 199 acres of TWAs for construction of the Proposed Action. These additional TWAs would be needed in areas requiring special construction techniques (e.g., river, wetland, and road crossings; horizontal directional drilling [HDD] entry and exit points; steep slopes; and sensitive or rocky soils) and construction staging areas. Dimensions and acreages of typical TWAs are identified in **Table 2.1-5**.

Table 2.1-5 Dimensions and Acreage of Typical Additional Temporary Workspace Areas

Feature	Dimensions (L x W in feet) ¹	TWA Required (acres) ¹
Steep hill or side slopes	Length of area x 75 to 100, dependent upon slope grade	Varies
Foreign pipeline crossovers	L-shaped	Varies
Foreign pipeline/utility/other buried feature ²	150 x 25	0.1
Stringing truck turnarounds	100 x 150	0.3
Two-lane roads/single railroad ²	200 x 75	0.3
Four-lane roads/multiple railroads/Interstate ²	(Length of feature + 50) x (50 to 75)	Varies
Open-cut waterbodies <25 feet wide ²	200 x 50 and 200 x 100	0.2 + 0.5
Open-cut waterbodies 25 to 50 feet wide ²	200 x 75 and 200 x 125	0.3
Open-cut waterbodies 50 to 100 feet wide ²	250 x 75 and 250 x 125	0.4
Directionally drilled waterbodies ²	300 x 25 to 100 + the length of the drill	+0.7

¹Values presented are for each workspace; some crossings require workspace on both sides of the feature.

²Multiple TWAs could be required at a single feature. Dimensions presented are the minimum required; actual dimensions would depend upon site-specific conditions.

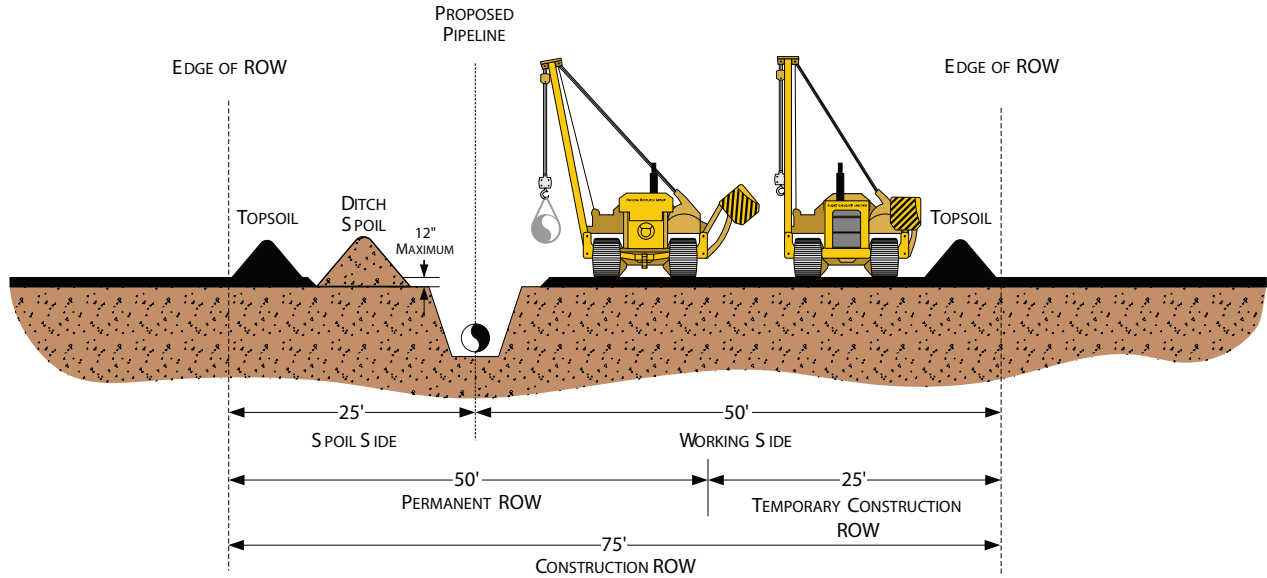
2.1.5 Construction Processes

This section describes the general sequence of actions required to construct a pipeline project. **Figure 2.1-4** illustrates the typical construction ROW and equipment work locations for the portions of the proposed route that would not be located adjacent to an existing pipeline ROW; **Figure 2.1-5** illustrates the proposed construction ROW where the pipeline would be collocated adjacent to an existing pipeline ROW.

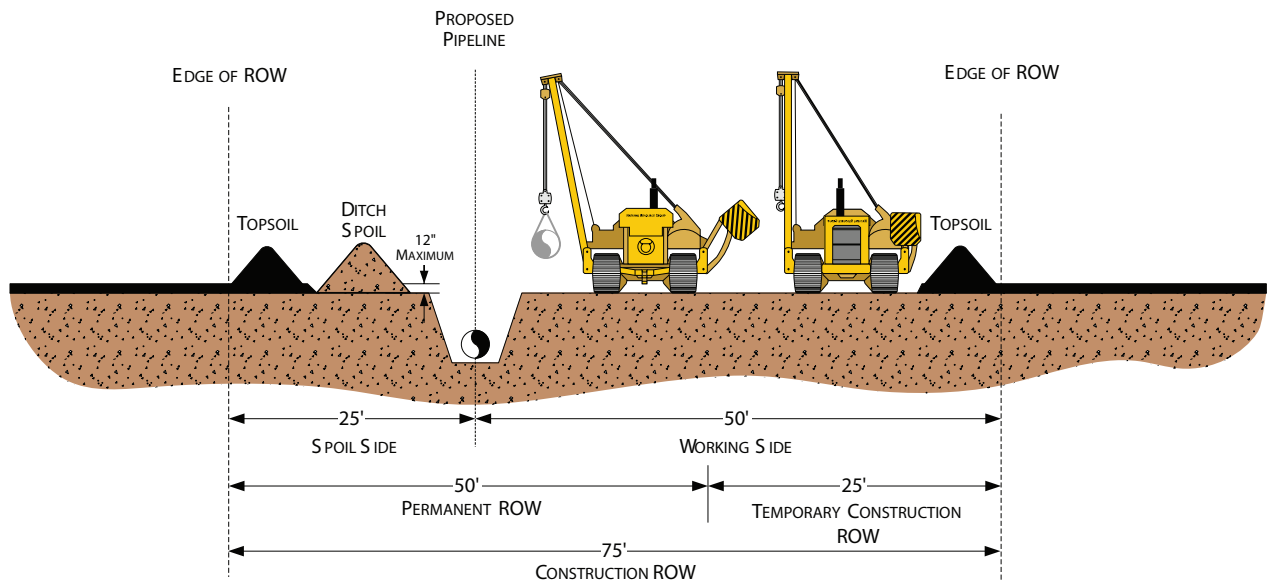
2.1.5.1 Construction Planning

Before starting construction, OPPC 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, OPPC would need to obtain a ROW grant from the BLM.

TRENCH AND SPOIL SIDE STRIPPING



FULL ROW TOPSOIL STRIPPING



PROFILE

NOTES:

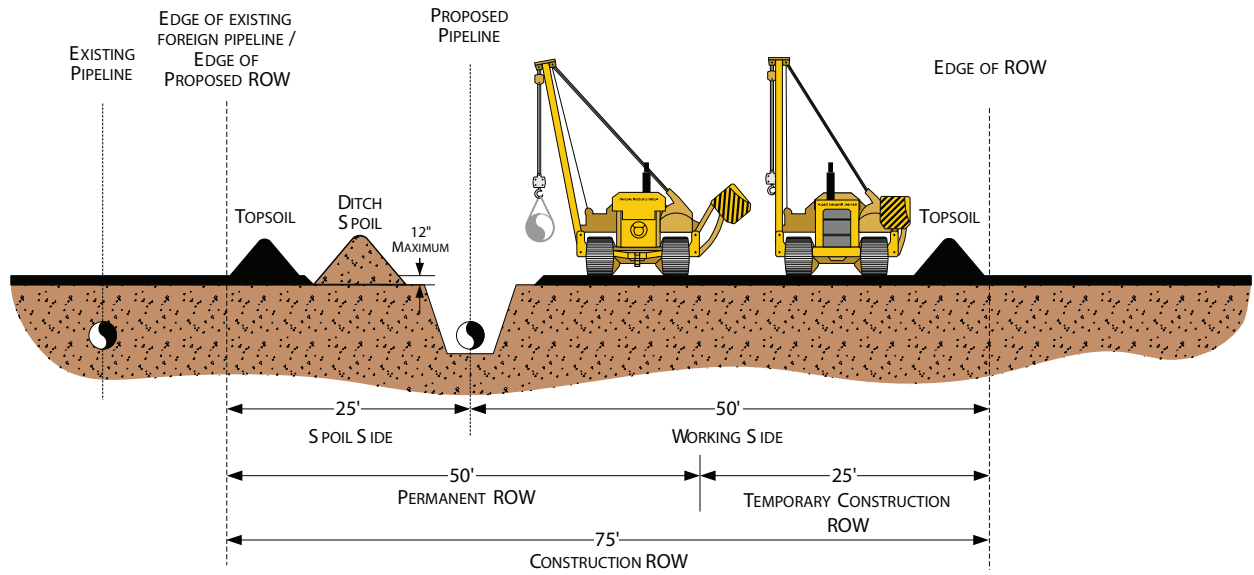
1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75' WIDE. THE PERMANENT RIGHT-OF-WAY WILL BE 50' WIDE. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD AND RIVER CROSSINGS, SIDESLOPES, AND OTHER SPECIAL CIRCUMSTANCES AS REQUIRED.
2. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE INSPECTOR.
3. 2' SETBACK FROM SPOIL TO EDGE OF TRENCH.

**Overland Pass Pipeline
Piceance Basin Lateral EA**

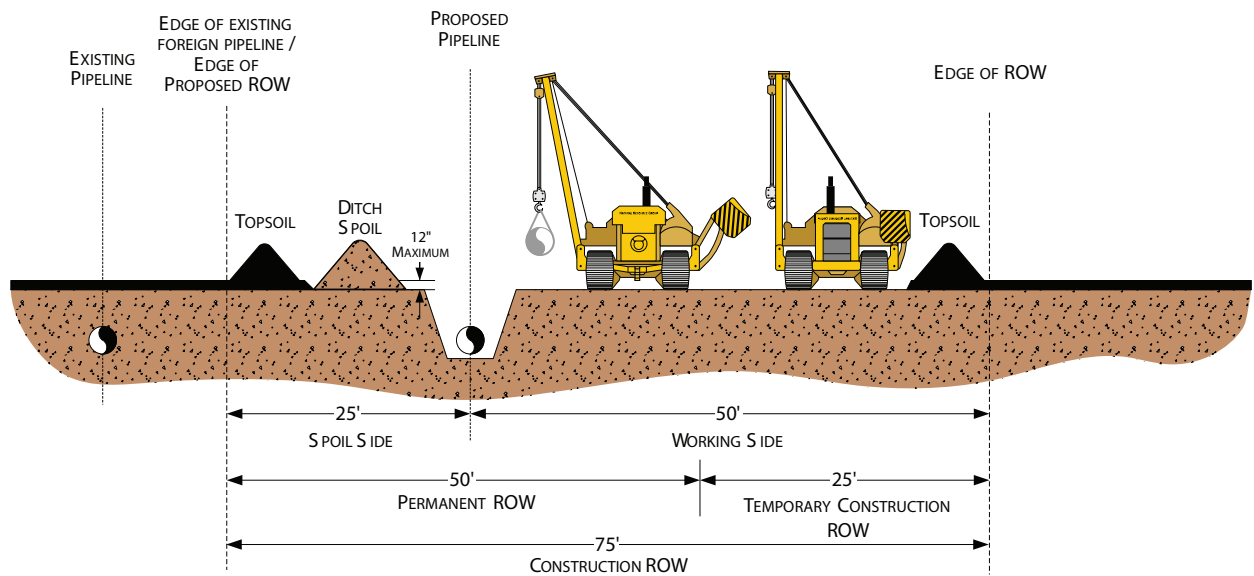
Figure 2.1-4

**Typical
Construction ROW**

TRENCH AND SPOIL SIDE STRIPPING



FULL ROW TOPSOIL STRIPPING



NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75' WIDE. THE PERMANENT RIGHT-OF-WAY WILL BE 50' WIDE. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD AND RIVER CROSSINGS, SIDESLOPES, AND OTHER SPECIAL CIRCUMSTANCES AS REQUIRED.
2. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE INSPECTOR.
3. THE OFFSET FROM ACTIVE PIPELINE, WHERE APPLICABLE, WILL BE 50' (CENTERLINE TO CENTERLINE) FOR MOST LOCATIONS BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE-SPECIFIC CONSTRUCTION REQUIREMENTS.
4. 2' SETBACK FROM SPOIL TO EDGE OF TRENCH.

**Overland Pass Pipeline
Piceance Basin Lateral EA**

**Figure 2.1-5
Typical Construction
ROW - Adjacent to
Existing Pipeline**

At a minimum, the proposed facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the USDOT regulations in 49 CFR 195, Transportation of Hazardous Liquids by Pipeline, and other applicable federal and state regulations. These regulations are intended to ensure adequate protection for the public and to prevent pipeline accidents and failures. Among other design standards, Part 195 specifies pipeline material and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

OPPC has prepared a draft POD that outlines construction procedures, project-specific plans, and applicant-committed environmental protection measures that would be implemented during construction of the proposed Project (CH2M Hill Trigon, Inc. 2008). This document describes routine construction and reclamation procedures in upland areas as well as construction methods for crossing wetlands and waterbodies. Site-specific stipulations not included in the final POD but determined to be necessary on federal lands would be included in any ROW grant issued by the BLM.

Included in the POD, OPPC has prepared several specific plans that include measures to minimize or eliminate potential environmental impacts. These plans are intended to serve as overall BMPs for construction and operation of the entire Project, on both federally managed and non-federally managed lands.

The following plans are included as appendices to the draft POD and will hereafter be referenced by the plan names throughout this EA:

- *Biological Resources Protection Plan*
- *Blasting Plan*
- *Cultural Resources Protection Plan*
- *Environmental Compliance Management Plan*
- *Fire Prevention and Suppression Plan*
- *Fugitive Dust Control Plan*
- *Hazardous Materials Management and Spill Prevention, Containment and Countermeasure Plan*
- *Hydrostatic Test Plan*
- *Weed Management Plan*
- *Safety Plan*
- *Transportation Management Plan*
- *Environmental Protection Plan*
- *Winter Contingency Plan*
- *Drill Fluid Contingency Plan*
- *Paleontological Resources Protection Plan*

2.1.5.2 General Pipeline Construction Procedure

Standard pipeline construction would be employed along the pipeline route and typically involve the following sequential operations: surveying and staking of the ROW, clearing and grading, trenching, pipe stringing and bending, welding, joint coating, lowering-in and backfilling, hydrostatic testing, and cleanup and restoration. A complete description of pipeline construction procedures is provided in the POD (CH2M Hill Trigon, Inc. 2008).

2.1.5.3 Special Construction Procedures

In addition to standard pipeline construction methods, OPPC would use special construction procedures where warranted by site-specific conditions. These special techniques would be used when constructing across major paved roads, railroads, steep terrain, significant waterbodies or wetlands, and when blasting through rock.

Road Crossings

Construction across paved roads and highways would be in accordance with the requirements in road crossing permits and approvals obtained by OPPC. In general, most dirt roads would be open-cut, while major gravel and paved roads would be crossed by boring beneath the road. Each boring would be expected to take 2 to 10 days. A complete list of road crossings and the proposed crossing method for each is provided in the *Transportation Management Plan*.

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. Construction in areas with steep terrain would potentially require up to 25 feet of additional ROW width.

In areas where the proposed pipeline route would cross 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. In general, 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 original contours of the slope would be restored. Topsoil from the stockpile would be spread over the surface, erosion control features installed, and seeding implemented.

Waterbody Crossings

The pipeline would cross three major waterbodies and three perennial streams. The White, Yampa, and Little Snake rivers would be crossed using HDD. 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, slurry (i.e., drilling mud) made of non-toxic fluids (e.g., bentonite and water) would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the bore open. Pipe sections long enough to span the entire crossing would be staged and welded in 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 impacts on the banks, bed, or water quality of the waterbody being crossed.

At ditches lined with concrete and aqueducts made out of pipe, OPPC would use the HDD crossing method described above. When crossing waterbodies, OPPC would adhere to the guidelines outlined in the draft POD and the requirements of its waterbody crossing permits.

2.1.5.4 Aboveground Facility Construction Procedures

Construction activities at the mid-point pump station, if constructed, would follow a standard sequence of activities: clearing and grading, installing foundations for the pump and control buildings, and erecting the structures to house the pumps and associated facilities. Construction activities and the storage of building materials would be confined to the pump station construction site.

If constructed, the NGL piping to the pump station, both aboveground and belowground, 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 before backfilling. In addition, all below-grade facilities would be protected by a cathodic protection system. Cathodic protection would be provided by an impressed current. Before being put into service, pumps, controls, and safety devices would be checked and tested to ensure proper system operation and activation of safety mechanisms.

After the completion of startup and testing, the pump station site would be graded and landscaped, and a permanent security fence would be installed around the pump station. The station buildings would be designed to be as consistent as possible with the character of the surrounding land uses. The pump stations would be painted a color to enable the structures to blend into the surrounding landscape, native vegetation would be used for landscaping, and the minimum lighting necessary for safe operation of the facilities would be installed.

The construction of the pig launcher and receivers would be concurrent with the construction of the meter stations and MLVs. These facilities would all be constructed within the permanent ROW. Activities such as clearing, grading, trenching, clean-up, and restoration would occur simultaneously with construction activities associated with the pipeline. Where practical, MLVs typically would be located near public roads to allow year-round access. Permanent access roads or approaches may be constructed within the permanent ROW to some MLV sites.

2.1.5.5 Reclamation

Once the construction ROW and temporary access roads have been restored to approximate pre-construction grades and contours, to the extent possible, these areas of disturbance would be reclaimed in accordance with the *Environmental Protection Plan*. The plan identifies the seed mixes that have been developed in coordination with the appropriate jurisdictional agencies and describes the techniques that would be used for revegetation of disturbed lands resulting from construction of the proposed Project. In addition, the *Environmental Protection Plan* describes the subsequent monitoring and remediation that would be implemented during the operational phase of the Project to ensure long-term reclamation success and erosion control. The *Weed Management Plan* would be implemented in conjunction with the *Environmental Protection Plan* to control the spread of noxious weed species within the permanent ROW and ancillary facilities following construction. The plan identifies target species, determined in conjunction with the jurisdictional agencies; treatment methods; procedures for controlling the spread of weed species during construction; and post-construction monitoring and treatment methods. The use of pesticides for the treatment of noxious weed species would be in accordance with federal, state and local laws and regulations. Prior to use of pesticides on the ROW or within the ancillary facilities, OPPC would obtain any necessary approvals for use from the appropriate jurisdictional agency, if required.

2.1.5.6 Operation and Maintenance

OPPC would maintain the ROW in accordance with methods outlined in the POD and stipulations contained in the ROW Grant. Inspections of the ROW would be conducted as defined in 49 CFR Part 195. Subsequent inspection and maintenance of the ROW would include, but would not be limited to, soil stabilization, reseeding, and noxious weed control. Inspections for vegetation, weeds, and erosion control would be conducted annually until the success criteria have been achieved, at which time it would be inspected every 5 years for the life of the Project. The life of the Project would be a minimum of 50 years.

2.2 No Action Alternative

Under the No Action Alternative, the BLM would not issue a ROW grant for the proposed Project. Without a ROW grant across federal lands, the proposed pipeline could not be constructed due to the federal land ownership patterns in the region.

Despite the lack of sufficient transportation capacity, the extraction of natural gas (and associated NGL) would continue due to the nationwide demand for these products. Since the amount of NGL being produced in the region is expected to exceed the existing pipeline transportation capacity and given the market values of NGL, alternative proposals to transport or store the NGL likely would be developed under this alternative. ONEOK, Williams, OPPC, or other companies could submit a new ROW grant application to the BLM for a different pipeline route. This would initiate a new and separate NEPA process. To date, the BLM has not received any new NGL transmission pipeline applications in this region.

2.3 GRP Land Re-route Alternative

A 0.8-mile section of the proposed pipeline route from approximate MP 86.7 to 87.5 was recently designated as Grassland Reserve Program (GRP) land in August 2007. The GRP is a voluntary program, run by the NRCS, Farm Service Agency, and the U.S. Forest Service offering landowners the opportunity to protect, restore, and enhance grasslands on their property and providing assistance for rehabilitating grasslands. This portion of the Proposed Action route is at a location where it would parallel the existing pipeline corridor containing three other pipelines; including the recently constructed WIC Piceance and Entrega pipelines. However, lands that have been designated under the GRP cannot have any new easements overlying their existing easement even though there are other previously existing ROW easements. According to the NRCS, there are no regulatory variances to this policy allowed under the GRP. The purpose of this re-route alternative is to avoid the GRP land in the event that OPPC and NRCS are not able to come to a resolution that would allow the pipeline route to remain as proposed.

No aboveground facilities would be constructed along the GRP Land Re-route Alternative; it would consist of a pipeline re-route only. Approximately 2.7 miles of this 3.3-mile long alternative would cross BLM-managed land and 0.6 miles would cross State-managed land. The GRP Land Re-route Alternative would diverge from the Proposed Action route for approximately 2.0 miles in order to avoid crossing this 0.8-mile portion of GRP land. As shown in **Figure 2.3-1**, the GRP Land Re-route Alternative would leave the proposed route at approximate MP 86.4. It would traverse west for approximately 1.1 miles, then north for approximately 1.1 miles, and finally northeast for approximately 1.1 miles. It would rejoin the proposed route at approximate MP 88.4 adding approximately 1.3 miles to the total length of the project. Should the GRP Land Re-route Alternative be constructed, this additional 1.3 miles would represent an increase of less than 1 percent to the total 152.2 miles of the Proposed Action.

The primary differences between impacts under the GRP Land Re-route Alternative and the Proposed Action would be in the amount and type of lands and resources crossed. The key resources impacted would include those associated with surface disturbance such as soils, vegetation, and wildlife habitat. A summary comparison of the key resources that would result in a change in impacts under the GRP Land Re-route Alternative compared to the Proposed Action is presented in **Table 2.3-1** and the text below. Further detail regarding the affected environment and impacts associated with the GRP Land Re-route Alternative for each resource is presented in Chapters 3 and 4, respectively.

Construction of the GRP Land Re-route Alternative would increase the total amount of land disturbed during construction by approximately 11.8 acres from 1,599 acres to 1,611 acres. The entire length of the GRP Land Re-route Alternative would cross greenfields (i.e. previously undisturbed lands), increasing the amount of non-collocated ROW from 6.7 miles to 10.0 miles for the length of the project and potentially initiating a new corridor for pipelines and other utilities along this 3.3 mile alternative route. Additionally, construction activities involving vegetation removal and soil disturbance through previously undisturbed areas often contribute to the spread of noxious weeds by creating optimal conditions for the establishment and growth of such plant species. Construction along the Proposed Action route would avoid these impacts associated with opening a new corridor by following previously disturbed existing pipeline ROWs through the area.

Construction of the GRP Land Re-route Alternative would increase the total temporary disturbance of highly wind erodible soils by 13.4 acres (project total from 212.9 acres to 226.3 acres), highly water erodible soils by

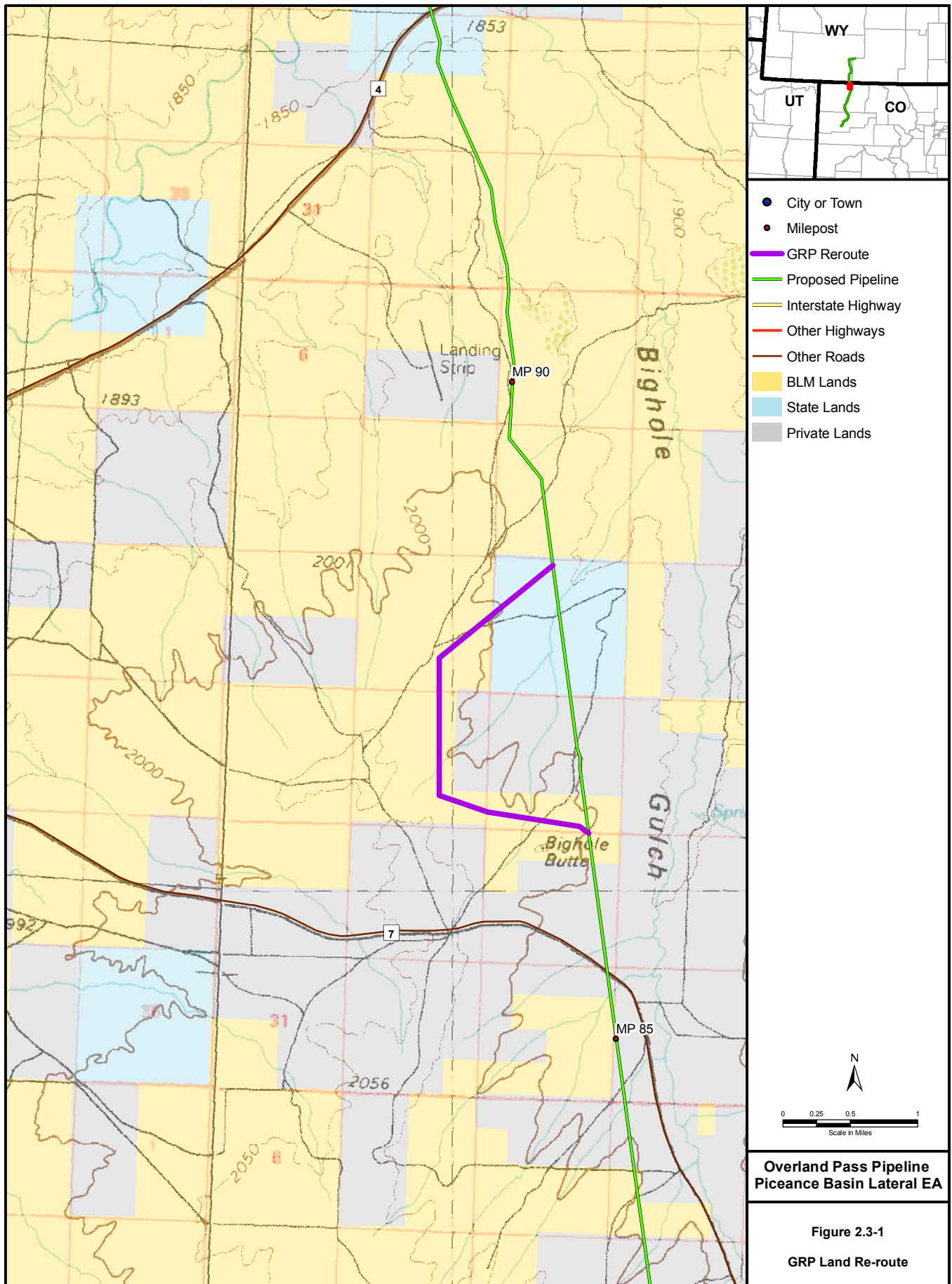


Table 2.3-1 Comparison of Key Resources Impacted by the GRP Land Re-route Alternative and the Proposed Action (MP 86.4 to MP 88.4)

Resource	Analysis Parameter	Proposed Action	GRP Land Re-route Alternative
Miles Crossed			
Project Total		152.2	153.5
Per Route Alternative		2.0	3.3
BLM Managed Lands		0.3	2.7
State Managed Lands		0.9	0.6
Private Lands		0.8	0.0
Co-location	Adjacent to Existing Utilities (e.g. pipelines, transmission lines)	2.0	0.0
Acres of Impact (during construction)			
Project Total		1,599	1,611
Colorado Total		1,007	1,019
Re-route Segment Total		19.0	30.8
Soils (Route Alt. only)	Wind Erodible	5.4	18.8
	Water Erodible	12.7	23.6
	Droughty	10.4	23.5
Wildlife	Sage-grouse habitat	19.0	30.8
Vegetation	Shrubland	19.0	30.8
Number of Occurrences			
Oil and Gas Wells	Wells within 400 feet of centerline	0	1
Wildlife	Active sage-grouse leks within 0.6 miles	0	1
Surface Water Crossings	Ephemeral Unnamed Tributaries to Bighole Gulch	1	6

10.9 acres (project total from 807.0 acres to 817.9 acres), and droughty soils by 13.1 acres (project total from 445.5 acres to 458.6 acres). These soils also support shrubland vegetation which provides habitat for greater sage-grouse.

The GRP Land Re-route Alternative would pass through an area designated by CDOW as “core sage-grouse habitat” (CDOW 2008c). The proposed re-route travels within 0.6 miles of an active sage-grouse lek. The original pipeline route travels through core habitat as well, but this previously disturbed habitat has already impacted local wildlife populations. The total area of two CDOW-designated sage-grouse core habitats that would be crossed in the proposed Project vicinity is approximately 647,900 acres. The Proposed Action construction would impact a total of approximately 421 acres (less than 0.07 percent) of that core habitat. The proposed re-route would impact an additional 11.8 acres of that core habitat.

Other resources impacted by construction of the GRP Land Re-route Alternative include the presence of one oil and gas well within 400 feet of the alternative route and the crossing of five additional ephemeral unnamed tributaries. The well is an exploratory well that was plugged and abandoned in 1995 (COGCC 2008) and the tributaries are small headwater tributaries to Bighole Gulch.

2.4 Alternatives Considered but Eliminated

To minimize impacts across greenfields, OPPC identified pipeline routes that parallel existing utility ROWs. The Willow Creek Gas Plant, which is the starting point of the proposed Project, is located near two existing pipeline routes: the WIC Piceance pipeline and the Entrega pipeline. The Proposed Action Alternative follows the WIC Piceance pipeline route along the southern-most part of the route. The South Connector Route Alternative would parallel the Entrega pipeline route along Piceance Creek and around the west side of Colorow Mountain until it would join with the WIC Piceance pipeline corridor and the Proposed Action route at approximately MP 42.0 (**Figure 2.4-1**). The North Connector Route Alternative would follow the Proposed Action Alternative route to approximately MP 136.5, at which point it would turn and trend in a northeasterly direction toward the Echo Springs pump station (**Figure 2.4-1**). The following sections discuss the issues with each alternative and why they were eliminated from consideration.

2.4.1 South Connector Route Alternative

The proposed facilities needed for this alternative would not change substantially from the Proposed Action. The pump station, meter station, and pigging facility configurations would be the same. The total number of MLVs would remain the same, but the locations between MP 0.0 and MP 42.0 would change. The primary differences between this alternative and the Proposed Action would be the amount and type of land and resources crossed. A summary comparison of the key resources that would be impacted by the South Connector Route Alternative compared to the Proposed Action is presented in **Table 2.4-1**.

The South Connector Route Alternative would be approximately 3 miles shorter than the Proposed Action. However, it is unlikely that this alternative would result in a significant reduction in total acreage impact due to the steep slopes and side slope construction that would be required, as well as multiple waterbody crossings that would require additional TWAs for construction. In addition, the corridor around Colorow Mountain is extremely crowded with existing pipelines and there is limited room for an additional pipeline. It is anticipated that construction along this route would require additional ROW associated with the increase in side-slope construction.

Under this alternative, the ROW would parallel Piceance Creek for approximately 20 miles. Due to meanders in the creek, the creek itself would be crossed numerous times. A number of tributaries also would be crossed near their confluences with Piceance Creek. This would increase the number of stream crossings by 32 beyond those of the Proposed Action within the first 42 miles. Many of the additional crossings would involve open cuts near the Piceance Creek mainstem. In spite of BMPs to control erosion, sedimentation, and spills, adverse water quality impacts during construction likely would be more significant than the potential impacts from the Proposed Action. Additionally, the proximity of this alternative to a long segment of Piceance Creek increases the potential risks for adverse water quality impacts from pipeline rupture, leaks, or maintenance activities during operations.

Due to the proximity to Piceance Creek, the South Connector Route Alternative would impact more wetland/riparian habitat and hydric soils than the Proposed Action route. Hydric soils are generally an indicator of the presence of wetlands, which are sensitive to disturbance and typically prone to compaction and displacement by heavy equipment. The increased presence of wetlands and waterbodies and the associated crossing locations along the South Connector Route Alternative increases the overall likelihood of adverse impacts to surface water quality, wetlands, and aquatic and riparian-associated plant and wildlife species over those associated with the Proposed Action.

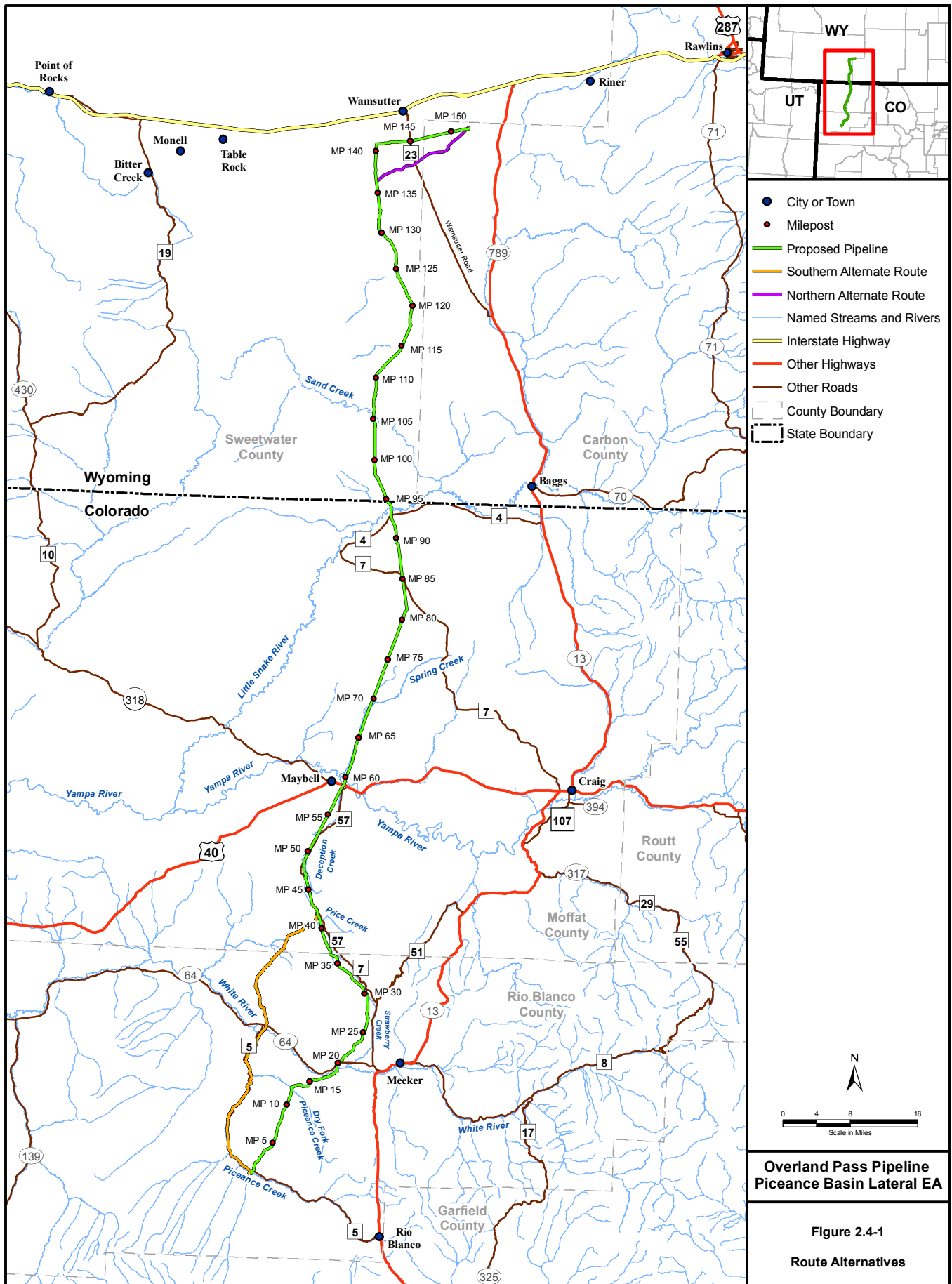


Table 2.4-1 Comparison of Key Resources Impacted by the South Connector Route Alternative and the Proposed Action (MP 0.0 to MP 42.0)

Resource	Analysis Parameter	Proposed Action	South Connector Route Alternative
Miles Crossed			
Project Total		152.2	149.2
Per Route Alternative		42.0	39.0
Co-location	Parallel to Existing Utilities (e.g., pipelines, transmission lines)	36.3	36.0
Wildlife	Mule Deer Severe Winter Range	13.6	24.5
Visual	Visual Resource Management (VRM) II	0.1	0.8
Acres of Impact			
Project Total		1,599	1,553
Colorado Total		1,007	955
Soils (Colorado only)	Topsoil Depth >18 inches	95	134
	Hydric Soils	2	58
Number of Occurrences			
Oil and Gas Wells	Wells within 400 feet of centerline	8	15
Surface Water Crossings	Perennial Stream Crossings	3	7
	Stream Crossings	20	43
	Piceance Creek Crossings	1	6
	Dry Fork Piceance Creek	1	1
	White River	1	1

The primary land uses crossed by the South Connector Route Alternative would be rangeland and forest. This alternative would impact previously undisturbed forested and shrubland communities as well as critical habitat (i.e., Severe Winter Range) for big game species such as mule deer. More than half the length of this Alternative would be within Mule Deer Severe Winter Range habitat, compared to less than a third of the length of the comparable section of the Proposed Action.

There are 15 oil and gas wells within 400 feet of the pipeline centerline of the South Connector Route Alternative while between MP 0.0 and MP 42.0 along the Proposed Action route there are only eight oil and gas wells. The increased number of oil and gas wells in close proximity presents a greater safety concern and increases the potential that the pipeline would need to be re-routed to avoid these wells.

The landscape that would be crossed by the South Connector Route Alternative consists of gently rolling landforms with vegetation limited to shrubs or grasses, diverse riparian landscape, and steeply sided

landforms with shrubs and coniferous vegetation. View distances range from foreground, to middleground, and background (more than 5 miles). Compared to the Proposed Action, approximately 0.7 additional miles of VRM Class II and 1.1 fewer miles of VRM Class III would be dedicated to operational pipeline ROW for the Project life.

Considering the anticipated undesirable residual impacts associated with this route as noted above, as well as the problems encountered during construction of the recent Entrega pipeline along that route, the South Connector Route Alternative was eliminated from detailed analysis.

2.4.2 North Connector Route Alternative

Like the South Connector Route Alternative, the proposed facilities needed for this alternative would not change substantially from the Proposed Action. The pump and meter station configurations would be the same as would the pigging facilities. The total number of MLVs and their locations would remain the same. The primary concern with this alternative is that it would open a new corridor for pipelines and other utilities. The Proposed Action avoids impacts associated with opening a new corridor by following an existing utility ROW as the route turns northeast south of Wamsutter toward the Echo Springs Pump Station. A summary comparison of the key resources that would be impacted by the North Connector Route Alternative compared to the Proposed Action is presented in **Table 2.4-2**.

This alternative would shorten the overall length of the pipeline by approximately 3 miles, resulting in less total surface disturbance; however, the entire 13-mile length of the alternative route would be across greenfields rather than running parallel to existing previously disturbed areas.

Construction activities through previously undisturbed areas often contribute to the spread of noxious weeds. Vegetation removal and soil disturbance during construction can create optimal conditions for the establishment of noxious weeds. Constructing through previously disturbed areas would limit the potential spread of noxious weeds to previously undisturbed areas.

The North Connector Route Alternative would be located immediately adjacent to Echo Spring, and excavation in the vicinity is likely to have adverse impacts on the duration or timing of flows from this feature. Given that surface water resources are sparse in the area, any such effect would be an adverse impact to the available resource.

During operations, any spills or leaks that occurred would be isolated in the enclosed basins nearby. Although such events are unlikely, they may adversely impact temporary habitats associated with dry or seasonal lakes in the area. Due to the isolated and intermittent or ephemeral nature of ponding in these features, a spill or leak would have minimal effect on surface water resources in the dry lakes. However, if an operational event were to reduce flow or water quality at Echo Spring, it would result in adverse impacts.

Although this alternative would impact previously undisturbed forested and shrubland communities, no additional big game critical winter habitat would be crossed. Total miles crossed and acreages impacted for big game critical winter habitat would be the same as the Proposed Action. However, this alternative would cross 60 percent more previously undisturbed habitat for the mountain plover, a BLM sensitive species.

There are 15 oil and gas wells within 400 feet of the pipeline centerline of the North Connector Route Alternative while between MP 136.5 and MP 152.2, along the Proposed Action route, there are only 2 oil and gas wells.

When compared to the Proposed Action, the North Connector Route Alternative would disturb less land; however, it would generally have a greater impact on resources. Considering the anticipated undesirable residual impacts associated with this route as noted above, the North Connector Route Alternative was eliminated from detailed analysis.

Table 2.4-2 Comparison of Key Resources Impacted by the North Connector Route Alternative and the Proposed Action (MP 136.5 to MP 152.2)

Resource	Analysis Parameter	Proposed Action	North Connector Route Alternative
Miles Crossed			
Project Total		152.2	149.2
Per Route Alternative		15.7	12.7
Co-location	Parallel to Existing Utilities (e.g., pipelines, transmission lines).	15.2	0.0
Wildlife	Mountain Plover Habitat	3.5	5.7
Acres of Impact			
Project Total		1,599	1,562
Wyoming Total		592	574
Number of Occurrences			
Oil and Gas Wells	Wells within 400 feet of centerline	2	15
Surface Water Crossings	Stream Crossings	5	8
	Echo Springs Draw	0	2

3.0 Affected Environment

3.1 Air Quality

3.1.1 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. 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, arid climates receive less than 10 inches of precipitation annually. The higher elevations, localized areas, and mountains generally receive greater amounts of precipitation, often 4 to 5 times as much as lower elevations.

As shown in **Table 3.1-1**, specific characterization of the local weather based on data from Meeker, Colorado, indicates an average annual maximum temperature of 60.4 degrees Fahrenheit (°F) and an average annual minimum temperature of 27.4°F. As shown in **Table 3.1-2**, specific characterization of local weather data from Wamsutter, Wyoming, indicates an average annual maximum temperature of 55.3°F and an average annual minimum temperature of 27.3°F. Average annual precipitation in each location is less than 20 inches.

3.1.2 Existing Air Quality

National Ambient Air Quality Standards (NAAQS) have been established by the USEPA for six criteria pollutants. The purpose of the NAAQS is to protect human health (primary standards) and public welfare (secondary standards). Pollutant concentrations in the ambient air that are greater than the NAAQS are considered potentially harmful. The USEPA set NAAQS for the following air contaminants: nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), sulfur dioxide (SO₂), lead (Pb), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM₁₀), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM_{2.5}). The states are required to implement and enforce the NAAQS under a process called State Implementation Plans, which are approved by the USEPA.

The USEPA (2008) has designated areas of the U.S. as “attainment,” “non-attainment,” or “unclassified” with respect to ambient air quality standards. Federal and state air quality regulations are designed to ensure that ambient air quality from existing and new sources are in compliance with the ambient standards. All areas of Colorado and Wyoming through which the Project would be located are classified as attainment for all criteria pollutants. NAAQS and Colorado and Wyoming Ambient Air Quality Standards (CAAQS and WAAQS, respectively) are listed in **Table 3.1-3**.

Table 3.1-1 Average Temperature and Precipitation at Meeker, Colorado

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	36.4	40.4	48.1	58.5	69.1	79.0	85.7	83.1	75.1	63.6	49.0	37.3	60.4
Average Min. Temperature (°F)	6.9	11.6	20.1	28.1	34.7	40.4	47.0	46.0	37.6	28.2	18.6	9.4	27.4
Average Total Precipitation (in.)	1.10	1.02	1.34	1.72	1.48	1.20	1.37	1.79	1.59	1.50	1.18	1.13	16.43
Average Total Snowfall (in.)	15.0	11.9	11.3	5.5	0.6	0.0	0.0	0.0	0.5	2.7	9.2	13.0	69.6
Average Snow Depth (in.)	5	4	1	0	0	0	0	0	0	0	1	3	1

Source: Western Regional Climate Center (WRCC) 2008, Station 055484 – Period of Record: 1/11/1900 to 6/30/2007.

Table 3.1-2 Average Temperature and Precipitation at Wamsutter, Wyoming

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	27.9	32.7	41.2	53.7	64.6	75.8	83.9	81.5	72.2	59.0	41.0	29.9	55.3
Average Min. Temperature (°F)	7.3	10.5	17.8	26.0	34.2	42.3	49.0	47.1	38.5	28.6	17.1	9.4	27.3
Average Total Precipitation (in.)	0.25	0.24	0.37	0.69	1.05	0.76	0.79	0.79	0.76	0.57	0.34	0.23	6.84
Average Total Snowfall (in.)	4.0	3.4	3.7	2.6	0.8	0.0	0.0	0.0	0.3	1.2	3.3	3.4	22.9
Average Snow Depth (in.)	2	1	1	0	0	0	0	0	0	0	0	1	0

Source: WRCC 2008, Station 489459 – Period of Record: 8/1/1948 to 11/30/2004.

Table 3.1-3 Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu\text{g}/\text{m}^3$)	CAAQS ($\mu\text{g}/\text{m}^3$)	WAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂	Annual	100	100	100
CO	1-Hour 8-Hour	40,000 10,000	40,000 10,000	40,000 10,000
SO ₂	3-Hour 24-Hour Annual	1,300 365 80	700 365 80	1,300 260 60
PM ₁₀	24-Hour Annual	150 50	150 50	150 50
PM _{2.5}	24-Hour ¹ Annual	35 15	35 15	35 15
O ₃	8-Hour	147	147	147
Pb	Monthly Quarterly	-- 1.5	1.5 --	-- 1.5
Hydrogen sulfide (H ₂ S)	0.5-Hour	--	--	40/70 ²

¹Based on the annual 98th percentile concentration.

²40 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) not to be exceeded more than twice in any 5 consecutive days. 70 $\mu\text{g}/\text{m}^3$ not to be exceeded more than twice per year.

National standards, other than O₃ and those based on annual averages, are not to be exceeded more than once a year. Annual pollutant averaging periods shall not be exceeded. The 8-hour O₃ standard is attained when the fourth highest 8-hour concentration in each year, averaged over 3 consecutive years, is equal to or less than the standard of 0.075 parts per million (ppm).

The CDPHE and WDEQ have responsibility for monitoring statewide air quality. Most monitoring typically is performed in areas where levels of air pollution are anticipated to be significant. Ambient air monitoring data in the vicinity of the proposed Project does not exist in Colorado, as there are no monitoring locations for criteria pollutants located in Rio Blanco or Moffat counties. Per the CDPHE, background levels in the vicinity of the proposed Project area in Colorado are identified in **Table 3.1-4**.

Table 3.1-4 Air Quality Background Levels in Colorado

Pollutant	Averaging Period	Concentration	Units	Location
PM ₁₀	Annual	11	ug/m ³	American Soda, Piceance 2003-2005
	24-hour	36	ug/m ³	
SO ₂	Annual	0.002	ppm	Unocal, 1983-1984
	3-hour	0.009	ppm	
	24-hour	0.005	ppm	
NO ₂	Annual	0.005	ppm	Rural default based on EnCana near Parachute Creek
CO	1-hour	1.0	ppm	American Soda, Piceance 2003-2005
	8-hour	1.0	ppm	

Source: CDPHE 2008.

There is an air quality monitoring station located approximately 2 miles west of Wamsutter, Wyoming. The station began operation in March 2006. Monitoring equipment includes an O₃ analyzer, NO₂ analyzer, PM₁₀ monitor, and meteorology sensors. At this time, the station is not equipped with a digital camera. This station broadcasts near real-time meteorology and pollutant measurements. When data from this monitor was reviewed on February 20, 2008 (WDEQ 2008), the 8-hour rolling average for O₃ was 0.057 ppm, the 24-hour rolling average for NO₂ was 0.011 ppm, and the 24-hour rolling average for PM₁₀ was 6 µg/m³. Each of these readings is well below the NAAQS and WAAQS identified in **Table 3.1-3**. As mentioned previously, air quality in the region is classified as being in attainment for all criteria pollutants.

The nearest federal Prevention of Significant Deterioration (PSD) Class I Areas are the Flat Tops Wilderness area, located approximately 35 miles (56 km) from the Project, and the Mount Zirkel Wilderness area located approximately 70 miles (113 km) from the Project. Dinosaur National Monument, a Colorado-designated Class I area for SO₂, is located approximately 30 miles (48 km) from the Project.

3.1.3 Carbon Dioxide Emissions

Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide are all naturally occurring greenhouse gases (GHGs) whose concentrations in the atmosphere have increased as a result of human activities since the dawn of the industrial revolution. GHGs in general, and CO₂ in particular, have become an issue of intense public debate and much recent litigation. In *Massachusetts v. USEPA*, the U.S. Supreme Court held that CO₂ satisfies the definition of “air pollutant” and that the USEPA has authority to regulate emissions of CO₂ and other GHGs from new motor vehicles under the CAA (Supreme Court of the United States 2006). It is important to note that the Court did not rule that CO₂ and other GHGs were subject to regulation under the Clean Air Act (CAA), nor did the Court require creation of any standards or emission control requirements for GHGs.

CO₂ is not a criteria pollutant for which NAAQS are set, nor is it regulated under New Source Performance Standards (NSPS), Maximum Achievable Control Technology, or any other CAA regulatory emission standards or limitations. Therefore, although CO₂ is an air pollutant, it is not a regulated air pollutant for CAA regulatory and permitting purposes. No regulatory limitations or other CAA emission standards apply to CO₂.

3.1.4 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding air quality would be the same as described for the Proposed Action.

3.2 Geology, Minerals, and Paleontological Resources

3.2.1 Physiography and Geology

The proposed Project route would cross parts of two major physiographic provinces: the Uinta-Piceance Basin Section of the Colorado Plateaus Province and the Wyoming Basin Province of the Rocky Mountain System Division (U.S. Geological Survey [USGS] 2003) (**Figure 3.2-1**). The Wyoming Basin Province generally consists of mountain ranges separated by broad basins, while the Colorado Plateau province is characterized by plateaus and mesas, often heavily incised by erosion. The proposed Project is in the Colorado Plateaus from MP 0.0 to approximate MP 48.0 and in the Wyoming Basins Province from approximate MP 48.0 to MP 152.2. Elevations range from approximately 6,200 to 7,400 feet above mean sea level (amsl), with the highest areas of elevation being encountered at the southern end of the proposed route.

The bedrock geology in the proposed Project area consists of Upper Cretaceous and Tertiary sedimentary rocks. The rock units and brief descriptions are presented on **Table 3.2-1**. The bedrock formations that would be crossed and location of formation contacts have been taken from the paleontological survey that was conducted for the Project in January 2008 (Erathem-Vanir Geological 2008) and from published USGS sources (Love and Christiansen 1985; Tweto 1979). Because of inter-fingering relationships between the Green River and Wasatch formations, contacts are often difficult to distinguish.

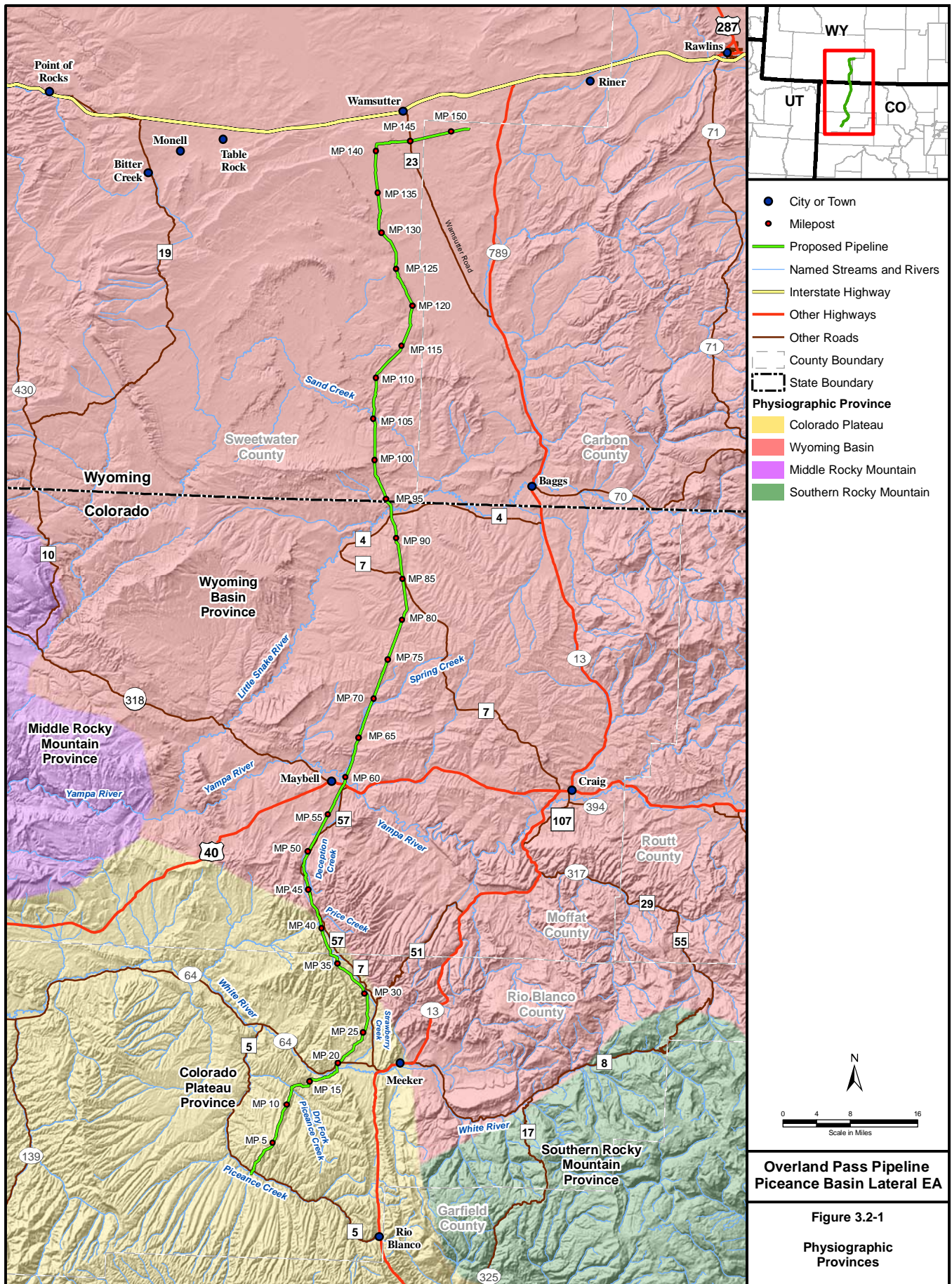
Unconsolidated Recent and Pleistocene-aged surficial deposits are present in the form of alluvium, colluvium, or sand dunes. These deposits can be found in stream valleys as modern alluvium (stream-laid deposits), older alluvium found on terraces, or eolian (wind-blown) deposits (Love and Christiansen 1985; Tweto 1979).

3.2.2 Mineral Resources

The primary mineral resources in the proposed Project area are oil and natural gas. The proposed Project route would cross the Uinta-Piceance Basin and the Greater Green River Basin, important oil and gas producing basins. The proposed Project is located in two sub-basins of the Greater Green River Basin: the Sand Wash Basin and the Washakie Basin. **Table 3.2-2** provides a summary of the oil and gas fields that would be crossed by the proposed Project. Analysis of the proposed route indicates that approximately 22 oil and gas wells were located within 400 feet of the centerline of the Proposed Action (**Table 3.2-3**). Most of the wells are producing gas wells, but several have been plugged and abandoned or the status was not determinable from the database.

Another important mineral resource in the vicinity of the proposed Project is coal. The proposed Project lies within two defined coal resource regions: the Uinta Coal Region and the Green River Coal Region (Averitt 1972). The proposed Project would cross the Danforth Coal Field that lies in the Uinta Coal Region. No major operating coal mines are in the vicinity of the proposed Project (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008; Wyoming Mining Association 2008).

Oil shale resources may be present where the proposed Project would cross the Uinta and Green River Formations (**Table 3.2-1**). Oil shale has been mined in the vicinity, but there are no operating mines. Other mineral resources in the area include uranium, limestone, and aggregate. Uranium and limestone have been mined near Maybell, Colorado. While limestone is actively mined, there is no current uranium mining activity (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008). From approximate MP 100.0 to MP 140.0, the proposed route would cross rock that may be underlain by oil shale deposits of the Green River Formation, but the deposits are low grade (less than 25 barrels per ton) and there are no



Overland Pass Pipeline
Piceance Basin Lateral EA

Figure 3.2-1

Physiographic
Provinces

Table 3.2-1 Summary of Geologic and Paleontologic Resources Along the Proposed Route

Geologic Formation/Deposit	Age	Description	Fossil Potential/BLM Condition¹	Approximate MP
Alluvium/Colluvium	Quaternary (Recent)	Sand, silt, clay, and gravel	None/3	Sporadically throughout entire route
Older alluvium/colluvium	Pleistocene	Sand, silt, clay, and gravel	Vertebrates/3	Near major river crossings, pediment surfaces
Uinta Fm (Tu)	Eocene	Sandstone and siltstone	Vertebrates, invertebrates, plants, trackways/1	MP 0.0 – 16.0 intertongued w/Tgp and Tgl
Green River Fm (Tg) Parachute Creek Mbr (Tgp) Undivided Garden Gulch, Douglas Creek, & Anvil Points Mbrs (Tgl) Laney Member (Tgla) contains: LeClède & Hartt Cabin Beds Tipton Tongue (Tgt) Lumen Tongue (Tglu)	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	MP 16.0 – 19.0 Interfingers throughout most of the pipeline route
Wasatch Fm (Tw) Cathedral Bluffs Tongue (Twc) Niland Tongue (Twn)	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	19.0 – 42.0
Mesaverde Group (Kmv) Williams Fork Formation (Kmw) Iles Formation (Kmi)	Late Cretaceous	Sandstone, shale, and coal beds	Vertebrates, invertebrates, plants, traces/2	42.0 – 48.0 mixed w/Quaternary deposits
Mancos Shale (Km)	Late Cretaceous	Organic-rich, marine shale	Invertebrates, plants, traces, rarely vertebrates/2	48.0 – 51.0 mixed w/Quaternary deposits and Tbp
Browns Park (Tbp)	Miocene	Slightly consolidated tuffaceous sediment	Vertebrate, invertebrates, plants/2-3	51.0 – 62.5

Table 3.2-1 Summary of Geologic and Paleontologic Resources Along the Proposed Route

Geologic Formation/Deposit	Age	Description	Fossil Potential/BLM Condition¹	Approximate MP
Williams Fork (Kmw)	Late Cretaceous	Sandstone, shale, and coal beds	Vertebrates, invertebrates, plants, traces/2	62.5 – 63.0
Lewis Shale (Kls)	Late Cretaceous	Marine shale containing isolated sandstone lenses	Invertebrates, vertebrates (rare)/2	63.0 – 63.25
Lance Formation and Fox Hills Sandstone (Kla)	Late Cretaceous	Sandstone, carbonaceous shale, and thin coal beds	Vertebrates, invertebrates, plants, traces/1-2	63.25 – 63.5
Fort Union	Paleocene	Shale, sandstone, and coal	Vertebrates, invertebrates, plants	63.5 – 64.0
Wasatch Fm (Tw) Cathedral Bluffs Tongue (Twc) Niland Tongue (Twn)	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	64.0 – 152.0 mixed w/ Twc, Twn, Tgla
Green River Formation	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	139.0 – 143.0
Wasatch Formation	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	143.0 – 143.5
Green River Formation	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	143.5 – 144.0
Wasatch Formation	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	144.0 – 152.0
Washakie Formation (Twa); Adobe Town Member (Twka)	Eocene	Interbedded Volcaniclastic sedimentary rock and clastic sandstone	Vertebrates, invertebrates, plants, traces/1	101.0 – 107.0 Very intermittent

¹BLM conditions defined in Section 3.2.4.

Source: Erathem-Vanir Geological (2008); Love and Christiansen (1985); Tweto (1979).

Table 3.2-2 Oil and Gas Fields Crossed by the Proposed Route

Field Name	Status	State	Producing Strata	Approximate MP
Piceance Creek	Active	Colorado	Cretaceous, Tertiary	1.0 – 7.0
Powell Park	Active	Colorado	Cretaceous, Tertiary	20.0 – 22.0
Danforth Hills North	Active	Colorado	Jurassic	49.0 – 50.0
Big Hole	Active	Colorado	Cretaceous	80.0 – 82.0
State Line	Shut-in	Wyoming	Tertiary	95.0 – 98.0
Cedar Breaks	Active	Wyoming	Cretaceous	103.0 – 104.0
Wild Rose	Active	Wyoming	Cretaceous	133.0 – 139.0
Frewen	Active	Wyoming	Cretaceous	140.0 – 143.0
Echo Springs	Active	Wyoming	Cretaceous	150.0 – 152

Sources: DeBruin (2005); Colorado Oil and Gas Conservation Commission (2008); Wray et al. (2002); Wyoming Oil and Gas Conservation Commission (2006).

Table 3.2-3 Oil and Gas Wells within 400 Feet of the Proposed Route

Milepost	Distance from Centerline (feet)	Relative Direction from Centerline
0.8	146	West
3.0	184	East
3.3	141	West
3.4	242	East
4.1	337	West
5.2	297	East
20.2	223	West
20.9	166	West
49.2	55	East
49.3	355	West
51.2	350	West
80.0	257	West
81.9	348	East
104.0	364	East
124.2	371	East
124.5	273	West
125.1	213	West
125.1	214	West
125.6	81	West
132.0	12	East
136.9	203	West
138.6	381	West

Sources: Colorado Oil and Gas Conservation Commission (2008); Wyoming Oil and Gas Conservation Commission (2008).

active oil shale extraction operations in the vicinity of the Wyoming portion of the proposed Project (Root et al. 1973; Wyoming Mining Association 2008). There are several sand and gravel pits in the vicinity of the proposed route (**Table 3.2-4**).

Table 3.2-4 Aggregate Pits in Close Proximity to the Proposed Pipeline Route

MP	Location (Section, Township, Range)	Status
5.0 – 5.25	NE Section 8, T2S, R96W	Intermittent
16.0	SWSW Section 31, T1S, R95W	Active
57.0 – 58.0	Section 33, T7N, R95W	Undetermined; numerous pits in vicinity
	Section 4, T6N, R95W	

Source: Colorado Division of Reclamation Mining and Safety (2008).

An important mineral resource in the Piceance Basin is the sodium carbonate mineral nahcolite, which is similar to trona that is mined in the Green River Basin of Wyoming. Sodium carbonate has a variety of industrial uses. Nahcolite occurs in association with oil shale and the resource potential in the Piceance Basin is estimated at 32 billion tons (Dyni 1996). The proposed route would not cross any active nahcolite mines (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008). The proposed route is east of the high-grade nahcolite deposits and is underlain by nahcolite bearing oil shale beds that are less than 100 feet thick while the thickest nahcolite bearing beds are up to 1,000 feet thick 6 miles northwest of the MP 1.0 (Hardy et al. 2003; Dyni 1996).

Sodium carbonate mineralization may be present in the members of the Green River Formation that would be crossed in the Wyoming portion of the proposed Project, but would be of very low grade as compared to the trona further west in the Green River Basin or nahcolite deposits in the Piceance Basin (Dyni 1996). There are no mines that extract this commodity along the proposed route in Wyoming (Wyoming Mining Association 2008).

3.2.3 Geological Hazards

Geologic hazards are natural physical conditions that can result in damage to the land and structures, or injury to people. Potential geologic hazards in the proposed Project area consist of seismic related hazards, landslide, and flooding/scour. The conditions necessary for the occurrence of other geologic hazards, such as subsidence and volcanism, are not present in the proposed Project area (Colorado Geological Survey 2001; National Atlas 2008).

3.2.3.1 Seismicity

Northwest Colorado and south-central Wyoming have historically had little earthquake activity (USGS 2008a; Case and Green 2000). The strongest earthquake reported in the proposed Project area occurred on April 5, 1999, in southwestern Carbon County, about 20 miles southeast of Wamsutter, Wyoming (Case et al. 2002). A 4.6 magnitude earthquake was felt over a large area of Sweetwater and Carbon counties, Wyoming. Damage consisted of cracked walls and masonry. No potentially active faults were identified near or along the proposed route (USGS and Colorado Geological Survey 2008). An active fault is defined as a fault where movement has occurred in the last 10,000 years (USGS 2008b).

The USGS ground motion hazard mapping indicates that potential ground motion hazard in the proposed Project area is low to moderate. The hazard map used estimates of peak ground acceleration expressed as a

percentage of the acceleration of gravity with a 2 percent probability of exceedence in 50 years (Frankel et al. 1997; USGS 2008c). The ground motion from a large earthquake event in the proposed Project area would create ground motions of 20 percent or less of gravity.

3.2.3.2 Landslides

Landslide is a term used for various processes involving the movement of earth material down slopes (USGS 2004). Landslides can occur in a number of different ways in different geological settings. Large masses of earth become unstable and by gravity begin to move downhill. The instability can be caused by a combination of steep slopes, periods of high precipitation, undermining of support by natural processes (stream erosion), or unintentional undercutting or undermining the strength of unstable materials in the construction of roads and structures.

The proposed Project is located in areas of varying landslide susceptibility and recorded incidence (**Table 3.2-5**). Landslide susceptibility “refers to the likelihood of a landslide occurring in an area on the basis of terrain conditions,” but does not take into account the probability of occurrence (National Research Council 2004). Incidence is based on the percentage of area involved in movement (low: less than 1.5 percent; moderate: 1.5 to 15 percent, and high: more than 15 percent) (Radbruch-Hall et al. 1982). A segment of the proposed route that would cross areas characterized by low incidence and high susceptibility is the Uinta Formation where slides and slumps involve the Parachute Creek member (O’Sullivan 1987). An area of moderate incidence and low susceptibility that would be crossed by the proposed route is the Tertiary lake bed and continental deposits of the Green River and Wasatch Formations (Radbruch-Hall et al. 1982). In this area, beds become unstable due to sliding and flowing, especially during wet conditions. The northern segment of the proposed route is in an area that has less relief than the southern portion of the route (MP 0.0 to MP 116.0) and potential slope instability is moderated. The proposed route would not cross identified landslide deposits (Carrara 1980; Colton et al. 1976; Hail and Pippingos 1994; Hail and Smith 1994; Roehler 1985; Whitney 1981; Wyoming Geological Survey 2004). The proposed route would not cross steep slopes where the bedrock is the Mancos Shale.

Table 3.2-5 Landslide Incidence and Susceptibility Along the Proposed Route

Pipeline Segment (Approximate Mileposts)	Landslide Incidence	Landslide Susceptibility
0.0 – 19.0	Low	High
19.0 – 116.0	Low	Moderate
116.0 – 152.0	Low to moderate	Low

Sources: National Atlas (2008); Radbruch-Hall et al. (1982).

3.2.3.3 Flood Hazards

In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the proposed pipeline route would cross localized drainages. The proposed pipeline route would cross 5 perennial streams and 50 ephemeral drainages, all of which are locations where seasonal or flash flooding could occur (**Appendix A**).

3.2.3.4 Subsidence

No ground subsidence or karst hazards are present in the vicinity of the proposed route (Colorado Geological Survey 2001; National Atlas 2008).

3.2.4 Paleontological Resources

The BLM Paleontology Resources Management Manual establishes a classification system for ranking paleontological areas as to their potential for noteworthy occurrences of fossils (BLM 1998). The handbook states:

"Public lands may be classified based on their likelihood to contain fossils, using the following criteria:

- a. Condition 1 – Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Consideration of paleontological resources would be necessary if the Field Office review of available information indicates that such fossils are present in the area.
- b. 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. The presence of geologic units from which fossils have been recovered elsewhere may require further assessment of these same units where they are exposed in the area of consideration.
- c. 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. However, if possible, it should be noted at what depth bedrock may be expected in order to determine if fossiliferous deposits may be uncovered during surface disturbing activities.

Either Condition 1 or Condition 2 may trigger the initiation of a formal analysis of existing data prior to authorizing land-use actions involving surface disturbance or transfer of title. Condition 3 suggests that further paleontological consideration is generally unnecessary."

Table 3.2-1 summarizes the paleontologic resource potential and sensitivity of geologic formations crossed by the proposed route. The proposed route was surveyed for paleontologic resources (Erathem-Vanir Geological 2008). Most of the proposed route is underlain by Condition 1 and 2 formations, indicating a high degree of sensitivity for the probability of scientifically important fossils. Eight new fossil localities were discovered and a number of previously documented localities were identified.

3.2.5 GRP Land Re-route Alternative

The surficial geological materials that would be crossed by the GRP Land Re-route Alternative consist of recent and older alluvium (Tweto 1979). The bedrock is composed of the Wasatch Formation (**Table 3.2.1**). Only one oil and gas well was identified within 400 feet of the re-route (377 feet east of approximate MP ALT-1.2). It was an exploratory well that was plugged and abandoned in 1995 (COGCC 2008). There are no gravel pits or other mining activities close to the re-route (Colorado Division of Reclamation Mining and Safety 2008). There are no geologic hazards due to seismicity, landslides, or subsidence. The potential flood hazard would be greater since the re-route would cross 5 more drainages. The paleontological potential would be low since the re-route would cross alluvial material at the surface and most likely within the depth of excavation.

3.3 Soils

The soil baseline characterization for the proposed Project route in Colorado is based on Soil Survey Geographic (SSURGO) database review and analyses. Field mapping methods using national standards are used to construct the soil maps in the SSURGO database. Mapping scales generally range from 1:12,000 to 1:63,360. SSURGO is the most detailed level of soil mapping done by the NRCS. SSURGO digitizing duplicates the original soil survey maps. The map extent for a SSURGO dataset is a soil survey area (NRCS 2007a).

Sweetwater and Carbon counties in Wyoming do not have an NRCS correlated soil survey. General Soil Map (STATSGO) data are used for those areas where SSURGO data are unavailable. STATSGO data contain physical and chemical properties, as well as interpretative grouping for approximately 18,000 soil series recognized in the U.S (NRCS 2007b).

Soil resources within the proposed Project area have formed within the Cool Central Desertic Basins Mountains and Plateaus Major Land Resource Area (MLRA) 34A (NRCS 2006a). The physiography of the area is characterized by alluvial fans, piedmont plains, and pediments slope from the surrounding mountains that form broad intermountain basins. Elevations throughout this MLRA range from 6,200 to 7,200 feet amsl. The dominant soils are Orthents. They are shallow to very deep and medium to fine textured and have a frigid temperature regime, an aridic moisture regime, and mixed or montmorillonitic mineralogy. Torriorthents (Patent and Garsid series) and Haplargids (Diamondville and Fraddle series) are on piedmont plains, alluvial fans, and pediments. Torrifluvents are on floodplains. Shallow Torriorthents (Blazon and Haterton series) are on rough, broken slopes. Some Torriorthents (Elkol series) and Torrifluvents (Laney series) have a high content of exchangeable sodium.

A variety of soils occur across the proposed Project area. This soil variability stems primarily from a variety of parent materials as influenced by topography, aspect, elevation, vegetation, and differential rates of mineral weathering. The soils formed from alluvium, residuum, and colluvium parent materials derived from sandstones and shales.

The Rio Blanco County survey area consists of river basins and moderately to steeply sloping mountains. The proposed route originates near Piceance Creek. The Piceance Creek basin consists of a nearly level narrow valley floor with deep alluvial soils. The valley is bounded by steep, eroded areas of hills, ridges, and canyon sides with shallow soils and outcroppings of sandstone, shale, limestone, or siltstone. The White River Valley is a broad valley with deep alluvial, often hydric soils. The valley is surrounded by ridges, foothills, and mountainsides with shallow to moderately deep soils formed in residuum and colluvium.

The Moffat County survey area consists of river basins, rolling hills, and moderately to steeply sloping mountains. The proposed route crosses two of the rivers within the survey area, the Yampa and Little Snake. The Yampa River basin consists of a nearly level broad valley floor with deep alluvial soils and strongly rolling hills dissected by numerous creeks. The Little Snake River basin consists of a nearly level valley floor with deep alluvial soils and strongly rolling hills dissected by numerous intermittent creeks. Steep breaks are common in this basin. The mountainous areas consist of strongly sloping narrow to broad plateaus dissected by very steep-sided gulches dropping several hundred feet below the plateaus.

The Sweetwater County and Carbon County survey areas consist of shrublands on gently rolling to moderately steep slopes. The proposed route crosses the Willow and Sand Creek drainages in the south portion of Sweetwater County, while avoiding Willow Creek Rim. The proposed route would continue north through moderately sloping breaks and gradually transitions to gently rolling hills.

Appendix B contains a table listing the various soil types within the proposed Project area. The soils proposed to be disturbed are developing on a variety of slopes ranging from 1 to 90 percent. Some of these have a severe hazard of erosion by water. A propensity for gullying is common to selected soil types within the

proposed Project area. In Colorado, soil types such as Badland, Gullied Land, and Torrifluvents are typically eroded and often unvegetated. Maybell and Ryan Park soils would be encountered in Wyoming and Colorado. These soils are droughty and prone to wind erosion when disturbed. Hydric soils may be present on soils characterized by swales, floodplains, stream terraces, alluvial fans, alluvial flats, and valley floors. Soils such as Hagga are found in Colorado and Wyoming and are poorly drained with a fluctuating water table. A saline phase of the Battlement soil would be encountered in Colorado. The soils have saline soil properties, which can affect reclamation potential.

The U.S. Department of Agriculture NRCS defines prime farmland as land that has the best combination of physical and chemical characteristics for producing crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Approximately 207 acres of Prime Farmland would be crossed by the proposed route in Colorado. There would be no occurrences of Prime Farmland along the proposed route in Wyoming.

Topsoil depths in Colorado and Wyoming are listed in **Table 3.3-1** and **Table 3.3-2**, respectively. Topsoil depths along the proposed pipeline route were quantified by grouping the lower limit of the component soil-series A horizons into one of five groups: 0 to 6 inches, 6 to 12 inches, 12 to 18 inches, 18 to 24 inches, and greater than 24 inches.

Table 3.3-1 Topsoil Depth Along the Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	0-6 inches	6-12 inches	12-18 inches	18-24 inches	>24 inches
Permanent Easement	Rio Blanco	108.0	62.4	25.8	18.4	10.4
Temporary Easement	Rio Blanco	54.6	31.7	12.6	8.7	5.2
TWAs	Rio Blanco	24.4	23.1	8.4	0.9	5.3
Permanent Easement	Moffat	185.0	134.5	7.6	8.0	16.1
Temporary Easement	Moffat	105.7	67.1	3.8	3.8	7.8
TWAs	Moffat	30.6	26.0	0.7	2.1	8.5
Totals¹		508.3	344.8	58.9	41.9	53.3

¹Does not include 51.6 acres for an off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-2 Topsoil Depth Along the Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	0-6 inches	6-12 inches	12-18 inches	18-24 inches	>24 inches
Permanent Easement	Sweetwater	170.5	100.8	24.1	0.3	19.0
Temporary Easement	Sweetwater	85.2	50.4	12.1	0.1	9.6
TWAs	Sweetwater	36.8	17.3	5.0	0.2	4.3
Permanent Easement	Carbon	21.3	12.6	0.0	0.0	0.0
Temporary Easement	Carbon	10.7	6.1	0.0	0.0	0.0
TWAs	Carbon	3.6	2.1	0.0	0.0	0.0
Totals¹		328.1	189.3	41.2	0.6	32.9

¹Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-3 and **Table 3.3-4** list slope presented as classes based on the aggregate percentages of component soil series that are within a particular class. Because of the importance of slope to assess erosion hazards, a separate evaluation of slope of soils along the ROW was conducted. A complex query was used to reduce the large number of slope classes used by the NRCS to a more useable grouping. The analysis identified the average of the slope range provided for each soil series into one of five classes: 0 to 5 percent, 5 to 8 percent, 8 to 15 percent, 15 to 30 percent, and greater than 30 percent slopes.

Table 3.3-3 Slope Class Along the Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	0-5%	5-8%	8-15%	15-30%	>30%
Permanent Easement	Rio Blanco	31.9	34.2	49.9	92.1	16.9
Temporary Easement	Rio Blanco	19.9	17.0	24.6	46.6	8.7
TWAs	Rio Blanco	7.7	8.2	9.3	28.7	8.2
Permanent Easement	Moffat	56.8	151.3	76.1	49.4	17.6
Temporary Easement	Moffat	29.9	82.1	37.2	29.8	9.2
TWAs	Moffat	13.6	26.0	9.1	11.5	7.7
Totals¹		155.8	318.8	206.2	258.1	68.3

¹Does not include 51.6 acres for an off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-4 Slope Class Along the Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	0-5%	5-8%	8-15%	15-30%	>30%
Permanent Easement	Sweetwater	166.0	0.6	66.1	68.8	13.2
Temporary Easement	Sweetwater	83.0	0.3	33.1	34.4	6.6
TWAs	Sweetwater	27.4	0.2	16.3	16.4	3.3
Permanent Easement	Carbon	32.2	1.0	0.7	0.0	0.0
Temporary Easement	Carbon	16.0	0.5	0.3	0.0	0.0
TWAs	Carbon	5.4	0.2	0.1	0.0	0.0
Totals¹		332.9	2.8	116.6	119.6	23.1

¹Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

3.3.1 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding soil types would be similar to those described for the Proposed Action except that it would cross 1.08 additional miles of the Maybell series, 0.45 additional miles of the Ryark-Maybell complex, 0.08 additional miles of Torriorthents-Torripsamments complex, and 0.32 fewer miles of the Morapos series. Other soil types crossed would be similar to the corresponding segment of the Proposed Action with less than 0.02 miles difference.

3.4 Water Resources

3.4.1 Surface Water

3.4.1.1 Watersheds and Waterbodies

The proposed pipeline would be located within two major surface water regions: the Upper Colorado River Basin and the Great Divide Basin (**Figure 3.4-1**). Within the Upper Colorado River Basin, the primary waterbodies include the White and Yampa rivers, Piceance Creek (tributary to the White River), and the Little Snake River (tributary to the Yampa River). Spring Creek, Deception Creek, Bob Hughes Creek, Strawberry Creek, and the Dry Fork of Piceance Creek are additional tributary streams important to surface water resources along the proposed pipeline route. The Wyoming portion of the assessment area contains a number of small ephemeral or intermittent streams that form tributaries to Muddy Creek, which flows into the Little Snake River outside the Project area near Baggs, Wyoming. **Table 3.4-1** further describes the watersheds in the proposed Project area.

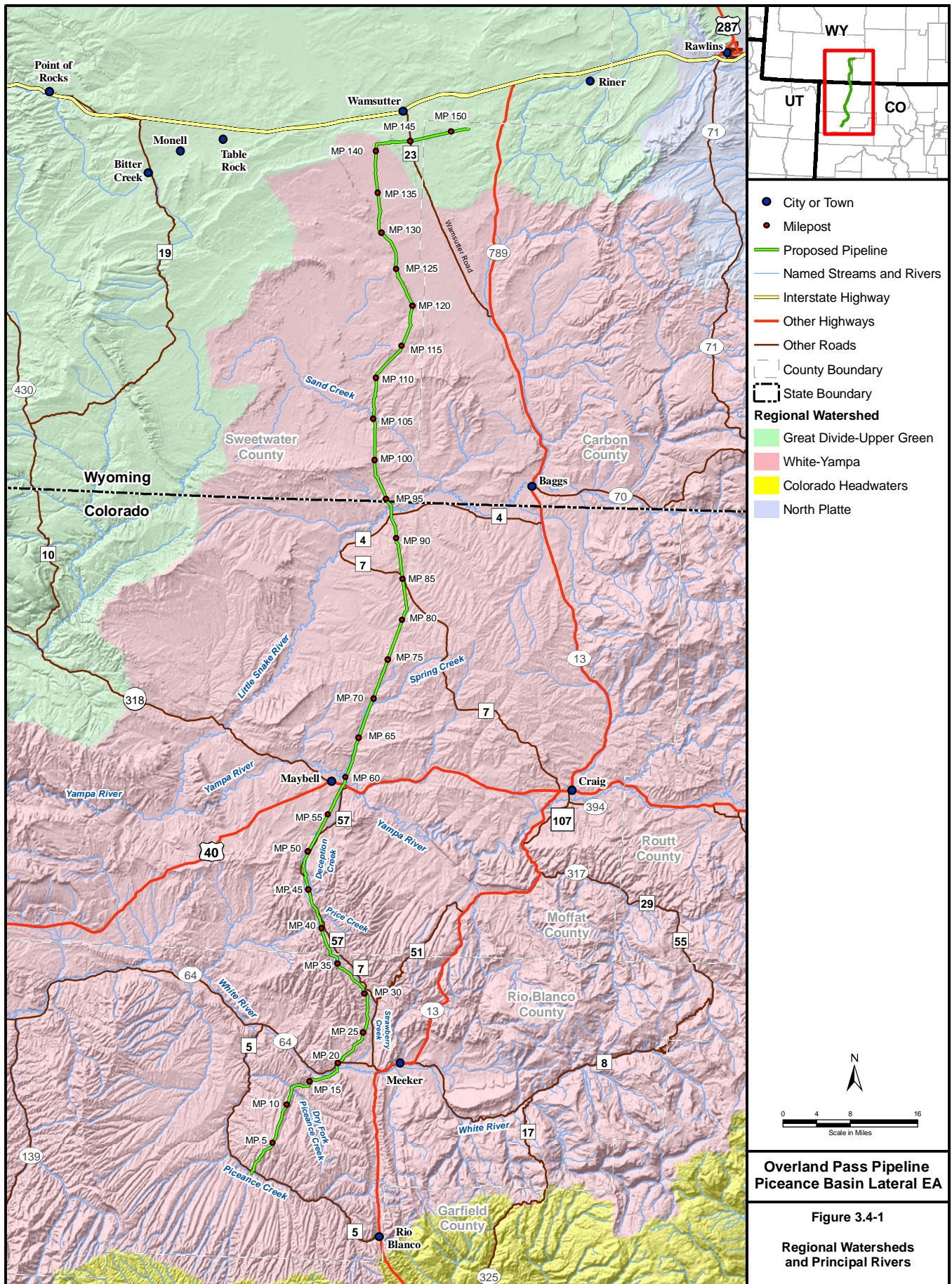
Table 3.4-1 Watershed Characteristics in the Proposed Project Area

Regional Watershed / Sub-basin	Begin MP / End MP	General Characteristics	Stream Gage Location: High Flow / Low Flow, cubic feet per second (cfs) ¹
Upper Colorado River Basin			
White River	0.0 / 36.5	Benches, mesas; cliffs and hillslopes with alluvial fans and stream valleys. Areas of low relief mix with areas of high relief.	White River below Meeker: 1,800 (June) / 336 (January)
Yampa River	36.5 / 73.5	Rolling sagebrush steppes with cuestas and hillslopes; alluvial fans and terraces near toeslopes.	Yampa River near Maybell: 6,210 (May) / 243 (September)
Little Snake River	73.5 / 142.4	Rolling sagebrush steppes bordering shaly benches and mesas; alluvial fans and gully systems below cliffs and hillslopes.	Little Snake River near Dixon, Wyoming: 2,560 (May) / 27 (October)
Great Divide Basin			
Closed Basin	142.4 / 152.0	Broad plains with dispersed dry lakes and sand dunes, floodplains and terraces, and rolling alluvial fans. Streams are ephemeral or weakly intermittent. Seasonally inundated lakes concentrate soluble salts.	Separation Creek near Riner: 9.7 (May) / 0.0 (September)

¹Flow values are monthly averages in cubic feet per second, for the highest average flow month and the lowest average flow month.

Source: Chapman et al. 2004; Chapman et al. 2006; USGS 2008.

The Great Divide Basin is a large, enclosed basin (having no external drainage) in southwestern Wyoming. Only the proposed ROW immediately south of Wamsutter is located in the Great Divide Basin (**Figure 3.4-1**). The remainder of the project area primarily drains westward to the Green River. **Appendix A** further lists the waterbody crossings along the proposed Project route.



Based on USGS maps, approximately 60 waterbodies would be crossed by the proposed Project. Of these, 55 are intermittent or ephemeral. Five perennial stream crossings would include the Little Snake River, Yampa River, White River, Piceance Creek, and the Dry Fork of Piceance Creek. Of these, the Dry Fork crossing would be a minor crossing (less than 10 feet wide), the Little Snake River, White River, and Piceance Creek crossings would be intermediate (between 10 and 100 feet wide), and the Yampa River would be a major crossing (over 100 feet wide). There are no impaired waters along the proposed Project, nor are there waterbodies designated as Section 10 navigable water under the Rivers and Harbors Act, as defined by 33 CFR, Section 328.

The proposed Project closely parallels Spring Creek and Deception Creek at locations immediately upstream of the Yampa or White rivers. In addition to the streams, rivers, and other features identified above, a number of springs are located near the proposed ROW. These include a series of springs along Strawberry Creek, close to the proposed ROW and downgradient of it between MP 30.8 and MP 31.8. A stockpond with a nearby area of wetlands or seeps occurs in Coyote Basin, between MP 40.0 and MP 41.0. A spring also is located in this vicinity approximately 1 mile to the west, upgradient of the proposed ROW. Further north, the proposed ROW closely parallels an ephemeral tributary from approximately MP 44.0 to MP 46.3. The proposed ROW then closely parallels Bob Hughes Creek along the toe of a small ridge, from approximately MP 46.3 to MP 46.7. From MP 48.3 to MP 52.3, the proposed ROW closely parallels Deception Creek and would cross at MP 49.9 and again at MP 52.1, immediately upstream of Dry Lake Reservoir. Spring Creek is located alongside the proposed ROW from approximately MP 62.5 to MP 66.0. Barber Spring is located near MP 64.5, and Omsted Spring is located along the proposed ROW at MP 65.5. Mayberry Spring is located about 150 yards upstream of the proposed ROW at MP 78.0, where the pipeline would cross Greasewood Gulch. An unnamed spring is located downstream of the gulch, approximately 0.7 mile downgradient of the proposed ROW. Clayton Spring is located in a small draw, approximately 0.5 mile east of proposed MP 78.5.

In Wyoming, Lower Willow Creek Spring borders the stream channel approximately 0.5 mile west of MP 108.4, upstream and approximately 100 feet lower than the proposed ROW through the vicinity. Near Courthouse Butte, the proposed ROW is located between two parallel ephemeral channels from approximately MP 112.5 to MP 113.5. These are headwater channels that drain southwestward back to Willow Creek. Dad Dail Reservoir and Stratton Springs are located on the other side of the small divide, on South Barrel Springs Draw about 1 to 2 miles east of approximately MP 115.3 on the proposed ROW. The proposed ROW is on a higher bench through this area, with minimal drainage pathways leading to these water features. From MP 133.0 to MP 142.0, the proposed ROW would cross a small enclosed basin with a number of ephemeral tributaries leading to dry lakes such as the Red Lakes and other similar features. From approximately MP 145.0 to the northern terminus, the proposed ROW would cross ephemeral channels in another enclosed basin. These lead to several other dry lakes such as Fivemile Lake.

In addition to these identifiable features, a number of gully systems occur along the proposed ROW. These are particularly common in the eroding tablelands generally between Maybell, Colorado, and approximately MP 120.0.

3.4.1.2 Floodplains

In Rio Blanco County, Colorado, Federal Emergency Management Agency (FEMA) has identified Zone A flood hazard areas (100-year, 24-hour regulatory floodplains) in narrow delineations along the proposed ROW at Piceance Creek, the Dry Fork of Piceance Creek, the White River, and along Strawberry Creek to slightly upstream of Cave Gulch (MP 32.0) (FEMA 2008). In Moffat County, Colorado, and Sweetwater County, Wyoming, readily available maps depicting Zone A floodplain delineations have not been identified.

3.4.1.3 Water Supply Watersheds

The proposed route would not cross any protected public water supply watershed systems. No potable public water intakes are located within 3 miles downstream of any of the perennial stream crossings. Drinking water

sources at Maybell (downstream of the proposed Yampa River crossing) consist entirely of privately owned domestic wells (Poirot 2005). Based on review of USGS topographic maps, the proposed pipeline route would cross one aqueduct in Colorado at about MP 60.9.

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 (USEPA 2004).

3.4.1.4 Sediment Contamination

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

3.4.2 Groundwater

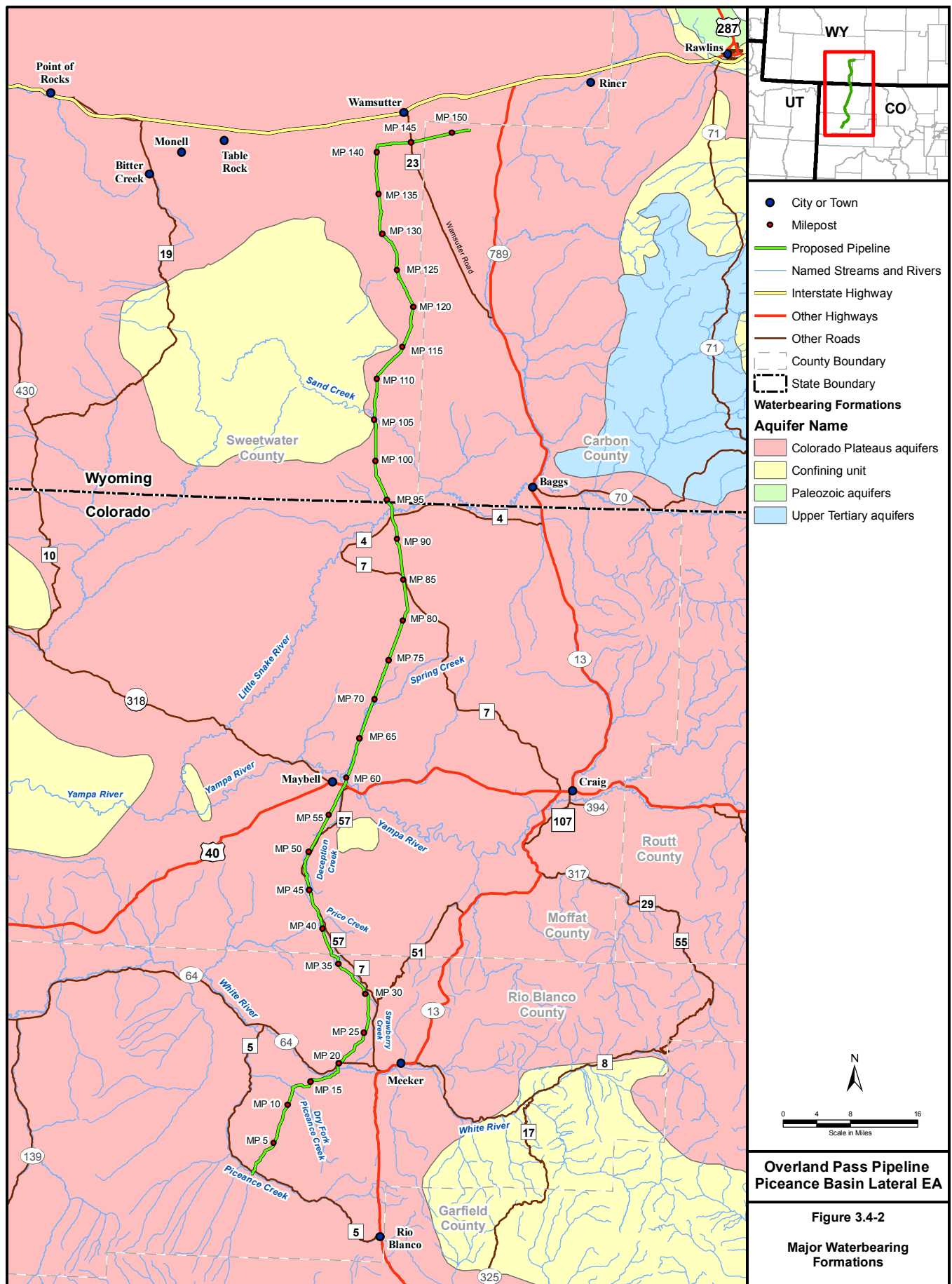
The proposed Project would be located within the Sand Wash Basin of northwestern Colorado and the Washakie Basin of Wyoming, sub-basins of the Wyoming Basin physiographic province (Thornbury 1965). The Project also would lie within the Colorado Plateaus physiographic province. The major water bearing formations underlying the proposed Project area are part of the Colorado Plateaus aquifer system (Thornbury 1965; Whitehead 1996) and the Upper Colorado River Basin Aquifer System (Whitehead 1996).

The Colorado Division of Water Resources well permit database indicates that there are approximately 2,157 bedrock aquifer wells of record in the Sand Wash Basin. Records indicate that 90 percent of the water supply wells in the basin are 500 feet or less in depth. The average well depth is 245 feet, and the deepest well of record is 3,000 feet below ground surface (bgs).

Aquifers within the proposed project area consist mainly of consolidated sedimentary bedrock formations. **Figure 3.4-2** illustrates the locations of major water-bearing geologic formations that would underlie the proposed Project. Some of these aquifers overlap each other at varying depths. In addition to sedimentary rocks, narrow stream-laid deposits of sands and gravels form alluvial groundwater sources along major drainages. Significant alluvial aquifers occur along the Yampa and White rivers and Strawberry Creek. Alluvial aquifers also occur along the Little Snake River and Spring Creek, both tributaries to the Yampa River. Depth to water is shallow in these aquifer zones (often less than 20 feet). Water quality varies, but is typically suitable for domestic and agricultural uses.

Along the proposed Project route, primarily in Moffat County, Colorado, near the southeastern margins of the Washakie Basin, relatively small yields are supplied by aquifer zones of the Laney Member of the Green River Formation (Whitehead 1996; FERC 2005b). The Laney aquifer is the uppermost aquifer present locally in the Colorado Plateau Aquifer system. This aquifer consists of fractured sandstone beds assigned to the Laney Member of the Green River Formation. The sandstone beds of the uppermost Laney Member yield sufficient water for domestic and livestock-watering supplies. Water in the Laney aquifer is fresh to slightly saline.

The Wasatch Formation is the primary source of water to wells along the proposed Project route. A member of the Colorado Plateau aquifer system, the Tertiary-age Wasatch-Fort Union aquifer is the uppermost regional aquifer in the Sand Wash Basin. Depth to groundwater varies, but it is often under 200 feet bgs. Wells in the valley bottoms, west of the Little Snake River, indicate that water levels in the Wasatch-Fort Union aquifer are at or near land surface. East of the Little Snake, water levels in the Wasatch zone are generally below the land surface by several to 100 feet (Whitehead 1996). Reported well-yield values range from a few tenths of a gallon per minute (gpm) to 2,700 gpm. Ninety percent of the water-supply wells of record have a reported yield of 18 gpm or less, suggesting these wells are intended for domestic or livestock purposes. Hydraulic conductivities for the Wasatch-Fort Union aquifer range from 0.02 to 938 feet per day, based on aquifer pump tests (Whitehead 1996).



Published water quality data for the Sand Wash Basin are minimal. Glover et al. (1998) indicate that the total dissolved solids (TDS) in the recharge areas for the Wasatch-Fort Union aquifer are less than 500 milligrams per liter (mg/l), but concentrations increase down the flow paths. Based on this interpretation, good water quality should exist along the western and eastern margins of the basin, with increasing TDS toward the Little Snake River (Whitehead 1996).

South of the Yampa River, sandstones of the Browns Park Formation also yield water. On a regional basis within Colorado, these units have been grouped with the Mesa Verde aquifer system (Robson and Banta 1995; FERC 2005b). In the Piceance Basin of Rio Blanco County and southern Moffat County, the Uinta Formation and the Parachute Creek Member of the Green River Formation contain the major aquifer zones. Regionally, these are part of the Uinta-Animas aquifer system (Robson and Banta 1995; FERC 2005b). Intergranular spaces in these rocks have mostly been filled with bicarbonate cements, but numerous fractures produce substantial permeability. Dissolved solids concentrations in the upper part of the aquifer range from 500 to over 1,000 mg/l.

Springs are known to occur along the southern half of the proposed route, and would likely occur at isolated locations in the northern portion as well. A number of these are located in or adjacent to alluvial deposits, at the intersection of the channel and groundwater flow within the stream terrace system. Others occur on hillsides at a distance upgradient from the proposed route. Springs in these locations are not likely to be affected by construction practices. The two closest mapped springs occur at MP 64.5 and MP 65.5, the Barber and the Omsted springs, respectively. Both springs are more than 2,000 feet from the centerline.

3.4.3 Wetlands

Wetlands adjacent to other waters of the U.S., such as streams, also are considered to be waters of the U.S. In addition, and as used herein, the term “wetlands” has a regulatory definition as defined in 33 CFR 328, 7(b). The term “wetland” is defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” Note that the frequency and duration of saturation may vary by geographical region, and is largely dependent upon local climatic conditions.

Riparian areas form a wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Based on field wetland surveys in Colorado and National Wetland Inventory (NWI) analysis in Wyoming (**Table 3.4-2**), wetlands occupy approximately 7.7 acres of the proposed pipeline ROW. Based on field surveys there are approximately 5.2 acres of wetlands along the proposed pipeline ROW in Colorado (West Water Engineering [WWE] 2008). The NWI analysis for Wyoming identified approximately 2.5 acres of wetlands in Sweetwater and Carbon counties. None of the proposed aboveground facilities are located within wetlands surveyed by OPPC.

Further field studies completed in the summer of 2008 and submitted after this EA was distributed to the public indicated that the pipeline would potentially cross a total of 29 wetlands. These included 20 previously delineated wetlands from the WIC Piceance and Entrega pipeline projects. The remaining 9 wetlands will be delineated by OPPC biologists prior to submission of the data to the USACE for 401/404 permitting. Most wetlands identified within the pipeline corridor and ancillary facilities are associated with perennial streams and springs. Wetlands within or adjacent to the proposed pipeline corridor are relatively small, and range in size from less than 0.1 acre to approximately 1.0 acre.

Wetland vegetation communities occurring along the proposed Project area include emergent wetland communities. The most common type of wetland along the proposed Project area is emergent wet meadow. Emergent wetlands are dominated by rooted herbaceous vegetation. Common water sources for wetland communities include sub-irrigation in alluvial settings, springs at surface/bedrock interfaces, seepage from ditches and canals, irrigation runoff, and ponding in concave topography.

Table 3.4-2 Summary of Wetland Types Crossed by the Proposed Pipeline Route

State /County	Wetland Classification	Milepost	Acres
Colorado			
Rio Blanco	PEM	18.8	0.6
	PEM	19.3	1.0
	PEM	31.5	0.6
	PEM	32.5	0.2
Moffat	PEM	38.9	0.01
	PEM	40.8	0.2
	PEM	41.3	0.4
	PEM	46.1	0.2
	PEM	59.2	0.1
	PEM	77.8	0.3
	PEM	93.6	0.2
	PEM	59.5	1.0
	PEM	83.5	0.4
Colorado Total			5.2
Wyoming			
Sweetwater	PEM	105.2	0.3
	PEM	107.6	0.3
	PEM	143.6	0.1
	PEM	143.8	1.1
	PEM	143.9	0.7
Wyoming Total			2.5
Total			7.7

3.4.4 GRP Land Re-route Alternative

Water resources along the GRP Land Re-route Alternative are similar to those described for the Proposed Action. Six ephemeral streams would be crossed by the alternative route; all of which are small streams that are headwater tributaries to Bighole Gulch. Similar to the ephemeral streams listed near MP 88 for the

Proposed Action in **Appendix A, Table A-1**, the beneficial use of these six tributaries is Aquatic Life Cold 2 (not capable of sustaining coldwater biota), Recreation 2 (suitable for wading or other streamside activities), and agriculture (including livestock watering).

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding groundwater would be the same as described for the Proposed Action.

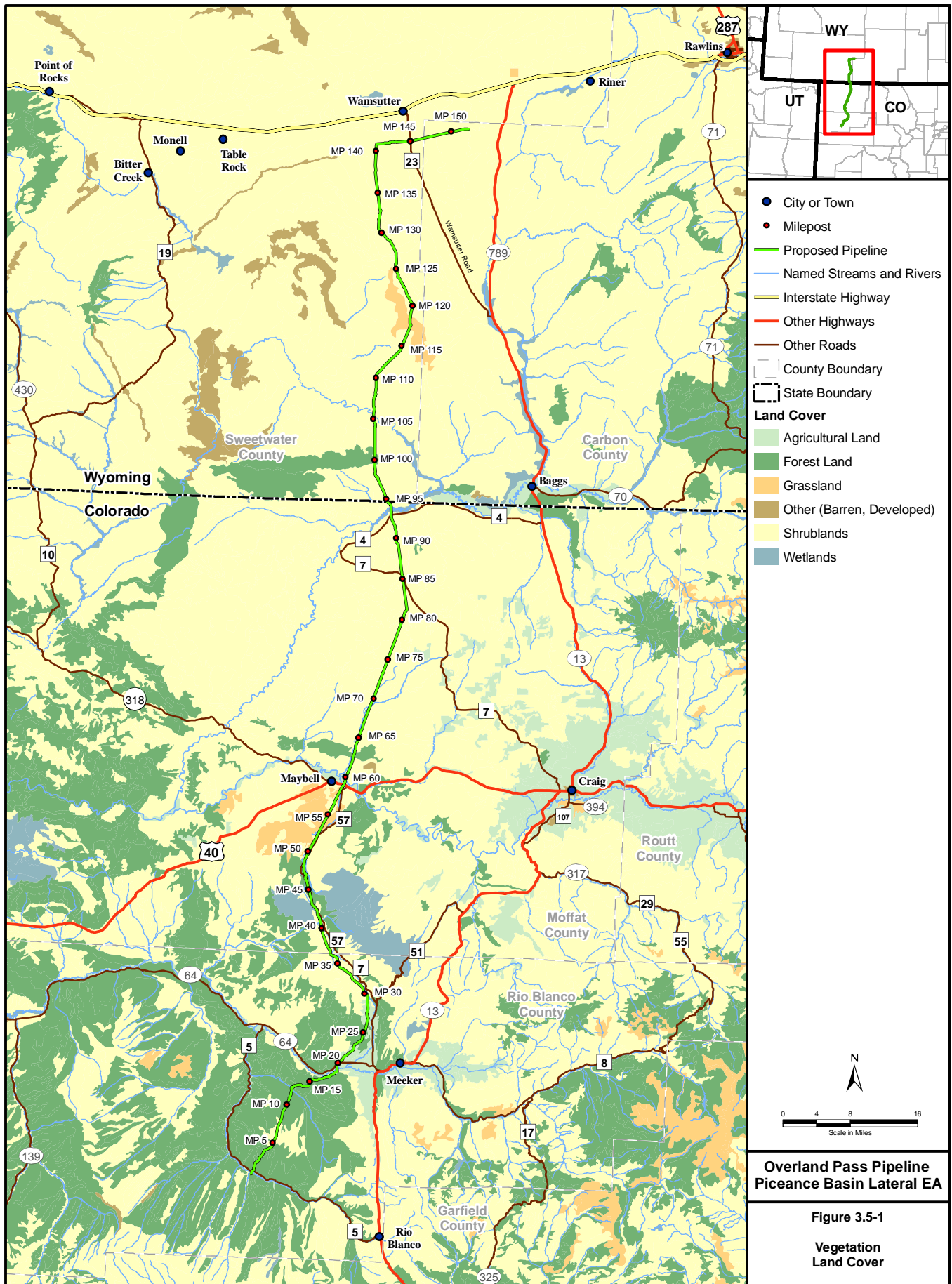
3.5 Vegetation

3.5.1 Vegetation Communities

Five general vegetation communities characterize the proposed Project area: shrub-scrub, woodlands, agricultural land, grassland, and wetlands. **Figure 3.5-1** depicts the distribution of these vegetation communities throughout the vicinity of the proposed Project and a general description of each is presented in **Table 3.5-1**.

Table 3.5-1 Vegetation Communities Crossed by the Proposed Pipeline Route

Vegetation Type	Sub-Community	Common Species
Shrub-scrub	Sagebrush	big sagebrush, black sagebrush, sand sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, horsebrush, spiny hopsage, ephedra, saltbush, Indian ricegrass, needle and thread grass, western wheatgrass, Great Basin wildrye, crested wheatgrass, cheatgrass, and yarrow
	Salt desert scrub/greasewood	greasewood, saltbush, spiny hopsage, budsage, winterfat, and western wheatgrass
	Foothill shrub-scrub	mountain mahogany, scrub oak (Gambel oak), serviceberry, mountain snowberry, western wheatgrass, and elk sedge
Woodlands	Pinyon-juniper woodland	Colorado pinyon pine, Utah juniper, one-seed juniper, Rocky Mountain juniper, big sagebrush, black sagebrush, mountain mahogany, snakeweed, bitterbrush, 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
Agriculture	Pasture/hay/orchard	irrigated hay and alfalfa fields, livestock feeding areas, horticultural areas
Grassland	Sagebrush steppe	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, western wheatgrass, cheatgrass, Great Basin wildrye, yarrow, viscid rabbitbrush, and mountain snowberry
Wetlands	Emergent	baltic rush, inland saltgrass, alkali sacaton, sedges, bluejoint reedgrass, and bent grass
	Scrub-shrub	willow, thinleaf alder, river birch, and red-osier dogwood
	Littoral/playa	Due to their ephemeral nature, the entire composition of these wetlands can change over short periods of time
	Shoreline and aquatic bed	narrowleaf cottonwood, salt cedar, willow, thinleaf alder, river birch, red-osier dogwood, wild rose, serviceberry, and snow berry



The two predominant vegetation communities that would occur in the proposed Project area are shrubland and woodland, comprising 72 and 15 percent of the vegetated lands based on miles crossed, respectively (**Table 3.5-2**).

Table 3.5-2 Vegetation Cover Types Along the Proposed Pipeline Route

Vegetation Cover Types	Miles Crossed
Shrub-scrub	109.9
Woodlands	22.5
Agricultural Land	10.4
Grasslands	7.9
Wetlands	1.5
Total	152.2

Source: CDOW 1998; WYGAP 1996.

3.5.1.1 Shrub-scrub

Shrubland accounts for approximately 72 percent of vegetation cover that would be crossed by the proposed 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. 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 occurs along the length of the proposed Project, extending from Colorado into Wyoming on the western slope of the Rocky Mountains.

3.5.1.2 Woodlands

Woodlands occur along approximately 15 percent of the proposed pipeline route. Woodland sub-communities include pinyon-juniper and riparian woodland. Colorado pinyon pine and Utah juniper dominate the pinyon-juniper woodland plant community. The pinyon-juniper sub-community is highly competitive and supports a highly variable understory. The pinyon component of this sub-community increases at higher elevations. The riparian woodland sub-community occurs adjacent to surface waters and is characterized by the presence of narrow leaf cottonwood and willow.

3.5.1.3 Agriculture

Agricultural land occurs along approximately 7 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.

3.5.1.4 Grassland

Grassland occurs along approximately 5 percent of the proposed pipeline route, with sagebrush steppe being the dominant sub-community. Sagebrush steppe is 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.

3.5.1.5 Wetlands

Wetlands occur along less than 1 percent of the proposed pipeline route. Wetlands crossed by the proposed pipeline route are discussed in more detail in Section 3.4.3.

3.5.2 Noxious Weeds

Noxious weeds are most prevalent in areas of prior surface disturbance, such as agricultural areas, roadsides, existing utility ROWs, and wildlife or livestock concentration areas. Prevention of the introduction or spread of noxious and invasive weeds is a high priority to federal, state, and county agencies. Under EO 13112 (FR 1999), Invasive Species, 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 terms “noxious weed” and “invasive weed” are often used interchangeably to describe any plant that is unwanted and grows or spreads aggressively. The term “noxious weed” is legally defined under both federal and state laws. Under the Federal Plant Protection Act of 2000 (formerly the Noxious Weed Act of 1974 [7 USC 2801-2814]), a noxious weed is defined as “any plant or plant product that can directly or indirectly injure or cause damage to crops, livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the U.S., the public health, or the environment” (Animal and Plant Health Inspection Service 2000). The Federal Plant Protection Act contains a list of 137 federally restricted and regulated noxious weeds, as per CFR Title 7, Chapter III, Part 360, including 19 aquatic and wetland weeds, 62 parasitic weeds, and 56 terrestrial weeds. Each state is federally mandated to uphold the rules and regulations set forth by this act and manage their lands accordingly.

In addition to federal noxious weed lists, each state crossed by the proposed project maintains a list of regulated and prohibited noxious and invasive weed species. Colorado regulates noxious and invasive species through the Colorado Noxious Weed Act, which classifies noxious weeds into three lists, A, B, and C (35 CRS 5.5 101-119). Each list has specific control requirements, with the most stringent requirements for those species found on List A. Only List A species are required by law to be controlled (Colorado Department of Agriculture 2007). County weed control boards or districts are present in most counties crossed by the analysis areas. These county weed control boards monitor local weed infestations and provide guidance on weed control. The species that are managed and regulated by the state and county agencies are included in **Appendix C**.

The three BLM field offices also provided lists of noxious weed species having the potential to occur along the proposed ROW (**Appendix C**). The BLM tries to manage and control the spread of these species. In total, there are 20 species included on these lists, of which 14 may occur in the proposed Project area in Colorado and 16 may potentially occur within the proposed Project area in Wyoming.

The states of Colorado and Wyoming also maintain similar, but not identical, lists of designated noxious weed species (**Appendix C**). In total, there are 42 noxious weed species that potentially occur within the proposed Project area in Colorado and 24 noxious weed species that potentially occur within the proposed Project area in Wyoming.

Additionally, field surveys were conducted for noxious weeds in 2007 (WWE 2008) and the findings are summarized in **Appendix C**.

3.5.3 Special Status Plant Species

In light of potential environmental consequences to special status plant species, a detailed analysis including historical occurrences within the region as well as a geologic and soil analysis of the proposed route was conducted to determine if sensitive plant species would be affected by the proposed Project.

In accordance with the Section 7 of the ESA, the lead agency (in this case, the BLM), in coordination with the USFWS 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. For the purpose of complying with Section 7(a)(2) of the ESA, BLM initiated informal consultation with the USFWS on February 8, 2008.

In addition, as stated in Special Status Species Management, BLM Manual 6840 (BLM 2001), 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 Policy 6840.

A total of 18 sensitive plant species were originally identified as potentially occurring within the proposed Project area. These species, their associated habitats, and their potential for occurrence along the proposed route are summarized in **Appendix D**. Occurrence potential along the proposed route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, six BLM sensitive species (park rockcress, ephedra buckwheat, Utah genetian, narrow-leaf evening primrose, Rollins cryptanth, and Western prairie-fringed orchid) were eliminated from detailed analysis. The rationale for eliminating these species from further analysis is summarized in **Appendix D**.

Several of the threatened, endangered, and special status (TESS) plant species listed in the tables are only associated with habitats found in specific geological formations. Two federally listed plants species, Dudley Bluffs bladderpod, and Dudley Bluffs twinpod, and one BLM sensitive plant species, Piceance bladderpod, are found only in the white shale outcrops of the Green River Formation at elevations between 6,000 to 8,600 feet. Potential habitat for these plants exists in PL Gulch, Dry Fork of Piceance Creek, Hay Gulch near the White River, and the Little Snake River. Other TESS plants that potentially could be found in the proposed Project area are less restricted to geologic formations but are strongly associated with certain habitat types. One federally listed plant species, Ute ladies'-tresses, and three BLM sensitive plant species, many-stemmed spider-flower, persistent sepal yellowcress, and Ownbey's thistle, are often found in riparian or semi-moist environments. The remaining BLM sensitive plant species that potentially could be expected in the proposed Project area (Nelson milkvetch, Gibben's penstemon, and contracted Indian ricegrass) are plants generally associated with drier environments found in the sagebrush and pinyon-juniper plant communities.

3.5.4 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding vegetation would be similar to that described for the Proposed Action. However, the GRP Land Re-route Alternative would occur in areas where the vegetation communities have not been recently disturbed through construction activities, whereas the Proposed Action route would occur in areas where the vegetation communities have been recently affected by pipeline construction and revegetation activities. During the biological surveys conducted in 2008, the only noxious weed observed in the vicinity of the alternative route was scattered cheatgrass (*Bromus tectorum*) located throughout the proposed alternative corridor; no special status plants were observed along the alternative route. The presence of sparse cheatgrass in the vicinity is common throughout the landscape and is likely to occur in the re-route area.

3.6 Wildlife, Aquatic Resources, and Special Status Species

3.6.1 Wildlife

The predominant wildlife habitats along the proposed pipeline route consist of shrub-scrub (sagebrush, salt desert shrub/greasewood, mountain mahogany), woodlands (pinyon-juniper, riparian), agricultural land, grassland (sagebrush steppe, mixed grass prairie, short-grass prairie), and wetlands. These vegetation types support a diversity of wildlife species and are discussed in detail in Section 3.5.1, Vegetation. This section focuses on species of high economic and/or recreational importance and those that are considered sensitive to human disturbance.

3.6.1.1 Big Game

The primary big game species that occur within the proposed Project area are elk, mule deer, and pronghorn. White-tailed deer also could be present. Certain habitat ranges for these species are considered crucial for maintenance of game populations. In Wyoming, WGFD and the BLM have established several categories based on seasonal use of the habitat. For example, severe winter range areas are considered essential in determining a game population's ability to maintain itself at a certain level over the long term. These areas may not usually be a part of a herd's range, but are used as survival areas during extremely harsh winters when no alternative ranges or habitats are available. Likewise, the CDOW has identified severe winter ranges for elk, mule deer, and pronghorn in Colorado.

Elk inhabit a variety of habitats along the proposed Project route including grassland, shrubland, coniferous forests, aspen, and, to a lesser extent, agriculture and pastureland. Approximately 29.4 miles of severe winter range for elk would be crossed by the proposed Project route in Moffat County in western Colorado. No elk severe winter range would be crossed in Rio Blanco County. One severe winter range area of particular importance along the proposed Project route was identified by the CDOW. This area 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 SWA. No elk severe winter range would be crossed by the proposed Project route in Wyoming.

Mule deer occur throughout the majority of the proposed 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. Approximately 24.0 miles of severe winter range for mule deer would be crossed by the proposed Project ROW in Rio Blanco and Moffat counties in Colorado, including one important winter range, as described above for elk. In addition, approximately 3.5 miles of crucial winter range would be crossed by the proposed Project route in Sweetwater County 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. Approximately 12.3 miles of severe winter range for pronghorn would be crossed by the proposed Project route in Moffat County in western Colorado, including one important wintering area, as described above for elk. In addition, approximately 4.5 miles of crucial winter range would be crossed by the proposed Project route in Sweetwater County in southern Wyoming. The proposed route crosses pronghorn migration corridors at MP 93.3, MP 122.34, and MP 127.66.

3.6.1.2 State Wildlife Areas

In Colorado, the proposed pipeline route would cross two SWAs: the Piceance Creek SWA and Bitter Brush SWA (both owned by the CDOW). The Piceance Creek SWA would be crossed by the proposed pipeline at two locations in the area immediately south of the White River (MP 11.8 to MP 12.5 and MP 13.0 to MP 15.9). The Bitter Brush SWA is located along Deception Creek, south of the Yampa River (MP 55.0 to MP 58.0 and MP 58.3 to MP 58.9). Both of these SWAs constitute a portion of the big game severe winter range areas

described above. No Wildlife Habitat Management Areas would be crossed by the proposed route in Wyoming. State lands are discussed further in Section 3.7, Land Use.

The Piceance Creek SWA was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk. The Piceance Creek SWA contains suitable habitat for nesting raptors (including American peregrine falcon, eagles, and northern goshawk), sage-grouse, and mountain plover. The SWA also provides potentially suitable habitat for special status plant species such as Piceance bladderpod, Dudley Bluffs bladderpod, narrow-stem gilia, Dudley Bluffs twinpod (a.k.a. Piceance twinpod), and Ute ladies'-tresses (FERC 2005b).

Small Game Species

Small game species that occur within the proposed Project area include upland game birds, waterfowl, furbearers, and other small mammals. Furbearers include beaver, muskrat, mink, badger, bobcat, coyote, and red 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 proposed Project route and is discussed further as a special status species in **Appendix D**.

Nongame Species

A diverse number of nongame species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupy a variety of trophic levels and habitat types along the proposed pipeline route. Common wildlife species include small mammals such as bats, voles, squirrels, gophers, prairie dogs, woodrats, and mice. These small mammals provide a substantial prey base for predators in the area including larger mammals (coyote, badger, bobcat), raptors (eagles, hawks, accipiters, owls), and reptiles (FERC 2005a,b).

Raptors and Other Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1981, as amended (16 USC Section 703-712) and EO 13186 (FR 2001). 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. Federally listed and other sensitive bird species are discussed in Section 3.6.3.

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 proposed Project region are lark bunting, Brewer's sparrow, and chipping sparrow. Migratory bird species that use the shrub-scrub habitat type for nesting along the proposed Project route include Brewer's sparrow, sage sparrow, and sage thrasher (FERC 2005b). 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 (FERC 2005b).

Representative raptor species that occur as residents or migrants within the proposed Project region include eagles (bald and golden eagles), hawks (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, northern saw-whet owl), the northern harrier, and the turkey vulture. In order to assess current nest activity, OPPC

conducted raptor breeding surveys for the proposed Project during July and August 2007 and April and May of 2008 (WWE 2008). The bald eagle, golden eagle, northern goshawk, Swainson's hawk, ferruginous hawk, prairie falcon, and burrowing owl are discussed in detail in **Appendix D**.

The breeding raptor surveys were conducted to identify occupied territories or active nest sites located within 0.5 mile of the outside edge of the proposed construction ROW. Based on the results of the year 2007 and 2008 breeding raptor surveys, a total of 25 active nest sites (Colorado – 20, Wyoming – 5) were documented within 1 mile of the proposed route. The active nest sites were occupied by red-tailed hawk (10), golden eagle (2), burrowing owls (1), American kestrel (2), bald eagle (2), Cooper's hawk (1), Swainson's hawk (1), Sharp-shinned hawk (1), and great-horned owl (2); three nests were not identified to the species level.

3.6.2 Aquatic Resources

The proposed Project route would cross five waterbodies that support fisheries, including one that supports warmwater fisheries and four that support coldwater fisheries (**Table 3.6-1**). These fisheries are all in Colorado; no waterbodies that support fisheries would be crossed in Wyoming. No waterbodies are present within the boundaries of the proposed aboveground facilities; thus, there would be no impacts on fisheries at these locations.

Table 3.6-1 Fisheries Crossed by the Proposed Project

Waterbody	Milepost	Fishery Classification	Maximum Crossing Width	Proposed Crossing Method
Piceance Creek	0.28	Coldwater	25	Open Cut
Dry Fork Piceance Creek	12.01	Coldwater	<10	Dry Crossing
White River	19.31	Coldwater	75	HDD
Yampa River	59.53	Warmwater	140	HDD
Little Snake River	93.61	Coldwater	40	HDD

Sources. FERC 2005a,b; CH2M Hill Trigon, Inc. 2008.

Waterbodies that would be crossed by the proposed Project contain a variety of game and nongame fish species (CDOW 2008a; FERC 2005a,b; USFWS 2004a). Representative game fish species that occur in the vicinity of the proposed crossing of the Yampa River include smallmouth bass, channel catfish, and northern pike. Other non-game fish species having the potential to occur in the Yampa River near the proposed pipeline route include carp, fathead minnow, speckled dace, redbelt shiner, and bluehead sucker. Representative game species that occur in the White River include mountain whitefish, rainbow trout, brown trout, northern pike, channel catfish, and green sunfish. The Little Snake River supports a limited number of mountain whitefish and rainbow trout east of the proposed crossing below Baggs, Wyoming (FERC 2005b). Dry Fork Piceance Creek supports brook trout in non-drought years. Representative non-game species that occupy the White River, Little Snake River, Piceance Creek, and Dry Fork Piceance Creek include roundtail chub, speckled dace, redbelt shiner, mountain sucker, and flannelmouth sucker. The bluehead sucker, mountain sucker, roundtail chub, and flannelmouth sucker are discussed in detail in Section 3.6.3, Special Status Wildlife Species.

3.6.3 Special Status Wildlife 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 USFWS, and those species that are state-listed as threatened or endangered. For this EA, special status species also include those species that have been designated by the BLM as sensitive.

3.6.3.1 Terrestrial Animals

A total of 37 sensitive terrestrial species (mammals, birds, reptiles, and amphibians) were originally identified as potentially occurring within the proposed Project area. These species, their associated habitats, and their potential for occurrence along the proposed Project route are summarized in **Appendix D**. Occurrence potential along the proposed Project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, six species (swift fox, yellow-billed cuckoo, Mexican spotted owl, trumpeter swan, Baird's sparrow, and boreal toad) were eliminated from detailed analysis (see **Appendix D** for rationale). The proposed Project would not affect these six species.

Northwestern Colorado has the largest population of greater sage-grouse in Colorado, containing approximately two-thirds of the sage-grouse counted in Colorado each year. Sagebrush habitats in northwest Colorado provide the largest concentration of high priority sagebrush habitat in the state. In fall 2007, CDOW defined core habitat areas for sage grouse in Colorado by considering factors such as proximity to leks, density of males on leks, and sagebrush patch size. These core areas, also referred to as high priority habitats, are the most critical to sage grouse and presumably other sagebrush obligates (CDOW 2008c).

3.6.3.2 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 proposed Project route are summarized in **Appendix D**. The potential for occurrence at proposed stream crossings and downstream reaches was evaluated for each species based on its habitat requirements and/or known distribution. The proposed Project would cross designated critical habitat for the federally listed Colorado pikeminnow at the Yampa River crossing. This species has been found within the immediate vicinity of the proposed crossing in recent years by the CDOW (CDOW 2008b). The federally listed bonytail chub, humpback chub, and razorback sucker do not occur in the proposed Project area but are included in our detailed analysis based on potential water depletion activities (i.e., hydrostatic testing) associated with the proposed Project in the Colorado River Drainage (USFWS 2008). The closest occupied habitat for these three species is located at the following approximate distances downstream of the proposed crossings: 30 to 40 river miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail chub); 70 river miles downstream of the White River crossing (razorback sucker); and at least 30 river miles downstream of the Little Snake River crossing (razorback sucker) (FERC 2005a,b).

3.6.4 GRP Land Re-route Alternative

The GRP Land Re-route Alternative proposes an alternative route for the pipeline through an area designated by CDOW as "core sage-grouse habitat" (CDOW 2008c). The proposed re-route travels within 0.6 miles of an active sage-grouse lek. The Proposed Action route travels through previously disturbed habitat that has already impacted local wildlife populations. Other than this distinction, given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding wildlife, aquatic resources, and special status species would be the similar to that described for the Proposed Action.

3.7 Land Use, Recreation, Visual Resources

3.7.1 Land Ownership

Approximately 53 percent (81.1 miles) of the land crossed by the proposed Project is managed or owned by public entities. The remaining 47 percent (approximately 71.1 miles) crosses privately owned land. Of the public land total, the majority is federal land managed by the BLM, while a smaller percentage is owned and managed by the states. **Figure 3.7-1** depicts the land ownership in the Project vicinity and **Table 3.7-1** summarizes land ownership that would be crossed by the Proposed Action.

Table 3.7-1 Summary of Land Ownership Crossed by the Proposed Project (miles)

State/Ownership	Federal	State	Private	Total
Colorado	28.5	7.8	58.7	95.0
Wyoming	43.8	1.0	12.4	57.2
Project Total	72.3	8.8	71.1	152.2

Federal lands managed by the BLM and crossed by the proposed route in Colorado are managed by two BLM field offices: the WRFO in Meeker, Colorado, and LSFO in Craig, Colorado. These lands are managed according to the guidelines outlined in the RMPs for these two field offices. These guidelines manage these lands for multiple uses as described above (BLM 1989, 1997). State-owned land in Colorado crossed by the proposed pipeline route is managed for wildlife habitat, recreational uses, or leased to private tenants for livestock grazing. Some state lands designated as special interest areas are discussed in Section 3.7.3.

The federal lands managed by the BLM crossed by the proposed route in Wyoming are managed by the RFO in Rawlins, Wyoming. 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 Rawlins RMP (BLM 2008a). Some federal lands designated as special interest areas are managed by the BLM as listed in Section 3.7.3.

3.7.2 Existing Land Uses

Land use types crossed by the proposed Project were assigned a land use classification using GAP Land Cover descriptions (CDOW 1998; WY GAP 1996). The proposed Project would cross four land use types: rangeland, agriculture, forest, and wetlands. A summary of miles crossed by the proposed route for each land use type is provided in **Table 3.7-2**.

3.7.2.1 Rangeland

Rangeland constitutes the predominant land use type that would be crossed by the proposed Project (117.8 miles; 77 percent). Of this, 59.9 miles of rangeland are on federal land managed by the BLM. Rangeland includes grasslands, pasture, livestock grazing areas, and shrublands. Grazing is permitted in specific allotments managed by the BLM or private landowners (**Table 3.7-3**). In Colorado, the BLM-managed grazing allotments are used for grazing cattle, sheep and horses (BLM 2007b). On the Wyoming BLM-managed lands, grazing consists primarily of cattle and sheep, with some horse and bison (BLM 2008a).

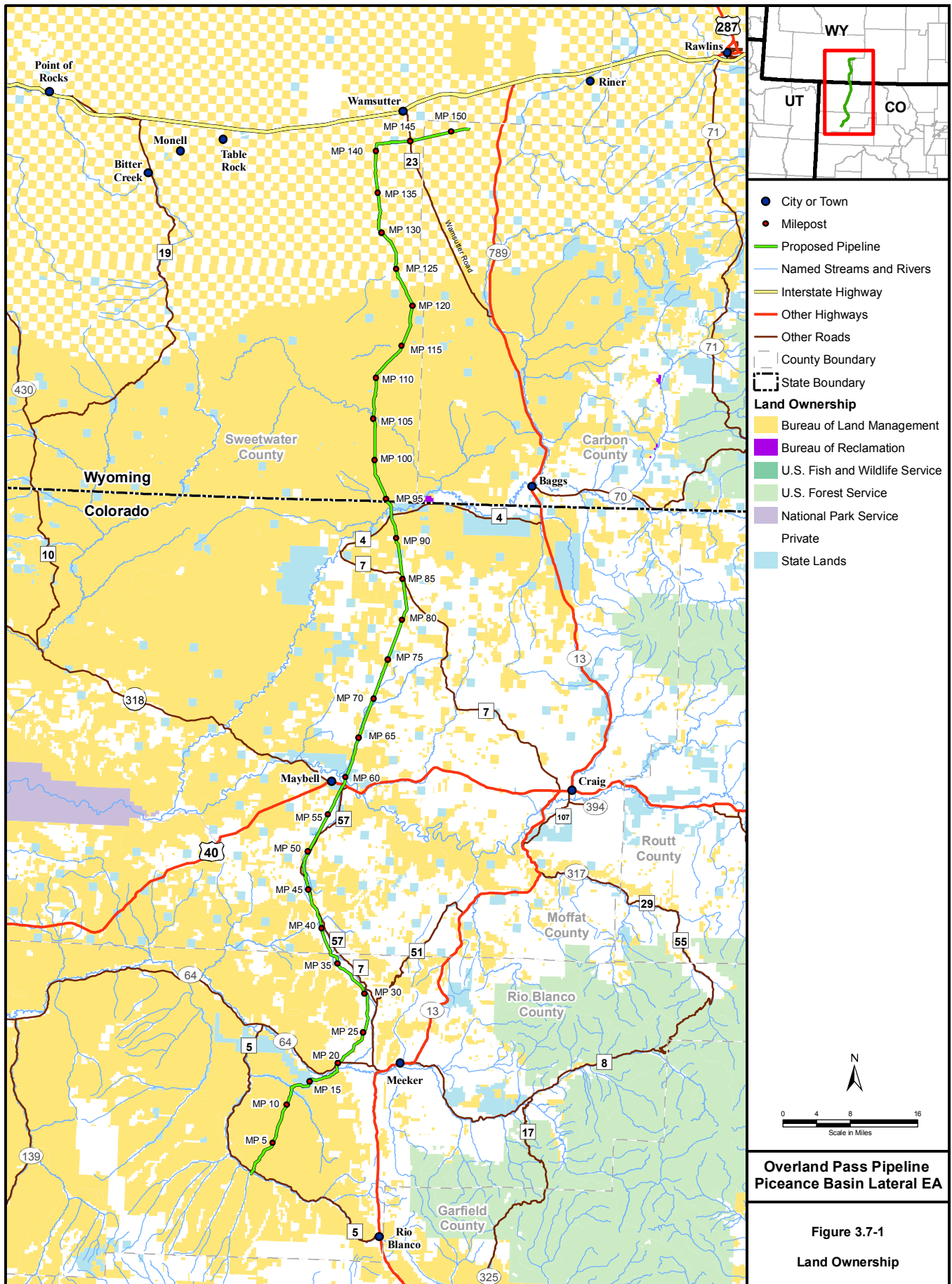


Table 3.7-2 Summary of Land Use Types Crossed by the Proposed Project (miles)

State/County	Rangeland ¹		Agricultural ²		Forest ³		Wetlands ⁴		Total Miles	
	Federal	Other	Federal	Other	Federal	Other	Federal	Other	Federal	Other
Colorado										
Rio Blanco	4.4	8.2	0.1	8.1	9.6	6.4	0.0	0.0	14.1	22.7
Moffat	13.1	36	0.2	2.1	0.5	4.5	0.5	1.0	14.3	43.6
<i>Subtotal</i>	<i>17.5</i>	<i>44.2</i>	<i>0.3</i>	<i>10.2</i>	<i>10.1</i>	<i>10.9</i>	<i>0.5</i>	<i>1.0</i>	<i>28.4</i>	<i>66.3</i>
Wyoming										
Sweetwater	39.0	11.5	0.0	0.0	1.4	0.0	0.0	0.0	40.4	11.5
Carbon	3.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4	2.2
<i>Subtotal</i>	<i>42.4</i>	<i>13.7</i>	<i>0.0</i>	<i>0.0</i>	<i>1.4</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>43.8</i>	<i>13.7</i>
Project Total	59.9	57.9	0.3	10.2	11.5	10.9	0.5	1.0	72.2	80.0

¹Rangeland consists of grasslands, pasture, livestock grazing areas, and shrublands.

²Agricultural land consists of irrigated and dry land crop fields and related facilities.

³Forest land consists mainly of non-agricultural wooded uplands.

⁴The values 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.

Sources: CDOW 1998; WY GAP 1996.

Table 3.7-3 BLM Grazing Allotments Crossed by the Proposed Project

State/County	Approximate Crossing Length (miles)	Number of Grazing Allotments	Total AUMs ¹
Colorado			
Rio Blanco	24.2	12	119,610
Moffat	57.6	36	13,973
Wyoming			
Sweetwater	51.9	10	10,300
Carbon	5.6	1	2,680

¹Includes Animal Unit Months (AUMs) on private and state lands.

In Colorado, the proposed pipeline route would cross approximately 61.7 miles of rangeland; the majority of which would be located on privately owned land in Moffat County. In Wyoming, the proposed pipeline route would cross approximately 56.1 miles of rangeland; 70 percent of which would be on federal land in Sweetwater County.

3.7.2.2 Agricultural

Agricultural land that would be crossed by the proposed Project consists of dryland pastures, irrigated pasture and hay meadows, farmlands, and associated farm or ranch facilities. Primary crops are grains and alfalfa. Some of the crop lands are dry-farmed while other areas are under irrigation, including pivot irrigation. In Colorado, approximately 11 percent (10.5 miles) of land that would be crossed by the proposed pipeline route are agricultural. No agricultural land would be crossed by the proposed pipeline route in Wyoming.

3.7.2.3 Forest Land

The primary forest land types are pinyon-juniper and juniper woodlands. Forest land accounts for 22.4 miles, or approximately 15 percent of the total length of the proposed pipeline route. The majority of the forest land crossed would be in Rio Blanco County, Colorado (16.0 miles). A small percentage of forest land that would be crossed by the proposed pipeline route would be in Wyoming, all of which (1.4 miles) would be in Sweetwater County.

3.7.2.4 Residential and Commercial Areas

Information about planned future residential and commercial developments was provided by the counties crossed by the proposed Project. There are no proposed commercial or residential development projects planned along the proposed pipeline route. The only development in the area consists of other oil and gas projects. OPPC would continue to coordinate with local planning and zoning offices to reduce the potential cumulative impacts that may result from concurrent pipeline and residential or commercial development.

3.7.3 Special Land Uses and Recreation

Generally, recreation and special interest areas include federal, state, or county parks and forests; conservation lands; wildlife habitat management areas; natural landmarks; scenic byways; designated trails; recreational rivers; and campgrounds. Recreation and special interest areas were identified using Colorado Natural Heritage Program (CNHP) records, landowner information, and NRCS data. The proposed pipeline route would cross a total of 10 recreation and special interest areas (one area would be crossed twice).

Figure 3.7-2 depicts the recreation and special interest areas in the proposed Project vicinity, and **Table 3.7-4** lists the location and land management agency responsible for each. The proposed route would not cross any Areas of Critical Environmental Concern (ACEC), Wilderness or Wilderness Study Areas, Wild and Scenic Rivers, or Conservation Reserve Program/Wetland Reserve Program lands. Other historic or culturally significant areas that would be crossed by the proposed pipeline route include the Overland and Cherokee trails, which are discussed further in Section 3.8, Cultural Resources.

Of the 10 recreation and special interest areas that would be crossed by the proposed route, eight are located in Colorado and two are located in Wyoming. The pipeline would not cross any developed recreation areas (i.e., campgrounds, picnic grounds, or organized recreation areas, such as baseball fields).

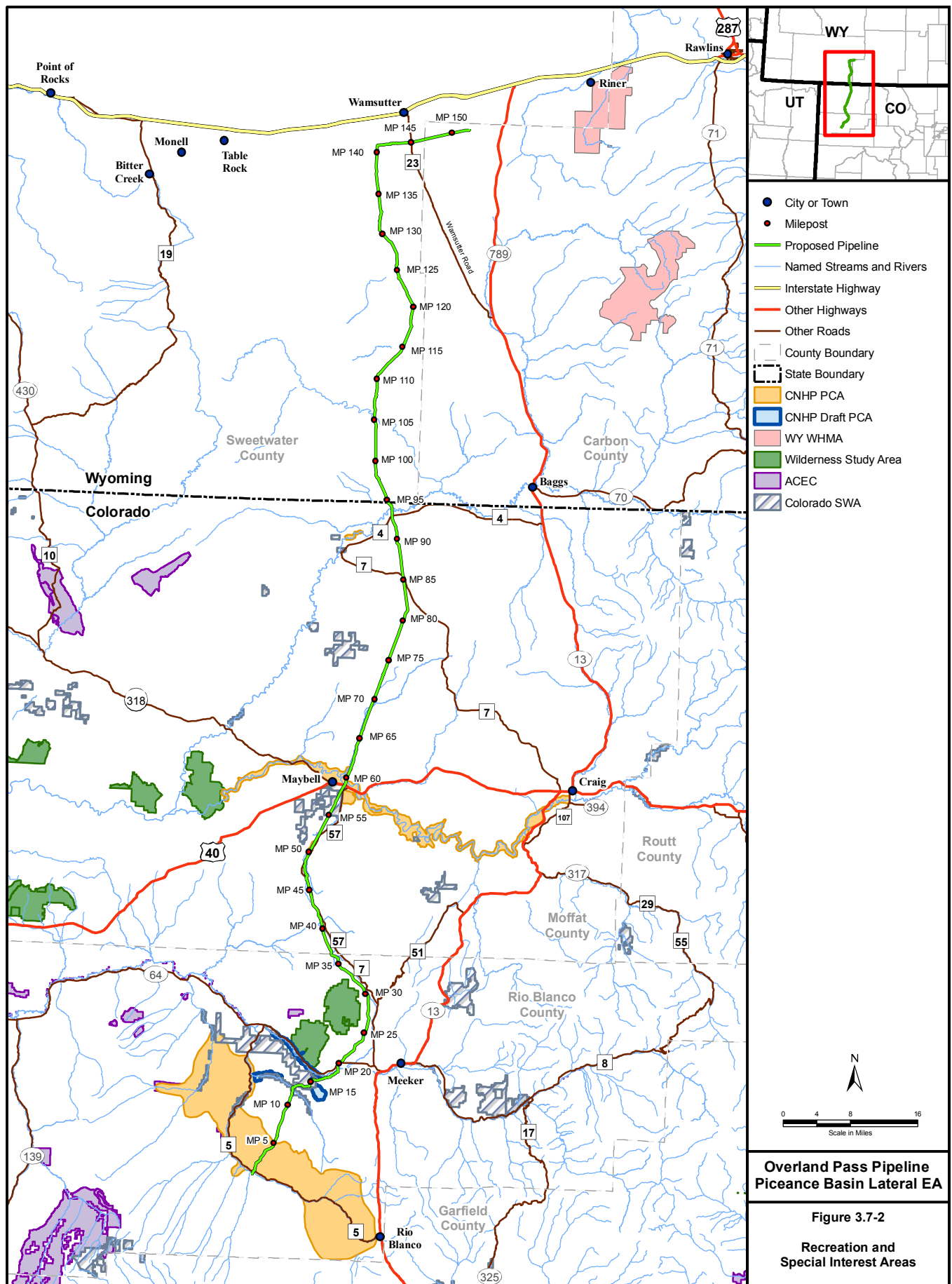


Table 3.7-4 Recreation and Special Interest Areas Crossed by the Proposed Project

State/County	MP	Crossing Length (miles)	Name	Managing Agency/State
Colorado				
Rio Blanco	14.9 – 15.5	0.6	Hay Gulch Potential Conservation Area (PCA) ¹	State of Colorado
Rio Blanco	13.0 – 15.9	2.9	North Ridge Unit - Piceance Creek SWA	CDOW
Rio Blanco	11.8 – 12.5	0.7	Little Hills Experiment Station - Piceance Creek SWA	CDOW
Moffat	49.8 – 51.5	1.7	Deception Creek PCA	State of Colorado
Moffat	55.0 – 58.0	3.0	Bitter Brush SWA	CDOW
Moffat	58.3 – 58.9	0.6	Bitter Brush SWA	CDOW
Moffat	59.1 – 59.7 60.7 – 61.3	1.2	Middle Yampa River PCA	Various
Moffat	86.7 – 87.5	0.8	GRP	NRCS
Wyoming				
Sweetwater	97.6	NA	Cherokee Trail	BLM
Sweetwater	127.3	NA	Overland Trail	BLM

¹Status currently under review by the CNHP.

3.7.3.1 Colorado

Natural Areas

The proposed route would traverse three natural areas in the State of Colorado designated by the CNHP as Potential Conservation Areas (PCAs) due to the potential occurrence of sensitive plant and/or animal communities. These areas include the Hay Gulch PCA, the Deception Creek PCA, and the Middle Yampa River PCA.

The Hay Gulch PCA site supports a bluebunch wheatgrass (*Pseudoroegneria spicata*) grassland community and a population of Dudley Bluffs twinpod (*Physaria obcordata*). The Deception Creek PCA contains a sagebrush (*Artemisia tridentata* spp. *Tridentat/Leymus cinereus*) bottomland shrubland plant community. The Middle Yampa River PCA contains an occurrence of the skunkbrush (*Rhus trilobata*) riparian shrubland. Historically this area, supported populations of the Colorado pikeminnow (*Ptychocheilus lucius*) and the humpback chub (*Gila cypha*). Sections 3.5 and 3.6 discuss these special status plant and wildlife species in more detail.

Piceance Creek SWA and Bitter Brush SWA

The Piceance Creek SWA was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk. Within this SWA, research on big game species occurs at the Little Hills Game Experiment Station and CDOW personnel reside in homes on the property. The station provides big and small game hunting opportunities, as well as fishing opportunities. The Bitter Brush SWA is managed for wildlife habitat, hunting, fishing, and wildlife viewing opportunities.

GRP Lands

One section of newly designated GRP land would be crossed by the proposed pipeline route. GRP is a voluntary program, run by the NRCS, Farm Service Agency, and the U.S. Forest Service, offering landowners the opportunity to protect, restore, and enhance grasslands on their property. It also provides assistance for rehabilitating grasslands. This land was designated as GRP land in August 2007.

3.7.3.2 Wyoming

Overland and Cherokee Trails

There are no historic interpretation signs or areas at the proposed Overland Trail or Cherokee Trail crossings, and no well-preserved wagon ruts are evident.

3.7.4 Visual Resources

The BLM is responsible for identifying and protecting scenic values on public lands under several provisions of the Federal Land Policy Management Act and NEPA. The BLM VRM system was developed to facilitate the effective discharge of that responsibility in a systematic, interdisciplinary manner. The VRM system provides the methodology to inventory existing scenic quality; assign visual resource inventory classes based on a combination of scenic values, visual sensitivity, and viewing distances; and assign visual management objectives.

The BLM general management objectives for public lands provide design standards to manage landscapes associated with the four VRM classes assigned to the various landscapes. The BLM VRM classes range from Class I to Class IV, with Class I being the most restrictive and Class IV the least restrictive. These VRM classes are determined through an inventory process and are used to provide guidance to management staff and industry when proposing and deliberating surface-disturbing activities.

Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. Class I is assigned to those areas where a management decision has been made to maintain a natural landscape. This includes congressionally and administratively designated areas where decisions have been made to preserve a natural landscape.

Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective. The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

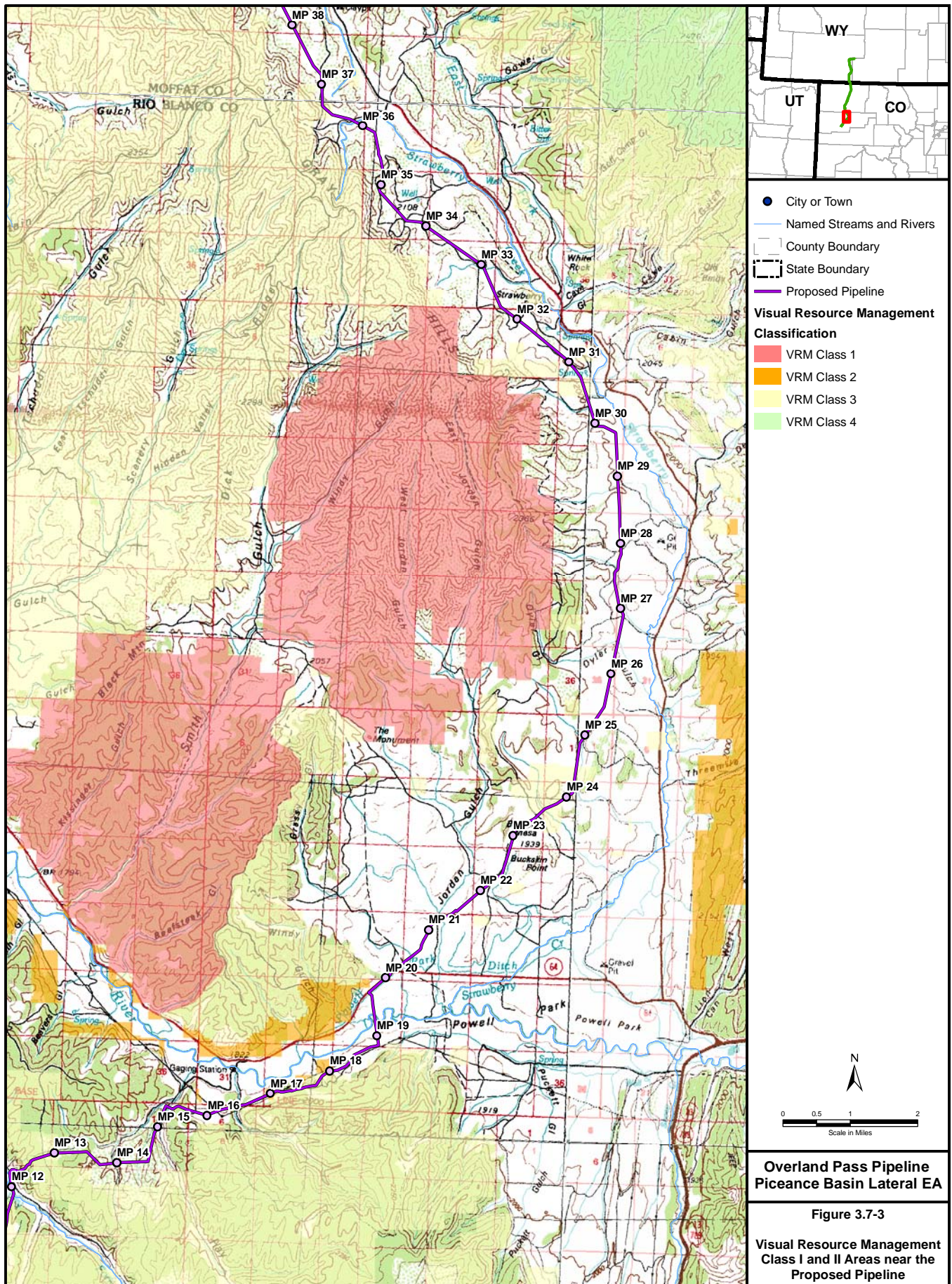
Rehabilitation Areas. Areas in need of rehabilitation from a visual standpoint should be flagged during the inventory process. The level of rehabilitation will be determined through the RMP process by assigning the VRM class approved for that particular area.

The proposed Project would cross within 1 mile of VRM Class I lands and would cross lands designated as VRM Classes II (0.1 mile), III (87.2 miles), and IV (35.8 miles). **Figure 3.7-3** depicts the VRM Class I and Class II areas near the proposed Project.

3.7.5 GRP Land Re-route Alternative

The GRP Land Re-route Alternative would diverge from the Proposed Action route for approximately 2.0 miles in order to avoid crossing the 0.8-mile portion of GRP land. The total length of this alternative would be 3.3 miles; therefore, adding a net 1.3 miles to the total length of the project. The entire portion of the land crossed by the GRP Land Re-route Alternative is managed or owned by public entities with approximately 2.7 miles managed by the BLM and 0.6 mile is managed by the state of Colorado. In contrast, the majority of the lands crossed by the Proposed Action is managed or owned by state and private entities (0.9 and 0.8 mile, respectively). A small percentage (0.3 mile) is managed by the BLM.

The GRP Land Re-route Alternative is approximately 1.1 mile west of the Proposed Action and the affected environment regarding land use, grazing allotments, and visual resources would be the same as described for the Proposed Action. There are no additional recreation areas or special land uses were identified along the alternative route and the entire alternative route is with VRM Class III landscape.



3.8 Cultural Resources

From August to October 2007 and in May 2008, the majority of the proposed pipeline corridor was inventoried by Alpine Archaeological Consultants, Inc. (Alpine) in Colorado and Wyoming (Greubel et al. 2008; Mueller and Moore 2008). The inventory covered a 300-foot-wide corridor centered on the proposed pipeline centerline. Some portions of the proposed pipeline corridor, totaling 1.6 miles in Colorado and 9.5 miles in Wyoming, were not surveyed for cultural resources because the entire corridor had been adequately surveyed during previous cultural resource inventory projects. In addition, Alpine completed field inventories of newly defined proposed Project facilities, several minor reroutes, the J. L. Davis lateral, a pipe yard, access roads, and railroad siding.

Prior to the initiation of the field inventory, site file searches were conducted at state and federal agencies to identify areas previously subjected to cultural resource inventory and previously recorded sites. The identification of previously recorded sites serves two purposes: 1) to help formulate expectations regarding site types and densities likely to be encountered during the field inventory and 2) to ensure that sites previously recorded in the proposed pipeline corridor are either relocated or accounted for in some manner. The site file search study area included a 2-mile-wide corridor centered on the proposed pipeline centerline. Although most of the areas included in the 2008 field inventories were covered by the original site file searches, it was necessary for Alpine to conduct an additional file search for newly defined facilities and minor reroutes that fell outside of the original 2-mile-wide file search study area.

3.8.1 Colorado

In August 2007, Alpine conducted a site file search through the Colorado Office of Archaeology and Historic Preservation (OAHP). In addition, site files at the BLM WRFO and LSFO were examined, and Historic General Land Office (GLO) maps were inspected to identify potential historic site locations. As a result of the files search and GLO map review, 328 previously recorded sites were identified in the 2-mile-wide study corridor. Of the 328 sites, 284 are prehistoric and 44 are historic. Ninety-six percent of the prehistoric sites are classified as either open camps or open lithic scatters. The remaining prehistoric sites include isolated storage cists, rockshelters, and architectural sites. Prehistoric sites with architecture consist of sites with pithouses. Of the historic sites, 30 percent are agricultural complexes, which include homesteads, farms, and ranches. Twenty-three percent of the historic sites are roads or trails, and the remaining historic sites include bridges, canals and ditches, corrals, dams, brush fences, artifact scatters, and campsites.

In April 2008, Alpine conducted a site file search through the Colorado OAHP for those minor reroutes and newly defined facilities that fell outside of the original file search study area. Additionally, site files at the BLM WRFO and LSFO were examined, and Historic GLO maps at the two BLM field offices were inspected to identify potential historic site locations. As a result of the files search and GLO map review, a prehistoric open camp and a prehistoric fire-cracked rock scatter were identified in the file search study area.

During fall 2007, cultural resources inventories were conducted along the Colorado portion of the proposed pipeline corridor (Greubel et al. 2008). As a result of the inventories, 79 sites were located in the 300-foot-wide survey corridor. Of the 79 sites, 42 are prehistoric, 28 are historic, three are multi-component sites consisting of prehistoric and historic components, and six sites have been destroyed by previous disturbance. Thirty-five (83 percent) of the prehistoric sites are open camps. The remaining prehistoric sites include open lithic scatters, open lithic scatter and procurement area, and a storage cist. Historic sites include, but are not limited to, artifact scatters, homesteads, road segments, hunting camps, and ditches. One of the multi-component sites includes a prehistoric rockshelter and lithic scatter and historic structure. The remaining two multi-component sites consist of a historic homestead and prehistoric open camp, and a historic artifact scatter and prehistoric lithic scatter.

In May and June 2008, Alpine conducted additional field inventories of minor reroutes and newly defined facilities, as well as along segments of the proposed pipeline corridor that previously had been denied access

from the landowner (Mueller and Moore 2008). Thirteen sites were located during the inventories. Of these, 1 is a prehistoric open camp and 12 are historic sites, which include 4 scatters/hunting camps, 2 hunting camps, 2 ditches, and a road, artifact scatter, corral/hunting camp, and dugout with associated historic debris.

A summary of sites located during the 2007 and 2008 inventories in Colorado, plus their National Register of Historic Places (NRHP)-eligibility and management recommendations, can be found in **Appendix E**.

3.8.2 Wyoming

In July 2007, Alpine conducted a site file search through the Wyoming Cultural Records Office. In addition, site files at the BLM RFO were examined, and Wyoming GLO maps were inspected to identify potential historic site locations. As a result of the files search and GLO map review, 522 previously recorded sites were identified in the 2-mile-wide study corridor. Of the 522 sites, 470 are prehistoric and 52 are historic. Ninety-eight percent of the prehistoric sites are classified as either open camps or open lithic scatters. The remaining prehistoric sites include lithic procurement sites, a cairn, and architectural sites. Prehistoric sites with architecture include three sites with stone enclosures. Of the historic sites, 40 percent are historic artifact scatters and 37 percent are stock camps. The remaining historic sites include roads or trails, cabins, cairns, and historic inscriptions. Two important trails recorded in the proposed Project area are the Overland and Cherokee trails.

In April 2008, Alpine conducted a site file search at the BLM RFO for those minor reroutes and newly defined facilities that fell outside of the original file search study area. In addition, Historic GLO maps were inspected to identify potential historic site locations. No previously recorded sites were identified in the file search study area.

During fall 2007, cultural resources inventories were conducted along the Wyoming portion of the proposed pipeline corridor (Greubel et al. 2008). As a result of the inventories, 69 sites were located in the 300-foot-wide survey corridor. Of the 69 sites, 46 are prehistoric, 7 are historic, 3 are multi-component sites consisting of prehistoric and historic components, and 13 sites have been destroyed by previous disturbance. Twenty-five (54 percent) of the prehistoric sites are open camps and 16 (35 percent) are open lithic scatters. The remaining prehistoric sites include lithic scatters and a lithic processing site. Historic sites include artifact scatters, a road segment, open camp, and the Overland and Cherokee trails. One of the multi-component sites consists of a historic artifact scatter and prehistoric open lithic scatter. The remaining multi-component sites include a prehistoric open lithic scatter and historic isolate, and a prehistoric lithic scatter and historic trash scatter.

In May and June 2008, Alpine conducted additional field inventories of minor reroutes and newly defined facilities, as well as along segments of the proposed pipeline corridor that previously had been denied access from the landowner (Mueller and Moore 2008). Four sites were located during the inventories. Of these four sites, one is a prehistoric open camp and three are prehistoric lithic scatters; no historic sites were located during the inventory.

A summary of sites located during the 2007 and 2008 inventories in Wyoming, plus their NRHP-eligibility and management recommendations, can be found in **Appendix E**.

3.8.3 GRP Land Re-route Alternative

In August 2008, Alpine conducted a files search through the Colorado Office of Archaeology and Historic Preservation for the proposed GRP Land Re-route Alternative (Alexander 2008), and the site files and inspected the historic GLO maps at the BLM Little Snake Field Office. One previously conducted inventory was identified in the 2-mile-wide file search study area. No cultural resources were identified during the inventory. At this time, Alpine also conducted a Class III inventory along the approximate 3.3-mile-long alternative route. As a result of the inventory, one previously unrecorded prehistoric lithic scatter and four

previously unrecorded isolated finds (three prehistoric and one historic) were documented in the 300-foot-wide survey corridor. The prehistoric lithic scatter and all of the isolated finds are recommended as not eligible for the NRHP; no further work is recommended.

3.9 Native American Traditional Values

3.9.1 Ethnographic Context

Historic and archaeological data indicate that the Ute and Shoshone were the primary indigenous occupants of the Project area. From A.D. 1300 to 1700, the Ute generally occupied the portion of the Project area north of the San Juan Mountains and south of the Yampa River in western Colorado. The Shoshone homeland was primarily western Wyoming and southern Idaho, and north of the Uinta Mountains (Greubel et al. 2008).

After the 1700s, the Ute continued to inhabit primarily the Rocky Mountains and Colorado Plateau. The acquisition of the horse increased their range east to the High Plains to hunt and south to the Spanish and Pueblo settlements in northern New Mexico and northeastern Arizona for raiding and trading. The Ute lifeway continued until the 1850s, when gold was discovered in Colorado and white settlements and subsequent conflicts intensified. Treaties forced the Utes to reduce their range, and in 1881, the Ute were removed to one of three reservations, two in southeastern Colorado and one in northeastern Utah.

Historic evidence indicates that the Shoshone traveled great distances to hunt, trade, and raid. Between A.D. 1650 and 1700, the Shoshone acquired the horse, thus allowing more intensive bison hunting and greater travel for resource procurement. However, during this time the Crow, Blackfoot, and other tribes had acquired large quantities of firearms and horses and forced the Shoshone to withdraw to central and western Wyoming and southern Idaho. The Shoshone who lived in Wyoming would later be known as the Wind River or Eastern Shoshone.

The reader is referred to *Handbook of North American Indians, Volume 1: Plains* (DeMallie 2001) for a comprehensive ethnographic overview of the Project area.

3.9.2 Native American Consultation

In compliance with the NHPA, as amended, the BLM initiated government-to-government consultation for the Piceance Basin Lateral EA on September 26, 2007, by sending letters to Indian tribes either living in, or with traditional ties to, the proposed Project area. These tribes include Eastern Shoshone, Northern Arapaho, Northern Ute, Shoshone-Bannock, Southern Ute, and Ute Mountain Ute. The letters were sent to inform the various tribes of the proposed undertaking and invite the tribes to provide any information about places with traditional cultural importance that may be located in the proposed Project area. Included with the letters was a map of the proposed pipeline route and a self-addressed stamped postcard for the tribes to indicate their level of interest and return to the BLM. The Southern Ute were the only tribe to return the postcard in which they requested to be contacted in the event human remains are found during Project construction.

Subsequent to the letters, the BLM telephoned the five tribes that had not responded to the consultation letter. As a result, the Eastern Shoshone requested additional information on the proposed Project and the Northern Arapaho Tribe requested participation in any field visits to the proposed Project area. To date, no responses to messages left for the Northern Ute, Ute Mountain Ute, and Shoshone-Bannock tribes have been received by the BLM.

On February 21, 2008, the BLM sent follow-up letters, which included a preliminary summary of the cultural resources inventory, to all six previously contacted tribes. In the letters, BLM requested review of the preliminary results of the cultural resource inventory and any information, concerns, or issues the tribes may have regarding the proposed Project. At this time, none of the tribes have responded to the second letter. The BLM will continue to make a good faith effort to consult with the tribes regarding the proposed Project.

3.9.3 GRP Land Re-route Alternative

If the GRP Land Re-route Alternative was selected for construction, the BLM would send a letter to the above-listed tribal groups to inform them of the revised pipeline route and solicit their concerns about places of traditional cultural importance that may be located along the proposed alternative. Consultation between the BLM and the identified tribal groups would follow the same protocol as for the Proposed Action.

3.10 Socioeconomics

3.10.1 Population, Employment, and Economics

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, the estimated population in Colorado climbed by 10.5 percent to 4,753,377 in 2006. The estimated population in Wyoming increased by 4.3 percent to 515,004 over the same period (U.S. Census Bureau 2006). The four counties crossed by the proposed pipeline route are largely rural, generally with a single population center in proximity to the route. Garfield and Routt counties in northwestern Colorado, although not directly affected by the proposed route, border those directly affected counties, and thus may experience effects from the proposed Project. Therefore, these counties are included in the analysis where appropriate. The least populous county crossed by the proposed pipeline corridor is Rio Blanco County, Colorado, which had an estimated population of 6,180 in 2006. The most populated county directly affected by the proposed pipeline route is Sweetwater County, Wyoming, which had an estimated population of 38,763 in 2006. A majority of the population in Sweetwater County is centered near Rock Springs, Wyoming, which is approximately 70 miles west of the northern portion of the proposed Project. **Table 3.10-1** summarizes recent population changes for the proposed Project area.

Table 3.10-1 Population Change in the Proposed Project Area, 2000 to 2006

State / County	2000	2006 (estimated)	Change, 2000 to 2006	
			Absolute	Percent
Colorado				
Rio Blanco	5,986	6,180	194	3.2
Moffat	13,181	13,680	346	3.8
Garfield	43,791	51,908	8,117	18.5
Routt	19,690	21,580	1,890	9.6
Wyoming				
Sweetwater	37,613	38,763	1150	3.1
Carbon	15,639	15,325	-314	-2.0

Sources: Census 2000; U.S. Census Bureau 2006.

Of the counties potentially affected by the proposed Project, either directly or indirectly, only Routt and Garfield have experienced substantial population growth over the past 6 years. Moffat and Rio Blanco counties realized moderate population gain. Much of the growth in northwestern Colorado has been tied to the substantial energy exploration and development activity in recent years. Population changes in Wyoming have been relatively limited in scale, with Sweetwater County modestly gaining population and Carbon County modestly losing population between 2000 and 2006.

As of December 2007, Moffat and Rio Blanco counties in Colorado had relatively small labor forces (8,703 and 5,443, respectively). In Wyoming, approximately 11 percent of the civilian labor force resides within the two counties that would be affected by the proposed pipeline route. Of the two counties, Carbon County has the smaller civilian labor force with 8,104 persons, and Sweetwater County has the larger civilian labor force with a total of 24,104 persons.

Unemployment rates across the proposed Project area have declined over the past year, and as of December 2007, ranged from 2.2 percent in Rio Blanco County, Colorado to 3.5 percent in Moffat County, Colorado (**Table 3.10-2**) (Colorado Department of Labor and Employment 2007; Wyoming Department of Employment 2007). Statewide unemployment rates for the same period were 4.5 percent in Colorado and 3.1 percent in Wyoming. Given the limited size of the local labor force in these more rural counties, the number of available workers is very low, for example, 119 unemployed in Rio Blanco County, Colorado, and 278 unemployed in Carbon County, Wyoming.

Table 3.10-2 Labor Market Conditions in the Proposed Project Area, December 2007

State / County	Labor Force	Employed	Unemployed	Unemployment Rate
Colorado				
Rio Blanco	5,443	5,324	119	2.2%
Moffat	8,703	8,397	306	3.5%
Garfield	37,438	36,456	982	2.6%
Routt	16,172	15,729	443	2.7%
Wyoming				
Carbon	8,104	7,826	278	3.4%
Sweetwater	24,104	23,507	597	2.5%

Sources: Colorado Department of Labor and Employment 2007; Wyoming Department of Employment 2007.

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. Mining (both mineral and oil and gas development), public administration, and trade and tourism/travel also are important employment sectors in Wyoming. The latter is due in part to the I-80 corridor across southern Wyoming.

In 2005, per capita personal income was \$37,510 in Colorado and \$37,305 in Wyoming. The four counties traversed by the proposed pipeline route have per capita incomes ranging from \$26,793 in Moffat County, Colorado, to \$38,039 in Sweetwater County, Wyoming. Sweetwater County was the only county in which per capita personal income was higher than the state average (U.S. Bureau of Economic Analysis 2005).

3.10.2 Infrastructure

3.10.2.1 Housing

Housing availability within the proposed Project area is a function of the housing stock, recent economic and population growth, the inventory of short-term 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 17,336 units in Garfield County. Carbon County registered a total housing supply of 8,307 units (**Table 3.10-3**).

Table 3.10-3 Housing Inventory in the Proposed Project Area

State / County	Total Units – 2000	Available Rental Units – 2000	Building Permits 2006
Colorado			
Rio Blanco	2,855	127	50
Moffat	5,635	189	52
Garfield	17,336	217	757
Routt	11,217	956	1,359
Wyoming			
Sweetwater	15,921	680	268
Carbon	8,307	360	58

Sources: Census 2000; Colorado Division of Local Government 2004; Wyoming Department of Administration and Information 2008.

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 proposed Project area, the number of such units recorded in the 2000 Census ranged from 127 units in Rio Blanco County, Colorado, to 680 units in Sweetwater County, Wyoming. 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 combined 428 new units were issued building permits in Rio Blanco, Moffat, Carbon, and Sweetwater counties in 2006 (U.S. Census Bureau 2006). Significant new construction has occurred in Routt and Garfield counties, although many of the new housing units were single-family residences.

A second, more 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, Colorado, with only 404 units, the inventory of such accommodations is relatively larger in most of the counties because tourism, travel, and outdoor recreation play major roles in the local economies (**Table 3.10-4**).

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 in Wyoming along the Interstate 80 (I-80) corridor in Sweetwater County and in southwestern Carbon County.

Vacancy surveys of rental housing in Wyoming indicate limited availability across the study area, with estimated vacancy rates of under 1.0 percent in Sweetwater County and 8.4 percent in Carbon County. However, the latter represents only about 50 units (Wyoming Housing Database Partnership 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 power plant. Anecdotal information also indicates limited 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. Given the above, housing availability can be characterized as limited to very limited in most counties.

Table 3.10-4 Estimated Temporary Housing Inventory, Winter 2004

State/County	RV Spaces	Motel/Hotel Rooms	Mobile Home Spaces	Total	Temporary Housing Availability
Colorado					
Rio Blanco	108	143	153	404	Very Limited
Moffat	221	600	858	1,679	Fair to Good
Garfield	196	>1,000	NA	>1,196	Very Limited
Routt	105	>1,000	NA	>1,105	Good
Wyoming					
Sweetwater	215	1,718	3,696	5,629	Limited
Carbon	395	1,367	2,583	4,345	Limited
Total	1,140	>5,828	7,290	>14,358	

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.

Source: FERC 2005a.

3.10.2.2 Public Services and Facilities

Table 3.10-5 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.

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 Project area may be lengthy given communication, dispatch and travel time considerations.

Table 3.10-5 Existing Public Services and Facilities in the Proposed Project Area

State/County	Police/Sheriff Departments ¹	Fire Departments ²	Medical Facilities ³
Colorado			
Rio Blanco	3	2	2 Hospitals
Moffat	2	2	1 Hospital
Garfield	1	6	1 Hospital
Routt	4	6	1 Hospitals
Wyoming			
Sweetwater	4	9	1 Hospital
Carbon	7	8	1 Hospital

¹Capitol Impact 2008. Does not include special law enforcement units for universities.

²Firehouse Network 2008. Includes volunteer, district, city, and town departments, but does not include departments and services offered by the BLM or the Department of Defense.

³Colorado Health and Hospital Association 2008. Wyoming Hospital Association 2008.

Higher level trauma centers capable of treating serious injuries requiring more specialized or intensive care are located in Rock Springs, Wyoming. The most serious injuries may require transport to regional trauma centers in Grand Junction, Colorado, and Casper, Wyoming, or even to Denver, Colorado, or Salt Lake City, Utah. 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, and Craig, Colorado; and Rawlins and Rock Springs, Wyoming.

3.10.2.3 Transportation

The major transportation routes that would be crossed by the proposed Project include U.S. I-80, U.S. Highway 40, and Colorado State Highway 64. Access roads and the transportation network are discussed in Section 2.1. **Figures 2.1-2** and **2.1-3** show the access roads that would be used for the proposed Project.

Another significant transportation feature in the region is the Union Pacific Railroad mainline route across southern Wyoming. The railroad and I-80 corridors generally parallel each other across Sweetwater and Carbon counties.

3.10.3 Fiscal Relationships

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 3.10-6** lists the 2005 total assessed valuation from all sources and estimated gross retail sales of all establishments for the four directly affected counties. 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 Sweetwater County, Wyoming, and 76 percent of the total in Rio Blanco County, Colorado. Other state-assessed property, including utilities and oil and gas transmission systems, account for 48 percent of the total valuation in Moffat County, Colorado, and between 10 and 13 percent of the total in Sweetwater County, Wyoming, and Rio Blanco County, Colorado.

Statewide total assessed valuation on gas transmission pipelines in 2003 was \$255.6 million in Colorado and \$121.7 million in Wyoming.

Table 3.10-6 County Property and Sales Tax Base for Counties Crossed by the Proposed Project

State / County	Assessed Valuation 2005	Gross Retail Sales 2005
Colorado		
Rio Blanco	\$434,639,420 (2005)	\$407,800,000
Moffat	\$390,341,690 (2005)	\$291,835,000
Wyoming		
Sweetwater	\$ 1,563,354,342 (2005)	\$1,073,949,000
Carbon	\$ 898,683,428 (2006)	\$344,978,000

Note: Retail sales for Colorado are for calendar year 2005, those for Wyoming are Fiscal year 2005.

Sources: Colorado Department of Local Affairs 2006; Wyoming Department of Administration and Information 2008; Wyoming Taxpayers Association 2008.

Gross annual retail sales are a reflection of the local population, income, level of travel and tourism in the region, presence of special populations such as a college or university, and economic stimulus provided by special activities such as construction projects and energy and mineral resource development. In both states, all of the counties and many of the communities within the counties levy sales taxes on retail purchases. Based on total annual gross retail sales, Moffat County, Colorado, has the smallest trade and service sectors of all the counties crossed by the proposed Project, while Sweetwater County, Wyoming, has the largest.

3.10.3.1 Property Values

Approximately 48 percent of the land affected by construction and operation of the proposed Project would be on federal public lands. Six percent is state and local lands, and the remainder of the land that would be affected (46 percent) is privately owned. A detailed description of land ownership is presented in Section 3.7.

On both public and private lands, OPPC would acquire an easement for both the temporary (for construction) and permanent ROWs. The easement would provide OPPC the right to construct, operate, and maintain the pipeline, and establish a permanent ROW. In return, OPPC 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, OPPC would acquire a ROW grant for construction and operation of the proposed facilities. The ROW grant essentially allows OPPC to lease the land from the BLM.

3.10.4 Environmental Justice

A summary of the population types (i.e., races) residing within the four counties crossed by the proposed pipeline route based on U.S. Census Bureau data from 2000 is presented in **Table 3.10-7**. In Colorado, the proposed pipeline route would cross counties that contain a smaller proportion of minorities than are found statewide in Colorado. In Wyoming, demographics for the counties of Carbon and Sweetwater show a slightly larger proportion of minorities compared to the Wyoming statewide average.

The percent of population with incomes below the poverty level also are summarized in **Table 3.10-7**. In Colorado, Rio Blanco County has a poverty rate greater than the statewide average, while poverty rates in Moffat County are less than the statewide average. In Wyoming, the poverty rate in Sweetwater County has a

smaller percentage of people below the poverty line than the statewide average, while Carbon County is lightly higher than the statewide average.

Table 3.10-7 Environmental Justice Statistics in Affected Counties

State / County	Racial/Ethnic Categories (% of Total Population)						Persons Below Poverty Level, percent
	White	Black or African American	American Indian and Alaska Native	Other Races	Two or More Races	Hispanic ¹	
Colorado	82.8	3.8	10.0	7.2	2.8	17.1	9.3
Rio Blanco	95.0	0.2	0.8	2.0	1.7	4.9	9.6
Moffat	93.6	0.2	0.9	3.2	1.8	9.5	8.3
Wyoming	92.1	0.8	2.3	2.5	1.8	6.4	11.4
Sweetwater	91.6	0.7	1.0	3.6	2.4	9.4	7.8
Carbon	90.1	0.7	1.3	5.2	2.1	13.8	12.9

¹Persons of Hispanic origin may be of any race and for census-gathering purposes, Hispanic is a self-identified category. In this table, individuals may have reported themselves as only Hispanic or in combination with one or more of the other races listed. This may result in the sum of percentages for all ethnic categories to be greater than 100 percent for any one county.

Source: Census 2000.

3.10.5 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding socioeconomics would be the same as described for the Proposed Action.

3.11 Public Health and Safety

3.11.1 Hazardous Materials and Wastes

Pre-existing soil contamination along the proposed pipeline route may exist. However, review of the USEPA Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) Database (USEPA 2006) and state Superfund Site Status Summaries indicates that the proposed pipeline route does not intercept any known areas of contamination. No Superfund sites are intersected or within 5 miles of the proposed pipeline route (USEPA 2006).

3.11.2 Emergency Response

The existing public services and facilities available in the Project vicinity are discussed in detail in Section 3.10.2. In general, the public services available are directly related to the number of cities and towns in each county as well as population figures. The number of police and/or sheriff departments within each county that would be affected by the proposed Project ranges from two departments in Moffatt County, Colorado, to seven departments in Carbon County, Wyoming. Sweetwater County, Wyoming, has nine fire departments and Carbon County has eight. Moffat and Rio Blanco counties in Colorado have two fire departments each. Rio Blanco County has two hospitals and the other counties each have one.

3.11.3 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding public health and safety would be the same as described for the Proposed Action.

4.0 Environmental Effects

4.1 Analysis Assumptions and Guidelines

Assumptions

1. OPPC construction and operation methods and environmental protection measures are contained in the *Biological Resources Protection Plan*, the *Environmental Protection Plan*, and other plans provided in the draft POD (CH2MHill 2008). These measures would be implemented on federal lands, and similar procedures would be used on non-federal lands. Individual landowners may include specific construction and reclamation requirements in ROW agreements with OPPC. These requirements could result in similar or less environmental impacts than discussed in this chapter.
2. OPPC would acquire all necessary federal, state, and local permits and approvals to construct and operate the OPPC Piceance Basin NGL Lateral system (not including powerlines, which would be controlled and operated by power companies), regardless of whether the requirements for these permits and approvals are listed in this document.

Guidelines

1. Activities in the “construction phase” would include the surface-disturbing activities needed to construct the pipeline, lateral, pump station, meter stations, pigging facilities, valves, and permanent access roads so that the entire pipeline system can be placed into service. It also would include reclamation activities for areas where the surface has been disturbed.
2. Activities in the “operation phase” would include transportation of NGLs in the Overland Pass Pipeline system. This definition also includes normal operations, routine pipeline ground and aerial inspections, emergency response activities, future routine internal and external integrity inspections and repairs along short segments of the entire pipeline, and future remedial restoration activities such as reseeding and repair of erosion control structures.
3. OPPC committed environmental protection measures included in the draft POD were used to evaluate environmental impacts. The specific plans are not attached but are referenced in this document and can be found on the BLM website as technical reference reports http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/EA/overland_pipeline.html. The draft POD is currently a draft document that will be finalized by OPPC and submitted to BLM for review and approval after completion of a Final EA.

4.2 Air Quality

4.2.1 Proposed Action

Construction Phase

Issues

- Generation of fugitive dust from construction
- Combustion emissions from construction equipment

Analysis

Construction of the proposed Project would result in intermittent and short-term fugitive emissions. These emissions would include fugitive dust from soil disruption, and combustion emissions from construction equipment and construction worker commuter vehicles.

The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed, along with the frequency and duration of precipitation events. Fugitive dust emissions during construction would be restricted to the brief construction period along each segment of the proposed pipeline route, with construction impacts diminishing once construction activities end and after disturbed areas are reclaimed. Fugitive particulate emissions from roadways consist of heavier particles and tend to settle out of the atmosphere within a few hundred yards. Therefore, fugitive particulate emissions would be limited to the immediate vicinity of the proposed Project and the surrounding region would not be significantly impacted.

Combustion emissions from construction equipment would be minimized because the engines would meet the standards for mobile sources established by the USEPA mobile source emission regulations (40 CFR 85). In addition, the USEPA required that the maximum sulfur content of diesel fuel for on-road vehicles be reduced from 500 parts per million by weight (ppmw) to 15 ppmw as of mid-2006. The USEPA is requiring the sulfur content of non-road diesel to be reduced to 15 ppmw as well, reducing SO₂ and particulate emissions from diesel combustion. CO₂ is a naturally occurring gas whose presence in the atmosphere is necessary for all life. While areas near the construction of the pipeline may briefly experience slightly higher CO₂ concentrations as a result of construction vehicular traffic, these concentrations, if measureable, would not cause localized adverse human health or ecological impacts.

CDPHE air quality regulations for fugitive dust emissions applies to construction activities and clearing of land. Colorado Regulation No. 1 requires that a fugitive dust control plan be submitted by applicants whose source/activity results in fugitive dust emissions. The control plan must enable the source to minimize emissions of fugitive dust to a level that is technologically feasible and economically reasonable.

In addition, opacity from fugitive dust sources cannot equal or exceed 20 percent. During drier periods, dust suppression techniques such as the use of water or chemicals to control dust may be used in construction zones to minimize fugitive dust impacts, along with covering open-bodied trucks while transporting materials that would be likely to produce airborne dusts.

Colorado Air Pollution Control Division regulations identify certain activities that are exempt from the requirement to file an Air Pollutant Emission Notice (APEN) because by themselves, or cumulatively as a category, they are deemed to have a negligible impact on air quality. Included in the exempted categories is the disturbance of surface areas for purposes of land development that do not exceed 25 contiguous acres, and that do not exceed 6 months in duration. If these exemption thresholds are exceeded, an APEN must be submitted to the CDPHE. A land development APEN would be submitted for the pipeline construction if the exemption thresholds were exceeded. A fugitive dust control plan for land development activities would be included with the land development APEN.

OPPC also would implement dust control measures during certain construction activities such as blasting, trenching, and/or use of access roads. These dust control measures, as stated in the *Transportation Management Plan* and the *Fugitive Dust Control Plan* for the Project include the application of water or, if necessary, a non-toxic, biochemical dust suppressant, possibly in combination with mulches applied to the areas of disturbances. Other more long-term methods of controlling fugitive dust could include the use of wind fences, temporary seeding of spoil piles, gravel, and/or geotechnical matting.

If OPPC complies with Colorado and Wyoming regulations concerning the mitigation of fugitive dust emissions, the proposed Project would incorporate sufficient measures to ensure adequate levels of air quality during construction of the pipeline. Air pollutants from construction equipment internal combustion engines would be limited to the close proximity of the proposed Project area. Impacts would be short-term and long range transport would not occur, resulting in no significant impact on air quality.

Conclusion

The procedures proposed by OPPC would be sufficient to minimize impacts to air resources.

Operational Phase

Issues

- Operational Emissions

Analysis

Although the midpoint pump station is not currently proposed to be constructed, if it is installed in the future the only anticipated impacts to air quality would be from an emergency flare that may be located at the pump station and from blow downs of the pipeline. Emissions from a blow down of the pipeline would occur in emergency situations, and as part of periodic maintenance when pipeline pigging is conducted. Such a blow down would generate emissions of hydrocarbons and volatile organic compounds (VOCs). Due to the infrequent occurrence, there would be no significant air quality impacts from emergency flaring or blow downs from pipeline pigging activities.

If the pump station would be constructed, operational impacts would be mitigated, as needed, through the state permitting process. Air pollutant emissions would likely be below permitting threshold levels and, hence, there would be no significant adverse impacts on local or regional air quality.

Conclusion

Operational impacts to air quality resources are not expected.

4.2.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to air quality would not occur.

4.2.3 GRP Land Re-route Alternative

The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action. There would be no additional pumps or pump stations constructed along this alternative route. As a result of the additional length, there would be a slight increase in the emissions and fugitive dust associated with construction activities. However, the overall change in the length represents less than a 1 percent change for the entire route and therefore would not result in significant overall differences in impacts between the alternatives.

4.3 Geology, Minerals, and Paleontological Resources

4.3.1 Proposed Action

4.3.1.1 Physiography and Geology

Construction Phase

Issues

- Disturbances to topography resulting in disruption of drainage

Analysis

The effects of construction would include disturbances to the topography along the proposed ROW and at aboveground facilities due to grading and trenching activities. Upon completion of construction, OPPC would restore topographic contours and drainage patterns as closely as possible to the pre-construction condition.

Blasting potentially would adversely impact the geologic and physiographic environment. Limited blasting would be required in areas where shallow bedrock or boulders were encountered that could not be removed by conventional excavation with a trackhoe trencher, ripping with a bulldozer followed by trackhoe excavation, or hammering with a trackhoe-mounted hydraulic hammer followed by excavation. According to OPPC, blasting is not anticipated because the largely sandstone-composed formations can be disaggregated by using hydraulic hammers. However, in the event blasting is necessary, OPPC has prepared a *Blasting Plan* for the Project.

Conclusion

The construction techniques proposed by OPPC are sufficient to minimize impacts and restore surface contours.

Operation Phase

Issues

- No issues associated with geological resources were identified with operation

Analysis

Operation of the proposed pipeline and associated aboveground facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area.

Conclusion

No significant adverse impacts to geological resources would be anticipated due to operations.

4.3.1.2 Mineral Resources

Construction Phase

Issues

- Potential interference with existing mining or oil and gas operations

Analysis

As shown in **Table 3.2-2**, the proposed pipeline route crosses numerous oil and gas fields. In addition, the proposed route may cross aggregate resources in alluvial valleys and river terraces. Nevertheless, construction would have very minor and short-term impact on current mineral extraction activities due to the temporary and localized nature of pipeline construction activities.

Several oil and gas wells were identified within or close to the proposed pipeline construction ROW (**Table 3.2-3**). Construction activities potentially could damage wells, associated underground fluid lines and pipelines, and disrupt normal operations and routine maintenance. Also, damage to oil and gas facilities, if they should occur, could present severe health and safety and contamination hazards. Abandoned wells also could be impacted since construction potentially could remove existing abandoned well markers and damage near-surface cement plugs. Because oil and gas are produced from depths of more than 1,000 feet, construction of the pipeline would not be expected to affect the oil and natural gas producing formations. Rather, any construction-related impacts would be limited to surface or near-surface components of the wells and gathering systems, which would temporarily disrupt production until repairs are made. Prior to construction, OPPC would identify the exact locations of active, shut-in, and abandoned wells and any associated underground pipelines in the construction ROW and take appropriate precautions to protect the integrity of such facilities. OPPC also would abide by utility locate rules in the respective states and conduct due diligence to identify and contact all oil and gas well operators and pipeline gathering system owners prior to construction activities.

Conclusion

Potential impacts to surface mining operations, if any, would be limited to temporary short-term encumbrances during construction and would be minimized by OPPC working with the owners and/or operators of oil and gas facilities during ROW negotiations and facilities construction. Because construction of the pipeline would be limited to near-surface disturbance, the proposed Project would not impact oil and gas production.

Operation Phase

Issues

- Potential for reduced access to underlying minerals
- Potential interference with future mining operations
- Potential subsidence over underground mined-out voids leading to loss of ground support and damage or breakage of pipe

Analysis

Long-term operation of a pipeline has the potential to preclude access to mineral resources. The proposed route would be in an existing pipeline corridor and would not hinder access to mineral resources. The proposed ROW corridor does not pose a hindrance to access to oil and gas resources. Although the proposed route is in an area of potential exploitable minerals (coal and oil shale), no current plans to mine such resources were identified. No active or abandoned underground mine workings were identified along the proposed route, therefore, ground subsidence issues associated with underground mining are not a concern.

Conclusion

Operation of the proposed Project 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 through the corridor. 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 trench 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 pipe padding, 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.

4.3.1.3 Geological Hazards

Construction Phase

Issues

- Potential damage to the pipeline and the safety of the workers due to geologic hazards encountered during construction

Analysis

The hazard of concern during construction of the pipeline would be from unintentional undercutting of slopes or construction on steep slopes resulting in instability that would lead to landslides. When selecting the proposed pipeline route, OPPC attempted to minimize the amount of steep slopes crossed by the pipeline. Special pipeline construction practices described in the POD (CH2MHill 2008) would minimize slope stability concerns during construction. Implementation of the *Environmental Protection Plan* and *Blasting Plan* would reduce the potential for construction-related activities to trigger landslides or other slope failures.

Conclusion

Construction of the proposed Project facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area.

Operation Phase

Issues

- Potential damage to pipeline and ancillary facilities from earthquakes (ground shaking and subsidence) and fault displacement
- Potential damage to the pipeline from flood scour

Analysis

Seismicity

Seismic hazards to Project facilities would include strong ground shaking, surface faulting, or secondary ground deformation such as liquefaction and flow failure. Pipelines and aboveground facilities are capable of withstanding substantial ground motion. The proposed Project would be in an area where the probability of a strong earthquake is low. Since ground motion hazard probability is low, there would be a low risk of related hazards of earthquake induced landslides. The proposed Project does not cross identified active faults so ground displacement due to fault movement is not a concern.

To protect the proposed pipeline and facilities from seismic activity and its associated hazards, facilities would be constructed and tested to meet federal standards outlined in 49 CFR Part 195 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 proposed Project facilities.

Flooding and Scour

Flooding hazards to Project facilities would include inundating surface facilities, causing debris flows, or scouring stream beds at the point of the pipeline crossing. Severe scouring often leaves unsupported spans of pipe exposed. In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the proposed pipeline would cross small watersheds. The proposed pipeline route would cross perennial and ephemeral streams as identified in **Appendix A**. All these crossings are potential seasonal or flash flooding locations. Though flooding in and of itself does not represent a significant risk to buried pipelines, stream scour and mud/debris flows often accompanying flooding can impact pipelines by exposing and leaving unsupported spans of pipe. To minimize these effects, the proposed pipeline would be buried at a sufficient depth to avoid possible scour at waterbody crossings. In addition, regular visual inspection of the proposed pipeline route would be used to identify areas that would be potentially exposed after flood events. The aboveground facilities are not located within areas susceptible to flooding.

Conclusion

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

4.3.1.4 Paleontological Resources

Construction Phase

Issues

- Potential damage and loss of scientifically important fossils from ROW clearing, grading, trench excavation, and construction of other pipeline facilities

Analysis

Potential impacts to fossil localities during construction would be both direct and indirect. Direct impacts to or destruction of fossils would occur from trenching or facility construction activities conducted through significant fossil beds. Indirect impacts during construction would include erosion of fossil beds due to slope regrading and vegetation clearing or the unauthorized collection of scientifically important fossils by construction workers or the public due to increased access to fossil localities along the ROW.

To manage impacts to fossil localities, OPPC would implement the measures in the *Paleontological Resources Protection Plan (Paleo Plan)* to protect fossil resources on federal lands encountered during proposed Project construction, including the resources identified during the field survey. Paleontological resource monitoring would be conducted by Paleontological Monitors to ensure that fossils are preserved and to ascertain whether construction may continue after the unexpected discovery of any vertebrate fossils. Work conducted under the *Paleo Plan* would be performed by qualified paleontologists with trained assistants.

Paleontological Monitors would monitor construction as defined in the *Paleo Plan*. The construction contractor would be responsible for notifying a Project Environmental Inspector at least 72 hours in advance of construction in areas requiring monitoring, so that Paleontological Monitors can be deployed where required. The construction contractor would be responsible for all construction delays due to insufficient notification. Areas requiring paleontological monitoring also are included in Attachment 1 of the *Paleo Plan*.

The Paleontological Monitor would follow the trenching equipment at a cautionary distance, allowing time for construction dust to settle and for visible detection of fossils. Paleontological monitoring also would involve periodic spot-checking of the trench prior to backfill activities.

Paleontological Monitors would document daily monitoring activities on daily monitoring report forms that would be delivered to the Environmental Inspector on a daily basis. Paleontological monitoring results would be reported on a bi-weekly basis to the BLM Authorized Officer in a short letter report.

If fossils are discovered during construction, the Contractor would immediately stop all work near the discovery. The following steps would be implemented when fossils are discovered:

- Cease all earth disturbing activity within 100 feet of the discovery.
- Contact the BLM Authorized Officer, Environmental Inspector, and Paleontological Monitor immediately. The Paleontological Monitor would assess the nature of the discovery and determine the necessary course of action. If necessary, the Paleontological Monitor would mark the area and recommend procedures to be implemented to avoid further site damage. OPPC would protect the discovery until removed.

Under no circumstances would fossils be removed from private lands for any reason, including curation, without the written consent of the landowners.

Conclusion

Adherence to the *Paleo Plan* would minimize adverse impacts to scientifically important paleontological resources on federal lands. Important paleontological resources on non-federal lands may be recovered only with approval of the landowners, and therefore, may be unavailable for scientific curation.

Operation Phase

Issues

- Potential damage and loss of scientifically important fossils from maintenance activities

Analysis

Any potential effects to fossils from maintenance activities would be isolated due to the probable dispersed nature of maintenance activities. Also, potential impact during operations and maintenance would be minimal since activity would occur on previously disturbed ROW.

Conclusion

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 ROW that was previously disturbed during construction. Since no new disturbances would be anticipated from routine maintenance activities (i.e., maintenance activities would occur within the ROW), impacts to paleontological resources would be negligible. However, it is possible that certain types of maintenance or repair may require a work space beyond the previously disturbed working ROW. In that case, the protection measures will be implemented on federal lands as outlined in the *Paleo Plan*.

4.3.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the associated impacts to geologic or mineral resources would occur.

4.3.3 GRP Land Re-route Alternative

Potential impacts to geology, mineral resources, and paleontological resources along the GRP Land Re-route Alternative would be same as the Proposed Action except for the presence of 5 additional drainage crossings, which would somewhat increase the flood hazard potential beyond that of the Proposed Action. However, since the upgradient watersheds are small (generally less than one square mile) the overall difference in flood hazard between this alternative and the Proposed Action is not significant. Methods to reduce the potential effects of flood scour would be the same as for the proposed route. According to the Paleo Plan, monitoring for paleontologic resources in this area would consist of spot inspections after trenching but prior to the pipe being lowered into the trench.

4.4 Soils

4.4.1 Proposed Action

Construction Phase

Issues

- Potential topsoil losses from wind and water erosion on disturbed surfaces during and after construction
- Potential reduction in soil productivity and quality from topsoil losses, soil mixing, and compaction
- Pre-existing soil contamination or contamination from construction operations
- Potential for unsuccessful reclamation and establishment of vegetation similar to undisturbed adjacent lands

Analysis

Soils data were grouped and evaluated according to characteristics that would affect construction or increase the potential for soil impacts. These sensitive soil characteristics include: highly erodible soils; prime farmland and hydric soils; compaction-prone soils; stony/rocky soils and shallow bedrock; and droughty soils. Additional soil-related issues considered in the analysis include revegetation and soil contamination.

Acres of disturbed soils along the proposed pipeline route are summarized by state and according to the previously described soil characteristics that influence the magnitude of construction impacts (**Tables 4.4-1 and 4.4-2**).

Erosion by Water and Wind

Susceptibility to erosion is a complex function of characteristics such as soil texture and structure, topography, surface roughness, soil cover (made up of vegetation, duff/litter, rock, and woody debris), and climate. Erosion potential may also be influenced by increases in the length of time the soils are bare, and by disruption of drainage and erosion control structures. Erosion resulting from water occurs primarily on loose, non-cohesive soils on moderate to steep slopes, particularly during high intensity storm events. Wind-induced erosion often occurs on dry, fine sandy soils where vegetation cover is sparse and strong winds are prevalent.

The proposed pipeline route in Colorado would cross moderate to steeply sloping woodlands in Rio Blanco County. In Moffat County, the proposed route would cross river basins and dissected, moderately sloping hills in the south and gently rolling shrublands to the north.

The majority of the proposed pipeline route in Wyoming would cross shrublands on gently rolling to moderately steep slopes that are moderately to highly erodible if disturbed. Approximately half of the soils that would be affected by the proposed pipeline construction are considered highly erodible by wind and water. Approximately 167 acres of the soils along the proposed pipeline route in Colorado are highly erodible by wind while 46 acres are prone to wind erosion in Wyoming. Approximately 605 acres of soils highly susceptible to erosion by water would be crossed in Colorado and 202 acres would be crossed in Wyoming.

Soils subject to water erosion include steeply sloping land with shallow soils. Highly wind erodible soils along the proposed pipeline route are associated with sandy and silty textured, sparsely vegetated soils on a variety of parent materials. Although accelerated erosion due to construction-related soil disturbance would potentially

Table 4.4-1 Soil Characteristics Along Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	Wind Erosion¹	Water Erosion²	Compaction Prone³	Hydric⁴	Shallow Bedrock⁵	Prime Farmland	Stony Rocky⁶	Droughty⁷
Permanent Easement	Rio Blanco	7.1	115.2	117.4	0.4	78.2	37.6	58.0	7.1
Temporary Easement	Rio Blanco	3.6	58.2	58.6	0.2	39.2	18.5	29.1	3.6
TWAs	Rio Blanco	2.3	33.3	25.0	0.8	26.6	5.5	25.0	2.3
Permanent Easement	Moffat	90.1	230.6	216.9	0.1	14.0	84.6	88.7	214.7
Temporary Easement	Moffat	53.1	125.7	111.7	0.1	7.1	44.3	24.4	117.1
TWAs	Moffat	10.4	42.4	42.3	0.1	7.1	16.5	7.4	36.2
Total⁸		166.6	605.4	571.9	1.7	172.2	207.0	232.6	381.0

¹Includes soils in wind erodibility groups 1 and 2.

²Includes soils with water erodibility factor for whole soil (kW) >0.22 and Slope Percentage > 8, also includes denuded slopes percentages >30.

³Includes soils that have clay loam or finer texture.

⁴As designated by the NRCS (2006b).

⁵Shallow bedrock includes soils with lithic bedrock 60 inches or less from the soil surface.

⁶Includes soils that have either: a cobbly, stony, bouldery, gravelly, channery, or flaggy modifier to the textural class.

⁷Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

⁸Does not include 51.6 acres for off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 4.4-2 Soil Characteristics Along Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	Wind Erosion¹	Water Erosion²	Compaction Prone³	Hydric⁴	Shallow Bedrock⁵	Prime Farmland	Stony Rocky⁶	Droughty⁷
Permanent Easement	Sweetwater	19.1	114.1	144.5	0.9	15.8	0.0	30.1	21.8
Temporary Easement	Sweetwater	9.4	57.1	72.2	0.4	7.9	0.0	14.9	10.7
TWAs	Sweetwater	3.7	28.7	27.5	0.4	4.0	0.0	5.9	3.8
Permanent Easement	Carbon	8.5	1.0	16.9	0.0	0.0	0.0	12.9	16.9
Temporary Easement	Carbon	4.2	0.5	8.5	0.0	0.0	0.0	6.4	8.5
TWAs	Carbon	1.4	0.2	2.8	0.0	0.0	0.0	2.1	2.8
Total⁸		46.3	201.6	272.4	1.7	27.7	0.0	72.3	64.5

¹Includes soils in wind erodibility groups 1 and 2.

²Includes soils with a Kw >0.22 and Slope Percentage > 8, also includes denuded slopes percentages >30.

³Includes soils that have clay loam or finer texture.

⁴As designated by the NRCS (2006b).

⁵Shallow bedrock includes soils with lithic bedrock 60 inches or less from the soil surface.

⁶Includes soils that have either: a cobbly, stony, bouldery, gravelly, channery, or flaggy modifier to the textural class.

⁷Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

⁸Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

occur at any stage of construction, the maximum potential for erosion within the construction ROW would be expected while soils are loose, on top of the soil surface in spoil piles. Erosion also would be of concern after final grading has occurred but before a vegetative cover had been reestablished. If the ground surface were left unvegetated or inadequately reclaimed, it would result in increased erosion.

Soil Productivity

The mixing of soil horizons during grading, trenching, and backfilling would lower soil productivity of agricultural and rangeland soils by diluting the physical, biological, and chemical properties of the topsoil with less productive subsoil, thus, impacting revegetation success. Segregation of topsoil helps to mitigate these effects. Reclamation would be difficult if topsoil were lost because it may take hundreds to thousands of years for a topsoil horizon to form naturally.

Approximately 52 percent of the soils affected by the proposed Project would have less than 6 inches of topsoil. Erosion, rutting, and the mixing of topsoil and subsoil horizons is of particular concern in areas with thin topsoil horizons because soil productivity can be drastically decreased if topsoil is mixed with subsoil or topsoil is lost to erosion. Approximately 14 percent of the proposed Project would affect soils with greater than 12 inches of topsoil. Summaries of acres of various topsoil depths along the proposed ROW are located in **Tables 3.3-1 and 3.3-2.**

On federal lands managed by the BLM, approximately 4 to 12 inches of topsoil would be salvaged from the trench line and the working side of the ROW. Prior to construction, OPPC, with the help of a Soil Scientist, would identify the depths of topsoil that would be salvaged. These areas would be identified on the construction alignment sheets. In areas where more than 6 inches of topsoil would be removed, TWAs may be required to stockpile the additional soil.

On private lands, topsoil would be stripped up to a depth of 6 inches from the trench line; however, at the private landowner's request, more than 6 inches of topsoil may be salvaged and/or topsoil would be salvaged across the full-width of the ROW or a portion thereof. Up to 12 inches of topsoil would be stripped across the trench line or construction ROW on irrigated agricultural lands. However, on any lands that would require grading, topsoil would be stripped from the entire portion of the ROW that requires grading. Topsoil would be stockpiled separately from subsoil and would not be used to pad the trench or construct trench breakers.

On private lands, OPPC would chip or shred any brush and other materials cleared from the ROW and incorporate into the topsoil. The temporary effects of wood chip additions (at a 3-inch depth) on the soil resource would include: increased soil temperature in the winter, moderate increase in soil moisture, and substantial decrease in soil nitrogen supply and understory vegetation. The increase in soil temperature and soil moisture would have relatively minor ecological effects. However, reductions in the soil nitrogen supply may temporarily reduce productivity of the soil and affect revegetation rates (Binkley et al. 2003). With increasing depth of mulch, these impacts would increase in magnitude and duration.

Prime Farmland

Soils along the proposed ROW are classified as prime farmland if irrigated, irrigated and drained, irrigated and reclaimed of excess salts and sodium, irrigated and protected from flooding, or not frequently flooded during growing season. Loss or mixing of the topsoil during construction activities would lead to a long-term loss of soil productivity on prime farmlands.

Overall site productivity is primarily a vegetation measure. Productivity varies with vegetation community, but more importantly, with land management objectives as they relate to which vegetation types are desirable or productive. In contrast, soil quality is an inherent soil resource characteristic involving aeration, permeability, texture, salinity and alkalinity, microbial populations, fertility, and other physical and chemical characteristics that are accepted as beneficial to overall plant growth and establishment. Based on this concept, there could

be impacts to the existing quality of native soils from proposed Project-related disturbance. Topsoil excavation and redistribution would modify existing soil structure, which would affect aeration and permeability. It is likely that some mixing of textural zones would occur, as well as mixing of saline and/or alkaline materials with relatively salt-free materials, which would impact soil quality for seedbeds.

Erosion of the topsoil spoil pile during construction would lead to a decreased amount of topsoil to be placed back on the surface, potentially affecting nutrient cycling and long-term soil productivity. The proposed Project would disturb approximately 207 acres of prime farmland or potential prime farmland in Colorado. Protecting topsoil spoil piles from wind and water erosion is essential in these areas. Prime farmland would not be affected in Wyoming.

Soil Compaction and Rutting

Soil compaction and rutting would result from the movement of heavy construction vehicles along the construction ROW and on temporary access roads. The degree of compaction would depend on the moisture content and texture of the soil at the time of construction. Compaction would be most severe where heavy equipment operates on moist to wet soils with high clay contents. Detrimental compaction also could occur on soils of various textures and moisture contents if multiple passes are made by high ground-weight equipment. Where trenchline only topsoil removal has occurred, moist or wet topsoil would adhere to tires and/or tracked vehicles and be carried away. Rutting would occur when the soil strength is not sufficient to support the applied load from vehicle traffic. Rutting would impact the surface hydrology of a site as well as the rooting environment by physically severing roots and reducing the aeration and infiltration of the soil. Rutting also would disrupt natural surface water hydrology by damming surface water flows, creating increased soil saturation upgradient from ruts, or by diverting and concentrating water flows creating accelerated erosion. In locations with thin topsoils, rutting could mix the topsoil with the subsoil, thereby reducing soil productivity. Rutting most likely would occur on moist or wet fine textured soils, such as the Bulkley or the Canburn Series, but also could occur on dry sandy soils due to low soil strength. Sandy soils commonly occur along the proposed route in Colorado and include soils such as Maybell sands that occur on old dunes, hills, and breaks. Soil rutting would be an important indication that other physical soil impacts could be occurring on a site. Rutting restrictions would help to mitigate these concerns.

Approximately 572 acres along the proposed pipeline route in Colorado and 272 acres in Wyoming contain soils that are compaction prone. Compaction would damage soil structure and reduce pore space, which would impede the movement of air and water to plant roots and could result in lower growth rates and hinder revegetation. Compaction would reduce infiltration resulting in excessive surface runoff, erosion, nutrient loss, and potential water-quality problems. To minimize such impacts, OPPC would rip all compacted areas to the depth of compaction prior to topsoil replacement.

Fragile and Low Reclamation Potential Soils

Approximately 0.5 acre of soils, near MP 34.9, are considered landslide prone. These soils may be prone to slumping and mass movement. OPPC has committed to not constructing surface structures within 0.5 mile of MP 34.9 without geotechnical determination of adequate stability at the site. Approximately 26 acres of fragile soils would occur along the proposed pipeline route on lands managed by the WRFO. The majority of these (24 acres) would be on slopes greater than 35 percent and the remaining 2 acres would be on saline soils. Approximately 27 acres of soils are considered fragile as identified by the LSFO. Temporary and permanent erosion control measures would be installed to control erosion and transport of sediment. Selection of appropriate erosion controls would be based on soil properties, steepness of the slope, and anticipated surface flow or runoff. Erosion control measures would include sediment barriers, waterbars, erosion control fabric, geotechnical matting, and vegetative and rock mulch.

Low reclamation potential soils have chemical or physical properties that limit revegetation following disturbance. Such chemical and physical properties include salinity, sodicity, highly acidic or alkaline soils,

heavy clays, and droughty sands. According to data provided by the BLM RFO, approximately 233 acres of soils in Wyoming have a poor topsoil rating due to high clay content or excess salt. Salts in the soil stress the vegetation by making water uptake more difficult, which would impact revegetation success in these areas. Reseeding with a salt-tolerant seed mix in these locations would minimize impacts associated with disturbance in these areas. Seed mixes are provided as an appendix to the *Environmental Protection Plan*. High clay content soils are prone to compaction and ripping to relieve compaction may be necessary for successful reclamation.

Stony/Rocky Soils and Shallow-to-Bedrock Soils

Grading, trenching, and backfilling would bring stones to the surface that could interfere with or damage agricultural equipment and hamper revegetation efforts by reducing soil moisture holding capacity. Ripping and blasting of shallow bedrock during construction would result in incorporation of bedrock fragments into topsoil.

Approximately 305 acres of the proposed pipeline route contain soils with substantial rocks and stones in the surface horizons. The majority of stony/rocky soils occur in steeper segments of the proposed route, with 233 acres located in Colorado and 72 acres in Wyoming. Summaries of acres in stony-rocky classes are provided in **Tables 4.4-1** and **4.4-2**.

Approximately 200 acres of soils that would be disturbed by the proposed Project contain shallow hard bedrock. The majority of soils containing shallow bedrock would be located in Colorado (172 acres), with an additional 28 acres in Wyoming. Approximately 144 acres of shallow-to-bedrock soils would be located in Rio Blanco County, Colorado. Summaries of acres in shallow bedrock classes are provided in **Tables 4.4-1** and **4.4-2**.

Sandy Soils

Revegetation success within the construction ROW would be a concern on sandy, droughty soils. Coarse-textured soils in moderately well drained or drier drainage classes would be particularly susceptible to drought. Revegetation success on droughty soils would be compromised if seeding and revegetation efforts were to occur during dry periods.

Approximately 446 acres of soils that would be disturbed by the proposed Project are inherently droughty. The majority of droughty soils would be located in Colorado (381 acres), with an additional 65 acres in Wyoming. Summaries of acres in droughty soil-classes are listed in **Tables 4.4-1** and **4.4-2**.

Where sandy soils would be encountered, ROW widths may be increased for safety concerns due to trench instability. This would result in additional disturbance in sandy soils along the proposed corridor, particularly between MP 52.1 and MP 59.1.

Drain Tiles and Irrigation Systems

Pipeline construction activities could disrupt or damage existing subsurface drainage systems. Hydric soils generally indicate areas that require drain tiles for crop production. The proposed Project would impact approximately 3.4 acres (less than 1 percent of total area) of hydric soils. This represents a small percentage of the total acreage that would be impacted, and few, if any, drain tiles would likely be encountered.

Grading, trenching, and backfilling could disrupt water flow to irrigation systems. OPPC has committed to maintain flow and repair irrigation systems to at least pre-construction conditions. Temporary measures would be provided, as agreed with the landowner or land management agency, for any facilities disrupted during the construction or reclamation process.

Soil Contamination

Material spills during construction and trench excavation through pre-existing contaminated areas would result in soil contamination along the proposed pipeline route. These impacts typically would be minor because of the low frequency and volumes of these occurrences. However, if large spills were to occur, they would result in the removal and disposal of large amounts of soil. Saturated soils, such as those near and through wetlands and waterbodies, have the potential to diffuse contaminants. OPPC would fuel and service construction vehicles and stationary equipment only in upland areas at least 100 feet from wetlands and waterbodies. Within the Rawlins Resource Area, the setback would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment would be provided with secondary containment. These measures would avoid or minimize potential impacts to saturated soils.

Roads

Access to the Project would primarily be via existing public roads and dirt roads, such as BLM access roads and two-track trails. As described in the *Transportation Management Plan*, existing access roads could require upgrading to allow vehicle and equipment traffic during and after construction. Where grading or resurfacing would be required, there would be a short-term increase in erosion and sedimentation to connected waterways and the potential for soil mixing. Further upgrades could include straightening, widening, adding drainage controls, adding culverts, and constructing cuts-and-fills. These activities could result in an increase in compaction, runoff, erosion, and soil mixing, which increases the potential of long-term impacts to soil quality. Erosion and drainage controls would be implemented and maintained where such road improvements occur. Rutting restrictions on BLM lands would reduce the potential for soil mixing. A maximum of 4 inches of rutting for 50 feet would be allowed. No road maintenance or improvements would be conducted unless approved by the administering agency or landowner.

OPPC anticipates the construction of one new road and potential widening of existing roads that would impact a maximum of 6.3 acres of land. An increase in runoff, erosion, and sedimentation would occur as soils are disturbed and compacted. Indirect effects could include landslides, gullies, and the generation of loose side cast material.

Road embankments would be seeded and mulched as specified in the *Environmental Protection Plan*. Successful implementation and maintenance of erosion and drainage controls along access roads would reduce the potential for erosion and sedimentation. If revegetation efforts are delayed or are unsuccessful, additional runoff and accelerated erosion from upland sites would occur. Proposed revegetation and erosion control programs, as well as subsequent monitoring and maintenance, would minimize the potential for these impacts on soil resources. Further discussions of these issues are presented in Section 3.4, Vegetation, and Section 4.5.1, Surface Water.

Impacts associated with trespass by off-highway vehicles (OHV) could include compaction, runoff, erosion, and a reduction in reclamation potential, leading to long-term soil quality impacts. Measures would be provided to control the use of the proposed ROW and prevent unauthorized travel by OHV's. Measures would include leaving the ROW in a roughened state and scattering vegetative debris across the surface; placing dirt berms, rock, or vegetative barriers at intersections with existing roads; and randomly placing boulders, logs and stumps across the ROW to discourage OHV use.

Conclusion

The soils in the proposed Project area are diverse with a broad range of textures and depths. Much of the proposed pipeline route crosses soils that have shallow topsoil, are susceptible to erosion, have poor reclamation potential, and are prone to compaction and rutting. Pipeline construction activities may result in adverse impacts on the soil resources. However, these impacts would be minimized or avoided by the

implementation of applicant-committed environmental protection measures as stated in the POD (including the *Environmental Protection Plan*). Measures to minimize soil impacts include erosion control measures, topsoil separation, and handling procedures, as detailed in the previous paragraphs. Soils impact anticipated from pipeline construction include the possibility of reduction of soil quality by topsoil loss or mixing with subsoils, and compaction.

Operation Phase

Issues

- Potential topsoil losses from wind and water erosion on disturbed surfaces during and after maintenance activities
- Potential reduction in soil productivity and quality from topsoil losses, soil mixing and compaction
- Soil contamination from pipeline leaks, particularly in prime farmland

Analysis

Potential topsoil losses from wind and water erosion would occur during maintenance operations along the ROW. These activities would be dispersed along the length of the proposed pipeline route and would occur intermittently. There is a small probability of a pipeline leak, releasing NGL into the environment (Section 4.12). NGL primarily consist of gas that is liquefied by pressure (e.g., propane). Consequently, in the unlikely event of a pipeline release, NGL components would rapidly volatilize, thereby resulting in minimal impacts to soil resources.

Conclusion

Maintenance activities would result in localized impacts of short duration and these impacts would be dispersed along the entire route. Impacts such as soil mixing and compaction could result from vehicular traffic on the ROW. Increased compaction would result in decreased soil infiltration and an increase in runoff and erosion. Wind erosion could increase with travel along the corridor. If NGL were accidentally released into the environment, impacts to soil resources would be negligible.

4.4.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the related impacts to soils would not occur.

4.4.3 GRP Land Re-route Alternative

Potential impacts to soils along the GRP Land Re-route Alternative would be similar to the Proposed Action except that approximately 11.9 additional acres would be disturbed (30.9 acres along the re-route versus 19.0 acres along the bypassed section of the Proposed Action). Soil types crossed by the alternative route would be similar to those along corresponding segments of the Proposed Action route. However, characteristics of those soils vary and due to the additional length, construction of the alternative would result in disturbance of 13.4 more acres of wind erodible soils (18.8 acres versus 5.4 acres), 10.9 more acres of water erodible soils (23.6 acres versus 12.7 acres), and 13.1 more acres of droughty soils (23.5 acres versus 10.4 acres) relative to the Proposed Action.

Impacts to soils with topsoil depths greater than 12 inches along the GRP Land Re-route Alternative would be comparable to the corresponding segment of the proposed pipeline route. However, the re-route would affect approximately 11.9 additional acres of soils with topsoil depths less than 12 inches. The overall change in the

length represents less than a 1 percent change for the entire route and therefore would not result in significant overall differences in impacts between the alternatives.

4.5 Water Resources

4.5.1 Proposed Action

4.5.1.1 Surface Water

Construction Phase

Issues

- Increased turbidity and sediment transport in streams resulting from construction of waterbody crossings
- Channel and bank modifications that affect channel geomorphology
- Increased turbidity, sediment transport, or chemical contamination in streams resulting from runoff and erosion from upland sources, including access roads and ditches
- Risk of spills or leaks of fuel, solvents, wash water, or hazardous materials, or of storm water and trench dewatering discharges into waterbodies
- Flow reductions where withdrawals are pumped from surface water sources for pressure testing or dust control
- Accelerated erosion, turbidity, and sediment transport or other water quality degradation from discharges of pressure test water
- Potential transmittal of nuisance aquatic organisms in pressure test water discharges

Analysis

Waterbody Crossings

The *Environmental Protection Plan* describes the methods that would be used for crossing dry drainages and flowing stream channels. Typically, the smaller, dry channels would be crossed by open-cut techniques as used for upland construction. Except for the larger rivers, flowing or wet channels would be crossed with flumes or other open-cut techniques. All waterbodies that would be crossed and the proposed crossing methods for each are listed in **Appendix A**.

Where flowing streams are crossed by wet open-cut methods, temporary increases in flow turbidity and sediment transport would occur. Increased turbidity and sedimentation would create temporary adverse impacts to water quality from such sites. In some cases, modifications of stream geometry at open-cut crossings may change flow velocities or depths in ways that encourage further erosion and sedimentation over time. Such changes also may adversely affect the habitat and movement of aquatic species. Refer to Section 4.7.1.2 for potential impacts to aquatic species.

The sections describing erosion control measures and wetland and waterbody construction methods in the *Environmental Protection Plan* further identify procedures and practices that would be applied to avoid or minimize impacts to surface water resources. A number of BMPs are proposed in these sections that would control erosion and minimize the movement of sediment into waterbodies or dry stream channels. The potential for adverse impacts to surface water resources would be minimized by the successful implementation of these practices.

Proposed site stabilization practices that would reduce the potential for impacts to surface water resources include sediment barriers, waterbars, trench breakers, and the use of mulches and/or erosion control netting in combination with revegetation efforts. Sediment barriers typically would consist of anchored straw bales,

excelsior logs (“coir logs”), silt fences, or sandbags. Waterbars would be placed on slopes susceptible to erosion and near the base of slopes adjacent to wetlands, riparian areas, and watercourses. Berms would be made from disturbed soil materials within the construction ROW. Both temporary and permanent waterbars would be constructed in accordance with the phase of construction. Waterbar spacing would vary with slope; they would be spaced at closer intervals on steeper slopes.

Trench breakers made of polyurethane foam or sandbags would be installed around the pipe in the trench to restrict or slow groundwater flow along the trench. These installations would be completed before trench backfilling on steep slopes and on slopes adjacent to waterbodies and wetlands.

Any necessary trench dewatering would comply with applicable permit requirements. Dewatering discharges would be directed at a controlled rate onto a stable surface and would employ a section of geotextile fabric, a siltation bag, straw bale structure, or a similar erosion control practice to prevent scouring during discharge. Further descriptions of mulching, the use of erosion control fabrics, and revegetation practices are presented in the POD (CH2M Hill Trigon, Inc. 2008) and in the Soils and Vegetation sections of this EA (Sections 4.4 and 4.6, respectively).

Monitoring of erosion control practices would occur during construction through environmental inspections conducted by OPPC, agency staff, and third-party personnel. Post-construction monitoring and maintenance of erosion control practices are proposed as part of the *Environmental Protection Plan*.

As described in the POD (CH2M Hill Trigon, Inc. 2008), vehicles and equipment would cross waterbodies and wetlands as necessary on various types of equipment bridges or mats. Excavated spoil would be stored at least 10 feet from the water’s edge or above the ordinary high water mark, and would be isolated from the waterbody by sediment containment features. Streambanks would be returned to their original contour, or returned to a more stable configuration, and stabilized. In cases where over-steepened or undercut banks currently occur, beneficial effects would result from recontouring and stabilizing the crossing site.

Waterbody crossing impacts also would be limited by the implementation of proposed sediment control practices. Sediment barriers would be used at these crossings to minimize the transfer of sediment and excavated spoil. Bed materials would be replaced to restore the channel to pre-disturbance conditions. With successful controls, impacts would be minimized and would be limited to within several hundred feet of the crossing. Most crossing activities would be completed within 24 hours. As a result, both the extent and duration of impacts would be minimal. With proposed bank restoration, long-term adverse impacts from channel geometry modifications are not anticipated. Care must be taken with the use of rip-rap, timbers, or other “hard engineering” practices if pipeline crossings are located on stream bends or meander loops. Anchoring such a channel location would promote more pronounced changes in stream planform elsewhere in the vicinity. Adverse impacts, such as bank caving, potentially would result from such geomorphic responses.

These proposed practices also would limit the potential for adverse impacts on floodplains as delineated by FEMA in Rio Blanco County, and elsewhere at proposed waterbody crossings where floodplains may exist. Since the proposed pipeline would be buried and no buildings that could affect floodwater elevations or velocities are proposed in floodplains, no impacts from floodway constrictions would occur. The successful implementation of proposed topsoil and spoil handling, erosion control and backfill practices, trench dewatering guidelines, restoration of irrigation systems, and the application of revegetation practices would further mitigate potential impacts to floodplains.

Site-specific crossing plans would be provided as attachments to appendices of the final POD. HDD plans for the White, Yampa, and Little Snake rivers would be provided, as would plans for the crossings at Piceance Creek, Dry Fork, Willow Creek, and Sand Creek. These plans would be referenced from the general POD text. The larger waterbodies, specifically the White, Yampa, and Little Snake rivers, would be crossed by the HDD method. Assuming a successful HDD crossing is constructed at each of these rivers, only minor turbidity impacts would be anticipated from light disturbance associated with the preliminary crossing set-up. If it

occurred, an inadvertent release of drilling fluids (a “frac-out”) would degrade water quality during HDD activities where this water crossing method is proposed.

In the unlikely event of a frac-out of drilling fluids, drilling activities would cease and countermeasures would be implemented. In such cases, turbidity and sedimentation impacts, as well as minor amounts of chemical constituents, would adversely affect the waterbody for some distance downstream. Due to mud flocculation and settling, such effects would probably occur within 0.5-mile or so of the HDD site. Major factors in reducing the potential for drilling fluid releases at HDD crossings include the type of soil and rock material and the depth of cover material. Cohesive soils, such as clays, dense sands, and competent rock are preferred materials for horizontal drilling. The depth of these overburden materials also is a consideration. The overburden materials and profiles for the proposed crossings minimize the potential for releases of drilling fluids, by employing smooth and gradual vertical curves in favorable materials for successful HDD completion.

HDD activities constantly would be monitored on this Project. The *Drill Fluid Contingency Plan* describes monitoring measures that would be used to determine if an inadvertent release were to occur. This plan also describes notification, containment, and cleanup procedures and practices that would be used in the event of a drilling fluid release. Based on the measures presented in this plan, the potential for impacts to surface water quality and related habitats would be minimized.

Runoff and Water Quality Effects from Disturbed Upland Sources

Surface water quality impacts may result from increased runoff, erosion, and sediment yield from upland excavation and along access roads and ditches. As described in the *Transportation Management Plan*, existing access roads may require upgrading to allow vehicle and equipment traffic during and after construction. Where necessary, such upgrades may include grading, straightening, widening, adding drainage controls, adding culverts, constructing cuts-and-fills, and resurfacing. The potential for ongoing erosion and sedimentation from these activities presents the potential for long-term and extensive impacts to surface water quality, stream channel conditions, and associated aquatic habitats. Erosion and drainage controls would be implemented and maintained where such road improvements occur. No road maintenance or improvements would be conducted unless approved by the administering agency or landowner.

OPPC does not expect to construct new roads across lands managed by the BLM. However, if new road construction were to become necessary on lands managed by federal, state, or county agencies, OPPC would acquire all necessary permits, clearances, and authorizations. Waterbars, culverts, ditches, and drainage installations would be constructed of stable materials and maintained to agency and landowner standards. Road embankments would be seeded and mulched as specified in the *Environmental Protection Plan*. Successful implementation and maintenance of erosion and drainage controls along access roads would reduce the potential for site instabilities along streams and for impacts to surface water quality.

If large amounts of herbicides or pesticides entered stream courses during or after revegetation efforts, substantial water quality impacts would occur. In addition, if revegetation efforts are delayed or are unsuccessful, additional runoff and accelerated erosion from upland sites would contribute to increases in streamflow, turbidity, and sediment loading. These would be indirect effects on surface water from direct impacts related to vegetation and soils. Proposed revegetation and erosion control programs, as well as subsequent monitoring and maintenance, would minimize the potential for these indirect impacts on surface water resources. Further discussions of these issues are presented in Section 4.4, Soils, and Section 4.6, Vegetation.

Spills or Leaks

Other surface water quality impacts could result from spills of fuel, solvents, cleaning fluids, or hazardous materials. The risk or volume that could be involved in such an event have not been quantified, but are anticipated to be low. OPPC proposes to isolate hazardous materials in contractor yards with adequate

containment as required by material storage regulations. Further details of hazardous materials management and spill prevention, control, and countermeasures, are described in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* and in the *Environmental Protection Plan*. According to these plans, construction vehicles (e.g., trucks, bulldozers, etc.) and stationary equipment (e.g., pumps, generators, etc.) would be fueled and serviced in upland areas at least 100 feet from waterbodies and wetlands. Within the Rawlins Resource Area, the set back would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment (such as pumps and generators) would be provided with secondary containment structures to prevent the spill or release of hazardous materials into waterways. Refueling areas generally would be flat to minimize the chance of any spilled substances reaching waterbodies. Based on implementation of these procedures, impacts to surface water quality from these activities would be avoided or minimized.

Storm Water and Trench Dewatering

The *Storm Water Management Plan* (attachment to the *Environmental Protection Plan*) identifies the methods of construction, site stabilization, trench dewatering, and erosion controls that would be used to avoid or minimize the potential for impacts to surface water quality from grading and excavation. Good housekeeping, site inspections, structural and nonstructural practices to control erosion, and avoidance of discharging silt-laden trench water into streams are set forth in this plan. Temporary and permanent stabilization measures are defined. With successful implementation of the *Storm Water Management Plan*, impacts to surface water quality from storm drainage and trench dewatering would be reduced.

Withdrawals and Discharges for Hydrostatic Testing and Dust Control

Plans and procedures set forth in the POD (CH2M Hill Trigon, Inc. 2008) describe the proposed approaches to water withdrawals, discharges, and related water quality considerations during construction and operation of the proposed Project. With respect to potential water quantity impacts, the *Hydrostatic Test Plan* specifies that:

- Test water would be withdrawn from approved/permitted sources.
- Water used for test purposes would be sampled and analyzed as required (during appropriation and discharge).
- Screens would be used on the intakes from surface water sources to prevent the entrainment of fish or other aquatic species.
- Withdrawal rates would be monitored to ensure that adequate downstream flow is maintained to support aquatic life.

The *Hydrostatic Test Plan* identifies the water sources and withdrawals that would be used for testing the integrity of the proposed pipeline during construction. Water sources for this purpose would be withdrawn from the White and Yampa rivers, and possibly from the Little Snake River. It is anticipated that additional water withdrawals for dust control and equipment washing also would occur from these same locations.

Existing surface water rights would be used for obtaining water needed for construction. Withdrawal volumes would be obtained and source locations identified in accordance with temporary appropriation procedures through the Colorado Division of Water Resources. As described in the *Hydrostatic Test Plan*, approximately 3.6 million gallons of water (about 11 acre-feet) would be needed for hydrostatic testing overall. Approximately 860,000 gallons (2.6 acre-feet) would be withdrawn from the White River, and approximately 1.15 million gallons (3.5 acre-feet) would be withdrawn from the Yampa River. An additional 1.6 million gallons (approximately 4.9 acre-feet) would be withdrawn from the Little Snake River, if supplies are available. If conditions in the Little Snake River do not allow for this amount of withdrawal, additional water would be used from the Yampa River. Under such circumstances, withdrawals from the Yampa River may be up to

approximately 2.75 million gallons (about 8.4 acre-feet). Water from each source would be used for approximately 8 to 10 days before being returned to the original source at the uptake location.

Currently, OPPC plans to withdraw at rates of approximately 500 to 1,000 gallons per minute (about 1.1 to 2.2 cfs) through screened intakes to prevent the entrapment of fish or other aquatic species. Based on historical gaging records, average monthly flows from July through March on the White River below Meeker (USGS Station 09304800) range from about 330 to 710 cfs. Average monthly flows from July through March on the Yampa River near Maybell (USGS Station 09251000) range from about 240 to 1,340 cfs. Average monthly flows from July through March on the Little Snake River near Slater (USGS Station 09251000) range from about 30 to 150 cfs. Flows in the Little Snake River at a withdrawal site near the proposed ROW may vary from these averages due to irrigation withdrawals and releases from High Savery Dam upstream. In any case, the proposed withdrawals for hydrostatic testing represent a minimal portion of the average monthly flows in these rivers. Since supplies would be obtained in accordance with existing water rights, impacts to surface water quantities are anticipated to be small. Effects from construction withdrawals would be similar to those from existing withdrawals made in accordance with existing water rights. Any impacts to water resources would be isolated and short-term. Refer to Section 4.7.1.2, Aquatic Resources, for a further discussion on potential impacts on aquatic species, particularly endangered fish, and related agency considerations.

After testing, water would be discharged in accordance with Project permits and other measures as needed. In addition, energy-dissipating devices and/or filter bags would be used to prevent scour, erosion, suspension of sediment, and damage to vegetation. Discharge rates would be monitored to ensure effectiveness of the energy-dissipating devices.

Potential impacts from test water discharges would include releases of small concentrations of solvents or particulates carried from the discharge to receiving streams; erosion and sedimentation from upland discharge sites or within nearby channels; and the potential for transfer of parasites or nuisance aquatic organisms from one waterbody to another. The severity of these impacts would vary according to the water source, the nature of the pipe, the discharge sites, and controls on the rate and migration of discharges.

If required in state discharge permits, OPPC would test the quality of the test water prior to discharge. Frequently, such permits call for testing of a grab sample for iron, total suspended solids, sheen from oil and grease, and pH. The construction contractor would use an energy-dissipation structure (such as a straw-bale barrier) to prevent scour, erosion, and vegetation damage during discharge. OPPC has committed to implementing good engineering judgment during discharges, so that all federal, state, and local environmental requirements would be met.

Potential impacts from discharges of test water directly into a stream or river include a decrease of the dissolved oxygen content within the zone of mixing between the discharge and the streamflow and erosion of the bed or banks resulting in increased turbidity and sedimentation downstream of the discharge. Both of these effects would create adverse impacts on water quality for unknown distances downstream. Discharges at upland sites near the source, if used, may accelerate erosion due to concentrated overland flow.

To reduce the potential for these impacts, OPPC has agreed to discharge water used for hydrostatic testing back to the locations where the water was initially withdrawn. OPPC would use controlled discharge rates into straw bale/silt fence dewatering structure near the source riverbank. Discharge velocity would be controlled so as to maintain the integrity of the discharge structure and avoid impacts from erosion. The BLM WRFO would be contacted at least 1 day prior to discharging back to the White River.

For purposes of this assessment, it is assumed that the water for dust control would be the same surface waterbody locations as those used for hydrostatic testing. Based on estimates from similar projects in the region, roughly 35 acre-feet of water may be needed for this purpose. Since water used for dust control would seep into the ground or evaporate, it would be entirely consumed. Such withdrawals, if assumed to originate from surface water resources, would represent depletions in surface water quantity. Dust control withdrawals

would be made intermittently, on an as-needed basis, and would likely use streams with larger flows. OPPC would implement precautions for avoiding entrainment of fish or other aquatic species, or causing detrimental flow reductions downstream during dust control withdrawals from surface waters. OPPC would comply with agency compensation requirements for depletions, as further described in Section 4.7.1.2, Aquatic Resources.

Conclusions

Potential adverse impacts to surface water resources, including both to water quality and water quantity, could occur during construction due to withdrawals from rivers and streams. Surface water withdrawals would be needed for hydrostatic testing of the pipeline, dust control, and equipment washing. Potential impacts to surface water quality would result from spills or leaks of fuel or hazardous materials into watercourses, from erosion and sedimentation of disturbed streambeds and banks, from trench dewatering, or from discharges of hydrostatic testing water. Water and cleaning fluids draining from equipment wash stations would transport contaminants into waterbodies if these facilities were not adequately located or contained. Implementation of the proposed procedures and practices set forth in the POD (CH2M Hill Trigon, Inc. 2008) would avoid or reduce the potential for such impacts.

Operations Phase

Issues

- Pipeline ruptures or leaks could spill liquid products into waterbodies, degrading water quality
- If revegetation, road and ditch stabilization, or other erosion control efforts were unsuccessful over the long term, adverse effects on channel morphology or surface water quantity and quality would result
- Potential impacts on the proposed pipeline from flooding or channel scour also may occur

Analysis

If pipeline ruptures or leaks occurred during the life of the Project, surface water quality would be adversely affected if such events happened in proximity to waterbodies or watercourses. Since the pipeline would be buried, constantly monitored, and periodically inspected and maintained, the potential for spills from pipeline failures is limited. In addition, shutoff and check valves would be located at larger stream crossings, including the White, Yampa, and Little Snake rivers. Other valves would be located along upper Strawberry Creek, the headwaters of Deception Creek, and near upper Spring Creek in Moffat County, as shown on **Figure 2.1-2**. Pipeline controls also would be located at the Willow Creek Gas Plant near Piceance Creek.

During operations, if a pipeline leak or rupture were to occur near a waterbody, or if runoff from contaminated soils were to enter a waterbody, short-term impacts on surface water quality would occur. Since NGL are liquified under pressure, they would rapidly volatilize and evaporate when released into the environment. NGL are minimally water-soluble, so impacts on water resources from a leak or rupture would be localized. The installation of valves near waterbody crossings and the nature of NGL would reduce the potential for impacts to surface water quality from any pipeline ruptures. Additional pipeline materials specifications, monitoring systems, and measures that would decrease the potential for surface water impacts from pipeline ruptures or leaks are described in Section 4.12, Public Health and Safety. As a result of these pipeline management procedures and practices, there is a very low risk of surface water impacts from a rupture or leak.

Potential impacts on surface water from delays or unsuccessful revegetation and erosion control efforts are discussed under the construction impacts. Other discussions of these issues are presented in the Soils and the Vegetation assessments in Sections 4.4 and 4.6, respectively. Potential impacts on the proposed pipeline from flooding or channel scour are discussed in the Geology assessment in Section 4.3.

Conclusion

Assuming that pipeline infrastructure and monitoring practices successfully manage the transport of liquid products, the risk of surface water quality impacts from pipeline ruptures or leaks would be small. In the highly unlikely event that a rupture or leak occurred, spill response and countermeasures combined with rapid volatilization of the product would minimize the impacts to surface water quality.

4.5.1.2 Groundwater

Construction Phase

Issues

- Contamination of near-surface groundwater as a result of spills during refueling or storage and handling of lubricants, solvents, or other materials
- Interference with existing groundwater movement and supply in areas of shallow groundwater or springs, as a result of trenching or blasting

Analysis

No public water supply wells or wellhead protection areas are known to be located within 400 feet of the proposed pipeline route. Only one private well, near MP 138, would be located within 150 feet of the proposed centerline. This well would be approximately 95 feet from the centerline.

OPPC 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 best practices. 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 immediately 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. Therefore, the effects of construction would be short-term.

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 would affect groundwater quality, and dispersal of pollutants from affected soils potentially would be a continuing source of aquifer contamination. The deterioration of groundwater quality by such factors would adversely affect groundwater uses. These impacts would 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 would occur during construction, OPPC 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. If the disposal structures are located outside the cleared disturbed area, prior approval from the landowner and federal and state agencies would be required. By law, OPPC is required to apply to the states for temporary groundwater disposal permits, and comply with permit stipulations

as well as erosion control/revegetation. It is expected that such regulatory compliance would avoid or minimize potential groundwater impacts from trench dewatering.

Procedures to address prevention of spills, as well as preparedness for rapid containment and prompt and effective cleanup of spills are described in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*. This plan:

- Identifies preventative measures to avoid hazardous material spills or leaks;
- Provides for vehicle and equipment inspection and maintenance;
- Defines proper storage and handling of fuels, lubricants, and hazardous materials;
- Identifies immediate spill response procedures for uplands, wetlands, or waterbodies; and
- Establishes reporting and notification protocols.

Conclusion

Implementation of the measures and the procedures contained in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* for the proposed Project 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 proposed Project.

Operation Phase

Issues

- Potential reductions in groundwater quality from pipeline spills, leaks, or ruptures on shallow aquifers used for rural residential, livestock, and municipal water supplies

Analysis

If a pipeline leak would occur, released NGL would vaporize. Limited NGL able to instantaneously soak into the soil would quickly evaporate, then percolate up through the soil and sediments, and dissipate into the atmosphere. Most, if not all, of the NGL components would evaporate on the land surface or within the vadose (unsaturated) zone above the water table. Only approximately 2 to 4 percent of the NGL components would not readily volatilize at atmospheric pressure. A small portion of these could enter shallow groundwater depending on the location of the rupture or leak after eventually migrating through unsaturated materials. Because of their slight solubility in water, contamination from NGL components would be limited to a few ppm. These concentrations would be further reduced by diffusion and natural attenuation, which would further reduce the risk to potential receptors (BLM 2005).

Conclusion

During future operation and maintenance activities, OPPC would continue to adhere to standards within the Project-specific plans as outlined in the POD (CH2M Hill Trigon, Inc. 2008) to prevent contamination of groundwater resources from potential spills of hazardous materials. In the event of a pipeline rupture or spill, groundwater impacts from pipeline operation would be unlikely because of the marginal solubility of NGL in water and their rapid volatilization once released from pressure. Overall, construction and operation of the proposed Project would not significantly impact groundwater resources.

4.5.1.3 Wetlands

Construction Phase

Issues

- Potential modifications in wetland productivity due to modifications in surface and subsurface flow patterns
- Modifications in wetland vegetation community composition and structure from construction clearing

Analysis

Construction in wetlands primarily would 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 on wetlands, OPPC would overlap its construction ROW along previously disturbed corridors for approximately 95 percent of the proposed pipeline route. No aboveground facilities would be located within wetlands.

Based on wetland field survey data and a proposed 75-foot-wide construction ROW, the proposed pipeline route would temporarily affect 7.7 acres of wetlands.

To minimize environmental impacts to floodplains, wetlands, and riparian areas during the construction phase of the proposed Project, OPPC would implement the construction and environmental protection measures provided in the *Environmental Protection Plan*, which include topsoil salvage and replacement, grading the construction ROW to restore pre-construction contours and drainage patterns, and limiting human disturbance/access.

In dry wetlands, prior to trenching, topsoil up to 12 inches in depth would be stripped from over the trench line. For wetlands located on side hills, topsoil would be stripped from the entire area being graded. Topsoil would be stockpiled in a location where it would not be mixed with any upland soils or wetland subsoil. Care would be taken to ensure that the area stripped over the trench line is wide enough to include topsoil over trench sidewalls that may slough off due to high groundwater. For wetlands with standing water or saturated soils, every attempt would be made to remove and stockpile topsoil up to 12 inches in depth.

Topsoil would be stockpiled separate from subsoil and would not be used to pad the trench or construct trench breakers. Dry drainages or washes that cross the proposed ROW would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed on the banks of the drainage. Topsoil would be stripped from the stream banks along the trench line and stockpiled at least 10 feet from water's edge behind sediment barriers or other containment structures. Gaps would be left periodically in the topsoil and subsoil windrow to avoid ponding and excess diversion of natural runoff during storm events. Stockpiled topsoil would be contained within the proposed ROW or TWAs. On steeper side sloping situations requiring cutting into the slope to achieve a level trench area, topsoil would be placed upslope, above the cut.

Following these construction procedures and environmental protection measures would greatly increase the probability that palustrine emergent (PEM) wetland communities would revegetate rapidly (within 3 years) (Van Dyke 1994; FERC 2004). It is anticipated that shrub rootstocks would resprout. Wetland shrubs would likely require 5 years or more to recover to their former height and density. Pipeline construction in wetlands would temporarily alter wetland surface and subsurface water flow patterns through trenching activities. This hydrologic impact would be localized and temporary until permanent trench breakers were installed and the trench was backfilled.

Conclusion

Wetland herbaceous vegetation generally would begin to reestablish along the proposed ROW within 2 to 3 years post-construction. Impacts on wetland and riparian communities would depend on the individual vegetation community and site-specific soil conditions and moisture received post-construction. Wetland surface and subsurface water flow patterns would be temporarily impacted during trenching until permanent trench breakers were installed and the trench backfilled.

Operation Phase

Issues

- Modifications in wetland and riparian vegetation community composition and structure from operational maintenance
- Potential for spills to adversely impact wetlands

Analysis

Following construction, wetland and riparian vegetation would be allowed to regenerate to the original cover type. Wetland vegetation would be lost temporarily during construction; however, with the exception of scrub-shrub that would be maintained in an herbaceous state, all wetland vegetation would be reestablished within 3 years following construction. The success of wetland revegetation would be monitored for the first 5 years after construction (in July, during the first, third, and fifth growing seasons) or until wetland revegetation is successful. No aboveground facilities would be located in wetlands or floodplains. In the unlikely event of a pipeline release in a wetland or riparian area, NGL components would rapidly volatilize, thereby posing minimal impacts, if any.

Conclusion

Pipeline operational ROW maintenance activities in wetlands and riparian areas would result in localized, short-term impacts as a result of periodic clearing of woody vegetation over the pipeline centerline. If NGL were accidentally released into the environment, minimal impacts, if any, would be expected to wetland and riparian resources.

4.5.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. The impacts to surface water quantity, groundwater quality, and wetlands described for the Proposed Action would not occur. Impacts to water resources would continue at present levels as a result of natural conditions and existing development in the proposed Project area, including cumulative surface water quality impacts from past construction activities along or near the proposed Project ROW. Such impacts may include accelerated erosion and sediment transport, primarily resulting from previous ROW disturbance and unsuccessful site revegetation and stabilization efforts from other pipeline companies. As ongoing inspections and corrective actions occur, these impacts are likely to decrease.

4.5.3 GRP Land Re-route Alternative

Impacts to water resource along the GRP Land Re-route Alternative would be similar to those described for the Proposed Action. Six ephemeral stream channels would be crossed by the alternative route; 5 more than would be crossed by the corresponding portion of the Proposed Action route that would be avoided by this alternative. These six channels are all small headwater tributaries to Bighole Gulch, and flow only in response to snowmelt or heavy rainfall. Crossing techniques and site stabilization practices as described in the

Environmental Protection Plan would be the same as those described for the Proposed Action. Potential impacts to water resources for this alternative would be the same as those described for the Proposed Action.

The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action and lies within approximately 1.1 miles of the Proposed Action. The overall change in the length and location of the ROW therefore would not result in significant overall differences between the alternatives or impacts to groundwater resources.

4.6 Vegetation

4.6.1 Proposed Action

4.6.1.1 Vegetation Communities

Construction Phase

Issues

- Vegetation removal for facility construction with consequent increased risk of soil erosion
- Permanent vegetation changes in the ROW and areas of aboveground facilities

Analysis

Construction activities would affect vegetation communities in a variety of ways, from temporary herbaceous trampling and partial removal of aboveground plant cover to permanent vegetation removal. Clearing, trenching, grubbing, blading, and herbaceous vegetation trampling would occur within the proposed Project areas. Temporary impacts to vegetative communities would occur within the 75-foot temporary ROW, which would be reclaimed immediately following construction and vegetation re-established within 3 to 5 years following construction. Long-term impacts (greater than 5 years) would be restricted to primarily shrubland and forestland vegetation communities.

Construction of the proposed Project would involve vegetation removal from approximately 82 acres of grasslands; 1,137 acres of shrublands; 111 acres of agricultural land; 248 acres of forested areas; and 21 acres of wetland vegetation. Following restoration of the 75-foot construction ROW and TWAs, OPPC would retain a 50-foot operational ROW that would recover to herbaceous and shrubland vegetation communities. The permanent 50-foot ROW would be located on approximately 716 acres of shrublands, and 136 acres of forestlands. These acreage estimates were calculated using GAP Land Cover descriptions (CDOW 1998; WY GAP 1996), which differ slightly in terms of wetland impacts from the NWI classifications and actual wetland survey data (WWE 2008) used for the wetlands analysis in Sections 3.4.3 and 4.5.3.

To minimize environmental impacts and ensure site stabilization and revegetation, OPPC would follow construction procedures detailed in the POD (CH2M Hill Trigon, Inc. 2008), particularly those included in the *Environmental Protection Plan*. The *Environmental Protection Plan* describes measures 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, OPPC would follow the measures outlined in the *Environmental Protection Plan* to minimize potential impacts on wetlands.

Timely stabilization of the construction ROW and reseedling with an appropriate seed mix would minimize the duration of vegetation disturbance. The ROW would be monitored on federal lands for a minimum of 5 years to ensure compliance with revegetation standards established in the POD.

Long-term impacts would occur on the sagebrush steppe sub-community of the shrub-scrub vegetation cover type and other shrublands within the 75-foot construction ROW. Reclamation efforts would re-establish herbaceous vegetation within the construction ROW within 3 to 5 years, but full recovery of these habitats would take 20 to 30 years in sagebrush communities, due to poor soil and low moisture conditions. It is anticipated that native shrub species would re-sprout from intact roots, reestablish from reapplied topsoil, or establish from applied revegetation seed mixtures over the long term.

Clearing of woodland vegetation within the 50-foot permanent ROW would result in a long-term environmental change. Over time, natural establishment of woodland species through succession would restore the unmaintained portions of the temporary construction ROW back to a woodland community. The rate of forest reestablishment would depend upon the type of vegetation, the length of growing season, and the natural fertility of the soils. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100+ years depending on the species (i.e., 200 to 500 years for piñon-juniper forests). No trees would be removed by ROW maintenance and operation unless the trees obscure the ground during aerial ROW inspections.

Impacts on agricultural vegetation communities would be temporary, as the vegetation would generally be reestablished within 2 years of restoration depending on climatic conditions. OPPC would not reseed cultivated agricultural areas unless requested by the landowner.

OPPC has committed to limiting construction within wetlands to that which is essential for ROW clearing, trench excavation, pipe fabrication and installation, backfilling, and ROW restoration. 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 is firm enough or has been stabilized to avoid creating ruts. Foreign material (upland soil, rock, tree stumps, etc.) would not be imported into the wetland to stabilize the working area. If standing water or saturated soils are present, equipment would work from and gain access across timber equipment mats. If the wetland is dry, equipment would use the ROW for access on an as-needed basis with as much traffic as possible routed around the wetland.

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 trench line. A limited amount of stump removal and grading may be conducted in other areas if dictated by safety-related concerns.

Wetland vegetation would be removed during construction. Herbaceous wetland vegetation would be anticipated to be reestablished within 3 years following construction. It is anticipated that shrub rootstocks would resprout. Wetland shrubs would likely require 5 years or more to recover to their former height and density. Permanent vegetation removal would occur in areas where aboveground facilities are constructed. A pump station may be constructed in the future at MP 82.4 that would remove approximately 1.8 acres of scrub-shrub.

Direct spills of fuels, drilling fluids, or other hazardous materials would saturate soils and adversely affect vegetation resources. To minimize the potential for spills, OPPC would implement the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*. This plan specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as environmental protection measures such as containment and cleanup to minimize potential impacts should a spill occur. This 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 *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

Conclusion

Herbaceous cover generally would begin to be reestablished along the ROW within 2 years post-construction. However, full recovery of shrubland and woodland communities would require 20 to 30 years and 50 to 100+ years, respectively, while recovery of agricultural and herbaceous wetland communities would be expected more quickly. Impacts on vegetation communities would depend on the individual vegetation community, site-specific soil conditions, and precipitation events following construction.

Operation Phase

Issues

- Maintenance operations along pipeline ROW may affect vegetation communities
- Potential for spills to adversely affect vegetation, particularly threatened and endangered plant species

Analysis

Impacts to vegetation from pipeline operations would be limited to vegetation communities located entirely within the 50-foot permanent ROW, which were previously disturbed during construction. Maintenance activities (e.g., pipeline repairs, soil stabilization, weed control) along the proposed pipeline route would result in localized impacts of short duration (less than 14 days in most cases) and these impacts would be dispersed along the entire proposed pipeline route.

Woody species would be allowed to reinvade the 50-foot-wide permanent ROW corridor in woodland and scrub-shrub areas. Woody plants would be removed only to facilitate aerial observation of the ROW.

In the unlikely event of a leak or rupture of the pipeline in upland areas during operations, NGL components would rapidly volatilize, thereby posing minimal impacts to vegetation. Accidental ignition of released pipeline products would cause wild fires that could spread over a large area, depending upon the seasonal conditions at the time of the release.

Conclusion

Operation impacts on vegetation would be limited to areas required for operation of aboveground facilities. Maintenance activities along the proposed pipeline route would result in localized impacts of short duration (less than 14 days in most cases) and these impacts would be dispersed along the entire proposed pipeline route.

4.6.1.2 Noxious Weeds and Invasive Plant Species

Construction Phase

Issues

- Potential expansion of noxious weeds and invasive plant populations within and adjacent to the proposed pipeline ROW

Analysis

The prevention of the spread of noxious weeds is a high priority throughout Wyoming and Colorado. Vegetation removal and soil disturbance during construction creates optimal conditions for the establishment of invasive, non-native species.

To control the spread of noxious and invasive weeds along the proposed pipeline route and access roads, weed control measures would be implemented in accordance with existing regulations, jurisdictional land management agency or landowner agreements, and the *Weed Management Plan*. Applicant-committed environmental protection measures discussed in the POD (CH2M Hill Trigon, Inc. 2008) include, but are not limited to, preconstruction surveys, pre-construction weed treatment, vehicle cleaning stations, use of certified weed-free straw bales, and the use of certified weed-free seed mixes for restoration.

In order to accomplish weed prevention and control in the most appropriate and effective manner, OPPC would monitor noxious weeds annually for the life of the proposed Project. Post-construction weed control measures may include the application of herbicide or mechanical, and/or alternative methods. Additionally, revegetation of the disturbed ROW with desirable plant species would serve to hinder the establishment of undesirable weed species. The weed control measure chosen would be the best method available for the time, place, and species of weed defined in the *Weed Management Plan*.

Landowners would be consulted regarding weed control status and implementation measures and encouraged to report concerns to OPPC. In the event noxious weed species become established in the ROW, OPPC would take appropriate actions to eradicate weeds in the ROW and to work with adjacent landowners to prevent the spread of the species to adjacent lands. OPPC would submit the appropriate Pesticide Use Proposals for herbicide application on federal lands managed by the BLM. Furthermore, OPPC would submit annual pesticide use reports to the BLM for any treatment of weeds on federal lands.

OPPC would continue to work with the adjacent pipeline companies to monitor the distribution and density of noxious weeds on the ROW for the life of the Project. Surveys would be conducted concurrently with reclamation monitoring and would occur as early in the year as feasible to identify and control noxious weeds before they produce seed. Monitoring data to be collected would include the noxious weed species, location, and extent of infestation. The data would be included in the Annual Monitoring Report, as well as the following information:

- A summary of the general vegetative state of the ROW including vegetative cover and diversity of plant species as compared to areas off ROW;
- Assessment of the general condition of the seeded areas;
- Photographs;
- Identification of areas where additional weed control is needed; and
- Monitoring forms.

At locations where new populations have been identified or pre-existing populations expanded, OPPC would take action to eradicate the population or control their spread. The selection of control methods would be based on the available technology and information of the weed species.

Noxious weed problems identified after meeting reclamation criteria as listed in the *Environmental Protection Plan* would be addressed in a joint endeavor between OPPC, the fee landowner, adjacent pipeline owner, BLM, and the local weed control district. Weed management coordination would commence following reclamation completion.

Conclusion

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline construction would increase the prevalence of noxious and invasive weeds along the proposed ROW or that weeds would be transported into areas that were relatively weed-free. Implementation of measures in the *Weed Management Plan* for the Project would minimize the spread of undesirable weed species.

Operation Phase

Issues

- Future maintenance activities may cause the same effects discussed for construction

Analysis

The potential impacts would be the same as discussed for construction, but would pertain only to the aboveground facility areas and the permanent ROW. OPPC would continue to monitor and control the spread of invasive plant species and noxious weeds along the proposed ROW for the life of the Project.

Conclusion

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline maintenance activities would increase the prevalence of noxious and invasive weeds along the proposed ROW or that weeds would be transported into areas that were relatively weed-free. Implementation of measures in the *Weed Management Plan* would minimize the spread of undesirable weed species from operational impacts.

4.6.1.3 Special Status Plant Species

Project development could result in direct and indirect impacts to sensitive plant species. Disturbances within or near habitats for sensitive plants could subject these species to: 1) introduction of plant species that would compete with desired species for available habitat; 2) accidental burial; and 3) destruction of individual plants or populations from herbicide applications.

Construction Phase

Issues

- Cutting, clearing, and/or removal of existing vegetation within the construction work area
- Direct disturbance and loss of individuals from construction activities along the proposed ROW and access roads

Analysis

Potential impacts on sensitive plant species from surface-disturbing activities would include the loss of individuals as a result of crushing from construction vehicles and equipment, as well as the incremental long-term disturbance of habitat for these species along portions of the proposed Project route and at ancillary facilities. **Appendix D** identifies 12 special status plant species as occurring within the proposed Project area. Species-specific impact summaries and applicant-committed environmental protection measures for the protection of these plants are presented below.

Federally Listed Plants

Dudley Bluffs Bladderpod, Dudley Bluffs Twinpod (also known as Piceance Twinpod), and Ute ladies'-tresses. The Dudley Bluffs bladderpod and Dudley Bluffs twinpod are found on the Thirteen Mile tongue portion of the Parachute Creek Member of the Green River Formation. The Green River Formation occupies approximately 94 acres along the proposed ROW, with the Parachute Creek Member occurring on approximately 33 acres of the proposed ROW. However, the Thirteen Mile Tongue of the Parachute Creek Member would not underlie the proposed ROW (see **Table 3.2-1**). Potential habitat within the Green River Formation was surveyed for Dudley Bluffs bladderpod and Dudley Bluffs twinpod within the proposed Project ROW. Ute ladies'-tresses are known to occur in moist soils near wetland meadows, springs, lakes, and perennial streams between 4,200 and 7,000 feet elevation. Potential habitat for Ute ladies'-tresses was observed at several locations along riparian and wetland areas in Colorado. None of these federally listed plant species were observed along the proposed pipeline ROW during surveys conducted by OPPC in 2007 and 2008 (WWE 2008). OPPC has committed to conducting pre-construction surveys for these plant species in potential habitat.

OPPC has committed to avoiding any TESS plants that occur along the outside edge of the proposed ROW and install exclusion fencing to prevent disturbance from construction activities. In conjunction with the BLM and other jurisdictional agencies as appropriate, the proposed route would be evaluated for realignment in areas where plants occur within or across the proposed ROW. The potential for a reroute would depend on constructability and site-specific conditions such as rugged terrain and slope steepness.

During the 2007 and 2008 survey effort (WWE 2008), OPPC identified 13 potential habitat locations for Dudley Bluffs bladderpod, Dudley Bluffs twinpod, and Ute ladies'-tresses within four areas along the proposed route; PL Gulch, Dry Fork of Piceance Creek, Hay Gulch south of White River and the north side of the Little Snake River. These areas have habitat that could support these species; however, it is unlikely that Dudley Bluffs bladderpod would be found anywhere other than the Green River Formation in Rio Blanco County. To date this species have only been found within Rio Blanco County. OPPC observed only potential habitat for the Green River Formation TESS plants and did not observe any individuals of these species during the survey. Furthermore, OPPC did not observe any Ute ladies'-tresses along the proposed pipeline ROW.

BLM Sensitive Plant Species

OPPC identified potential sensitive plant habitats of BLM sensitive plant species within the proposed Project vicinity. Each location varies in size and proximity to the centerline. OPPC identified two populations of the Piceance bladderpod along the ROW on CDOW property in Hay gulch. A reroute avoiding these populations was evaluated and agreed on with BLM and CDOW consultation. The reroute moved the proposed centerline approximately 75 feet away from the original location avoiding impacts to the exposed shale outcropping that contains the populations. OPPC did not observe any Rollins cryptantha, many-stemmed spider-flower, persistent Sepal yellowcress, Owenby's thistle, Nelson milkvetch, Gibben's penstemon, or contracted Indian ricegrass (WWE 2008). The 2007 and 2008 summer surveys were conducted during the flowering period or soon enough after the flowering period for reasonably accurate field detection and identification. While no individuals of these plants were observed, field observations confirm that habitat for these plants exist within the proposed Project area in some of the riparian, semi-moist areas or sagebrush and pinyon-juniper plant communities.

OPPC would avoid any federally listed sensitive plants that are identified in the pre-construction surveys by the use of fencing or a reroute. The following protection measures would be included in the BLM Decision Record and ROW Grant for federal lands:

- OPPC shall coordinate with the BLM to determine if additional mitigation measures or other appropriate actions shall be required to reduce potential impacts to the population. OPPC shall not be authorized to proceed with construction until any BLM required mitigation has been implemented in accordance with the BLM ROW Grant.
- OPPC shall commit to the reclamation of any waterbody/wetland crossing to the original meanders, profiles, other contours of waterbodies, and 25 feet up each waterbody bank (as measured from water's edge). Any material that has accumulated in an intermittent/ephemeral stream shall be removed and the stream shall be returned to pre-construction form.

Conclusion

To complete ESA Section 7 obligations, if a federally listed plant species is found during the pre-construction surveys, OPPC would notify the BLM (for plants found on BLM-managed lands) before commencing any Project construction activity. This notification would contain an evaluation of whether or not the plant(s) could be avoided by fencing, reroute, or by the use of a horizontal bore. The BLM and USFWS would consult to determine the best approach for avoiding or reducing impacts to individual plants or populations.

Operation Phase

Issues

- The issues associated with operations would be similar to the issues described for wildlife, aquatic, and vegetation resources
- Potential noxious weed invasion into sensitive plant habitats

Analysis

All noxious weeds that become established within the areas of direct and indirect disturbance would be managed in close consultation with the field office threatened, endangered, and sensitive plant specialist and the USFWS. Methods and materials used in noxious weed management would be approved by and conducted with BLM and USFWS prior approval to ensure that weed management actions do not impact Dudley Bluffs bladderpod populations. To protect pollinator species foraging in the area of the proposed Project, herbicide application would be relegated to spot application only after the determination has been made that mechanical or manual means would not be effective for weed management and that weed establishment would threaten the integrity of occupied plant habitat.

Conclusion

Impacts to sensitive plant species from pipeline operations would not include any additional disturbance to sensitive plant habitats as all aboveground facilities would be located entirely within the 50-foot-wide permanent ROW. Losses of sensitive or listed plants from weed control measures during ROW maintenance would be avoided by consultation between the sensitive species specialist and the weed control teams.

4.6.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the associated impacts to vegetation would occur.

4.6.3 GRP Land Re-route Alternative

Impacts to vegetation associated with the GRP Land Re-route Alternative would be generally similar to those described for the Proposed Action except that the approximately 1.3 miles of additional length would result in disturbance of an additional 11.9 acres of previously undisturbed shrubland vegetation during construction.

The Proposed Action would occur in a previous pipeline corridor that has already been subject to prior disturbance and revegetation efforts. Alternatively, the disturbance associated with the GRP Land Re-route Alternative would impact an area that has not been recently disturbed by prior construction activities.

No special status plant species were observed along the alternative route during the biological surveys conducted in 2008. The presence of sparse cheatgrass in the vicinity is common throughout the landscape and is likely to occur in the re-route area. This invasive annual plant can quickly dominate disturbed areas and if not already present, construction along the re-route alternative would open a new area for this species to gain a foothold, thus increasing the potential for spread by noxious weeds in the landscape associated with this pipeline corridor.

As discussed under the Proposed Action, long-term impacts could occur as a result of disturbance to shrubland communities. Reclamation efforts as described under the Proposed Action would re-establish vegetation along the ROW within 2 growing seasons, but full recovery of these habitats could take a minimum of 5 to 7 years, or as long as 20-30 years in sagebrush communities due to poor soils and low moisture conditions. Given that the overall change in the length and additional acres of impact associated with the GRP

Land Re-route Alternative represents less than a 1 percent change for the entire project, any additional impacts associated with this alternative would not result in significant overall differences in impacts when compared to the Proposed Action.

4.7 Wildlife, Aquatic Resources, and Special Status Species

4.7.1 Proposed Action

4.7.1.1 Wildlife

Construction Phase

Issues

- Habitat reductions and fragmentation from construction clearing
- Direct disturbance and loss of individuals from construction activities along the ROW and access roads
- Indirect effects consisting of displacement of individuals and loss of breeding success from exposure to construction noise and from higher levels of human activity

Analysis

Construction activities would result in the temporary disturbance of approximately 1,599 acres of wildlife habitat including 82 acres of grasslands; 1,137 acres of shrub-scrub; 111 acres of agricultural land; 248 acres of woodlands; and 21 acres of wetlands.

Potential impacts to terrestrial wildlife species from the proposed Project can be classified as short-term, long-term, and permanent. Short-term impacts consist of activities associated with Project construction and changes in wildlife habitats lasting less than 5 years. This would include impacts to species dependent on herbaceous habitats. Long-term impacts would consist of changes to wildlife habitats lasting 5 years or more and would include species dependent on habitats with woody species components. Permanent impacts would result from construction of aboveground facilities that convert natural habitat to an industrial site. 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 results in an altered wildlife community as species more adaptable to edge habitats establish themselves, while species requiring undisturbed habitats are subject to more negative effects. These effects would 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). Approximately 96 percent of the proposed pipeline ROW would parallel existing pipeline and powerline easements. The 4 percent where the proposed Project would not parallel existing ROW would consist primarily of shrubland and woodland habitats. Fragmentation disturbance to wildlife and wildlife habitats from the proposed Project is not expected to be significant because a majority of the construction would be adjacent to or overlap an existing cleared pipeline ROW. Thus, new edge habitat would replace existing edge habitat.

Trenching activities could hinder the movement of livestock, horses, and/or wildlife. As stated in the *Biological Resources Protection Plan*, OPPC has committed to placing earthen trench plugs, with ramps on either side, at a maximum of 1-mile intervals along the trench as well as at well-defined livestock and wildlife trails intersected by the trench to minimize potential impacts to wildlife, horses, and livestock. OPPC would consult with the BLM regarding specific placement of trench plugs and ramps on lands managed by the BLM.

To mitigate impacts to big game, greater sage-grouse, migratory birds, and white-tailed prairie dogs, OPPC has committed to the seasonal timing restrictions and buffers presented in **Table 4.7-1**. No construction activities would be allowed during the seasonal timing restriction within each buffer without approval from the BLM and CDOW or WGFD. Locations for big game and sage-grouse seasonal ranges were determined using data received from CDOW and WGFD. Locations for white-tailed prairie dog colonies were provided based on 2007 and 2008 field surveys conducted by OPPC (WWE 2008).

To mitigate vegetation/habitat loss, OPPC has committed to redistributing large, woody material salvaged during clearing operations on BLM-administered lands within the White River Resource Management Area in those areas where the proposed pipeline deviates from an existing ROW or corridor. Materials would be dispersed over the portion of the ROW from which the trees and brush were originally removed to meet fire management objectives and to provide wildlife habitat, seedling protection, and a deterrent to vehicular traffic. Woody materials dispersed across the ROW would not exceed 3 to 5 tons/acre.

Big Game

As presented in **Table 4.7-2**, construction impacts to big game species (elk, mule deer, and pronghorn) would include the incremental loss of potential forage and would result in an incremental increase in habitat fragmentation within the proposed surface disturbance areas. However, as noted above, this removal of vegetation would represent only a small percent of the overall available habitat within the broader Project region. The loss of shrubland 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. Locations for big game seasonal ranges were determined using data received from CDOW and WGFD.

Indirect impacts would result from increased noise levels and human presence during surface disturbance activities. Big game animals (especially pronghorn and mule deer) would decrease their use within 0.5 mile of surface disturbance activities due to increased noise levels (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, displacement of wildlife species (e.g., big game) as a result of construction would cause some unquantifiable reduction in wildlife numbers. OPPC would minimize potential human presence impacts on wildlife by adhering to sensitive big game habitat timing restrictions and coordinating with the appropriate agency (local BLM Field Offices, CDOW, and WGFD) prior to construction.

In accordance with BLM and CDOW recommendations, OPPC would avoid severe winter range for elk, mule deer, and pronghorn in Colorado between December 1 and April 30. OPPC would not be authorized to construct in a CDOW or BLM No Activity location during restricted dates without approval from the CDOW and BLM.

Table 4.7-1 Seasonal Timing Restrictions and Buffers for Big Game, Greater Sage-grouse, Migratory Birds, and White-tailed Prairie Dogs for the Project (Proposed Action Only)

Wildlife Species / Habitat Type	MP Locations	Buffer (miles) ¹	Seasonal Timing Restrictions ¹
Colorado			
Elk Severe Winter Range	49.0 – 78.4	NA	December 1 to April 30
Mule Deer Severe Winter Range	0.0 – 4.2	NA	December 1 to April 30
	12.3 – 14.0		
	19.6 – 20.0		
	20.1 – 27.4		
	55.3 – 64.6		
	93.6 – 94.7		
Pronghorn Severe Winter Range	51.6 – 53.3	NA	December 1 to April 30
	57.2 – 59.0		
	63.2 – 70.4		
	92.7 – 94.3		
Greater Sage-grouse Active Lek	66.5 – 67.8	0.60 ^{2,4}	March 1 to May 15
	68.9 – 69.4		
Greater Sage-grouse Nesting Habitat (within 4 miles of an active lek)	1.8 – 9.8	4.0 ²	April 15 to July 7
	45.9 – 55.7	4.0 ²	March 1 to June 30
	62.9 – 91.1		
	91.1 – 94.7		
Migratory Birds (protected under the MBTA), excluding raptors (refer to Table 4.7-3 , Seasonal Timing Restrictions and Buffers for Raptors for the Project) ³	Entire ROW	As deemed appropriate by the applicable BLM FO and USFWS.	April 15 to July 15
White-tailed Prairie Dog (Active Colonies)	No active colonies on federal or state land in Colorado	NA	WRFO - April 1 to July 15 LSFO - April 1 to June 15
Wyoming			
Mule Deer Crucial Winter/Yearlong Range	94.8 – 98.3	NA	November 15 to April 30
Pronghorn Crucial Winter/Yearlong Range	94.8 – 99.3	NA	November 15 to April 30
Greater Sage-grouse Occupied Lek	No occupied leks within 0.25 mile of ROW	0.25	March 1 to May 20

Table 4.7-1 Seasonal Timing Restrictions and Buffers for Big Game, Greater Sage-grouse, Migratory Birds, and White-tailed Prairie Dogs for the Project (Proposed Action Only)

Wildlife Species / Habitat Type	MP Locations	Buffer (miles) ¹	Seasonal Timing Restrictions ¹
Greater Sage-grouse Nesting Habitat (within 2 miles of an occupied lek)	118.1 – 121.7	2.0	March 1 to July 15
	151.9 – 152.1		
Migratory Birds (protected under the MBTA), excluding raptors (refer to Table 4.7-3 , Seasonal Timing Restrictions and Buffers for Raptors for the Project) ³	Entire ROW	As deemed appropriate by the RFO and USFWS.	April 15 to July 15
White-tailed Prairie Dog (Active Colonies)	98.6 98.8 111.3 116.7 117.9 118.8 119.0 119.4 121.3 121.4 121.6 121.8 129.0 134.3 134.4 135.6 135.9 137.0 137.2	NA	Year-round ⁵

¹Sources: White River RMP (BLM 1997); Little Snake RMP Oil and Gas Amendment (BLM 1991); Rawlins RMP and Final EIS (BLM 2008a), unless indicated otherwise.

²Source: Colorado Greater Sage-grouse Conservation Plan (CDOW 2008c).

³Source: MBTA (FR 2001).

⁴For pipelines this includes no permanent above ground facilities (no surface occupancy) year-round and no surface disturbing activities.

⁵Timing restriction is year-round to avoid potential impacts to black-footed ferrets in non-block cleared areas; if construction were to occur in active white-tailed prairie dog colonies of suitable density (i.e., burrow density of 8 burrows or greater per acre) in non-block cleared black-footed ferret areas, ferret surveys may be required as determined by the USFWS (USFWS 1989).

Table 4.7-2 Crucial Big Game Ranges Potentially Affected by the Proposed Project

State / Habitat Type	MP Locations	Total Length Crossed (miles)	Acreage Affected During Construction
Colorado			
Elk Severe Winter Range	49.0 – 78.4	29.4	310.2
Mule Deer Severe Winter Range	0.0 – 4.2	4.2	272.4
	12.3 – 14.0	1.7	
	19.6 – 20.0	0.4	
	20.1 – 27.4	7.3	
	55.3 – 64.6	9.3	
	93.6 – 94.7	1.1	
Pronghorn Severe Winter Range	51.6 – 53.3	1.7	127.3
	57.2 – 59.0	1.8	
	63.2 – 70.4	7.2	
	92.7 – 94.3	1.6	
Wyoming			
Mule Deer Crucial Winter/Yearlong Range	94.8 – 98.3	3.5	41.8
Pronghorn Crucial Winter/Yearlong Range	94.8 – 99.3	4.5	53.2

In accordance with the recommendations of the BLM RFO and WGFD, OPPC would avoid crucial big game winter habitat in Wyoming between November 15 and April 30. OPPC would not be authorized to construct within the exclusion window in crucial winter habitat without approval from the WGFD and BLM.

Small Game Species

A variety of small game species (e.g., greater sage-grouse, mourning dove, white-tailed jackrabbit) have been identified as potentially occurring along the proposed Project route. Potential impacts on small game from the proposed Project would result in the direct loss of habitat and increased habitat fragmentation until reclamation has been completed and native vegetation is reestablished. Potential direct impacts on 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 be expected to return to the disturbance areas following construction activities. Potential impacts to greater sage-grouse are discussed under Special Status Wildlife Species (Section 4.7.1.3).

Nongame Species

Potential impacts to nongame species (e.g., small mammals, amphibians, reptiles) would parallel those described above for small game species. However, potential impacts to these species would be minimized through mitigation measures identified below. If necessary, additional site-specific mitigation for sensitive species would be developed before construction commences.

Raptors and Other Migratory Birds

General impacts to migratory birds and the OPPC proposed measures to minimize such impacts are discussed below. Federally listed and other sensitive bird species are discussed under Special Status Wildlife Species (Section 4.7.1.3).

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. Therefore, impacts to migratory bird species including raptors associated with forest habitats would be minimal. Impacts to migratory bird species including raptors associated with relatively open habitats is expected to be minimal based on the likelihood that populations in the vicinity of existing ROWs occur at lower densities due to existing disturbance. Additionally, open habitats will recover to pre-disturbance conditions at a rate much faster than forest habitats. Forested habitats regrowth to the sapling-young tree stage would likely take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100+ years depending on the species (i.e., 200 to 500 years for piñon-juniper forests).

OPPC does not currently propose to construct the proposed Project within the buffer zones prescribed for raptors during the raptor nesting season (typically from mid-February through mid-August), so no direct effects to nesting raptors would be anticipated. Should construction extend into the raptor nesting season, OPPC has committed to conducting additional pre-construction raptor nest surveys in accordance with agency (BLM, state wildlife agency, and USFWS) approved protocols. Results of the raptor nest surveys would be reported to the appropriate BLM field office, state wildlife agency, and USFWS Western Colorado Field Office for review and reconsideration of appropriate protective buffers. OPPC has committed to the following protection measures for active raptor nests presented in **Table 4.7-3**. Construction activities would not occur within the appropriate timing restriction and applicable buffers around each active nest unless approved by the BLM and CDOW or WGFD. An active nest is one that has evidence of current breeding activities including nest building, fresh lining material, egg laying, incubating/brooding, or nestlings during the current breeding season (Cornell Lab of Ornithology 2008).

Likewise, any construction that would have extended into spring would overlap the start of the breeding season for other migratory birds (typically April 15 to July 15). Depending on the specific habitat, birds of several species (e.g., loggerhead shrike, sage thrasher, sage sparrow, pinyon jay, among others) could be directly affected by construction of the proposed Project. OPPC has committed to the following protection measures for migratory birds.

- Conduct pre-construction migratory bird surveys each spring prior to construction to identify nests occupied at the time of construction within the proposed Project area should construction occur during the nesting season. BLM-approved biologists would be required to meet with BLM biologists prior to initiating surveys and would conduct the surveys using BLM protocols.
- Develop nest avoidance, timing restrictions, and/or additional mitigation measures for nests located on or within 100 feet of the proposed ROW. USFWS would be consulted with if any special status species' nest were discovered on or adjacent to the proposed ROW.

The removal of suitable foraging and nesting habitat can be considered a type of direct impact on migratory birds. This type of impact cannot be avoided altogether during construction; however, OPPC has proposed measures that would minimize it to the extent practicable. This EA discusses several OPPC plans (e.g., *Biological Resources Protection Plan*; *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*) containing measures that would reduce the extent and duration of

Table 4.7-3 Seasonal Timing Restrictions and Buffers for Raptor Nests

BLM Field Office	Raptor Species	Timing Restriction ¹	Buffer (miles) ¹
White River	Bald eagle	November 15 to July 15	0.5
	Golden eagle	February 1 to August 15	0.5
	Ferruginous hawk	February 1 to August 15	1.0
	Northern goshawk	February 1 to August 15	0.25
	All other species	February 1 to August 15	0.125
Little Snake	Bald eagle	November 15 to July 31	0.5
	Golden eagle	February 1 to August 15	0.5
	Ferruginous hawk	February 1 to August 15	1.0
	All other species	February 1 to August 15	0.25
Rawlins	Bald eagle	February 1 to July 31	Up to 2.5 ²
	Golden eagle	February 1 to July 31	1.0
	Ferruginous hawk	February 1 to July 31	1.0
	All other species	February 1 to July 31	0.75

¹Sources: BLM 2008a,c 1997, 1991.

²Buffer is site-specific based on topography, line of sight, and current disturbance levels in the vicinity of the nest.

impacts on migratory bird habitat, actively and naturally allow a great majority of the construction ROW to return to pre-construction condition, and limit the potential effects from spills or environmental contamination. For example, OPPC has committed to restoring wetland and upland vegetation habitats (e.g., shrubland, woodland, grassland) in the construction ROW to preconstruction conditions.

EO 13186 requires federal agencies to avoid or minimize negative impact to migratory bird populations. The EO 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.

Conclusion

Construction of the proposed Project would disturb wildlife habitat, displace individual animals, and contribute to habitat fragmentation by expanding approximately 152 miles of existing pipeline/transmission line corridors. Impacts to wildlife would be mitigated by implementation of applicant-committed environmental protection measures contained in the POD (CH2M Hill Trigon, Inc. 2008), including the *Biological Resources Protection Plan*; *Environmental Protection Plan*; *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*; *Transportation Management Plan*; and *Weed Management Plan*. Measures to minimize impacts to wildlife include co-location of the pipeline with existing utility corridors where possible, use of a minimum construction ROW width and work space areas to reduce impacts to wildlife habitat, the use of trench plugs on all lands at 1-mile maximum intervals and at game trail crossings, limiting the amount of time and distance of open trench, avoidance of construction activities in big game wintering areas during seasonal

closure periods, adherence to spatial and timing buffers for active raptor nests and other migratory birds, and reclamation of disturbed areas.

Operation Phase

Issues

- Habitat reductions and fragmentation from ROW maintenance during operations
- Indirect effects consisting of displacement of individuals, and loss of breeding success from exposure to higher levels of human activity related to maintenance activities
- Potential loss of individuals from exposures to spills
- Potential direct mortalities to amphibians from vehicle traffic

Analysis

Direct impacts to wildlife species from maintenance activities associated with the proposed Project would be the same as discussed above for construction, and those discussed for vegetation (Section 4.6).

Operation of the pipeline also would result in future surface disturbance activities due to maintenance of the pipe (e.g., pothole inspections, repair of pipe, replacement of rectifier beds). As a result, approximately 852 acres of wildlife habitat would experience incremental long-term reduction until the shrub and tree component recovers. OPPC would follow the plans contained in the POD (CH2M Hill Trigon, Inc. 2008) and implement measures referenced in this EA to minimize impacts to wildlife and their habitats during pipeline operation.

Operation of the proposed pipeline would allow recovery and reestablishment of shrubs and small trees across the construction ROW. Approximately 0.2 acre associated with proposed aboveground pipeline facilities (at the Willow Creek meter station) would be permanently converted for pipeline operations

Conclusion

Impacts to wildlife from pipeline operations would include a total of less than 1 acre of additional disturbance to wildlife habitats beyond the 50-foot permanent ROW. Maintenance and operation of the pipeline would result in localized and temporary impacts to wildlife related to an increase in human-wildlife interactions and associated noise.

4.7.1.2 Aquatic Resources

Construction Phase

Issues

- Direct loss of individuals or effects on habitat from short-term disturbance to stream channels from construction equipment and trench dewatering
- Direct loss of individuals or effects on habitat from short-term increases in sedimentation from open-cut pipeline crossings and erosion from adjacent disturbed lands
- Potential fuel spills from equipment and toxicity to aquatic biota if fuel reached a waterbody
- Local short-term reductions in habitat if surface water is affected by hydrostatic testing

- Potential loss of aquatic organisms during pumping for hydrostatic testing
- Potential loss of individuals from disease or invasive species if contaminated water or mud is transferred between watersheds

Analysis

Construction-related impacts on fisheries would be primarily dependent on season of construction, duration of in-stream activities, and stream crossing methods. Construction activities at coldwater fisheries that occur from April 1 to June 15, and at warmwater fisheries from June 1 to November 30, could result in impacts to spawning fish. However, potential impacts to coldwater and warmwater fisheries would be minimized based on the applicant-committed environmental protection measures discussed below.

OPPC would prohibit “in the water” construction activities at all coldwater fisheries (Piceance Creek, Dry Fork Piceance Creek, White River, and Little Snake River) from April 1 to June 15 and at all warmwater fisheries (Yampa River) from June 1 to November 30 unless approved by the CDOW and BLM. However, water withdrawals for HDD, dust control, and wash stations would be allowed during these time periods.

The Little Snake, White, and Yampa rivers would be crossed by HDD. If successful, an HDD crossing would result in no impact on fisheries. However, a potential leak or rupture under these 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, OPPC prepared a *Drill Fluid Contingency Plan* that identifies detection and monitoring procedures, response equipment, notification procedures, and corrective actions.

The Dry Fork of Piceance Creek would be crossed using a dry crossing technique or flumed crossing technique in accordance with construction procedures in the POD (CH2M Hill Trigon, Inc. 2008). In addition, OPPC would store trench spoil at least 10 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, OPPC would immediately stabilize the construction site, including the streambanks. If circumstances required a construction delay, OPPC would employ adequate site stabilization measures in accordance with its Procedures and permit conditions.

Clearing and grading of vegetation within the construction ROW and additional TWAs 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. As stated in the POD (CH2M Hill Trigon, Inc. 2008), clearing of vegetation between extra work areas and the edge of waterbodies would be limited to the certificated ROW, and tree stump removal and grading activities would be limited to the trenchline only. 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.

To minimize impacts associated with streambank erosion during construction, OPPC would use equipment bridges, mats, and pads to support equipment across the waterbody or in saturated soils adjacent to the

waterbody. In accordance with its Procedures and where topography allows, OPPC would locate additional TWAs at least 10 feet from the edge of flowing waterbodies, except where site-specific approval has been granted, and limit clearing of vegetation between additional TWAs and the edge of the waterbody to the certificated construction ROW. OPPC 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. OPPC anticipates completing in-stream construction activities for waterbody crossings within 48 hours, further minimizing sedimentation and channel instability impacts to fishes and their habitats.

As discussed in Section 4.5, Water Resources, as much as 46 acre-feet of water potentially would be withdrawn from the Upper Colorado River Basin for hydrostatic testing, dust control, HDD use, and equipment washing. Approximately 11 acre-feet of this would be temporary withdrawals for hydrostatic testing that would be discharged back to the original withdrawal locations once testing was complete. The remaining 35 acre-feet potentially needed for other construction activities would be considered consumptive use. OPPC has identified the Yampa River (MP 59.53), White River (MP 19.3), and Little Snake River (MP 93.6) as the sources for these withdrawals. The approximate water volumes that would be required for hydrostatic testing, the rate of withdrawal, and the duration of the use are summarized in **Table 4.7-4**. The remaining withdrawal volumes for construction activities also would be distributed between these three locations. Procedures to minimize impacts such as using screens on intakes to avoid uptake of organic debris or entrainment of aquatic species during water withdrawals and monitoring withdrawal rates to ensure adequate downstream flow to support aquatic life, are discussed in the *Hydrostatic Test Plan*. OPPC would not use chemical additives during hydrostatic testing and proposes to return hydrostatic test water to the withdrawal point for discharge. Further discussion of hydrostatic test water withdrawals and associated impacts on special status species is included under Section 4.7.1.3.

Table 4.7-4 Water Withdrawals for Hydrostatic Testing

Waterbody	Volume (gallons)	Volume (acre-feet)	Fill Rate (gpm)	Fill Time (hours)
White River	858,000	2.63	1,000	12
Yampa River	1,147,000	3.52	1,000	17
Little Snake River ¹	1,594,000	4.91	500	47

¹If water is not available from the Little Snake River then water will be withdrawn from the Yampa River.

Direct spills of fuel, drilling fluids, or other hazardous materials into a waterbody would adversely affect aquatic resources. To minimize the potential for spills, OPPC would implement measures in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as environmental protection measures, such as containment and cleanup, to minimize potential impacts should a spill occur. This plan restricts the location of fuel storage, fueling activities, and construction equipment maintenance along the construction ROW and provides procedures for these activities. It also describes training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities.

Adherence to the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* would prevent spills from occurring near surface waters because construction vehicles (e.g., trucks, bulldozers, etc.) and stationary equipment (e.g., pumps, generators, etc.) would be fueled and serviced in upland areas at least 100 feet from waterbodies and wetlands. Within the Rawlins Resource Area, the set back would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment (such as pumps and generators) would be provided with secondary containment structures to prevent the spill or release of

hazardous materials into waterways. Refueling areas generally would be flat to minimize the chance of any spilled substances reaching waterbodies. Based on implementation of these procedures, impacts to surface water quality from these activities would be avoided or minimized.

Conclusion

Aquatic resource impacts anticipated from pipeline construction at most stream crossings include a temporary increase in sedimentation to waterbodies crossed by the flumed crossing method; short-term disturbance to stream channels, aquatic habitat, bank cover, and spawning sites; potential short-term reductions in habitat from water withdrawals for hydrostatic testing and dust control; potential loss of aquatic organisms during pumping for hydrostatic testing; potential loss of individuals from invasive species or disease if contaminated water is transferred between watersheds; and potential fuel spills from construction equipment and toxicity to aquatic organisms if the fuel spill reached a waterbody. These impacts would be minimized or avoided by the implementation of measures in the *Environmental Protection Plan, Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*, various site-specific waterbody crossing plans (designated for environmentally sensitive waterbody crossings), and other aspects of the POD (CH2M Hill Trigon, Inc. 2008). Measures to minimize aquatic resource impacts include erosion control and streambank stabilization measures, reducing the amount of time conducting instream construction activities, and workspace and refueling setbacks from waterbodies. OPPC would avoid bank and channel disturbance to the White, Yampa, and Little Snake rivers by using the HDD crossing method. The remaining streams would be crossed using the flumed crossing method in accordance with the procedures outlined in the POD (CH2M Hill Trigon, Inc. 2008). OPPC has committed to avoiding construction at crossings during state agency designated coldwater and warmwater fisheries spawning periods (April 1 to June 15) and (June 1 to November 30), respectively, unless approved by the CDOW and BLM. However, this does not include water withdrawals for HDD, dust control, and wash stations. Flumed crossings would cause short-term and temporary (usually 2 days or less) suspended sediment increases in stream and river channels.

Operation Phase

Issues

- Potential localized sedimentation and disturbance to habitat if maintenance activities were required at a stream crossing (i.e., excavating pipe located under the stream)

Analysis

Vegetation removal adjacent to waterbodies would be limited to a 25-foot-wide riparian strip, as measured from the waterbody's mean high water mark. As a result, maintenance activities would not affect aquatic biota or their habitat.

Information on the fate of the NGL and potential toxicity is provided in Section 4.5, Surface Water. Further information can be found in the risk assessment conducted for the Overland Pass Pipeline EIS completed in 2007 (BLM 2007a), entitled "Environmental Fate and Effects of Natural Gas Liquid Releases." If a rupture were to occur at a stream crossing, impacts would include the mortalities of fish species and macroinvertebrates present instream at the rupture point only due to the rapid dissipation of NGL. However, fish are expected to move away from the rupture area and potential impacts would generally be low in magnitude due to the localized extent of the affected area.

Conclusion

Routine operation and maintenance activities would have minor effects on aquatic resources. Minimal impacts, if any, would be expected to aquatic biota if NGL were accidentally released into waterbodies as aquatic

species are expected to move away from the rupture point and contamination would be localized and rapidly dissipated.

4.7.1.3 Special Status Species

Construction Phase

Issues

- The construction issues for special status wildlife species are the same as listed for wildlife resources
- The construction issues for special status fish species are the same as listed for aquatic resources. Hydrostatic testing is an issue for federally listed species that occur in downstream portions of the Colorado River basin. The USFWS requires consultation for any water withdrawals in these basins that could affect surface water quantity and the resulting impacts on listed species.

Analysis

The construction impact analysis for special status wildlife species focuses on those species that were identified as potentially occurring along the proposed Project route only. All special status wildlife species originally considered for the proposed Project are presented in **Appendix D**. It was determined that some of these species are highly unlikely to occur along the proposed Project route and would otherwise not be affected by the Proposed Action. Comments on these species are included in **Appendix D** and are not discussed further. Species which are likely to occur along the proposed Project route are discussed below.

Applicant-committed protection measures that have been developed for the proposed Project to prevent or minimize direct impacts on special status species are included in the *Biological Resources Protection Plan*. The *Biological Resources Protection Plan* contains the proposed measures that would be implemented if federally listed species or species of concern were identified along the proposed pipeline route during Project-specific or species-specific surveys. These measures would reduce Project-related impacts on special status species. Additional recommendations are presented below, where necessary, to ensure that impacts on special status species are minimized to the greatest extent practicable.

Terrestrial Wildlife Species

Potential impacts to special status 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, mortalities of less mobile or burrowing species as a result of crushing by vehicles and equipment, abandonment of a nest site or territory, and the loss of eggs or young. Other impacts would include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence.

Mammals

Spotted Bat, Townsend's Big-eared Bat, Fringed Myotis, Yuma Myotis, Long-eared Myotis. No historic communal bat roost sites (e.g., hibernacula, nursery colonies, bachelor roosts) have been recorded along the proposed Project route. Much of the proposed Project route would occur adjacent to or within previously disturbed ROW, thus direct impacts to communal roosts are not anticipated. 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 (approximately 248 acres) including habitat fragmentation until reclamation is completed and native vegetation has become reestablished. Indirect impacts could result from increased noise levels and human presence. 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.

Black-footed Ferret. According to surveys conducted in the summer of 2007 and spring of 2008, approximately 29 white-tailed prairie dog colonies that meet the burrow density set forth in the 1989 Black-footed Ferret Survey Guidelines (USFWS 1989) occur along the proposed Project ROW (WWE 2008). If ferrets were present in prairie dog colonies along the proposed Project route, direct impacts would include increased habitat loss and fragmentation from the disturbance of prairie dog colonies or complexes along the proposed Project route. Impacts also could result in direct mortalities of black-footed ferrets as a result of crushing from surface disturbance, vehicles, and heavy equipment. Indirect impacts to black-footed ferrets would include increased habitat fragmentation effects as a result of increased noise levels and human presence, dispersal of noxious and invasive weed species, and dust effects from unpaved road traffic. Indirect effects also could result in a reduction in habitat quality from the spread of infectious diseases (e.g., plague) within otherwise healthy prairie dog colony complexes.

In Wyoming, black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns or in white-tailed prairie dog towns except those noted in a February 2, 2004, letter from the USFWS (USFWS 2004). It is assumed that areas that do not require surveys do not have the potential to support black-footed ferrets. The white-tailed prairie dog towns found in T13N to T20N, R94W in Sweetwater and Carbon counties, Wyoming, have not been cleared and would have to be surveyed. Some prairie dog towns along the front range of Colorado and eastern Colorado have been block cleared and surveys for ferrets are no longer recommended. No block clearances of white-tailed prairie dogs are in place in western Colorado. However, the USFWS has designated prairie dog towns in Moffat County, Colorado, and Rio Blanco County, Colorado, west of highway 13 as experimental populations. Ferrets have been released at one location (Wolf Creek) on federal lands approximately 20 miles west of the Project route. These populations are considered low probability of ferret occurrence and are designated as potential ferret introduction sites. These areas do not require ferret searches. The USFWS encourages Project applicants to protect all prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them. Based on 1) the implementation of measures listed in the *Biological Resources Protection Plan* (including conducting surveys); 2) the USFWS determination of Moffat and Rio Blanco counties as experimental population areas for black-footed ferret; and 3) the low probability of occurrence in the vicinity of the proposed Project route, it is anticipated that the proposed Project would have a low impact on black-footed ferrets.

White-tailed Prairie Dog. As discussed above, white-tailed prairie dogs occur along the proposed Project route. The potential effects of construction through a prairie dog colony 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 reproductive season (late May to early June), most prairie dogs would be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. In addition, there is a potential for destroying active dens with young if construction occurs during the reproductive season. If OPPC proposes construction in an active prairie dog colony during the white-tailed prairie dog's reproductive season, there would be a construction timing restriction on federal land within the WRFO from April 1 to July 15, and within the LSFO from April 1 to June 15. The RFO does not impose a timing restriction for white-tailed prairie dogs but rather encourages limited disturbance within active colonies. 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. The proposed Project may impact individuals but would not likely to cause a trend to federal listing or loss of viability to white-tailed prairie dogs.

Wyoming Pocket Gopher. Potential impacts on the Wyoming pocket gopher from construction of the proposed Project would be minimal because its range is limited to the southeastern corner of Sweetwater County; however, a small amount of potentially suitable habitat could occur along the proposed Project route. The highest possibility for direct impact would occur during clearing if heavy equipment collapses dens and tunnels while navigating the ROW, or during the trenching process. Once operational, the pipeline corridor would provide loose soil for dens and rodent burrows, plus forbs, grasses and seeds for rodent forage. During

reclamation, the proposed pipeline ROW would be reseeded with BLM- and NRCS-approved seed mixes appropriate to soil and range conditions for the area. The proposed Project may impact individual pocket gophers but would not likely cause a trend to federal listing or loss of viability to this species.

Pygmy Rabbit. The USFWS received a petition (April 21, 2003) to list the pygmy rabbit under the ESA. A 90-day finding on the petition was published on May 20, 2005, in which the USFWS determined that the petition does not provide substantial information indicating the listing may be warranted. This finding was recently remanded by the Court to another 90-day review to be completed by December 31, 2007. Field surveys conducted in 2007 found no evidence of pygmy rabbits in the Colorado or Wyoming portion of the proposed Project route (WWE 2008). However, since suitable habitat (i.e., dense stands of big sagebrush) is present along the proposed Project route, potential impacts could occur as a result of the proposed Project and would be similar to those discussed for small non-game species.

Because a majority of the construction would be adjacent to or overlap an existing ROW, impacts to large tracts of undisturbed pygmy rabbit habitat would be minimized. As part of the proposed Project planning measures, approximately 96 percent of the proposed pipeline ROW parallels existing pipeline and powerline easements. As such, habitat fragmentation and loss of sagebrush habitat would be minimized and would not pose a significant impact on pygmy rabbits. The proposed Project may impact individual pygmy rabbits but would not likely cause a trend to federal listing or loss of viability of this species.

Birds

White-faced Ibis, Barrow's Goldeneye, Black Tern, Long-billed Curlew. Potential impacts to these migratory bird species would be the same as discussed for other migratory bird species in the Raptors and Other Migratory Birds section.

Northern Goshawk. No northern goshawk nests have been identified along the proposed pipeline route; however, suitable foraging habitat and marginal nesting habitat (i.e., pinyon-juniper woodlands) does occur along the proposed Project route. Direct impacts would include the long-term reduction of approximately 248 acres of potential foraging habitat and 248 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the low probability of nesting birds along the proposed route. Indirect impacts would result from construction-related noise and human presence. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008) such as conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Bald Eagle. Two bald eagle nest sites and winter roost areas occur within 1-mile of the proposed Project route along the White, Yampa, and Little Snake rivers. Impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 269 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. Indirect impacts associated with construction-related noise and human presence would increase and therefore, could impact breeding/wintering birds. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Swainson's Hawk. One active Swainson's hawk nest has been identified along the proposed Project route and suitable nesting habitat (i.e., trees, large shrubs, cliffs) occurs along the proposed Project route. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,517 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the Project route. Indirect impacts would result from construction-related noise and

human presence. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Ferruginous Hawk. No active ferruginous hawk nests have been identified along the proposed Project route; however, several inactive nest sites occur in Wyoming and suitable nesting and foraging habitat is found along the entire proposed Project route. Direct impacts would include the long-term reduction of approximately 1,467 acres of potential foraging habitat and 1,219 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project route. Indirect impacts would be the same as described above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Golden Eagle. Two active golden eagle nests have been identified along the proposed Project route: one located on a high voltage tower in Moffat County, Colorado, and the other in a tree in Sweetwater County, Wyoming. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,467 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project route. Indirect impacts would be the same as discussed above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Prairie Falcon. A single prairie falcon nest site has been documented along the proposed Project route in Sweetwater County, Wyoming. However, this nest was found to be inactive in 2007 and 2008. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,467 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project. Indirect impacts would be the same as discussed above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed on **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Greater Sage-Grouse. The greater sage-grouse is designated as a sensitive species by the states of Colorado and Wyoming as well as the BLM and has been petitioned for federal listing consideration. In April 2004, the USFWS 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 USFWS has subsequently determined that the listing is not warranted (70 FR 2244). Recently, the USFWS has reopened a 90-day status review to determine whether or not listing under the ESA is warranted.

In Colorado, the BLM WRFO and LSFO are implementing their respective RMPs seasonal training restriction dates for greater sage-grouse. The BLM WRFO and LSFO have adopted the Colorado Greater Sage-grouse Conservation Plan's (CDOW 2008c) guidelines and recommendations for implementing buffers. This conservation plan was signed in January 2008 by the CDOW, BLM, USFS, USFWS, and NRCS to facilitate the conservation of greater sage-grouse and their habitats in Colorado. This plan establishes that:

- There should be no surface occupancy (NSO) within a 0.6-mile radius of an active lek; and
- Surface disturbing activities should be avoided, to the extent possible, within suitable nesting habitat within a 4-mile radius of an active lek.

Potential direct impacts of construction on sage-grouse may include the loss of lekking grounds and other sage-grouse habitat (e.g., winter range, brooding habitat). Acres of sage-grouse habitat that would be impacted by the proposed Project are presented in **Table 4.7-5**.

Table 4.7-5 Greater Sage-grouse Habitat Impacted by the Proposed Project

BLM Field Office	Habitat Type	Acres Impacted During Construction ¹
White River ²	Brooding Areas	39.0
	Production Areas	29.9
	Winter Range	39.0
	Severe Winter Range	0.00
Little Snake ²	Brooding Areas	108.5
	Production Areas	303.8
	Winter Range	424.8
	Severe Winter Range	32.4
Rawlins ³	Overall Range	598.2
	Nesting Habitat	78.1

¹Some habitats may overlap (e.g., winter range includes severe winter range, overall range include nesting habitat).

²From BLM WRFO and LSFO have adopted CDOW greater sage-grouse habitat mapping data.

³From BLM RFO has adopted WGFD greater sage-grouse habitat mapping data. The WGFD designates greater sage-grouse habitat into two categories and does not classify brooding areas, production areas, winter range, or severe winter range.

Although the proposed Project would not result in a permanent loss of habitat along the pipeline ROW, the regeneration of sagebrush would likely be slow. A 30-year interval represents the approximate recovery period for a stand of Wyoming big sagebrush. A 20-year interval represents the approximate recovery time for a stand of mountain sagebrush (Connelly et al. 2000). 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 each morning and evening from early March to early May. Construction activities and associated noise occurring in early morning and late 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.

Based on CDOW and WGFD breeding season surveys and historic data, a total of 6 active sage-grouse lek sites have been identified as occurring within 4 miles of the proposed Project in Colorado, and 2 active leks as occur within 2 miles of the proposed Project in Wyoming.

Table 4.7-6 summarizes the following sage-grouse protection measures OPPC has committed to in order to limit impacts to greater sage-grouse.

- Conduct sage-grouse presence surveys, habitat assessment, and review of historical lek sites each spring prior to construction. Biologists would meet with the BLM prior to initiating surveys and would conduct the surveys using BLM-approved protocols.
- Prohibit permanent aboveground facilities within a 0.6-mile radius of all active leks on lands administered by the BLM WRFO, BLM LSFO, and CDOW, and within a 0.25-mile radius of all occupied leks on land administered by the BLM RFO unless approved by the BLM and CDOW or WGFD. The RFO has adopted the WGFD definitions of an occupied versus unoccupied lek: a lek is deemed occupied until it is inactive 6 out of 10 years.
- Prohibit surface disturbing activities within 0.6 mile of an active lek on lands administered by the BLM WRFO, BLM LSFO, and CDOW from March 1 to May 15 and within 0.25 mile of an occupied lek on lands administered by the BLM RFO from March 1 to May 20 unless approved by the BLM and CDOW or WGFD.
- Prohibit surface disturbing activities within a 4-mile radius of an active lek (within suitable nesting habitat) at the time of construction between April 15 and July 7 on land administered by the BLM WRFO and between March 1 and June 30 on land administered by the BLM LSFO in Colorado unless approved by the CDOW and BLM. Some allowances may be made based upon site-specific consultations with the jurisdictioning agency.
- Prohibit surface disturbing activities within a 2-mile radius of an occupied lek (within suitable nesting habitat) at the time of construction from March 1 to July 15 on land administered by the BLM RFO unless approved by the WGFD and BLM. Some allowances may be made based upon site-specific consultations with the jurisdictioning agency.

To minimize impacts on sage-grouse habitat, OPPC has committed to restricting broadcast spraying of herbicides for noxious weed control in sage-grouse habitat unless approved by the BLM Authorized Officer or field representative. All weed control programs in sage-grouse habitat would use integrated weed management techniques to reduce the area of treatment and minimize adverse side effects. Additionally, OPPC would seed all disturbed areas with a mix designed to reestablish sagebrush and forb species. Seed mixes are provided as appendices to the *Environmental Protection Plan*. Sagebrush seed used for reseeded would be from local species and varieties. Distribution of sagebrush would be dependent upon range site (i.e., *Artemisia tridentata vaseyana* and *A. tridentata wyomingensis*). Reclamation on these sites would use seed mixes and seeding methods that include and promote successful establishment of the full compliment of grasses and desirable native forbs.

Table 4.7-6 Seasonal Timing Restrictions and Buffers for Greater Sage-grouse

State/Habitat Type	Milepost Locations	Buffer (miles) ¹	Seasonal Timing Restriction ²
Colorado			
Greater Sage-grouse Active Lek	66.5 to 67.8	0.60 ³	March 1 to May 15
	68.9 to 69.4		
Greater Sage-grouse Nesting Habitat (within 4 miles of an active lek)	1.8 to 9.8	4.0	April 15 to July 7
	45.9 to 55.7	4.0	March 1 to June 30
	62.9 to 91.1		
	91.1 to 96.5		
Wyoming			
Greater Sage-grouse Occupied Lek	No occupied leks within 0.25 mile of ROW	0.25 ³	March 1 to May 20
Greater Sage-grouse Nesting Habitat (within 2 miles of an occupied lek)	118.1 to 121.7	2.0	March 1 to July 15
	151.9 to 152.1		

¹Sources: Colorado Greater Sage-grouse Conservation Plan (CDOW 2008b) and Rawlins FEIS and RMP 2008 (BLM 2008a).

²Sources: White River RMP (BLM 1997), Little Snake RMP Oil and Gas Amendment (BLM 1991), and Rawlins FEIS and RMP 2008 (BLM 2008a).

³For pipelines this includes no permanent aboveground facilities (no surface occupancy) year-round and no surface disturbing activities.

Columbian Sharp-tailed Grouse. Potential impacts on the Columbian sharp-tailed grouse from construction of the proposed Project would be minimal because its range is limited in southern Moffat County; however, a small amount of potentially suitable habitat could occur along the proposed Project route. Potential direct impacts of construction on this species include the temporary loss of habitat (e.g., winter range, brooding habitat). Although the proposed Project would not result in a permanent loss of habitat along the proposed pipeline route, the regeneration of shrubs would likely be slow. Potential impacts on Columbian sharp-tailed 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 proposed pipeline ROW would affect Columbian sharp-tailed grouse populations in the vicinity of the proposed Project. Therefore, the proposed Project may impact individual Columbian sharp-tailed grouse but would not likely cause a trend to federal listing or loss of viability to this species.

Mountain Plover. The primary mountain plover nesting period along the proposed Project route 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 during this time period. After July 10, the chicks are usually sufficiently mobile to move away from construction equipment.

The proposed Project route crosses approximately 11.7 miles of mountain plover habitat in Wyoming (BLM 2008a). Additional habitat for mountain plover is found within white-tailed prairie dog colonies along the proposed Project route. If construction were to begin in or extend into the breeding season (mid-April through

early July), direct (e.g., ground disturbance) or indirect (e.g., noise, human presence) impacts to nesting mountain plover could result in abandonment of breeding territory or a nest site, or the loss of eggs or young. OPPC has committed to avoiding construction activities in suitable mountain plover habitat between April 10 and July 10. Based on proposed construction outside the nesting season, the proposed Project may impact individuals but would not likely cause a trend to federal listing or loss of viability.

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.

Surveys conducted during the summer of 2007 found 2 active burrowing owl nests (WWE 2008). To avoid impacts on nesting owls, OPPC proposes to construct the pipeline outside the burrowing owl breeding season (February 1 to August 15 in Colorado). Should construction extend into the breeding season, OPPC would adhere to seasonal and spatial buffers for burrowing owls on federal land unless approved by the BLM and CDOW or WGFD. For example, the BLM RFO would typically require a 0.75-mile protection zone around an active nest between February 1 and July 31. To minimize potential impacts to the burrowing owl, OPPC has committed to adhering to the BLM requirements established for burrowing owls for the entire proposed Project, regardless of land ownership. Thus, the proposed Project may impact individual burrowing owls but would not likely cause a trend to federal listing or loss of viability to this species.

Loggerhead Shrike, Sage Thrasher, Sage Sparrow, and Brewer's Sparrow. Potential impacts to these migratory bird species would be the same as discussed for other migratory bird species under the Raptors and Other Migratory Birds section.

Amphibians and Reptiles

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 vegetation reestablished.

The potential for these species to occur within the proposed Project area is considered low. No further preconstruction surveys are proposed. The proposed Project may impact individual amphibians and reptiles but would not likely cause a trend to federal listing or loss of viability. These species have a broad geographic area and impacts would be considered negligible based on suitable habitat present in the proposed Project vicinity.

Fish Species

The federally listed bonytail, humpback chub, and razorback sucker do not occur in the proposed Project area but are included in our detailed analysis based on the potential water depletion activities (i.e., hydrostatic testing) for the proposed Project in the Colorado River Drainage. The closest occupied or critical habitat for these three species is located at the following approximate distances downstream of the proposed crossings: 30 to 40 river miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail); 70 river miles downstream of the White River crossing (razorback sucker); and at least 30 river miles downstream of the Little Snake River crossing (razorback sucker) (USFWS 2004a). Consequently, proposed Project impacts to these fish species would be limited to potential water depletions from hydrostatic testing within the Colorado River drainage.

The federally listed Colorado pikeminnow occurs approximately 10 river miles downstream of the proposed White River crossing and could be affected by water depletions (USFWS 2004a). This species also could

occur at the location of the proposed Yampa River crossing (which also is designated as critical habitat for this species) (USFWS 2004a). Direct impacts to this species and its critical habitat are discussed below.

The remaining five fishes (bluehead sucker, flannelmouth sucker, mountain sucker, Colorado River cutthroat trout, and roundtail chub) are either state sensitive species or BLM sensitive species that occur in the White River, Little Snake River, Yampa River, and Piceance Creek.

An accidental release of drilling mud (called “frac-out”) and potential impacts of this release during the HDD crossings at the White, Little Snake, and Yampa rivers is discussed in Section 4.5, Surface Water.

Bonytail, Humpback Chub, Razorback Sucker, Colorado Pikeminnow (impacts from water depletions).

The USFWS 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, 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.

Water depletion impacts resulting from the withdrawal of up to 35 acre-feet of water for dust control, HDD use, and equipment washing and an additional 11 acre-feet for hydrostatic testing 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 used for proposed Project activity. Potential impacts would be greatest during the spawning periods for these species in spring and early summer, which would be avoided based on OPPC proposed schedule. The USFWS defines “depletion” as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. According to the USFWS, any water depletion would represent an adverse impact on the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and would need to be considered under a programmatic biological opinion (BO).

If water is returned to the source waterbody within a certain amount of time after withdrawal, the threshold for “depletion” and formal consultation would not be reached. Factors to consider in determining downstream impacts to listed fish species include the 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 versus a “basin return”).

The *Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Plan)* (USFWS 2008) was established in 1988 to mitigate for water depletion impacts to 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. In 1995, an intra-USFWS Opinion determined that the fee for depletions less than 100 acre-feet (annual average) would no longer be required (USFWS 2004a).

Water withdrawals for the proposed Project would include up to an estimated 35 acre-feet of water for consumptive water use (i.e., dust control, HDD use, and equipment washing) and an additional 11 acre-feet for hydrostatic testing. As presented in **Table 4.7-4**, the 11 acre-feet for hydrostatic testing would be comprised of approximately 3.5 acre-feet from one location along the Yampa River (MP 59.5), 2.6 acre-feet from one location along the White River (MP 19.3), and 4.9 acre-feet from one location along the Little Snake River (MP 93.6). Hydrostatic testing for the various test sections would 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, but would not exceed 5 to 7 days.

Hydrostatic test water withdrawn from surface waters would be discharged back to the uptake location after use. Discharges would be completed as quickly as possible, but would be governed by the volume of water in a test section and the discharge rate. The potential for bank erosion would be minimized by using energy-

dissipating devices and appropriate dewatering structures that would disperse and slow the velocity of any discharges. The introduction of contaminants would not be anticipated because OPPC would test only new pipe and would not chemically treat the water. Due to this, water depletions from the Upper Colorado River Basin, according to the USFWS, the proposed Project may affect and is likely to adversely affect the four Colorado River endangered fish.

Colorado Pikeminnow (impacts from waterbody crossings). Due to the location of drilling pad, drilling equipment, and pipe strings associated with the Yampa River HDD, surface disturbing activities would occur within the 100-year floodplain of the Yampa River. However, the HDD work areas would be located outside of the water level of the river, and thus would avoid instream impacts. Construction techniques and reclamation would be designed to minimize potential increased sedimentation during future high water events. Refueling and lubrication of drilling equipment would occur at the drilling site (inside of the 100-year floodplain); therefore, any fuel spills or leaks could affect the Colorado pikeminnow's critical habitat at this location.

Impacts to designated critical habitat for the Colorado pikeminnow in the White River, which is about 10 miles downstream from the proposed crossing location, is not anticipated.

The proposed HDD crossings of the White and Yampa rivers would avoid instream impacts assuming a successful HDD crossing would be constructed at each of these locations; thus, there would be little to no effect on the Colorado pikeminnow or its designated critical habitat. Only minor turbidity impacts would be anticipated from light disturbance associated with the preliminary crossing set-up. In the unlikely event of an inadvertent release of drilling fluids (a "frac-out"), water quality would be degraded in the immediate vicinity of the crossing during HDD activities. If this were to occur, drilling activities would cease and countermeasures would be implemented according to the *Drill Fluid Contingency Plan*. In such a case, turbidity and sedimentation impacts, as well as minor amounts of chemical constituents, would adversely affect the waterbody for some distance downstream due to mud flocculation and settling. Such effects would probably occur within 0.5 mile or so of the HDD site.

Successful implementation of the measures in the *Drill Fluid Contingency Plan* would minimize potential impacts to the Colorado pikeminnow and its critical habitat and would reduce them to short-term in duration.

Bluehead Sucker, Flannelmouth Sucker, Mountain Sucker, Colorado River Cutthroat Trout, and Roundtail Chub. Since these species 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. The proposed Project may impact individual fish but would not likely cause a trend toward federal listing or loss of viability for these species.

Conclusion

Impacts to special status wildlife species would be avoided or minimized through implementation of applicant-committed environmental protection measures in the *Environmental Protection Plan* and *Biological Resources Protection Plan*, as well as the proposed construction schedule, which avoids critical nesting and spawning times of the year. These protective measures would prevent or minimize potential impacts to special status wildlife 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.

Impacts to special status fish species in five streams (Piceance Creek, Dry Fork Piceance Creek, White River, Yampa River, and Little Snake River) would be minimized through implementation of protection measures outlined in the *Biological Resources Protection Plan*; *Environmental Protection Plans*; *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*; *Drill Fluid Contingency Plan*; and other POD-related plans, as discussed by species under analysis above. Implementation of practices in these plans would minimize effects on habitat for special status fish species through such measures as controlling sediment from disturbed areas, requiring bridges at all flowing stream crossings and establishing a

setback distance from riparian vegetation, and reclaiming streambanks. Additional protection measures would include avoiding spawning periods for coldwater and warmwater fish. Collectively, these protection measures would minimize potential impacts to special status fish species such that the proposed Project likely would not result in a loss of viability, nor cause a trend toward federal listing or loss of species viability rangewide.

Construction activity within the proposed ROW could directly affect special status amphibian species in flooded areas, wetlands, streams, or ponds in Wyoming and Colorado. Vehicles could cause mortalities or alter aquatic habitat used by these species. The proposed Project likely would not result in a loss of viability, nor cause a trend toward federal listing or loss of species viability rangewide.

Operation Phase

Issues

- The issues associated with operations would be similar to the issues described for wildlife, aquatic, and vegetation resources
- Potential localized sedimentation and disturbance to habitat if maintenance activities were required at a stream crossing

Analysis

Both normal and abnormal (e.g., spill event and clean up) operations would have minimal effects on special status wildlife resources. Impacts to special status wildlife species from maintenance activities would be the same as those discussed during construction for general wildlife. Potential direct impacts include long-term habitat loss or alteration of potential breeding and/or foraging habitats until vegetation has been reestablished. 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 potential impacts include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence. If applicable, appropriate environmental protection measures identified for construction also would be implemented to minimize potential impacts to special status wildlife resources.

Both normal and abnormal (e.g., spill event and clean up) operations would have minimal effects on special status aquatic resources. Impacts to special status aquatic species from maintenance activities would be the same as those discussed during construction for aquatic species. As a result, maintenance activities would not affect aquatic biota or their habitat.

Information on the fate of the NGL and potential toxicity is provided in Section 4.5, Surface Water. Further information can be found in the risk assessment conducted for the Overland Pass Pipeline EIS completed in 2007 (BLM 2007a), entitled "Environmental Fate and Effects of Natural Gas Liquid Releases." If a rupture were to occur at a stream crossing, impacts could include the mortality of fish and macroinvertebrates in the stream at the rupture point. However, fish are expected to move away from the rupture area and potential impacts generally would be low in magnitude due to the localized extent of the affected area.

Conclusion

Routine maintenance and operation of the pipeline would result in minimal impact, if any, to special status species. Maintenance activities along the proposed Project route would result in localized, dispersed impacts of short duration. If NGL were accidentally released into uplands or waterbodies due to a pipeline leak, minimal impacts, if any, would be expected to special status species.

4.7.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to wildlife, aquatic resources, and special status species would not occur.

4.7.3 GRP Land Re-route Alternative

Impacts to wildlife species (e.g., big game, small game, nongame), aquatic resources, and special status species would generally be the same as described under the Proposed Action, except for the disturbance of an additional 11.9 acres of previously undisturbed wildlife habitat and greater sage-grouse overall range, production area, and winter range. No additional waterbodies containing aquatic resources would be crossed by the GRP Land Re-route Alternative.

For big game, small game, and nongame species, the loss of an additional 11.8 acres of habitat (approximately 62 percent greater than the area of the Proposed Action that would be avoided) would represent less than 1 percent of the overall available habitat within the broader 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. Additional edge habitat would be created as a result of the disturbance of the re-route area.

The total area of two CDOW-designated sage-grouse core habitats that would be crossed in the proposed Project vicinity is approximately 647,900 acres. The Proposed Action construction would impact a total of approximately 421 acres (less than 0.07 percent) of that core habitat. The proposed re-route would impact an additional 11.8 acres of that core habitat.

If construction activities were to take place during sage-grouse breeding or nesting season (March 1 to June 30), impacts to sage-grouse would include, but are not limited to, displacement into less suitable habitat, nest abandonment, destruction of nests and loss of habitat.

Other impacts, such as habitat fragmentation and the spread of exotic plants can degrade sage-grouse habitat. Noise and increased human-related activity such as construction and maintenance of the pipeline can also disrupt breeding and nesting. Due to the close proximity of an active greater sage-grouse lek, it can be expected that male lek attendance would decline. This would likely result in decreased breeding success and an overall reduction in population over time (Connelly et al. 2004).

If reclamation efforts are unsuccessful, the spread of exotic plants such as cheat grass in the area would reduce nesting habitat quality. This would likely impact nesting sage-grouse or nest success of nearby sage-grouse due to female site fidelity. This would create an "island" of intact habitat that may be deemed less effective or even avoided by future generations of sage-grouse due to surrounding disturbances. This island of avoided habitat would be approximately 900 acres.

An active greater sage-grouse lek occurs within 0.6 mile of the alternative route between MP ALT-2.1 and ALT-3.0. As discussed under the Proposed Action, OPPC has committed to multiple protection measures for greater sage-grouse (**Table 4.7-6**), including:

- No permanent aboveground facilities within a 0.6-mile radius of all active leks on lands administered by the BLM LSFO.
- No surface disturbing activities within 0.6 mile of an active lek on lands administered by the BLM LSFO from March 1 to May 15.
- No surface disturbing activities within a 4-mile radius of an active lek (within suitable nesting habitat) at the time of construction between March 1 and June 30 on land administered by the BLM LSFO in Colorado. Some allowances may be made based upon site-specific consultations with the jurisdictional agency.

The above mitigation measures may be effective at protecting breeding and nesting activities during the planned project construction and maintenance. However, if emergency maintenance of the pipeline is needed during the life of the project, it is possible that disturbance of the lek site, breeding and nesting activities would be unavoidable. Additional minimization and/or mitigation measures that could be employed and may be effective include, but are not limited to, the following:

- Use of enhanced seed mixtures,
- Additional sagebrush plug plantings,
- Reduced ROW width for construction, and
- Topsoil segregation.

Impacts to special status fish species would be the same as described under the Proposed Action, as no additional waterbodies containing aquatic resources would be crossed by the GRP Land Re-route Alternative.

4.8 Land Use, Recreation, and Visual Resources

4.8.1 Proposed Action

The proposed Project would require land for the construction ROW, permanent ROW, additional TWAs, access roads, and construction and operation of ancillary facilities. The construction ROW would have a nominal width of 75 feet and the permanent ROW for operations would be 50 feet wide. 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.

To mitigate impacts to land use, recreation and visual resources during construction, OPPC would implement environmental protection measures described in the POD (CH2M Hill Trigon, Inc. 2008). Relevant plans attached as appendices include the *Environmental Compliance Management Plan*, *Fugitive Dust Control Plan*, *Weed Management Plan*, *Transportation Management Plan*, and *Environmental Protection Plan*. Environmental protection measures to be implemented include:

- Hiring a third-party environmental inspector to observe and document environmental compliance, as well as actively identify and anticipate potential environmental compliance concerns ahead of construction.
- Minimizing erosion through the implementation of erosion control measures in accordance with the *Environmental Protection Plan*, including limiting the number of cuts and fills, and keeping the period between construction and reclamation activities as short as possible.
- Minimizing interference and damage to crop and rangelands and minimizing activities during construction and maintenance. This would include limiting disturbance during construction to the minimum necessary to efficiently complete construction activities, bracing and securing fences and gates, coordinating with landowners to install temporary fencing and/or cattle guards as needed, maintaining access through ROW for livestock and landowners, and maintaining access to water sources for livestock.
- Keeping grazing allotment permittees on federal lands managed by the BLM and fee-land ranchers informed regarding schedules to allow them ample opportunity to move livestock away from the ROW.
- Mitigating damage to agricultural lands and facilities from construction as soon as practical. This would include eliminating ruts; restoring ditches, cattle guards, fences, gates and artificial and natural livestock water sources to their original condition or better; and mitigating damage to pasture and grazing lands, including paying special attention to irrigated agricultural lands.
- Minimizing and/or mitigating soil compaction within the construction area and along the ROW. Areas of soil compaction would be returned to approximate pre-construction conditions during reclamation.
- Monitoring and controlling the spread of invasive plant species and noxious weeds along the ROW for the life of the Project.

4.8.1.1 Land Use

Construction Phase

Issues

- Construction interference with planting and harvesting annual crop
- Construction activities interfering with livestock management, such as blocking access to pasture and water
- Temporary reduction in the carrying capacity of the federal and private grazing areas

- Reduced crop productivity because of soil mixing and compaction (Section 4.4)
- Clearing of forested lands/timber production areas during construction activities (Section 4.6)

Analysis

Rangeland areas would be the most predominant land use affected by the proposed Project (**Table 4.8-1**). In areas where rangeland is used for grazing, surface disturbances from construction activities would temporarily reduce the carrying capacity of BLM grazing allotment and privately held pastures, and temporarily would hinder the movement of livestock, horses, and/or wildlife across those allotments. To mitigate impacts to grazing management activities during construction, OPPC would implement environmental protection measures summarized above and described in the POD and associated appendices (CH2M Hill Trigon, Inc. 2008).

Table 4.8-1 Acres of Land Use Affected by Construction and Operation of the Proposed Project

		Forest	Rangeland	Agricultural	Wetlands	Total ¹
Colorado						
Rio Blanco	Permanent Easement	96.9	78.9	49.2	0.0	225.0
	Temporary Easement	48.6	39.8	24.4	0.0	112.8
	TWAs	34.3	13.2	14.6	0.0	62.1
Moffat	Permanent Easement	30.7	297.7	13.8	9.0	351.2
	Temporary Easement	15.3	163.1	5.3	4.5	188.2
	TWAs	8.4	48.2	3.9	7.4	67.9
<i>Subtotal¹</i>		<i>234.2</i>	<i>640.9</i>	<i>111.2</i>	<i>20.9</i>	<i>1,007.2</i>
Wyoming						
Sweetwater	Permanent Easement	8.7	306.0	0.0	0.0	314.7
	Temporary Easement	4.1	153.3	0.0	0.0	157.4
	TWAs	1.2	62.4	0.0	0.0	63.6
Carbon	Permanent Easement	0.0	33.9	0.0	0.0	33.9
	Temporary Easement	0.0	16.8	0.0	0.0	16.8
	TWAs	0.0	5.7	0.0	0.0	5.7
<i>Subtotal¹</i>		<i>14.0</i>	<i>578.1</i>	<i>0.0</i>	<i>0.0</i>	<i>592.1</i>
Project Total¹		248.2	1,219.0	111.2	20.9	1,599.3

¹Discrepancies in acreage totals are due to rounding; totals represent temporary impacts to ROW only and do not include 51.6 acres for use of existing off-ROW contractor/pipe yard, 0.7 acre for construction of one new access road, or 5.6 acres for potential widening of existing access roads.

Surface disturbances associated with construction activities would reduce available forage for livestock in the proposed Project ROW. Given the narrow, linear nature of the ROW, livestock forage reductions would be minor in comparison to the total forage available on the large BLM allotments and private ranches crossed by the proposed route. In addition, any loss of forage would be temporary and BLM would not reduce the grazing preference or AUM on any BLM grazing permit because of the pipeline Project. OPPC would implement

measures outlined in the *Environmental Protection Plan* to ensure timely and appropriate revegetation. Herbaceous communities would reestablish within 3 to 5 years after construction.

Construction activities would interfere with grazing management patterns and timing. To allow grazing allotment permittees on federal lands and fee-land ranchers the time to move livestock away from the ROW before construction begins, permittees and landowners would be kept informed of the construction schedule. Temporary gates and fences would be installed as necessary.

Construction would block access to water and pasture sites. To maintain access to water and pasture sites for livestock and allow livestock to cross the ROW during construction hard or soft plugs would be left or installed at maximum 1-mile intervals. Additionally, ramps would be installed to allow for the escape of livestock should they fall into the trench. Once construction is complete any livestock facilities such as corrals, water sources, gates, and fences would be repaired or replaced if damaged during construction. These facilities would be left in as good or better condition than the pre-construction condition. Riparian areas on federal lands would be fenced until reclamation is successful. Fencing would be installed around the incised banks and channel with a sufficient gap to allow for passage of wildlife or livestock up or down the channel. These measures would reduce or eliminate potential impacts to livestock during pipeline construction.

Agriculture lands only occur in the Colorado portion of the proposed pipeline route. The primary impacts on agriculture lands during construction would include the loss of crops within the work area and the potential for reduced yield of future crops. In the construction area, croplands would generally be taken out of production for one growing season. On irrigated agricultural lands, re-contouring and ripping to relieve compaction would be conducted to return fields to pre-construction conditions. If any irrigation systems are encountered along the proposed pipeline route, OPPC would replace/repair any irrigation systems damaged by construction activities.

To prevent the introduction and/or establishment of noxious weeds, pre- and post-construction weed management programs would be implemented as described in the *Weed Management Plan*. Reseeding of disturbed areas would be conducted using mixtures approved by the BLM and state agencies.

The construction techniques proposed by OPPC are largely sufficient to minimize impacts and restore surface contours. The majority of agricultural lands are on private land. While the BLM has no regulatory authority to require additional mitigation on private land, private landowners can request mitigation as part of their easement negotiations.

The primary effect of construction on forested land would be the temporary removal of trees and shrubs from the construction ROW and TWAs, where required. The rate of forest reestablishment would vary depending on species and weather conditions. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100 years depending on the species.

Conclusion

OPPC would implement measures described in the POD (CH2M Hill Trigon, Inc. 2008) to minimize and mitigate for impacts on rangeland and agricultural land affected by construction activities. Specific applicant-committed environmental protection measures to rangeland and agriculture are identified in the *Environmental Compliance Management Plan*, *Weed Management Plan*, and *Environmental Protection Plan*.

Pre-construction activities would include measures to reduce or eliminate impacts to livestock exposed to open trenches and the introduction or spread of noxious weeds. Post-construction activities would include measures to re-contour agriculture lands, for revegetation of herbaceous and shrubland communities, and for continued control of noxious weeds.

OPPC would be responsible for ensuring successful revegetation of soils disturbed by Project-related activities. Successful revegetation would be determined by evaluating the: 1) percent total adjacent

herbaceous cover; 2) new or expanded populations of noxious weeds; and 3) species composition as compared to adjacent, off-ROW vegetation. Follow-up inspections would consist of intensive surveys the first growing season after construction and reclamation to assess revegetation success and determine the need for further reclamation. Routine monitoring throughout the life of the Project would take place to monitor long-term revegetation success. Revegetation would be considered successful when total herbaceous cover is at least 70 percent of that on adjacent land, and species composition is comprised of a mix of seeded species and desirable volunteers from adjacent communities. In agricultural areas, revegetation would be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

Operation Phase

Issues

- Potential interference with farm field cultivation and harvest
- Same issues identified for construction, but on a smaller scale
- Permanent loss of forested areas on pipeline ROW for maintenance activities

Analysis

Following construction, rangeland uses would be allowed to continue within the permanent ROW. Temporary fences would be removed, the ROW restored to its pre-construction condition, and livestock would be able to graze and roam freely over the permanent ROW. No long-term impacts to rangeland are expected. Once construction was completed, the majority of agricultural land uses would be able to continue within the permanent, operational ROW. However, if aboveground facilities were sited on agricultural land, the land use would be permanently changed from agricultural to developed land. Some activities within the permanent ROW, such as planting of trees and shrubs would be prohibited.

Following cleanup and reseeding of the construction ROW in agricultural areas, the affected areas would typically regenerate quickly. Herbaceous vegetation would generally be reestablished within 3 to 5 years of restoration, depending on climatic conditions.

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. 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. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100 years depending on the species.

Conclusion

During operations, the ROW would revegetate and largely revert to former uses. Most agricultural crops would be permitted to grow in the ROW. With the exception of forest land removed from the permanent ROW and placement of aboveground facilities, the majority of previous land uses would continue unencumbered.

4.8.1.2 Access Roads

Construction Phase

Issues

- Construction of temporary and permanent access roads in areas designated as Existing Roads and Trails

Analysis

During construction, temporary access roads would be located on existing state, county, private, and BLM roads to gain access to the ROW. The existing roads were used on the recently constructed Entrega and WIC Piceance pipelines. The locations of all identified access roads and proposed modifications are listed in the *Transportation Management Plan*. **Figures 2.1-2** and **2.1-3** show the access roads to be used in Colorado and Wyoming, respectively. State requirements would be followed when hauling equipment and materials on all of the access roads.

One new 15-foot-wide by 0.4-mile-long access road is proposed to be built on fee land. Based on landowner request it would be located on the south side of the White River crossing.

Some of the existing roads might require modifications, including grading, to make them usable for pipeline construction. OPPC would maintain the roads, which would include blading and widening throughout the construction period to keep roads level and not rutted. **Table 2.1-2** shows all roads potentially needing widening; a maximum of 5.6 acres potentially would be impacted due to the widening of existing access roads. For those areas where improvements occurred outside of the pre-construction roadway, following the completion of construction, all areas of new impact would be reclaimed and reseeded using the reclamation techniques and seeding mixes proposed in the *Environmental Protection Plan*.

Conclusion

OPPC would implement the measures in the *Transportation Management Plan* to minimize impacts from temporary access road improvements and maintenance activities. With the exception of one new 0.4-mile-long access road to be built on private land, temporary access roads would consist of a combination of existing roadways including areas designated as Existing Roads and Trails.

Operation Phase

Issues

- Same issues as construction, but on a smaller scale

Analysis

During the life of the Project, operation and maintenance activities would require year-round access to the ROW. Surface travel would be limited to the ROW and would include activities such as surveys, inspections, maintenance and repairs. Impacts are expected to be minor and temporary.

Conclusion

OPPC would implement measures in the *Transportation Management Plan* to minimize impacts from ROW travel for operation and maintenance activities.

4.8.1.3 Utilities

Construction Phase

Issues

- Buried utility crossings – water lines, fiber optic lines, natural gas and product lines
- Offsets from other utilities (overhead electric transmission lines, other pipelines)

Analysis

The Proposed Action has been routed and designed to maximize co-location with existing utility ROWs and to minimize impacts to the environment, area residents, and local businesses. Where OPPC facilities would be co-located with an existing pipeline or powerline ROW, the proposed pipeline centerline generally would be located 50 feet from the existing utility centerline. In most cases, the proposed 75-foot-wide construction ROW would overlap an area recently disturbed by the previous construction of these existing pipelines. Co-locating the proposed pipeline ROW with existing ROWs would reduce the amount of new disturbance associated with the proposed Project.

While co-location of utility ROWs reduces the amount of new disturbance, there are safety considerations that limit how close they may be constructed to one another. Depending on a number of factors, transmission pipelines generally are constructed between 25 to 60 feet apart. The proposed pipeline generally would be offset 50 feet from existing pipelines. To minimize potential hazards posed to existing utilities by outside forces such as bulldozers and backhoes during construction and maintenance, OPPC would participate in the “one call” system and follow the Project’s *Emergency Response Plan*, which is provided as an appendix to the POD.

Conclusion

The proposed pipeline centerline generally would be located 50 feet from existing pipeline centerlines, where possible. Potential impacts would be limited to construction and would be temporary and short-term.

Operation Phase

Issues

- Same issues as construction, but on a smaller scale

Analysis

Following construction, OPPC would maintain a 50-foot-wide permanent ROW for operation of the pipeline facilities. OPPC would participate in state one-call programs to ensure maintenance activities do not harm other underground utilities.

Conclusion

Co-location with existing pipeline ROWs would help consolidate and minimize impacts associated with utilities.

4.8.1.4 Special Land Uses and Recreation Areas

Construction Phase

Issues

- Temporary impacts on recreational traffic and use patterns
- Soil and vegetative disturbances in protected areas
- Potential conflicts between recreation uses and construction

Analysis

The Natural Heritage Program (NHP) has identified three PCAs in the vicinity of the proposed Project containing sensitive plant and wildlife species. In 2007 and 2008, OPPC conducted surveys to identify

potential sensitive plant habitats and wildlife species identified by the BLM and the NHP within the proposed Project vicinity. Environmental protection measures that have been identified for these species are discussed in more detail in this EA under Special Status Plant Species in Section 4.6 and Special Status Wildlife Species in Section 4.7.

The proposed pipeline route would cross 0.8 mile of GRP land at a location where it would parallel the existing pipeline corridor containing three other pipelines. OPPC and NRCS are currently working on a resolution in an attempt to allow the pipeline route to remain as proposed; parallel to the existing corridor. This would minimize impacts to resources associated with disturbing new greenfields, including visual impacts, soil destabilization, and habitat fragmentation.

In addition, lease agreements between OPPC, the BLM, and state land managers would include measures to avoid and/or mitigate impacts to these areas, and ensure that the ecological functions of these areas are maintained.

Pipeline construction would have temporary impacts on recreational traffic and use patterns. Sightseers, hikers, wildlife viewers, hunters, 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 include soil disturbance and revegetation, repair and maintenance of public access roads, and coordination with the agency managers to minimize conflicts between construction activities and the recreational uses for which these special areas were established. Lease agreements between OPPC and the BLM and state land managers would include measures that would avoid or minimize conflicts with recreational use.

Conclusion

By coordinating with agency managers, following lease agreements and implementing the environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), impacts to special land use and recreation areas would be minimized during construction activities. Following construction, cleanup and revegetation of the ROW would be conducted. In the disturbed areas, vegetation would generally regenerate quickly, with herbaceous vegetation reestablishing within 3 to 5 years of restoration, depending on climatic conditions.

Operation Phase

Issues

- Same issues identified for construction, but on a smaller scale
- Permanent loss of forested areas on pipeline ROW for maintenance activities

Analysis

Operation and maintenance activities would be minimal and temporary in recreation and special land use areas. Implementation of environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), including ripping of soils to relieve compaction, revegetation, and control of noxious weed species would minimize impacts from pipeline construction. Areas in the permanent ROW would revegetate quickly, except for forested areas. Forested areas would generally take 50 to 100 years to reestablish to mature forest conditions, depending on species. Within the 50-foot-wide permanent ROW, trees would be removed as part of maintenance activities.

Conclusion

After completion of construction, recreational use would be allowed to continue within the permanent ROW. Reclamation of special land use areas would be conducted to minimize impacts to vegetation communities and soils.

4.8.1.5 Visual Resources

Construction Phase

Issues

- Modification of existing natural and cultural landscapes viewed from special management areas, trails, roads, recreation areas and other public locations
- Views from nearby residences

Analysis

Public lands that would be affected by the proposed Project consist predominantly of federal lands managed by the BLM, with some small areas of Colorado and Wyoming state-owned lands. As discussed in Section 3.7.1.4, the BLM has a VRM standard for each resource area that would be crossed by the proposed pipeline route. These lands are managed to ensure protection and maintenance of the quality of scenic and visual resources. OPPC would adhere to these BLM management requirements. The proposed Project would be constructed within 1.0 mile of VRM Class I lands and would cross 0.1 mile of VRM Class II lands (**Figure 3.7-3**). At these locations, the proposed Project would parallel and expand by 50 feet the existing WIC Piceance pipeline ROW disturbance and would be largely unnoticeable to the casual viewer. The proposed Project also would cross 87.2 miles of VRM Class III, and 35.8 miles of VRM Class IV lands. The remaining length of the proposed centerline would be situated on private or state lands.

The proposed Project would cross the Cherokee Trail on VRM Class IV lands in southern Wyoming. Although the visual impact where the proposed pipeline would cross the trail is minimal, as there is an extensive visual footprint remaining from the previous pipeline construction, a section of the trail to the east of the crossing would suffer a moderate visual impact to the site setting due to the removal of patchy pinyon-juniper woodland that covers the short hills to the west of the trail. This would temporarily create a swath of leveled land through the rolling hills and cause a moderate to severe contrast with the current setting. To minimize the anticipated visual impacts at the Cherokee Trail crossing, OPPC has committed to the following protection measures in the vicinity of the trail as part of the *Cultural Resources Protection Plan*:

- Blading and all ground disturbance would be reduced to the minimum width necessary to safely complete construction.
- Grading and restructuring of the surface, where construction would alter small, low hills, would follow contours to minimize the land disturbance.
- Protective matting would be installed along the working side of the construction corridor to minimize ground surface disturbance.
- “Brush hogging” would be used for clearing vegetation to minimize ground disturbance.
- Edges of tree clearings would be feathered and uneven to reduce the linear nature of the contrast.
- Natural topsoils would be stockpiled and reused in ground surface restoration.
- Ground surface would be recontoured following construction to match the original natural contours.
- The area would be mulched and revegetated or reseeded in a manner that would approximate the current groundcover.

The landscape along the proposed pipeline route ranges from gently rolling landforms with vegetation limited to shrubs or grasses, to diverse riparian landscape, to steeply sided landforms with shrubs and coniferous vegetation. View distances range from foreground to middleground and background (more than 5 miles).

Visual impacts caused by the construction ROW and additional TWAs would result from the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading impacts associated with heavy equipment tracks, trenching, blasting, rock formation alteration or removal, and machinery and tool storage. Other visual impacts would result from removal of the larger individual trees that have aesthetic value; the removal or alteration of vegetation that would otherwise provide a visual barrier; or landform changes that would introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture.

Visual impacts would be greatest where the proposed pipeline ROW would be seen by passing motorists or recreationalists and where the proposed pipeline route paralleled or crossed roads, trails, recreation areas, or prominent off-site observation points. The duration of visual impacts would depend on the type of vegetation or land formation that was cleared or altered. The duration of 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 3 to 5 years). The duration of impact would be greater on shrub rangeland, which could take at least 5 years to regenerate, and could take up to 20 to 30 years to mature. The highest potential visual impact would result from the removal of large 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, if necessary to construct the pipeline, would be restored to original grade during ROW restoration. The visibility of such alterations would diminish over time as the affected areas aged and blended with the surrounding landscape.

To minimize construction impacts on visual resources, the proposed pipeline route would be aligned adjacent to existing pipeline ROWs or other transportation corridors where feasible. In areas where ROW co-location is not possible for engineering and/or construction reasons, the proposed pipeline route would be aligned to avoid aesthetic features to the extent possible. Visual impacts from the construction of the aboveground and belowground facilities would be low to moderate and, as such, less-than-significant.

Conclusion

The proposed pipeline would be buried, the vegetation reclaimed, and the topographical contours returned to their pre-construction condition. Therefore, visual impacts associated with construction and operation of the proposed pipeline facilities would be within BLM VRM management objectives.

Operation Phase

Issues

- Modification of natural and cultural landscapes viewed from special management areas, trails, and public locations
- Same issues as for construction
- Operational views from nearby residences
- Proximity of the pipeline to public gathering places

Analysis

The proposed Project would include the construction of meter stations, one potential future pump station, valves, and pigging facilities at various locations along the proposed pipeline route. These aboveground structures would be permanent and would remain in operation throughout the life of the Project. The impacts on visual resources from each individual facility would depend on the pre-construction condition and the

visibility from the surrounding area. To the extent possible the pump station, if constructed, would be located adjacent to existing commercial/industrial facilities that already experience a visual impact, and the meter stations would be constructed in association with a pump station where applicable or placed within an area that minimizes visual impacts to the extent possible.

The landscape of the proposed pipeline route ranges from gently rolling landforms with vegetation limited to shrubs or grasses, to diverse riparian landscape, to steeply sided landforms with shrubs and coniferous vegetation. View distances range from foreground, to middleground, and background (more than 5 miles).

Long-term visual impacts as a result of aboveground facilities for the proposed Project would be caused by valves or pigging facilities. Successful revegetation would blend the belowground portions of the pipeline with its surroundings. Aboveground facilities would meet the operational requirements of the pipeline owners and operators and also would be compatible with the surrounding landscape. This would entail the selection of appropriate ground surfacing, building surfacing, fencing, signing, and color selection and finish. Visual impacts from the operation of the aboveground facilities would be low to moderate and, as such, less than significant.

Conclusion

Project design and applicant-committed environmental protection measures would minimize visual impacts by locating the proposed aboveground facilities in areas already used by other pipelines, minimizing unnecessary nighttime lighting, and by using agency-approved paint colors and materials.

4.8.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to land use, special recreation, and aesthetic resources would not occur.

4.8.3 GRP Land Re-route Alternative

Should the GRP Land Re-route Alternative be constructed, the total project length would increase by 1.3 miles to 153.5 miles. This additional mileage equates to an additional 11.9 acres of disturbance during construction to rangeland and BLM grazing allotments. Two BLM grazing allotments would be impacted by the re-route: an additional 12.0 acres of land would be disturbed within the Piskwik grazing allotment and approximately 0.1 acre less would be disturbed within the Big Hole Gulch grazing allotment. As discussed under the Proposed Action, no long-term impacts to rangelands or BLM grazing allotments would be anticipated. The 11.9 acres of additional disturbance associated with the GRP Land Re-route Alternative represents a change of less than 1 percent to impacts associated with the overall Project.

No new access roads have been proposed along the GRP Land Re-route Alternative. If buried utilities are identified along the alternative route, impacts and mitigation would be similar as described in the Proposed Action.

As there are no special land uses or recreation areas along the GRP Land Re-route Alternative, no impacts to special land uses or recreation areas would be anticipated. The GRP Land Re-route Alternative would be routed through VRM Class III landscape and there would be no new pumps or pump stations along the alternative route. Visual impacts would be the same as those described for the Proposed Action.

4.9 Cultural Resources

4.9.1 Proposed Action

Construction Phase

Issues

- Potential impact on NRHP-eligible properties such as prehistoric or historic archaeological sites, districts, buildings, structures, and objects
- Potential discovery and adverse affects on previously undiscovered cultural resources, including burials and associated funerary objects
- Unauthorized artifact collection and vandalism
- Introduction of visual or auditory elements that diminish the integrity of the property's significant historic feature

Analysis

Section 106 of the NHPA requires that federal agencies take into account the effect of an undertaking on historic properties and provide the ACHP an opportunity to comment. Historic property, as defined by the regulations implementing Section 106, means "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the NPS." The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria. Potential impacts to historic properties are assessed using the "criteria of adverse effect" (36 CFR 800.5[a][1]), as defined in the implementing regulations for the NHPA. "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." The analysis of impacts using these criteria is limited to those resources that are listed on the NRHP or have been recommended as eligible.

Those areas in which impacts are planned or are likely to occur are referred to as the "area of potential effect" or APE. Specifically, the APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of NRHP-eligible cultural resources, if any such resources exist. Additionally, the APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16[d]).

The APE should include:

- All alternative locations for all elements of the Proposed Action;
- All locations where the Proposed Action may result in disturbance of the ground;
- All locations from which elements of the Proposed Action (e.g., pump stations or land disturbance) may be visible or audible;
- All locations where the Proposed Action may result in changes in traffic patterns, land use, public access, etc.; and
- All areas where there may be indirect as well as direct effects.

The APE for the proposed Project includes the 300-foot-wide survey corridor and, in some cases, an area extending up to 3 miles beyond the corridor to include any important historic sites within the viewshed of any

aboveground facilities. Only those historic properties located in the APE were reviewed to determine if any would be subject to impacts that could affect their eligibility for the NRHP based on NRHP criteria for evaluation.

Project effects include not only the physical disturbance of a 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 Colorado and Wyoming SHPOs and Native American tribes, BLM 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 would not be limited to, one or more of the following measures: 1) avoidance through the use of realignment of the proposed 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 3) Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) or other agreed upon historic recordation process. Avoidance through Project redesign is the preferred method of mitigation. However, when avoidance is not feasible, data recovery, HABS/HAER documentation, or any other agreed upon mitigation measure would be implemented prior to construction. Based on the Class III inventories in Wyoming and Colorado, the BLM determined that there would be adverse effects to historic properties as a result of the Proposed Action.

In April 2008, the BLM visited the locations where the historic Overland and Cherokee trails would be crossed by the proposed pipeline. Based on the site visits, the BLM determined that visual impacts to the Overland Trail would not occur as a result of construction. Additionally, no traces of ruts or swales associated with the Trail were located within the proposed pipeline corridor. However, the BLM determined that visual impacts to the Cherokee Trail would occur as a result of construction and subsequently developed mitigation measures to reduce visual impacts to the Trail. Mitigation measures include site-specific construction techniques and methods and measures to be taken to minimize visual impacts at this proposed crossing. OPPC has committed to these measures as outlined in the *Cultural Resources Protection Plan*. Refer to Section 4.8.1.5 for further discussion of the visual impacts and associated protection measures at the Cherokee Trail.

Increases in both surface activities and the number of workers during construction could increase the potential for indirect impacts at archaeological sites. Indirect impacts are difficult to quantify and control; however, they can include the loss of surface artifacts due to illegal collection and inadvertent destruction. To minimize indirect impacts to cultural resources from increased numbers of people in the area, Project-related personnel would be trained on site avoidance and protection measures, including information on the statutes protecting cultural resources.

The potential for the discovery of unanticipated cultural resources during construction activities exists within the proposed disturbance areas and could result in adverse effects. Unanticipated discoveries would result in displacement or loss (either complete or partial) of the cultural resource involved. If any previously unknown cultural resources are discovered during construction, all construction activities would cease within 100 feet of the discovery and the BLM Authorized Officer would be notified of the find. Any discovered cultural resources would be handled in accordance with the discovery requirements detailed in the POD (CH2M Hill Trigon, Inc. 2008).

If construction or other Project personnel discover what may be human remains, funerary objects, or items of cultural patrimony on federal land, construction would cease within 100 feet of the discovery, and the BLM Authorized Officer would be notified of the find. Any discovered Native American human remains, funerary objects, or items of cultural patrimony found on federal land would be handled in accordance with the Native American Grave Protection and Repatriation Act of 1990 and the procedures detailed in the POD (CH2M Hill Trigon, Inc. 2008). Non-Native American human remains would be handled in accordance with Colorado

and Wyoming law. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

If human remains and associated funerary objects are discovered on private land during construction activities, construction would cease within 100 feet of the discovery and the county coroner or sheriff would be notified of the find. Treatment of any discovered human remains and associated funerary objects found on private land would be handled in accordance with the provisions of applicable Colorado and Wyoming law.

Conclusion

Based on the Class III inventories for Wyoming and Colorado, there would be adverse effects to historic properties as a result of the Proposed Action. Mitigation procedures would be conducted for all historic properties located along the proposed Project corridor; however, the type of mitigation would vary. Extensive data recovery would be conducted at historic properties with the highest research potential. These properties would be selected by the BLM in consultation with the Colorado and Wyoming SHPOs, and interested Tribes. Those historic properties not selected for extensive data recovery would be monitored during the clearing of the ROW and would be subjected to open trench inspection. Formal treatment plans for those properties selected for extensive data recovery would be prepared in consultation with the Colorado and Wyoming SHPOs, and interested Tribes. Unanticipated discovery of historic properties during construction would be handled in accordance with the *Unanticipated Discoveries Plan* developed for the Project and attached to the POD (CH2M Hill Trigon, Inc. 2008). Therefore, any adverse effects to known historic properties, and to those historic properties that may be discovered during construction, would be mitigated.

Operation Phase

Issues

- Issues would be similar to those identified for construction

Analysis

Maintenance activities would result in localized impacts that would be dispersed along the entire proposed pipeline route. Maintenance activities would occur within areas previously disturbed by construction.

Conclusion

Potential adverse effects to identified historic properties would be mitigated prior to pipeline construction. Unanticipated discoveries of historic properties would be protected as described in the POD (CH2M Hill Trigon, Inc. 2008); therefore, any adverse effects to historic properties would be mitigated.

4.9.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the potential impacts to historic properties as identified for the Proposed Action would occur. However, additional knowledge of local or regional prehistory of the Project area that would have been obtained through data recovery would not be collected.

4.9.3 GRP Land Re-route Alternative (Cultural)

One prehistoric site and four isolated finds were located along the proposed GRP Land Re-route Alternative. The prehistoric site and all of the isolated finds are recommended as not eligible for the NRHP; no further work is recommended. As discussed under the Proposed Action, unanticipated discoveries would be protected as described in the POD.

4.10 Native American Traditional Values

4.10.1 Proposed Action

Construction Phase

Issues

- Protection of sites with cultural, traditional, or religious importance to the tribes

Analysis

Native American consultation regarding the identification of traditional cultural properties (TCPs) or places of cultural, traditional, or religious importance that may be located in the proposed Project area currently is taking place between the BLM and tribal representatives. Potential impacts to identified TCPs or places of cultural, traditional, or religious importance to the tribes as a result of the Proposed Action would be the same as those described in Section 4.9, Cultural Resources. No surface disturbance would occur within or immediately adjacent to the boundary of any identified TCP or place of tribal importance prior to completion of all consultation required by law. If data recovery or other form of mitigation is required at a TCP or place of tribal importance, a data recovery or mitigation plan would be reviewed and approved by the BLM and SHPO. Tribal representatives would be asked to participate in the development of any such data recovery or mitigation plan. At this time, no TCP or place of cultural, traditional, or religious importance has been identified by the Tribes currently participating in Native American consultation.

Conclusion

If any TCP or place of cultural, traditional, or religious importance is identified in the proposed Project area, measures to minimize potential impacts to these resources would be developed in consultation with the Tribes currently participating in Native American consultation. Protection measures would be implemented prior to Project construction.

The BLM intends to continue consultation throughout the environmental review and construction phase of the Proposed Action. Renewed contacts with some or all of the Tribes may result from unanticipated discoveries.

Operation Phase

Issues

- Issues would be related to maintenance activities and would be similar to those identified for construction

Analysis

Maintenance activities would result in localized impacts that would be dispersed along the entire proposed pipeline route. Maintenance activities would occur within areas previously disturbed by construction.

Conclusion

If any TCP or place of cultural, traditional, or religious importance is identified in the proposed Project area, measures to minimize potential impacts to these resources would be developed in consultation with the Tribes currently participating in Native American consultation. Protection measures would be implemented prior to Project construction.

4.10.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, no potential impacts to any identified TCPs, or places of traditional, cultural, or religious importance to the tribes would occur.

4.10.3 GRP Land Re-route Alternative

Should the GRP Land Re-route Alternative be chosen, Native American consultation would follow the same protocol as the Proposed Action. Potential impacts to an identified TCP or places of traditional, cultural, or religious importance to the tribes, and measures to avoid or mitigate potential impacts would be addressed as described for the Proposed Action.

4.11 Socioeconomics

4.11.1 Proposed Action

4.11.1.1 Population, Employment, and Economics

Issues

- Changes in local population and employment during construction

Analysis

Short-term impacts to the existing socioeconomic environment of the proposed Project area would result primarily from the temporary influx of a relatively high number of construction workers. OPPC anticipates adding only one permanent position to its existing workforce, therefore, the proposed Project would have no long-term impact on the population in the Project area.

OPPC has proposed to commence construction of the pipeline and metering stations in September 2008, and anticipates a peak of approximately 450 construction personnel employed on the Project during the latter months of 2008, potentially extending into 2009. The pipeline would be constructed in three spreads, constructed simultaneously with a maximum of 150 construction and inspection personnel associated with each spread (**Table 4.11-1**). Construction personnel would consist of OPPC employees, contractor employees, construction inspection staff, and environmental inspection staff.

Table 4.11-1 Estimated Construction Workforce by Spread

Spread Number	MP Range	Associated Aboveground Facilities	Counties/State	Estimated Workforce #
1	0-50	2 Meter Stations	Rio Blanco and Moffat County, Colorado	150
2	50-93	NA	Moffat County, Colorado	150
3	93-152	NA	Moffat County, Colorado and Sweetwater and Carbon County, Wyoming	150
Potential Future	82-83	1 Pump Station	Moffatt, Colorado	Unknown

OPPC, 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) to minimize additional demands on housing. OPPC anticipates an estimated 75 percent of the total construction workforce would be hired locally. The remaining workers would be non-local personnel. Note that the local/non-local status would change for some workers as the specific location changes. For example, residents of Rawlins employed on Spread 2 may temporarily relocate to Craig, but then resume residency in Rawlins as Project construction moves northward.

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 construction and inspection personnel would be temporary and dispersed along the population centers near 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 non-family partners. Nevertheless, the temporary population impacts in the smaller communities would be moderate. Any specific operation and maintenance task that could not be completed by OPPC staff would be completed on a contractual and as-needed basis.

Given the small permanent workforce that would be needed for pipeline operation, secondary employment effects would be limited. Thus, the proposed Project would not have a significant long-term impact on the permanent population.

Conclusion

Construction of the proposed pipeline would temporarily increase the populations of the communities in the vicinity of the Project. Additionally, 75 percent of the construction workforce would be hired locally, providing jobs to the impacted communities.

4.11.1.2 Infrastructure

Issues

- Increased demands on local infrastructure (e.g., housing, emergency and fire protection services, hospitals, transportation) during construction

Analysis

Housing

The construction period would be relatively short and most non-local workers likely would be unaccompanied during their work tenure on the proposed Project. Consequently, it is expected that most Project workers would use temporary housing, such as hotels/motels, 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 temporary workers would seek housing in the more populated, service-oriented towns located within a reasonable commuting distance to the work site. Furthermore, some individuals would relocate during the term of the proposed Project as the active area in each spread moves along the proposed pipeline route. As the more convenient options fill, workers would drive further, seeking alternatives in smaller communities, even using campgrounds in the national forest or at state parks or camping on public lands despite the fact that those locations have 14-day stay limits.

The net effect of these factors is that the temporary housing demand would be dynamic. Housing demand would be heaviest in Moffat and Rio Blanco counties, but only slightly lower in Carbon and Sweetwater counties. Availability constraints in the two former counties would likely result in commuting from nearby locations in Routt and Garfield counties. Consequently, for a relatively short duration, Craig, Meeker, and other communities potentially would experience tight market conditions for temporary housing.

The temporary housing demands associated with the proposed Project would compete with summer tourism and fall hunting demands across much of the region, resulting in higher nightly lodging rates, more limited availability, and displacement of demand to other locations when local motels and RV campgrounds are full. To the extent that such displacement occurs, it would diminish the economic benefits associated with construction worker spending.

Housing requirements for the continuing operation and maintenance of the pipeline would be negligible to nonexistent.

Public Services and Facilities

Construction of the pipeline would result in minor, temporary impacts on local facilities and services, including law enforcement, fire, and medical services. Lengthy emergency medical response times are of particular concern in the more remote stretches of the proposed pipeline route. To address these concerns, OPPC has drafted a *Safety Plan*. The *Safety Plan* would be provided to the BLM and Colorado and Wyoming Departments of Transportation.

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. OPPC 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, are 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.

Transportation

Construction across roads and highways would result in short-term impacts on public travel while construction activities pass through the Project area. OPPC has developed a *Transportation Management Plan* to assist in mitigating potential impacts of Project-related road use and construction activity.

OPPC has stated that major paved roads and highways would generally be crossed by boring beneath the road. These crossings would require the approval and appropriate permits from state and local agencies. Boring typically requires TWAs on either side of the crossing for excavating bore pits to the depth of the pipeline while the roadway is allowed to remain open. There would be little or no disruption of traffic at road 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 may 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. OPPC would avoid closing roads during peak traffic hours.

To maintain safe conditions, OPPC would direct its construction contractors to ensure enforcement of local weight restrictions and limitations by their vehicles and to remove any soil 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 state primary and secondary highways, county roads, and private roads. Impacts on local traffic levels would be temporary given the linear and dispersed nature of the proposed Project as construction would move sequentially along the proposed pipeline route. Construction workers would commute to and from the proposed 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 travelers as well.

Minimal traffic is anticipated to be associated with operation and maintenance of the new pipeline as only one additional permanent worker would be required to operate the pipeline and ongoing contract maintenance would not generate substantial traffic on a consistent or long-term basis. Therefore, no impacts on transportation networks would be expected to occur during operation of the proposed pipeline.

Conclusion

There would be a temporary increase in local housing demand due to the construction of the proposed Project. Effects would be localized as construction crews moved along the length of each construction spread. A temporary increase in local traffic also would occur as construction commenced.

4.11.1.3 Fiscal Relationships

Issues

- Long-term fiscal benefits (ad-valorem taxes)
- Short-term fiscal benefits (local purchases and sales tax)
- Monetary compensation for easement and damages to land and property

Analysis

During operation of the pipeline, OPPC 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 market valuation of pipeline 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. For this analysis, it is assumed that the long-term assessment would decline to 40 percent of the initial construction cost-based assessment. **Table 4.11-2** summarizes the estimated assessed valuation and corresponding annual property taxes, by county, directly associated with the proposed Project.

Estimated valuation for the proposed pipeline and additional pump station would be approximately \$109.2 million. Of that sum, 38 percent would be in Wyoming and 62 percent in Colorado. Total annual property taxes levied on those assessments are estimated at approximately \$2.36 million. Over time, the total assessed value is anticipated to decline to \$43.7 million and annual property taxes paid would decline to \$0.94 million. The ongoing revenues, given the relatively low demands on public services and facilities would represent a substantial economic benefit associated with the proposed Project.

Property 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.

Local businesses would benefit from demands for goods and services generated by the temporary construction workforce. Benefits in the form of higher business volume would accrue to many retail, lodging, eating and drinking, convenience stores/fueling stations, and other business establishments across the entire proposed route and in nearby communities. Estimated spending for such goods and services, based on OPPC workforce estimates and daily spending assumptions, would total approximately \$8.0 million during the construction period.

Table 4.11-2 Estimated Assessed Value and Annual Taxes, by County

County	Assessed Valuation		Average Tax Mill Levy	Annual Property Tax	
	Initial Construction ¹	Long-term ²		Initial Construction	Long-term
Rio Blanco, CO	\$25,500,000	\$10,200,000	36.465	\$371,943	\$148,777
Moffat, CO	\$42,500,000	\$17,000,000	54.040	\$918,680	\$367,472
Sweetwater, WY	\$37,000,000	\$14,800,000	65.081	\$963,199	\$385,280
Carbon, WY	\$4,200,000	\$1,680,000	63.228	\$106,223	\$42,489
Total	\$109,200,000	\$43,680,000		\$2,360,045	\$944,018

¹Initial valuations based on 11.5 percent assessment rate in Wyoming and 29 percent in Colorado.

²Assumes 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.

Source: Colorado Department of Local Affairs 2006; Wyoming Department of Revenue 2008.

In addition, local Project-specific purchases for materials would be made. OPPC estimates that local purchases made by personnel associated with the construction of the proposed Project would primarily include consumables, fuel, and miscellaneous construction-related materials (e.g., office supplies).

The economic stimulus provided by the proposed 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 typically generate between 0.7 and 1.1 additional jobs for each direct job associated with the proposed Project. However, given the temporary and rapidly moving pace of the proposed Project, the secondary impacts would be expected to be on the order of approximately 0.35 jobs.

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 proposed 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 the 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. Sweetwater and Carbon counties impose a use tax, as does Rio Blanco County. Moffat County does not impose a use tax. OPPC estimated sales/use tax obligation, based on current tax rates and assuming it exercises the option for local taxation, is \$12.5 million in Wyoming and \$20.6 million in Colorado. In Wyoming approximately 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 approximately 75 percent to the state and 25 percent to Rio Blanco County.

OPPC estimates total labor costs of \$54 million during construction (approximately one-third in Wyoming and two-thirds in Colorado). 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 OPPC operations would be negligible due to the limited direct employment impact, although additional income may be realized by contractors servicing the pipeline.

Property Values

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. Special permits would be obtained as needed for pipeline ROW through town, state, or federal lands.

Prior to initiating any construction activities on non-federal lands, OPPC would pursue an easement to convey ROW from the landowner to the pipeline company. The easement negotiations between OPPC and the landowner also would include compensation for loss of use during construction, loss of non-renewable or other resources, damage done to property during construction, and allowable uses of the ROW after construction.

If an easement could not be negotiated with the landowner, the property could be condemned. In this case, the property owner would still be compensated by OPPC, but the amount of compensation would be determined by the courts. OPPC has stated that they would make every effort to negotiate in good faith to avoid using this authority and would condemn only as a last resort. 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.

OPPC is currently working to obtain the necessary easements for the proposed facilities. Through negotiations with landowners, OPPC 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.

Conclusion

OPPC would be required to pay property and ad valorem taxes to the state governments of Wyoming and Colorado. The states would then distribute those payments to counties based upon the number of miles crossed by the proposed pipeline route in each county. Additionally, the proposed Project would provide monetary benefits to local governments by generating payroll and sales taxes.

4.11.1.4 Environmental Justice

Issues

- Potential for disproportionate impacts on low-income or minority populations

Analysis

The proposed pipeline route effectively bypasses all concentrations or clusters of residential and commercial development and, for the most part, is located on public lands and collocated with other utilities. Furthermore, no residential or commercial displacements are anticipated. Thus, the potential for adverse impacts on minorities or low-income populations, much less disproportionate impacts, is remote.

Conclusion

The proposed Project would be expected to create economic benefits for local communities, regardless of race, by generating employment opportunities and local expenditures by workers. Completion of the proposed Project also would result in an increase of state and local property tax revenues that would benefit local communities.

4.11.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated socioeconomic impacts (including beneficial impacts) would not occur.

4.11.3 GRP Land Re-route Alternative

Impacts to socioeconomics associated with the GRP Land Re-route Alternative would be the same as those described for the Proposed Action. The alternative route would be approximately 1.1 miles to the west of the proposed route and would remain entirely within Moffat County, Colorado. There would be no additional access roads, pumps, or pump stations constructed along the alternative route. Therefore, no additional workforce would be needed for construction or operation of the pipeline, and there would be no additional impacts to access roads used during construction.

4.12 Public Health and Safety

4.12.1 Proposed Action

4.12.1.1 Hazardous Materials and Wastes

Construction Phase

Issues

- Storage and handling of hazardous materials
- Previously contaminated sites

Analysis

OPPC would dispose of construction wastes in accordance with the OPPC *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*. Construction debris would not be placed in or adjacent to waterways and construction trash would be removed from the ROW each day. OPPC would comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations.

Soil contamination along the proposed pipeline route may result from at least two sources: material spills during construction and trench excavation through pre-existing contaminated areas. A variety of potentially hazardous chemicals associated with equipment operation, welding, and coating of pipe would be used during construction. Impacts from spills typically would be minor because of the low frequency and volumes of these occurrences.

Pipeline construction would necessitate the storage and use of vehicle and equipment fuels, lubricants, and hazardous materials. The *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* addresses procedures to ensure the proper handling and storage of these materials. The plan also addresses inadvertent spills resulting from construction of the pipeline and lists federal and state emergency notification personnel that would be contacted in the unlikely event the proposed Project encounters previously unidentified contamination. Should a spill occur, OPPC would clean it up in accordance with the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

The proposed pipeline would not intercept any known areas of soil or groundwater contamination. A review of USEPA Region 8 Superfund Site Status Summaries for Wyoming and Colorado as well as the CERCLIS database shows no Superfund sites intersected by the proposed pipeline route (USEPA 2006). OPPC would cross waterbodies located in Wyoming and Colorado (**Appendix A**) using the conventional open-cut method and HDD, adhering to the measures contained in its *Environmental Protection Plan*. These measures include, but are 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 proposed Project would cross the White River, Yampa River, and Little Snake River using the HDD method.

The proposed Project could cross areas where groundwater quality has been impacted, but which were not identified in the regulatory review or which are not otherwise known. Because excavations associated with the proposed Project would be generally less than 10 feet deep, the potential to encounter groundwater in the pipeline trench is low, except where the pipeline crosses or approaches surface water bodies. Therefore, the potential to encounter pre-existing contaminated groundwater is low.

If contaminated or suspect soils (e.g., hydrocarbon contamination) were identified during trenching operations, OPPC would suspend work in the area of the suspected contamination 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.

Conclusion

Contamination from spills or leaks of fuels, lubricants, coolants, and solvents from construction equipment could occur, but the impacts typically would be minor due to the low frequency and volumes of these occurrences. There are currently no known contaminated sites crossed by the proposed pipeline route or affected by aboveground facilities. If spills or unanticipated contaminated soils were encountered, OPPC would address the issue by adhering to the procedures identified in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

Operation Phase

Issues

- Potential for pipeline leak, fire, or explosion

Analysis

Potential for Leaks

The transportation of NGL by pipeline involves some risk to the public in the event of an accident and subsequent release of NGL. NGL consists primarily of ethane, butane, isobutene, and propane. These compounds are liquid when pressurized, but would immediately volatilize if released from the pipeline. These compounds are relatively non-toxic, but are classified as simple asphyxiates, possessing a slight inhalation hazard. If inhaled in high concentrations, oxygen deficiency can result in serious injury or death. NGL are highly flammable but require an ignition source to ignite. NGL released into the environment would rapidly disperse in the air.

The USDOT classifies NGL as a hazardous liquid. The pipeline and aboveground facilities associated with the pipeline must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR Part 195. The regulations are intended to ensure adequate protection for the public and to prevent pipeline and facility accidents and failures. Part 195 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

OPPC would design, construct, and operate the pipeline in accordance to federal regulations. Important features to ensure the safe operation of the pipeline include:

- Hydrostatic testing to verify the pipeline's integrity prior to operations;
- Corrosion protection by using high integrity FBE coating and cathodic protection;
- At least 1 pig launcher and receiver would be constructed for inspection of the pipe designed to detect irregularities on the internal and external surfaces of the pipe;
- A meter station located at the origination of the pipeline to continuously monitor the pipeline and the pressure of its contents;
- Participation in state "one call" programs; and
- Use of block valves at key locations as required and as needed for use in maintenance and emergency services.

Based on historical accident data gathered by the Office of Pipeline Safety (OPS) from 1987 to 2006, the leading causes of pipeline incidents are by outside forces, primarily the damage caused by mechanical

equipment, such as bulldozers and backhoes (Pipeline and Hazardous Material Safety Administration [PHMSA] 2008). To minimize the hazards posed by outside forces, the pipeline would be constructed in rural areas and OPPC would participate in the “one call” system. Although some localized areas of geological instability (e.g., landslides) occur along the proposed pipeline route, modern pipelines are fairly robust to these types of stressors and geological hazards are not expected to pose a major threat to the pipeline. The pipeline routinely would be inspected and if outside force damage were suspected (whether through outside force or ground movement), internal inspection tools (i.e., launcher pigs and receiver pigs) would be used to verify the pipeline integrity.

Corrosion is another major factor that contributes to pipeline leaks. To minimize corrosion, the pipeline would be constructed with FBE coated pipe and cathodic protection would be installed. As required by federal regulations, the pipeline ROW would be routinely inspected with internal inspection tools to identify anomalies such as dents and scrapes caused by outside forces, deformities caused by earth movement, and internal and external corrosion. OPPC would ensure pipeline integrity and public safety by repairing pipeline damage as required by federal regulations.

OPPC would use Supervisory Control and Data Acquisition and other monitoring systems to continuously monitor the pipeline for indications of abnormal events. In the unlikely event of a pipeline accident, OPPC would be able to remotely activate its motorized block valves, thereby isolating the affected segment within minutes of detection. OPPC would have local personnel available to respond immediately to an emergency and expects that these first responders would be on-site within a 1-hour timeframe.

Prior to operating the pipeline, OPPC would develop an *Emergency Response Plan* that identifies emergency personnel and the logical sequence of actions that would be taken in the event of an emergency involving the OPPC system facilities. The *Emergency Response Plan* would establish emergency shutdown procedures, communication coordination, and clean-up responsibility to minimize hazards that could result from a NGL pipeline emergency, such as liquid leaks, explosions, and fires. Key elements of the plan would 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.

The *Emergency Response Plan* would include incident and emergency notification lists; emergency communication procedures; emergency preparedness, such as training topics; and emergency response procedures associated with natural and construction-related hazards.

OPPC has committed to enhance public safety at locations where existing cities and multiple homes are within 500 feet of the proposed pipeline. **Table 4.12-1** lists all structures currently identified within 500 feet of the proposed pipeline centerline. Upon obtaining the necessary permits for the proposed Project, finalizing the proposed pipeline route, and prior to construction, OPPC would determine if its proposed pipeline could affect these locations. If appropriate, these locations would be incorporated into an *Integrity Management Plan* specific to OPPC as required by the USDOT to ensure pipeline safety.

Table 4.12-1 Inhabited Residences and Commercial Buildings within 500 feet of the Proposed Pipeline

Location ¹	MP	Distance/Direction
Guardhouse	0.46	100 feet east
Compressor Station	5.45	400 feet west
Residence	19.51	400 feet west
Unidentified	26.84	450 feet west
Unidentified	27.41	500 feet east
Unidentified	28.05	500 feet east
3 cabins	34.46	300 – 400 feet east
Unidentified	38.96	100 feet east
Compressor Station	107.88	200 feet west
Compressor	110.41	200 feet west

¹Structures called out as "unidentified" can be seen on aerial maps but do not exhibit the characteristics of regular habitation. Those locations would be ground verified for habitation following finalization of the proposed pipeline route.

Fire, Explosion, Injuries, and Fatalities

As discussed in the *Environmental Protection Plan*, release of NGL into the environment does not pose a major threat to water quality or soil contamination. While the probability of an accident is low, there would be the potential for a fire if an accident resulted in the release of NGL from the pipeline. Based on OPS historical data (PHMSA 2008), less than 20 percent of NGL pipeline accidents have resulted in fires and 7 percent have resulted in explosions. Fires and explosions could result in property damage, injuries, and fatalities. The OPS data show an overall decreasing trend in the total number of significant accidents related to hazardous liquid pipelines since the early 1990s (PHMSA 2008).

As part of its safety program, OPPC would consult with local responders regarding the potential hazards posed by the NGL pipeline; however, NGL do not pose a unique fire hazard and would not require specialized training. If a fire or explosion were to occur, OPPC local emergency responders and local fire departments likely would be among the first to respond. In many cases, firefighters may elect to allow the fire to extinguish itself, focusing on containment of the fire and protection of nearby property.

Conclusion

OPPC would comply with all federal pipeline safety regulations, including 49 CFR Part 195 and 43 CFR 2886.10. Compliance with federal pipeline safety regulations would ensure that the OPPC pipeline was designed, constructed, operated, and maintained in a safe manner.

The potential for a pipeline incident causing injuries, fires, and explosions along the pipeline would be low. The OPPC accident prevention program includes participation in one-call programs and corrosion protection measures. Use of monitoring systems would help to rapidly identify pipeline problems and minimize the potential for impacts. OPPC would finalize their *Emergency Response Plan* prior to operations. This *Emergency Response Plan* would define the steps to be taken in the event of a release, so that impacts to humans and the environment would be minimized. Additional mitigation at sensitive resource areas would not be necessary because of the rapid volatilization of NGL.

4.12.1.2 Emergency Response

Construction Phase

Issues

- Worker safety

Analysis

The hazards associated with pipeline construction would be typical of that on most construction sites where heavy equipment is operated. Hazards could include driving hazards (including winter conditions and big game collisions), explosives, fires, and natural disasters. Although accidents occasionally occur, most do not result in fatalities. As discussed earlier, third-party excavation damage is a leading cause of pipeline incidents. To prevent these types of accidents, pipeline operators participate in accident prevention programs, such as the one call programs, which identifies the location of underground utilities. To minimize risk to workers, OPPC would follow pipeline construction industry standard practices and BMPs to mitigate potential construction-related incidents.

Conclusion

Adherence to the environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), pipeline construction industry standard practices, and BMPs would minimize potential construction-related incidents.

Operation Phase

Issues

- Emergency response to a pipeline leak, fire, or explosion

Analysis

OPPC would meet or exceed federal pipeline safety requirements (49 CFR Part 195), and these procedures and programs would ensure public safety, maintain the integrity of the pipeline, and minimize the potential pipeline incidents related to third-party encroachments.

As discussed above, the OPPC *Emergency Response Plan* would establish initial written emergency shutdown procedures, communication coordination, and clean-up responsibility to minimize hazards, such as liquid leaks, explosions, and fires. OPPC would provide the appropriate training to local emergency service personnel before the pipeline were placed in service.

Once the pipeline was constructed and pipeline operations commence, OPPC would re-define its organizational management structure outlined in the *Emergency Response Plan* and amend the plan so that it would meet the minimum federal safety requirements.

Conclusion

OPPC anticipates a 1-hour response time in most instances with the assistance of local emergency response teams in the surrounding communities. Releases would be quickly contained by sectionalized block valves. NGL would quickly evaporate and dissipate into the atmosphere; however, any residual material would be cleaned up and the area remediated as soon as possible. The final *Emergency Response Plan* would identify the steps to be taken to protect health, property, and the environment.

4.12.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. Impacts to public safety would continue at current levels.

4.12.3 GRP Land Re-route Alternative

Impacts to public health and safety associated with the GRP Land Re-route Alternative would be the same as those described for the Proposed Action. The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action but would not require additional pumps or pump stations to be constructed.

5.0 Cumulative Impacts

Cumulative impacts are those effects on the environment that result from the incremental impacts of the proposed Project when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency (federal, Tribal, state, or local) or private entity undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7). This cumulative impact analysis has been prepared according to the requirements of NEPA and guidance from the CEQ, *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997). The BLM NEPA Handbook (BLM 2008) recommends that cumulative impact analysis should be focused on those issues identified during scoping that are of major importance, in this case the cumulative impacts of new pipeline construction and operation.

In a cumulative impact analysis, it is typical to restrict the discussion to impacts that have first been identified for the Proposed Action (i.e., the Project), without which cumulative impacts with other actions could not occur. That is, if no impacts would occur from the proposed Project, there would be no cumulative impacts. The overall cumulative impact study area for the majority of resources consists of the existing utility corridor that the proposed Project would traverse throughout its length in Colorado and Wyoming. The cumulative impact area for socioeconomic factors such as transportation, housing, and infrastructure is extended to include surrounding communities. **Table 5-1** summarizes the cumulative impact study areas by resource and provides rationale for the basis of each.

Table 5-1 Cumulative Impact Study Areas for the Overland Pass Pipeline Piceance Basin Lateral EA

Resource	Study Area for Cumulative Impacts Analysis	Study Area Rationale/Interrelated Projects
Soils	Immediate pipeline corridor	Impacts would be limited to direct surface disturbance. The site-specific management of vegetation and noxious weeds and invasive species affect erosion and sedimentation rates within the project area. Land uses, revegetation success, and the potential introduction and/or spread of noxious weeds and invasive species are comparable throughout this area.
Water Resources	The entirety of each hydrographic basin that intersects with the proposed route based on HUC 12 classifications.	Ongoing oil and gas activity within the immediate region may adversely impact hydrologic watersheds including water quantity and quality, wetlands, floodplains, and Waters of the U.S.
Vegetation	Immediate pipeline corridor	Impacts would be limited to direct surface disturbance. The site-specific management of vegetation, noxious weeds and invasive species affects erosion and sedimentation rates within the Project area. Land uses, revegetation success, and the potential introduction and/or spread of noxious weeds and invasive species are comparable throughout this area.

Table 5-1 Cumulative Impact Study Areas for the Overland Pass Pipeline Piceance Basin Lateral EA

Resource	Study Area for Cumulative Impacts Analysis	Study Area Rationale/Interrelated Projects
Wildlife and Fisheries Resources	Immediate pipeline corridor and the entire BLM White River and Little Snake Field Office Management Areas and portions of the Rawlins Field Office Resource Management Area including Sweetwater and Carbon counties in Wyoming.	Includes most of the northwest Colorado and south-central Wyoming greater sage-grouse and big game populations and parts of the Yampa and White rivers with designated critical habitat for the Colorado River endangered fish. This cumulative study area encompasses areas included within the USFWS Upper Colorado River Endangered Fish Recovery Program for which surface water depletions above a certain threshold are compensated for by payments to USFWS.
Range Resources	The entirety of each BLM grazing allotment crossed by the pipeline corridor.	Grazing allotments define the type and level of livestock use, and use boundaries by individual permittees.
Cultural Resources	Immediate pipeline corridor	<p>Archaeological sites are generally located in discrete areas and effects on these sites are a consequence of implementing surface disturbance activities associated with a development proposal.</p> <p>The location of cultural resources is site-specific, and effects are a consequence of implementing a development proposal. However, traditional use areas, religious sites, and certain archaeological sites have to be considered in an expanded landscape context. This RFD area encompasses major regional landscape and cultural features (Yampa and White river corridors) as well as intensive oil and gas development.</p>
Socioeconomics	Rio Blanco, Moffat, Garfield, and Routt counties in Colorado; Sweetwater and Carbon counties in Wyoming.	These counties provide goods and services as well as house a majority of the oil and gas development workers in nearby areas of Colorado and Wyoming. Additionally, fiscal benefits and costs would be felt at the county and municipal levels.

Based on the issues identified in Chapter 1.0, the primary attributes of the proposed Project that could result in cumulative impacts are summarized below.

Surface Disturbance and Operation Requirements

The proposed Project would primarily run parallel to the existing Entrega / WIC Piceance pipeline corridor. The pipeline would generally be constructed within 50 feet of the existing pipeline centerline (25-foot off-set from the edge of the existing ROW), where applicable, but may be increased or decreased depending on the

site-specific circumstances as required. Of the 1,599 acres total necessary for construction of the proposed ROW and J. L. Davis lateral (excluding the contractor/pipe yard and new or widened access roads), approximately 467 acres were previously disturbed during construction of the existing WIC Piceance and Entrega pipelines, resulting in 1,132 acres of new disturbance associated with the Proposed Action.

In addition to an approximately 2,000-foot-long new access road to be built on fee land at the request of the landowner on the south side of the White River crossing, approximately 5.6 acres of additional disturbance associated with the temporary widening of existing access roads is anticipated. It is estimated that the additional disturbance associated with the construction of the new access road would result in less than 1 acre of additional disturbance.

In total, 1,138 acres of new disturbance would be associated with the construction of the proposed Project for the pipeline ROW and access roads. Should the GRP Land Re-route Alternative be constructed, this total would be 1,150 acres of new disturbance. Other pipelines (or other linear utilities) constructed in the future may have to avoid the same GRP easement and if planned along the same stretch would create additional surface disturbance. Additional linear projects would most likely have to be placed on the outside, or west of, the re-route. Presumably, each subsequent project construction right-of-way would impact a larger and larger area as the radius of the re-route corridor increased compared to the Proposed Action area.

All acreage would be reclaimed; however, 467 acres of this total new disturbance would be part of the permanent 50-foot-wide ROW that would be maintained for operations after construction. Low-growing grasses, shrubs (e.g., bitterbrush), and forbs would be allowed. Trees over the pipeline may be removed for aerial inspections.

Reclamation, Revegetation, and Spread of Invasive and Non-native Species

Construction of the proposed Project would temporarily remove cover and disturb soils in areas recently disturbed by the WIC Piceance and Entrega pipelines. Reclamation efforts from these lines have been difficult and concerns regarding successful reclamation in the area have been expressed during scoping. Issues of particular concern include control of noxious weed populations, timing and seed mixes used during reseeding/revegetation efforts, and impacts from winter construction.

Range Resources

Impacts from the construction of multiple pipelines on ranchers and BLM permittees include soil erosion; the spread of noxious and invasive weeds in disturbed areas; damage to land and property during construction (e.g., fencing, cattle guards); temporary and permanent loss of land due to construction, widening, and grading of access roads; impacts to water quality from run-off of new roads; and impacts to and loss of livestock due to interactions with construction traffic and broken fences and gates.

Major River Crossings

The Proposed Action would cross the White and Yampa rivers, Piceance Creek, and the Little Snake River. OPPC proposes an HDD construction method at the White, Yampa, and Little Snake river crossings. They propose to utilize the open cut method at the Piceance Creek crossing due to steep slopes that would preclude them from using HDD.

Socioeconomics

Increased oil and gas production in the vicinity of the proposed Project has had a significant impact on the housing supply, emergency services, infrastructure, and transportation network of the local communities. Of particular concern is the heavy equipment and increased traffic on roads not designed for such heavy use, such as County Road 5 in Rio Blanco County, Colorado, and other minor public roads.

5.1 Interrelated Projects

This analysis focuses on the cumulative impacts of the proposed Project and other actions in the vicinity of the proposed Project. Interrelated projects are defined for this EA as those activities that could interact with the proposed Project in a manner that would result in cumulative impacts. While a number of different types of activities may occur in the vicinity of the proposed Project, especially during construction, it is unlikely that many of these would interact in a cumulative manner. Projects and activities included in this analysis are generally those located within the area directly affected by construction of the proposed Project. Most effects of more distant projects are not assessed, because their impact generally would be localized and not contribute significantly to cumulative impact in the proposed Project area. For ease of presentation, interrelated projects that may interact with the proposed Project have been grouped as past and present projects or reasonably foreseeable future actions. The types of potentially interrelated projects are described below, but quantitative information relevant to the potential physical, biological, and socioeconomic impacts of each project are not available.

5.1.1 Past and Present Projects

The entire area surrounding the proposed Project has experienced a significant increase in oil and gas development activity in the past decade. For example, drilling activity in the WRFO Planning Area has tripled since 1997, and the majority of that has occurred in the past 4 years (BLM 2008b). The Resource Management Areas for the other two BLM Field Offices in the proposed Project vicinity have experienced similar increases in the level of oil and gas activity.

The two most recently constructed pipelines in the utility corridor paralleled by the proposed Project, the Entrega and WIC Piceance pipelines, have been constructed within the past 3 years. As such, there would not be sufficient time for full reclamation and revegetation to have taken place by the time OPPC proposes to construct its pipeline. Cumulative impacts would occur due to soil erosion and the spread of noxious and invasive weeds. Impacts to surface water quality also may be expected due to increased runoff from the lack of ground cover.

The Entrega and WIC Piceance pipelines each maintain a 50-foot-wide permanent ROW for operations along the length of their respective routes. The portion of the Entrega pipeline generally collocated with the proposed Project is approximately 142 miles from the Greasewood Hub in Colorado to Wamsutter, Wyoming, for a permanent ROW of approximately 860 acres. The WIC Piceance pipeline from southwest of Meeker, Colorado, to Wamsutter, Wyoming, is approximately 136 miles for a permanent ROW of approximately 825 acres. The proposed Project parallels an existing pipeline corridor containing anywhere from one to six other pipelines within the corridor. Assuming each of these pipelines maintains a 50-foot-wide permanent ROW similar to Entrega and WIC Piceance, it is estimated that the existing permanent disturbance from previous pipeline projects is at least 2,750 acres. The proposed Project would add an incremental 467 acres of new disturbance to this permanently maintained corridor for a total of approximately 3,217 acres of maintained pipeline ROW along this approximately 150 miles of corridor. This represents an estimate of the total surface disturbance along the pipeline corridor only. Since detailed resource-specific data is not available for most of these projects within the corridor, any analysis to that level of detail would not be reliable.

All disturbances associated with these previous projects have been or are being reclaimed and the 50-foot-wide permanent ROWs for each are maintained for pipeline inspection and maintenance with low-growing grasses, shrubs, and forbs. It is anticipated that the proposed Project disturbance also would be reclaimed and maintained in a similar manner.

5.1.2 Reasonably Foreseeable Future Actions

5.1.2.1 Oil and Gas Development

Oil and gas exploration and development began in the early 1900s in the areas surrounding the proposed Project. It is projected that a combined total of approximately 26,815 new wells would be drilled over the next 20 years in the areas encompassing the three BLM Field Offices: 17,168 in the WRFO Planning Area; 3,031 in the LSFO Planning Area; and approximately 6,616 in the RFO Planning Area in the vicinity of the proposed Project. Approximately 60 percent of these wells (all in the WRFO Planning Area) would be constructed on multiple well pads with an assumed average of 8 wells per pad. The combined total temporary surface disturbance for future well development (including construction of well pads, roads, gas plants, pipelines, and other necessary infrastructure) has been estimated at 119,045 acres for the three Field Office Planning Areas combined (26,465 acres in the WRFO Planning Area; 49,216 acres in the LSFO Planning Area; and 43,364 acres in the portion of the RFO Planning Area near the proposed Project). Details regarding estimated oil and gas development for each Field Office in the project area are provided in the following section.

White River Field Office

Although development of oil and CBM is expected to continue in the WRFO Planning Area, these wells are only expected to account for 5 percent of all future drilling activity. The more intense exploration and development of natural gas is expected to account for 95 percent of all future drilling activity in the WRFO Planning Area through multiple development projects, many of which are currently proposed. The Geologic and Engineering Team in the BLM White River Field Office projects a potential need for up to 2,146 multiple well pads (averaging 8 wells per pad) within the next 20 years to fully develop the natural gas resource while minimizing impacts to other resources. Approximately 80 percent of these multiple well pads would be on federal lands. This would require an estimated cumulative total of 26,465 acres of associated surface disturbance including construction of well pads, roads, gas plants, pipelines, and other infrastructure (BLM 2008b).

Little Snake Field Office

It is anticipated that approximately 3,031 new wells would be drilled in the LSFO Planning Area over the next 20 years. This development would require a total temporary disturbance of 49,216 acres, including 36,372 acres of disturbance for new oil and gas roads. Total long-term surface disturbance for future well developments has been estimated at 23,030 acres (BLM 2007b).

The most significant currently proposed development project in the LSFO Planning Area is the Hiawatha Regional Energy Development Project. Questar Exploration and Production Company and Wexpro Company propose to drill exploratory and development wells on their leases within existing natural gas fields in southern Sweetwater County, Wyoming, and northern Moffat County, Colorado. The project area of approximately 157,335 acres is generally located about 55 miles south of Rock Springs and about 35 miles west of the proposed Project. The proponents propose to drill up to 4,207 new wells, mainly within the boundaries of the existing Hiawatha, Canyon Creek, and Trail units of southwest Wyoming and northwest Colorado. It is estimated that about 66 percent of the proposed wells would be in Wyoming with the remainder in Colorado. The total number of wells ultimately drilled would depend on production success, drainage area, technology, economics, commodity prices, and environmental restrictions. Up to 14,000 acres could be affected. All proposed wells are anticipated to be drilled during an approximately 20- to 30-year period after project approval (BLM 2006).

Rawlins Field Office

Intense oil and natural gas exploration and development are expected on BLM-administered lands within the Washakie Basin and Great Divide Basin in southern Wyoming with multiple development projects currently proposed. The Proposed Plan for the BLM Rawlins Field Office RMP and Final EIS (BLM 2008a) estimates

that approximately 8,822 new wells (3,711 federal) would be drilled over the next 20 years, requiring 3,158 miles of new oil and gas roads. Temporary surface disturbance from development would total 57,505 acres, and total long-term surface disturbance for future well developments has been estimated at 15,472 acres. While this projected activity would take place in a number of locations across the planning area, 75 percent is anticipated to occur in the vicinity of the northern end of the proposed pipeline within the eastern portion of the Washakie Basin and western portion of the Great Divide Basin in Wyoming (BLM 2008a).

5.1.2.2 Pipeline Development

While many pipeline projects have been built and/or are being considered for the west to east pipeline corridor along the I-80 corridor at the northern end of the project, the proposed Project would not interact directly with the surface disturbance of the majority of these projects. The primary exception would be at the very north end where the proposed Project ties into the existing Overland Pass Pipeline at the Echo Springs Meter Station. However, potential competition for limited housing could occur among the workforces associated with these other pipeline projects.

Although there are many oil and gas development projects on the southern end of the proposed Project area, there are two currently proposed pipeline projects that potentially could contribute to the cumulative impacts associated with the proposed Project:

- The Questar White River Hub Project would run from the Greasewood Hub (in T2S, R96W, S8) west to the Rockies Express Hub (in T1S, R97W, S33). This project would consist of 6.5 miles of 30-inch pipeline, two 24-inch laterals associated with interconnects, a 2.3-acre meter station, and a new 2.3-acre compressor station near the Greasewood Hub. Construction is anticipated to begin in late summer or early autumn 2008.
- The Enterprise Multiple Pipeline project would consist of three buried pipelines in the Meeker/Greasewood vicinity for a total of approximately 17 miles. These lines would consist of a 24-inch pipeline, a 36-inch pipeline, and a 12-inch water line. The project would impact a total of approximately 216 acres. The anticipated construction start date is unknown at this time.
- The Pathfinder Pipeline - Meeker Segment project would be a 126-mile, 36-inch diameter natural gas pipeline from Meeker, Colorado to Wamsutter and Echo Springs, Wyoming. This portion of the project is expected to be completed in late 2010. The Meeker Segment of the Pathfinder Project as currently planned would share the same construction corridor as a portion of the Proposed Action between approximate MP 40 and MP 80. Discussions are on-going with the Applicant for the Pathfinder Project regarding the possibility of co-locating more of the Pathfinder route with the Proposed Action (i.e., between approximate MP 40 and MP 140). Potential impacts are unknown at this time given the uncertainty regarding the alignment. Two other segments of this pipeline would continue further north and east out of the proposed Project area.

Only the Pathfinder pipeline would potentially interact directly with the ROW surface disturbance area of the proposed Project. The other two pipelines would not interact directly with the proposed Project except where they may intersect in the vicinity of the Greasewood Hub.

5.1.2.3 Gas Processing Facilities

Williams Midstream/Williams Field Services Company, LLC (Williams) has filed an application to construct the proposed Willow Creek Cryogenic Treatment Facility. The proposed facility would involve construction and operation of natural gas, NGL, and water supply facilities; a natural gas processing plant; and related facilities in Rio Blanco County, Colorado. The plant is located at the southern terminus of the proposed Project approximately 22 miles southwest of Meeker, Colorado, on a 77.5 acre parcel of land owned by Williams. The design of the facility would facilitate the processing and transport of up to 450 million standard cubic feet per day (mmscfd) of natural gas from production areas in northwestern and western Colorado to interstate and

intrastate pipeline facilities. It is anticipated to be the primary source of NGL for the proposed Project. Construction of this facility would result in approximately 45 acres of surface disturbance and an average construction workforce of 190 employees from May 2008 through June 2009. The peak maximum workforce would be 250 to 280 people from October 2008 through March 2009. The permanent workforce once in operation is anticipated to be approximately 21 people. Although work at a number of gas processing facilities is proposed along the proposed Project route, construction of the Williams facility would have the greatest impact on the resources associated with the proposed Project (Rio Blanco County Commissioners 2008).

5.2 Impacts by Resource

Cumulative impacts are analyzed only for those resources that would have potential effects. No cumulative impacts are expected for the other resources addressed in this EA. The total area of cumulative surface disturbance maintained as permanent ROWs would be 3,217 acres. This number is comprised of 467 acres of new disturbance from the proposed Project and 2,750 acres of disturbance from the interrelated projects (past, present, and future). The GRP Land Re-route Alternative would add 7.6 acres of permanent ROW to this, making the cumulative surface disturbance maintained as permanent ROW 3,225 acres; 475 acres of which would be from the proposed Project. In August 2008 the Mayberry fire northwest of Craig, Colorado disturbed the surface of 25,385 acres in the vicinity of the project. This disturbance is nearly 800 percent more than the cumulative surface disturbance of the proposed Project and interrelated projects.

5.2.1 Soils

Cumulative soil disturbance would occur along the existing utility corridor from the construction of past pipelines and the proposed Project. Restoration efforts from the two most recent pipeline projects are still ongoing. As a consequence, the potential for cumulative soil erosion where pipeline construction disturbance areas from one or more of these projects overlap (approximately 1,599 acres) is a concern. BMPs for soil management and protection would be applied across all ownerships for the proposed Project construction ROW. Revegetation mixtures would be applied that are appropriate to soil conditions and expected future uses (grazing, wildlife habitat). In addition, OPPC would coordinate with the adjacent pipeline companies to ensure adequate reclamation, stabilization, and weed control occurs along the pipeline corridor.

5.2.2 Water Resources and Fisheries

OPPC proposes to directionally drill the White River, Yampa River, and Little Snake River. Consequently, there would be no cumulative channel disturbance and sediment increases and resulting impacts to water quality and fisheries at these crossings. The proposed Project would follow the OPPC procedures and/or BLM stipulations for open cut crossings of Piceance Creek and smaller perennial streams and intermittently flowing waterbodies. In most cases, the site-specific channel restoration, bank stabilization, and erosion control measures would prevent cumulative habitat loss and sedimentation increases where the existing utility corridor crosses the same stream channel at the same location.

Water depletions for hydrostatic testing and construction procedures such as dust control, equipment washing, and HDD drilling would be short-term. All water used for hydrostatic testing (approximately 11 acre-feet total from multiple locations) would be temporary as it would be discharged back to the original withdrawal location. The 35 acre-feet removed for other construction procedures would be considered consumptive use; however, since this withdrawal would be temporary during construction only and no other significant withdrawals are currently proposed for these locations, no cumulative impacts would be anticipated.

Oil and gas development on tracts of land administered by the BLM WRFO, LSFO, and RFO could affect both surface waters and groundwater. Specific cumulative impacts on water resources, including water quality and quantity, due to future development in the vicinity of the proposed Project would depend on the characteristics of common surface water bodies and aquifers to which future projects might be linked. However, the proposed

Project would have minimal impacts on either the quality or quantity of local water resources (and thus fisheries also), so it is anticipated that cumulative impacts would be minimal.

5.2.3 Vegetation

Surface disturbing activities such as those associated with oil and gas development fragment vegetation communities and wildlife habitats. Of the total of 3,217 acres of cumulative impacts, the proposed Project would contribute approximately 15 percent. All of the projects included in the cumulative impact area include mitigation measures designed to increase the stabilization of disturbed sites following construction, minimize the potential for long-term erosion, and encourage the spread of native vegetation into disturbed areas, thereby minimizing the degree and duration of cumulative impacts on vegetation.

Invasive and noxious weed populations exist in many locations in western Colorado and southern Wyoming, and weeds could spread into areas disturbed by the proposed Project and interrelated projects. Applying invasive and noxious weed controls on federal lands during construction and operation, including such measures as pre-construction equipment cleaning, weed control on restored areas, and monitoring for and controlling weed invasions during later phases would help control the spread of these invasive and noxious weeds. Comparable programs also may occur on private lands, subject to landowner agreements. Such weed control measures would limit cumulative weed infestations. In order to evaluate the level of success of reclamation, post-construction monitoring reports would be conducted for the life of the Project. Additionally, OPPC would coordinate with the adjacent pipeline companies to ensure adequate reclamation, stabilization, and weed control occurs along the pipeline corridor.

5.2.4 Wildlife

The removal of woodland and shrubland habitats along the proposed pipeline construction ROW would result in a long-term habitat reduction, because the regeneration of woody species is slow in the proposed Project region. Operation of the proposed Project would incrementally add 50 feet to the width of habitat discontinuities within the existing utility corridor, which is at its widest of 300 feet where 6 pipelines currently exist. This may affect the movement of species dependent on these habitats and would cumulatively reduce carrying capacity for woodland- and shrubland-dependent species. However, location of the proposed Project within the existing utility corridor would reduce habitat fragmentation, and thus cumulative effects, when compared to construction along a greenfield route.

If the GRP Land Re-route Alternative is selected, there would be some additional habitat fragmentation and reduction in previously undisturbed areas (i.e. greenfields). It is likely that additional pipelines would be proposed in the future. Should the GRP Land Re-route Alternative be implemented, future pipelines would most likely follow this new route. If this occurs, it is expected that the disturbance associated with these pipelines would push closer towards the nearby greater sage-grouse lek site and potentially could reach the lek site. The lek accounts for approximately one tenth of the birds managed in population zone 3b of the Northwest Colorado Greater Sage-grouse Conservation Plan (CDOW 2008c). Additional disturbance to the lek site would have an adverse impact on male attendance at the lek and overall breeding success.

5.2.5 Range Resources

Potential impacts on ranchers and BLM permittees from the construction of multiple pipelines include soil erosion; the spread of noxious and invasive weeds in disturbed areas; damage to land and property during construction (fencing, cattle guards); temporary and permanent loss of land due to construction; impacts to water quality of run-off from new roads; and impacts to and loss of livestock due interactions with construction traffic and broken fences and gates. However, restoration and compensation for impacts in accordance with the terms of each lease agreement between the landowners and the leasees for each project in the cumulative impact area would prevent cumulative impacts to range resources from becoming significant.

5.2.6 Cultural Resources

Disturbance that has occurred or would occur on federal lands is subject to laws and regulations that protect cultural resources, especially those eligible for the NRHP. As directed by law, Class III inventories would be completed for any future proposed development on federal lands (including the entire proposed pipeline route and any of the interrelated projects), thereby decreasing potential impacts to historic properties. By avoiding or mitigating impacts to known historic properties prior to ground-disturbing activities associated with any future proposed development, the potential for incremental increases in cumulative impacts would be reduced. However, disturbance of unknown cultural resources during development activities by project proponents and some additional vandalism by outside parties as a result of increased access could result in cumulative impacts to cultural resources.

5.2.7 Socioeconomics

The proposed Project and other oil and gas development projects in western Colorado and southern Wyoming may be constructed in a similar timeframe. While detailed construction schedules are not available for all interrelated projects, it is likely that the workforces of several projects could overlap in a given area for a period of time. Such overlap would place demands on local infrastructure such as temporary housing and other services. The potential for the maximum cumulative workforce would likely occur in the vicinity of Meeker and Craig, Colorado, and in Rawlins, Wyoming. Based on current high levels of oil and gas activity in this region, it is expected that there may be a shortage of temporary housing for non-local workers, resulting in longer employee commutes, or the requirement for contractors to obtain more temporary housing in the vicinity of the pipeline spreads. There also may be increased demands on local emergency services, based on the large number of projects underway at the same time, and the long distances to be traveled for emergency response. The construction workforces for projects occurring during the same timeframe would contribute to short-term increases in local sales tax revenues, and the constructed facilities would contribute to long-term increases in the property tax base.

Cumulative traffic impacts are expected where multiple projects are being constructed simultaneously, such as along U.S. 13 through Colorado and into Wyoming as well as on County Road 5 in Rio Blanco County, Colorado. The Williams Willow Creek Plant is located on County Road 5 in Rio Blanco County, Colorado, and construction would occur during the same timeframe as construction of the proposed OPPC pipeline. Cumulative impacts to these roads would be short-term as pipeline spreads move away from congested areas. OPPC would follow transportation plans to manage construction vehicles on secondary and improved access roads. 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. OPPC and interrelated projects would be required to obtain permits for use of county roads, which would define weight limits and maintenance standards. The BLM would require minimum standards be met for maintenance of existing BLM roads.

While overlaps in the construction schedules of the OPPC and Williams projects could occur, total construction activity in Rio Blanco County would be similar to what has occurred over the past 3 to 5 years. Thus, short-term increases in cumulative impacts are not anticipated. Few long-term employees would be needed to operate the new oil and gas wells, pipelines, or gas plants; and therefore, no long-term cumulative impacts to employment, demands on local services, and transportation are expected.

6.0 Public Coordination

6.1 Public Participation and Scoping

NEPA requires full disclosure and open public participation in the federal decision making process, including those projects proposed by non-federal proponents that require federal approval. There are two key points during the development of an EA that the general public is invited to participate in the process: 1) during the scoping period and 2) during the 30-day review period of the EA.

The BLM published a scoping notice on their website, issued a press release in three local newspapers, and mailed postcards to 700 parties of interest announcing the Project and comment period from February 22 through March 14, 2008. Additionally, an interagency meeting was held on February 27, 2008, in Craig, Colorado, for key federal and state agencies to comment on the provide input regarding potential concerns along the proposed pipeline route that needed to be addressed in the EA. Issues and concerns identified during the scoping period are provided in more detail in Section 1.7.

6.2 Tribes, Individuals, Organizations, or Agencies Consulted

The following tribes, agencies, and organizations/individuals were contacted during the scoping process.

Tribes

Eastern Shoshone
Northern Arapaho
Northern Ute
Shoshone Bannock
Southern Ute
Ute Mountain Ute

Federal Agencies

Advisory Council on Historic Preservation
Army Corps of Engineers
Natural Resources Conservation Service
U.S. Fish and Wildlife Service

State Agencies

Colorado Department of Wildlife
Colorado State Historic Preservation Office
Colorado State Land Board
Wyoming Game and Fish Department
Wyoming State Historic Preservation Office

Local Agencies

Sweetwater County Planning and Zoning

Organizations

Center for Native Ecosystems
Colorado Natural Heritage Program
Wyoming Natural Diversity Database

7.0 List of Preparers and Reviewers

This EA was prepared by ENSR, a third-party contractor, under the direction of the BLM. Representatives from the BLM contributed to and participated in the NEPA process. Technical input regarding the proposed Project was provided by OPPC and their representatives. The following sections present the names of individuals and their area or areas of responsibility.

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Ken Holsinger	Threatened and Endangered Plant Species, Forestry, Fire Management
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Bureau of Land Management, Little Snake Field Office	
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Name	Education	Responsibility
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References

- Alexander, S. R. 2008. Addendum 2 to Class III Cultural Resource Inventory of the Planned Piceance Lateral Pipeline: Milepost 83 Reroute, Moffat County, Colorado. August 2008.
- Animal and Plant Health Inspection Service. 2000. Internet website: http://www.usda.gov/wps/portal/!ut/p/s.7_0_A/7_0_1OB?navtype=SU&navid=NATURAL_RESOURCES. Accessed June 25, 2008.
- Averitt, P. 1972. Coal: Geologic Atlas of the Rocky Mountain Region; In: Mallory, W.W. (ed), Rocky Mountain Association of Geologists; Denver, Colorado, p. 297-299.
- Baxter, G. T. and M. D. Stone. 1980. Amphibians and Reptiles of Wyoming. Wyoming Game and Fish Department. Cheyenne, Wyoming.
- Behnke, R. J. 1992. Native Trout of Western North America. American Fisheries Society Monograph 6. American Fisheries Society. Bethesda, Maryland.
- Beidleman, C. A. 2000. Colorado Partners in Flight Bird Conservation Plan. Colorado Partners in Flight. Version 1.0. 320 pp.
- Binkley, D., S. Bird, M. G. Ryan, and C. C. Rhoades. 2003. Impact of Wood Chips on Forest Soil Temperature, Moisture, and Nitrogen Supply. Unpublished Report to the Interior West Center for the Innovative Use of Small Diameter Wood. Fort Collins, Colorado.
- Bureau of Land Management (BLM). 2008. BLM Handbook H-1790-1, National Environmental Policy Act. January 2008.
- _____. 2008a. Resource Management Plan and Final Environmental Impact Statement for Public Lands Administered by the BLM. Rawlins Field Office. Rawlins, Wyoming. January 2008.
- _____. 2008b. Reasonable Foreseeable Development Scenario for Oil and Gas Activities in the BLM White River Field Office: Rio Blanco, Moffat, and Garfield Counties, Colorado.
- _____. 2008c. H. Cline, Wildlife Biologist, Rawlins Field Office. Personal communication with M. Brekke, ENSR. May 21, 2008.
- _____. 2007a. Final Environmental Impact Statement for the Overland Pass Natural Gas Liquids Pipeline Project. BLM. Wyoming State Office and Rawlins Field Office. August 2007.
- _____. 2007b. Little Snake Field Office Resource Management Plan Draft Environmental Impact Statement. January 2007.
- _____. 2006. Public Scoping Notice, Hiawatha Regional Energy Development Project Environmental Impact Statement. September 2006.
- _____. 2005. Environmental Assessment for the Mid-America Pipeline Company, LLC (MAPL) Western Expansion Project. BLM. New Mexico State Office. June 2005.
- _____. 2001. Special Status Species Management, BLM Manual 6840. January 17, 2001.
- _____. 2000. Colorado BLM State Director's sensitive species list. Internet website: http://www.blm.gov/co/st/en/BLM_Programs/botany/Sensitive_Species_List_.html. Accessed June 24, 2008.

- _____. 1998. Paleontology Resources Management Manual and Handbook H-8270-1.
- _____. 1997. White River Record of Decision and Approved Resource Management Plan. BLM. White River Resource Area, Colorado. July 1997.
- _____. 1996. White River Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement. Bureau of Land Management. White River Resource Area. Craig District, Colorado. June 1996.
- _____. 1991. Record of Decision for the Oil and Gas Plan Amendment to the Little Snake Resource Management Plan/Environmental Impact Statement. Little Snake Resource Area, Colorado. November 1991.
- _____. 1989. Little Snake Resource Management Plan and Record of Decision. BLM. Craig District, Colorado. Little Snake Resource Area. June 1989.
- Bradley, H. H. 1945. Geology of the Washaki Basin, Sweetwater and Carbon Counties, Wyoming, and Moffat County, Colorado. U.S. Geological Survey (USGS) Oil Investigation Map, No. 32, scale 1:190,080.
- Capitol Impact. 2008. Internet website: <http://www.capitolimpact.com>. Accessed October 8, 2007 and February 20, 2008.
- Carrara, P. E. 1980. Surficial Geologic Map of the Vernal 1°x2° Quadrangle, Colorado and Utah. USGS Miscellaneous Investigation Series Map I-204, scale 1:250,000.
- Case, J. C. and A. G. Green. 2000. Wyoming Geological Survey. Earthquakes in Wyoming. Internet website: <http://www.wrds.uwyo.edu/wrds/wsgs/hazards/quakes/quake.html>. Accessed February 21, 2008.
- Case, J. C., R. N. Toner, and R. Kirkwood. 2002. Basic Seismological Characterization for Sweetwater County, Wyoming; Wyoming State Geological Survey; September 2002. Internet website: <http://www.wrds.uwyo.edu/wrds/wsgs/hazards/quakes/seischar/Sweetwater.pdf>. Accessed February 21, 2008.
- CH2M Hill Trigon, Inc. 2008. Plan of Development for Overland Pass Pipeline Company LLC Piceance Lateral Pipeline Project. Rio Blanco and Moffat Counties, Colorado, and Sweetwater and Carbon Counties, Wyoming. Prepared by CH2M Hill Trigon EPC. 2008.
- Chapman, S. S., S. A. Bryce, J. M. Omernik, D. G. Despain, J. ZumBerge, and M. Conrad. 2004. Ecoregions of Wyoming (color poster with map, descriptive text, summary tables, and photographs). Map scale 1:1,400,000. USGS, Reston, Virginia.
- Chapman, S. S., G. E. Griffith, J. M. Omernik, A. B. Price, J. Freeouf, and D. L. Schrupp. 2006. Ecoregions of Colorado (color poster with map, descriptive text, summary tables, and photographs). Map scale 1:1,200,000. USGS, Reston, Virginia.
- Colorado Department of Agriculture. 2007. Rio Blanco County Noxious Weed Management Program. Internet website: <http://www.ag.state.co.us/NoxiousWeed/counties/RioBlanco.html>. Accessed October 15, 2007.
- Colorado Department of Labor and Employment, 2007. Colorado Labor Force Data (Labor Force, Employed Persons and Unemployment). Internet website: <http://www.coworkforce.com/lmi/>. Accessed March, 2008.

- Colorado Department of Local Affairs. 2008. Division of Property Taxation. 2006 – Thirty-sixth Annual Report.
- Colorado Department of Public Health and Environment (CDPHE). 2008. E-mail communication from L. DeBell, ENSR to N. Chick, CDPHE. April 24, 2008.
- _____. 2008. Regulation No. 37, Classifications and Numeric Standards for (the) Lower Colorado River Basin. 5 CCR 1002-37. Water Quality Control Commission, Colorado Department of Public Health and Environment, Denver, Colorado.
- Colorado Division of Local Government. 2004. Internet website: <http://dola.colorado.gov/demog/Housing.cfm>. Accessed March 2008.
- Colorado Division of Reclamation Mining and Safety. 2008. Mining Operations Report database. Internet website: <http://mining.state.co.us/operatordb/criteria.asp?search=>. Accessed February 20, 2008.
- Colorado Division of Wildlife (CDOW). 2008a. Natural Diversity Information Source. Internet website: <http://ndis.nrel.colostate.edu/index.html>. Accessed February 6, 2008.
- _____. 2008b. Wildlife Species. Internet website: <http://wildlife.state.co.us/WildlifeSpecies/>. Accessed February 6, 2008.
- _____. 2008c. Colorado Greater Sage-grouse Conservation Plan. Colorado Greater Sage-Grouse Steering Committee. Denver, Colorado. 2008.
- _____. 1998. Habitat Resources Section. Colorado Gap Analysis Land Cover Map. Colorado Gap Analysis Project. Colorado Division of Wildlife, Denver, Colorado.
- Colorado Geological Survey. 2001. When the Ground Lets You Down – Ground Subsidence and Settlement Hazards in Colorado. Rock Talk, Volume 4, No. 4, October 2001.
- Colorado Health and Hospital Association. 2008. Internet website: <http://www.cha.com/Hospitals/hospitals.shtml>. Accessed February 20, 2008.
- Colorado Oil and Gas Conservation Commission. 2008. Online Database. Internet website: <http://cogcc.state.co.us/cogis/FacilitySearch.asp>. Accessed March 5, 2008.
- Colton, R. B., J. A. Holligan, L. W. Anderson, P. E. Patterson. 1976. Preliminary Map of Landslide Deposits of Colorado. USGS Miscellaneous Investigation Series Map I-964, scale 1:500,000.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to Manage Sage-Grouse Populations and Their Habitats. Wildlife Society Bulletin 28(4):967-985.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.
- Cornell Lab of Ornithology. 2008. Active nest definition. Internet website: <http://www.watch.birds.cornell.edu/nestcontent/help-support/glossary>. Accessed June 6, 2008.
- Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects under the National Environmental Policy Act, Executive Office of the President, Washington, D.C. January 1997.

- DeBruin, R. H. 2005. Oil and Gas Map of Wyoming. Wyoming State Geological Survey, Map Series 55, scale 1:500,000.
- DeMallie, R. J. Handbook of North American Indians, Volume 13: Plains. November 9, 2001. William Sturtevant, Editor.
- Dyni, J. R. 1996. Sodium Carbonate Resources of the Green River Formation. USGS Open File Report 96-729. Internet website: <http://pubs.usgs.gov/of/1996/ofr-96-0729/ofr-96-0729.pdf>. Accessed March 6, 2008.
- Erathem-Vanir Geological. 2008. Paleontologic Resources Report Piceance Lateral Pipeline. Report prepared for ONEOK, January 14, 2008.
- Federal Emergency Management Agency (FEMA) Map Service Center. 2008. Jessup, Maryland. Internet website: <http://msc.fema.gov/webapp/wcs/stores/servlet/categorydisplay?catalogId=10001&storeId=10001&categoryId=12001&langId=-1&userType=G&type=1>. Accessed March 19, 2008.
- Federal Energy Regulatory Commission (FERC). 2005a. Entrega Pipeline Project. Final Environmental Impact Statement. July 2005.
- _____. 2005b. WIC Piceance Basin Expansion Project. Final Environmental Impact Statement. August, 2005.
- Federal Register (FR). 2001. Executive Order (EO) 13186 of January 10, 2001. Responsibilities of Federal Agencies to Protect Migratory Birds. Vol. 66, No. 11. January 10, 2001.
- _____. 1999. EO 13112 of February 8, 1999. Invasive Species. Vol. 64, No. 6183. February 8, 1999.
- Firehouse Network. 2008. Internet website: <http://www.fire-ems.net>. Accessed October 13, 2007 and February 20, 2008.
- Frankel, A., C. Mueller, T. Barnhard, D. Perkins, E. V. Leyendecker, N. Dickman, S. Hanson, and M. Hopper. 1997. Seismic-hazard maps for the conterminous U.S., Map C - Horizontal Peak Acceleration with a 2% probability of exceedance in 50 years, USGS Open-File Report 97-131-F. Internet website: <http://eqint.cr.usgs.gov/eq-men/html/custom2002-06.html>. Accessed February 21, 2008.
- Glover, K. C., D. L. Naftz, and L. J. Martin. 1998. Geohydrology of Tertiary Rocks in the Upper Colorado River Basin, Colorado, Utah, and Wyoming, Excluding the San Juan Basin: U.S. Geological Survey Water-Resources Investigations Report 96-4105, 103 p.
- Greubel, Rand A., J. L. Mueller, and A. D. Reed. 2008. Class III Cultural Resource Inventory of the Planned Piceance Lateral Pipeline Rio Blanco and Moffat Counties, Colorado, and Sweetwater and Carbon Counties, Wyoming. April 2008.
- Guilinger, J.R. and J.W. Keller. 2004. Directory of Active and Permitted Mines in Colorado – 2002. Colorado Geological Survey Information Series 6B.
- Hail, J.W. and G.N. Pippingos. 1994. Geologic Map of the Lower Piceance Creek Area, Northwestern Colorado. USGS Miscellaneous Investigations Series Map I-1936.
- Hail, J.W. and M.C. Smith. 1994. Geologic Map of the Northern Part of the Piceance Creek basin, Northwestern Colorado. USGS Miscellaneous Investigations Series Map I-2400.

- Hardy, M., M. Ramey, C. Yates, and K. Nelson. 2003. Solution Mining of Nahcolite at the American Soda Project, Piceance Basin, Colorado. 2003 Society of Mining Engineers Meeting, February 24 through 26, 2003, in Cincinnati, Ohio. Internet website: <http://agapito.com/SolutionMiningofNahcolite.pdf>. Accessed March 6, 2008.
- Love, J. D. and A. C. Christiansen. 1985. Geologic Map of Wyoming. Scale 1:500,000.
- Mueller, J. and S. Moore. 2008. Addendum 1 to Class III Cultural Resource Inventory of the Planned Piceance Lateral Pipeline Rio Blanco and Moffat Counties, Colorado, and Sweetwater and Carbon Counties, Wyoming. June 2008.
- National Atlas. 2008. Internet website: <http://nationalatlas.gov/maplayers.html?openChapters=chpgeol>. Accessed February 21, 2008.
- National Park Service (NPS). 1995. National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation. Revised. National Park Service Interagency Resources Division, National Register Branch, Washington D.C.
- National Research Council. 2004. Partnerships for Reducing Landslide Risk. The National Academies Press, Washington D.C., 144 p. Internet website: http://www.nap.edu/catalog.php?record_id=10946#toc. Accessed February 27, 2008.
- Natural Resources Conservation Service (NRCS). 2007a. Soil Survey Geographic (SSURGO) Database. Internet website: <http://soildatamart.nrcs.usda.gov>. Accessed October 10, 2007.
- _____. 2007b. U.S. General Soil Map (STATSGO) for Wyoming. <http://soildatamart.nrcs.usda.gov>. Accessed April 18, 2007.
- _____. 2006a. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.
- _____. 2006b. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 6.0. NRCS in cooperation with the National Technical Committee on Hydric Soils. Ed. G. W. Hurt, NRCS, Gainesville, Florida, and L. M. Vasilas, NRCS, Baltimore, Maryland. 2006.
- O'Sullivan, R.B. 1987. Preliminary Geological Map of the No Name Ridge Quadrangle, Rio Blanco County, Colorado. USGS Miscellaneous Investigation Series Map MF-1989, scale 1:24,000.
- Parker, K. 2004. E-mail from K. Parker, Wyoming Department of Environmental Quality, to B. Jensen, Natural Resource Group, Inc., regarding the potential occurrence of contaminated sediments along the Entrega pipeline ROW in southwestern Wyoming. February 5 and April 22, 2004.
- Pipeline and Hazardous Material Safety Administration (PHMSA). 2008. Significant Incidents Files. Internet website: <http://www.phmsa.dot.gov>. Accessed April 5, 2008.
- Poirot, A. 2005. Personal communication between A. Poirot, District Engineer, CDPHE, Drinking Water and Waste Water Technical Services, and J. Burrell, ENSR, regarding drinking water systems at Maybell, Colorado. March 30, 2005.
- Primm, S. 2001. Colorado Plateau Shrublands (NA1304), World Wildlife Fund. Internet website: <http://www.nationalgeographic.com/wildworld/profiles/terrestrial/na/na1304.html>. Accessed March 2008.

- Radbruch-Hall, D. H., R. B. Colton, W. E. Davies, I. Lucchitta, B. A. Skipp, and D. J. Varnes. 1982. Landside Overview Map of the United States. USGS Professional Paper 1183.
- Rio Blanco County Commissioners. 2008. Environmental Assessment. Williams Midstream Willow Creek Cryogenic Treatment Natural Gas Facility. Meeker, Colorado. January 2008.
- Robson, S. G. and E. R. Banta. 1995. Groundwater Atlas of the United States, Arizona, Colorado, New Mexico, Utah, HA 730-C, USGS. Internet website: http://capp.water.usgs.gov/gwa/ch_c/index.html. Accessed March 2008.
- Roehler, H. W. 1985. Geologic Map of the Kinney Rim 30°x60° Minute Quadrangle, Wyoming and Colorado. USGS Miscellaneous Investigations Series Map I-1615, scale 1:100,000.
- Root, F. K, G. B. Glass, and D. L. Lane. 1973. Geologic Map Atlas of Sweetwater County Wyoming. Wyoming Geological Survey County Resource Series No. 2. July 1973.
- Sammons/Dutton LLC. 2004. Personal communications by R. Dutton and L. Levy with local realtors, apartment managers, and RV/campground managers, and reviews of various local and state websites regarding housing availability. November 2004.
- Supreme Court of the United States. 2006. Massachusetts et al. v. Environmental Protection Agency et al. No. 05-1120. Argued November 29, 2006 – Decided April 2, 2007. Internet website: www.supremecourtus.gov/opinions/06pdf/05-1120.pdf. Accessed March 2007.
- Texas Resource Consultants. 1981. Soil Inventory of the Overland Area Wyoming. Prepared for the Bureau of Land Management in Cooperation with the Natural Resources Conservation Service.
- Thornbury, W. D. 1965. Regional Geomorphology of the United States. John Wiley & Sons, Inc. New York, New York.
- Topper, R., K. L. Spray, W. H. Bellis, J. L. Hamilton, and P.E. Barkmann. 2003. Ground Water Atlas of Colorado, Colorado Water Conservation Board, Special Publication 53. Internet website: <http://water.state.co.us/pubs/datasearch.asp>. Accessed February 2008.
- Tweto, O. 1979. Geologic Map of Colorado. Scale 1:500,000.
- U.S. Bureau of Economic Analysis. 2005. Personal Income by Major Source and Earnings by Industry, 2005.
- U.S. Department of Commerce, Bureau of the Census (Census). 2006. Population Division. Internet website: <http://www.census.gov>. Accessed March 2008.
- _____. 2000. Table DP-1 (Profile of General Demographic Characteristics). <http://www.census.gov>.
- U.S. Department of Energy. 2004. Annual Energy Outlook 2004 with Projections to 2025. Report #DOE/EIA-0383 (2004). Energy Information Agency. January 2004.
- U.S. Environmental Protection Agency (USEPA). 2008. Currently Designated Non-attainment Areas for All Criteria Pollutants. Internet website: <http://www.epa.gov/oar/oaqps/greenbk/>. Accessed February 20, 2008.
- _____. 2006. (CERCLIS) Database. Internet website: <http://www.epa.gov/superfund/sites/cursites/>. Accessed February 12, 2008

- _____. 2004. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States. National Sediment Quality Survey, Second Edition. EPA-823-R-04-007. USEPA Office of Science and Technology, Standards and Health Protection Division, Washington, D.C.
- U.S. Fish and Wildlife Service (USFWS). 2008. Upper Colorado River Endangered Fish Recovery Program. <http://www.fws.gov/coloradoriverrecovery/>. Accessed February 6, 2008.
- _____. 2004. Removal of Black-footed Ferret Survey Recommendation Across much of Wyoming Memorandum. Letter from B. Kelly, Field Supervisor, USFWS to R. Bennett, State Director, Wyoming BLM. February 3, 2004.
- _____. 2004a. Management Plan for Endangered Fishes in the Yampa River Basin and Environmental Assessment. Prepared by Gerald W. Roehm, USFWS, Denver, Colorado. September 2004. 194 pp.
- _____. 1989. Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. Denver, Colorado and Albuquerque, New Mexico. April 1989.
- U.S. Geological Survey (USGS).. 2008a. Colorado Earthquake History. Internet website: <http://earthquake.usgs.gov/regional/states/colorado/history.php>. Accessed February 21, 2008.
- _____. 2008b. Visual Glossary. Internet website: <http://earthquake.usgs.gov/learning/glossary.php?term=active%20fault>. Site updated January 25, 2008. Accessed March 3, 2008.
- _____. 2008c. U.S. National Seismic Hazard Maps. Internet website: http://earthquake.usgs.gov/research/hazmaps/products_data/2008/maps/wus/. Accessed May 7, 2008.
- _____. 2008d. Surface water monthly statistics for Colorado and Wyoming. U.S. Geological Survey. Internet website: <http://waterdata.usgs.gov/ks/nwis>. Accessed February 2008.
- _____. 2004. Landslide Types and Processes. USGS Fact Sheet 2004-3072. Internet website: <http://pubs.usgs.gov/fs/2004/3072/pdf/fs2004-3072.pdf>. Accessed on February 21, 2008.
- _____. 2003. Physiographic Regions of the Lower United States. Internet website: <http://tapestry.usgs.gov/physiogr/physio.html>. Site updated April 17, 2003. Accessed February 18, 2008.
- USGS and Colorado Geological Survey. 2008. Quaternary Fault and Fold Database of the United States. Internet website: <http://earthquake.usgs.gov/regional/qfaults/>. Site updated January 25, 2008. Accessed February 21, 2008.
- Van Dyke, G. D., L. M. Shem, p. L. Wilkey, R. E. Zimmerman, and S. D. Alsum. 1994. Pipeline Corridors Through Wetlands – Summary of Seventeen Plant Community Studies at Ten Wetland Crossings. Center for Environmental Restoration System, Argonne, Illinois. 1994.
- Van Halveren, B. P. 2000. Ground cover dynamics in a sagebrush steppe community. BLM-NARSC Research Note No. 19. Internet website: <http://www-a.blm.gov/nstc/resourcenotes/rm19.html>.
- Vranka, J. 2004. E-mail from J. Vranka (Superfund and PA/SI Unit, CDPHE) to B. Jensen (Natural Resource Group, Inc.) regarding the potential occurrence of contaminated sediments along the WIC Piceance and Entrega pipeline ROWs in western Colorado. May 14, 2004.
- Ward, A. L. 1976. Elk behavior in Relation to timber harvest Operations and Traffic on the Medicine Bow Range in South-central Wyoming. In: Proceedings Elk-logging-roads Symposium, ed. S. R. Hieb. Pp. 32-43. Moscow, University of Idaho.

- Ward, A. L., N. E. Fornwalt, S. E. Henry, and R. A. Hodorff. 1980. Effects of Highway Operation Practices and Facilities on Elk, Mule Deer, and Pronghorn Antelope. Report No. FHWA-RD-79-143. National Technical Information Service, Springfield, Virginia.
- Western Regional Climate Center (WRCC). 2008. Historical Climate Information. Internet website: www.wrcc.dri.edu. Accessed February 21, 2008.
- WestWater Engineering (WWE). 2008. Overland Pass Piceance Basin Lateral Pipeline Preliminary Biosurvey Report. Prepared by WestWater Engineering, Grand Junction, Colorado. March 2008. 50 pp.
- Whitehead, R. L. 1996. Groundwater Atlas of the United States, Montana, North Dakota, South Dakota, Wyoming, HA 730-L. USGS. Internet website: http://capp.water.usgs.gov/gwa/ch_i/index.html. Accessed March 2008.
- Whitney, J. W. 1981. Surficial Geologic Map of the Grand Junction 1°x2° Quadrangle, Colorado and Utah. USGS Miscellaneous Investigations Series Map I-1289, scale 1:250,000.
- Wray, L. L., A. D. Apeland, H. T. Hemborg, and C. A. Brchan. 2002. Oil and Gas Fields Map of Colorado. Colorado Geological Survey Map Series MS-33.
- Wyoming Gap Analysis (WY GAP). 1996. Land Cover for Wyoming: University of Wyoming, Spatial Data and Visualization Center, Laramie, Wyoming.
- Wyoming Department of Administration and Information. 2008. Annual Residential Housing Units Authorized by Building Permits For Wyoming and Counties: 1987 to 2006. Economic Analysis Division. Internet website: <http://eadiv.state.wy.us/housing/annlbldg.htm>. Accessed June 25, 2008.
- Wyoming Department of Employment. 2007. Wyoming Labor Market Information – Local Area Unemployment Statistics. Research and Planning Division. Internet website: <http://doe.state.wy.us/lmi/>. Accessed March 2008.
- Wyoming Department of Environmental Quality. 2008. Wyoming Visibility Monitoring Network. Internet website: www.wyvisnet.com/wams1/index.html. Accessed February 20, 2008.
- Wyoming Department of Revenue. 2008. Wyoming Department of Revenue - Annual Report 2006. Internet website: <http://revenue.state.wy.us/PortalVBVS/DesktopDefault.aspx?tabindex=3&tabid=10>.
- Wyoming Geological Survey. 2004. Landslides in Wyoming. Internet website: <http://www.wrds.uwyo.edu/wrds/wsgs/hazards/landslides/lshome.html>. Accessed March 3, 2008.
- Wyoming Hospital Association. 2008. Internet website: <http://www.wyohospitals.com/find.html>. Accessed June 25, 2008.
- Wyoming Housing Database Partnership. 2004. A Profile of Wyoming, Demographics, Economics, and Housing, Semi-annual Report, Ending June 30, 2004. Cheyenne, Wyoming.
- Wyoming Mining Association. 2008. Internet website: <http://www.wma-minelife.com/>. Accessed February 20, 2008.
- Wyoming Oil and Gas Conservation Commission. 2008. Online data. Internet website: <http://wogcc.state.wy.us/>. Accessed March 5, 2008.

Wyoming Oil and Gas Conservation Commission. 2006. 2006 Statistics. Internet website:
http://wogcc.state.wy.us/cfdocs/2006_stats.htm. Accessed March 5, 2008.

Wyoming Taxpayers Association. 2008. Internet website: www.wyotax.org. Accessed March 2008.

Appendix A

Waterbody Crossings

Table A-1 Waterbody Crossings for the Proposed Action

State/ County	MP	Waterbody Name	Resource Concerns	Crossing Method ¹	State Water Quality Classification
Colorado					
Rio Blanco	0.3	Piceance Creek	Perennial	Open cut with Flume	AqLife Warm2, Rec1b, Agriculture
	12.2	Dry Fork Piceance Creek	Perennial	Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	15.4	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	16.5	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	19.3	White River	Perennial, threatened and/or endangered species present; crossing width = 75 feet.	HDD	AqLife Cold1; Rec1; Water Supply; Agriculture
	19.7	Powell Park Ditch		Open Cut	
	20.4	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	21.2	Jordan Gulch		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	23.6	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	24.9	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	26.5	Oyler Gulch		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	27.6	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	28.9	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	30.3	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	32.9	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	36.1	Strawberry Creek		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
Moffat	40.1	Deep Channel Creek		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	40.6	Price Creek		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	41.5	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture
	41.6	Unnamed		Open Cut	AqLife Cold 2; Rec2;Water Supply, Agriculture

Table A-1 Waterbody Crossings for the Proposed Action

State/ County	MP	Waterbody Name	Resource Concerns	Crossing Method ¹	State Water Quality Classification
Moffat (Con't)	49.4	Pine Tree Gulch		Open Cut	AqLife Warm2, Rec2, Agriculture
	49.9 and 52.1	Deception Creek		Open Cut	AqLife Warm2, Rec2, Agriculture
	58.9	Maybell Ditch		Open Cut	
	59.5	Yampa River	Perennial, threatened and/or endangered species present; crossing width = 140 feet.	HDD	AqLife Warm1; Rec1; Water Supply; Agriculture
	60.9	Aqueduct		Open Cut	
	62.1	Wildcat Draw		Open Cut	AqLife Warm2, Rec2, Agriculture
	64.6	Mud Spring Gulch		Open Cut	AqLife Warm2, Rec2, Agriculture
	69.0	West Prong, Spring Creek		Open Cut	AqLife Warm2, Rec2, Agriculture
	69.7	West Prong, Spring Creek		Open Cut	AqLife Warm2, Rec2, Agriculture
	73.2	Unnamed		Open Cut	AqLife Cold 2; Rec2; Water Supply, Agriculture
	78.0	Greasewood Gulch		Open Cut	AqLife Cold 2; Rec2; Agriculture
	79.3	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	82.7	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	83.4	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	84.5	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	85.3	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	85.6	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	88.2	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	91.0	Unnamed		Open Cut	AqLife Cold 2; Rec2; Agriculture
	93.6	Little Snake River	Perennial, threatened and/or endangered species; crossing width = 40 feet.	HDD	AqLife Cold1; Rec1; Water Supply; Agriculture
Wyoming					
Sweetwater	96.1	Cherokee Creek		Open Cut	2C
	96.8	Cherokee Draw		Open Cut	2C
	98.4	East Fork, Cherokee Creek		Open Cut	2C
	100.4	Cedar Breaks Draw		Open Cut	
	103.1	Unnamed		Open Cut	
	105.1	Sand Creek		Open cut with Flume	3B

Table A-1 Waterbody Crossings for the Proposed Action

State/ County	MP	Waterbody Name	Resource Concerns	Crossing Method ¹	State Water Quality Classification
Sweetwater (Con't)	107.7	Willow Creek		Open cut with Flume	3B
	108.0	Unnamed		Open Cut	
	109.5	Unnamed		Open Cut	
	119.1	Windmill Draw		Open Cut	3B
	126.8	Barrel Springs Draw		Open Cut	3B
	130.0 – 131.0	North Barrel Springs Draw and Tributaries		Open Cut	3B
	133.1	Unnamed		Open Cut	
	133.5	Unnamed		Open Cut	
	134.2	Unnamed		Open Cut	
	135.5	Unnamed		Open Cut	
	136.7 – 136.9	Unnamed Ephemerals		Open Cut	

¹ Open cut crossings will employ a flume if water is present at the time of construction.

Colorado State Water Quality Classification Designations:

- 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 Cold 2 = (subset of aquatic life) waters that are not capable of sustaining a wide variety of coldwater biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.
- 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 State Water Quality Classification Designations:

Statewide beneficial use classes include the support of drinking water, game fish, nongame fish, fish consumption, other aquatic life, recreation, wildlife, agriculture, industry, and scenic values.

- 2C = All beneficial uses are supported except drinking water and game fish.
- 3B = All beneficial uses are supported except drinking water, game fish, nongame fish, and fish consumption.

Appendix B

Soil Types

Table B-1 Soil Types Along the Proposed Route

MUID	Soil Name
Colorado	SSURGO
1	ABOR CLAY LOAM, 5 TO 30 PERCENT SLOPES
4	ABSHER LOAM, 3 TO 8 PERCENT SLOPES
5	BADLAND
6	BARCUS CHANNERY LOAMY SAND, 2 TO 8 PERCENT SLOPES
8	BADLAND
9	BAROID-EGHELM COMPLEX, 0 TO 3 PERCENT SLOPES
10	BATTLEMENT FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES
10	BLAZON, MOIST-RENTSAC COMPLEX, 8 TO 65 PERCENT SLOPES
11	BATTLEMENT SILT LOAM, SALINE, 0 TO 3 PERCENT SLOPES
11	BOROLIC CALCIORTHIDS-GUBEN COMPLEX, 6 TO 50 PERCENT SLOPES
12	BERLAKE SANDY LOAM, 3 TO 12 PERCENT SLOPES
13	BERLAKE SANDY LOAM, 12 TO 25 PERCENT SLOPES
14	BERLAKE-MAYSPRINGS COMPLEX, 3 TO 12 PERCENT SLOPES
15	CASTNER CHANNERY LOAM, 5 TO 50 PERCENT SLOPES
22	BULKLEY SILTY CLAY, 3 TO 12 PERCENT SLOPES
24	BULKLEY-QUILT COMPLEX, 12 TO 45 PERCENT SLOPES
26	COWDREY-TAMPICO LOAMS, 15 TO 50 PERCENT SLOPES
30	DOLLARD SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES
31	DOLLARD SILTY CLAY LOAM, 15 TO 40 PERCENT SLOPES
32	FLUVAQUENTS, FREQUENTLY FLOODED
33	FORELLE LOAM, 3 TO 8 PERCENT SLOPES
34	FORELLE LOAM, 8 TO 15 PERCENT SLOPES
36	GLENDIVE FINE SANDY LOAM
39	GUBEN LOAM, 3 TO 8 PERCENT SLOPES
40	HAGGA LOAM
41	HAVRE LOAM, 0 TO 4 PERCENT SLOPES
42	IRIGUL CHANNERY LOAM, 5 TO 50 PERCENT SLOPES
43	IRIGUL-PARACHUTE COMPLEX, 5 TO 30 PERCENT SLOPES
44	COWESTGLEN SANDY LOAM, 0 TO 3 PERCENT SLOPES
45	JERRY-THORNBURGH-RHONE COMPLEX, 8 TO 65 PERCENT SLOPES
47	COYET-CRESTMAN, MOIST COMPLEX, 20 TO 50 PERCENT SLOPES
47	KOBAR SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES

Table B-1 Soil Types Along the Proposed Route

MUID	Soil Name
49	KOBAR SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES
51	MERGEL-REDTHAYNE-DOLLARD COMPLEX, 8 TO 65 PERCENT SLOPES
53	MOYERSON STONY CLAY LOAM, 15 TO 65 PERCENT SLOPES
61	PATENT LOAM, 3 TO 8 PERCENT SLOPES
62	PATENT LOAM, 8 TO 15 PERCENT SLOPES
64	PICEANCE FINE SANDY LOAM, 5 TO 15 PERCENT SLOPES
70	FLUVAQUENTS AND HAPLAQUOLLS SOILS, FREQUENTLY FLOODED
70	REDCREEK-RENTSAC COMPLEX, 5 TO 30 PERCENT SLOPES
71	REDROB LOAM
73	RENTSAC CHANNERY LOAM, 5 TO 50 PERCENT SLOPES
74	RENTSAC-MOYERSON-ROCK OUTCROP COMPLEX, 5 TO 65 PERCENT SLOPES
75	FONCE SANDY LOAM, 1 TO 8 PERCENT SLOPES
75	RENTSAC-PICEANCE COMPLEX, 2 TO 30 PERCENT SLOPES
77	FORELLE LOAM, 3 TO 12 PERCENT SLOPES
78	ROCK OUTCROP
78	FORELLE LOAM, 12 TO 25 PERCENT SLOPES
86	GRACOT-MAYBELL COMPLEX, 5 TO 30 PERCENT SLOPES
89	TISWORTH FINE SANDY LOAM, 0 TO 5 PERCENT SLOPES
90	GRIEVES-CRESTMAN COMPLEX, 10 TO 40 PERCENT SLOPES
90	TORRIFLUVENTS, GULLIED
91	TORRIORTHENTS-ROCK OUTCROP COMPLEX, 15 TO 90 PERCENT SLOPES
91	GRIEVES-YAMO-CRESTMAN ASSOCIATION, 3 TO 45 PERCENT SLOPES
92	GRIMM-USTIC TORRIORTHENTS, SHALLOW COMPLEX, 15 TO 45 PERCENT SLOPES
92	TREMBLES LOAM, WET
93	GULLIED LAND
96	VEATCH CHANNERY LOAM, 12 TO 50 PERCENT SLOPES
99	HESPERUS FINE SANDY LOAM, DRY, 2 TO 15 PERCENT SLOPES
104	YAMAC LOAM, 2 TO 15 PERCENT SLOPES
105	IRONSPRINGS LOAMY SAND, 1 TO 15 PERCENT SLOPES
105	ZOLTAY CLAY LOAM, 1 TO 3 PERCENT SLOPES
106	ZOLTAY CLAY LOAM, 3 TO 8 PERCENT SLOPES
107	IRONSPRINGS-MAYSPRINGS-GRETDIVID COMPLEX, 10 TO 20 PERCENT SLOPES
107	ZOLTAY CLAY LOAM, 8 TO 15 PERCENT SLOPES

Table B-1 Soil Types Along the Proposed Route

MUID	Soil Name
112	KEMMERER-MOYERSON COMPLEX, 20 TO 40 PERCENT SLOPES
128	MAYBELL SAND, 3 TO 12 PERCENT SLOPES
129	MAYBELL SAND, 12 TO 45 PERCENT SLOPES
129	WATER
130	MAYSPRINGS COARSE SANDY LOAM, 3 TO 12 PERCENT SLOPES
131	MAYSPRINGS-GRETDIVID COMPLEX, 10 TO 20 PERCENT SLOPES
134	MORAPOS LOAM, 3 TO 12 PERCENT SLOPES
149	PINELLI LOAM, 3 TO 12 PERCENT SLOPES
151	PINELLI LOAM, DRY, 3 TO 8 PERCENT SLOPES
152	PINRIDGE LOAM, 1 TO 12 PERCENT SLOPES
153	PRICECREEK CLAY LOAM, 0 TO 4 PERCENT SLOPES
161	ROCK RIVER SANDY LOAM, 0 TO 3 PERCENT SLOPES
162	ROCK RIVER SANDY LOAM, 3 TO 12 PERCENT SLOPES
163	ROCK RIVER SANDY LOAM, 12 TO 25 PERCENT SLOPES
168	RUEDLOFF SANDY LOAM, 1 TO 8 PERCENT SLOPES
170	RYAN PARK LOAMY SAND, 3 TO 15 PERCENT SLOPES
173	RYARK-POWDERWASH COMPLEX, 2 TO 15 PERCENT SLOPES
178	SIMANNI-RUEDLOFF COMPLEX, 1 TO 10 PERCENT SLOPES
186	TALAMANTES LOAM, 0 TO 6 PERCENT SLOPES
193	TISWORTH FINE SANDY LOAM, 0 TO 9 PERCENT SLOPES
197	TORRIORTHENTS-ROCK OUTCROP, SANDSTONE COMPLEX, 25 TO 75 PERCENT SLOPES
198	TORRIORTHENTS-ROCK OUTCROP, SHALE COMPLEX, 30 TO 75 PERCENT SLOPES
199	TORRIORTHENTS-TORRIPSAMMENTS COMPLEX, 12 TO 40 PERCENT SLOPES
206	USTORTHENTS, FRIGID-BOROLLS COMPLEX, 25 TO 75 PERCENT SLOPES
209	WEED SANDY LOAM, 1 TO 12 PERCENT SLOPES
216	YAMO LOAM, 3 TO 15 PERCENT SLOPES
271	WATER
Wyoming	STATSGO
s9032	SHELLCREEK-SANDBRANCH-SAGECREEK-HAVRE-GLENDIVE-DEBONE (S9032)
s9034	VONASON-TRESANO-FRADDLE-FORELLE-FARSON (S9034)
s9009	RUEDLOFF-PATENT-HAVRE-HAGGA-GLENDIVE-GERRARD-FIRTH-CANBURN (S9009)
s9010	RENTSAC-MOYERSON-LANGSPRING-DELPILL-BLAZON-BLACKHALL (S9010)
s9033	TEAGULF-KANDALY-HUGUSTON-HATERTON (S9033)

Table B-1 Soil Types Along the Proposed Route

MUID	Soil Name
s9035	TRESANO-SHELLCREEK-DINES-CHRISMAN (S9035)
s1162	SKYWAY-ROCK OUTCROP-LAMPHIER-COCHETOPA (S1162)
s1164	RYAN PARK-ROCK RIVER-MAYBELL-GRIEVES-CRESTMAN-BERLAKE (S1164)
s1165	TYPIC TORRIORTHENTS-TRESANO-TISWORTH-RUEDLOFF-KANDALY-DUNUL (S1165)
s1166	RYARK-ROCK RIVER-MAYSPRINGS-MAYBELL (S1166)
s1182	ZOLTAY-QUILT-MORAPOS-HESPERUS-BULKLEY-ABOR (S1182)
s1187	VEATCH-ROCK OUTCROP-RENTSAC-REDCREEK-CASTNER-ABOR (S1187)
s9008	RYAN PARK-ROCK RIVER-PINELLI-KEMMERER-FORELLE-DIAMONDVILLE-DAHLQUIST (S9008)
s1167	PINELLI-PAGODA-FORELLE-EVANSTON-BULKLEY (S1167)
s1185	ROCK OUTCROP-RENTSAC-MOYERSON-MIKIM FAMILY-ATCHEE (S1185)
s1188	YAMAC-RENTSAC-PICEANCE (S1188)

Appendix C

Noxious Weeds

Table C-1 Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

		Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Carbon County, WY	Located During 2007 Field Surveys ¹
Common Name	Scientific Name										
Quackgrass	<i>Agropyron repens</i>	B	X						X	X	Not Observed
Camelthorn	<i>Alhagi pseudalhagi</i>	A									Not Observed
Common Burdock	<i>Arctium minus</i>	C	X			X	X		X	X	MPs 36.2-39.6, 38.6-40
Cheatgrass	<i>Bromus tectorum</i>	C		X							Throughout ROW
Whitetop / Hoary Cress	<i>Cardaria draba</i>	B	X	X		X	X		X	X	Widespread
Plumeless Thistle	<i>Carduus acanthoides</i>	B	X	X			X	X	X	X	Not Observed
Musk Thistle / Biannual Thistle	<i>Carduus nutans</i>	B	X	X	X	X	X		X	X	MP 37-38.5,44.9-46.1,51.9-52.1
Spotted Knapweed	<i>Centaurea maculosa</i>	B	X	X	X	X	X	X	X	X	MPs 25.3-25.4
Diffuse Knapweed	<i>Centaurea diffusa</i>	B	X	X		X	X	X	X	X	Not Observed
Black Knapweed	<i>Centaurea nigra</i>						X				Not Observed
Meadow Knapweed	<i>Centaurea pratensis</i>	A									Not Observed
Russian Knapweed	<i>Centaurea repens</i>	B	X	X		X	X	X	X	X	MPs 0.2-0.4, 58.6-59.5
Yellow Starthistle	<i>Centaurea solstitialis</i>	A					X				Not Observed
Squarrose knapweed	<i>Centaurea virgata</i>	A									Not Observed
Rush Skeletonweed	<i>Chondrilla juncea</i>	A									Not Observed
Oxeye Daisy	<i>Chrysanthemum leucanthemum</i>		X						X	X	Not Observed

Table C-1 Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

		Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Carbon County, WY	Located During 2007 Field Surveys ¹
Common Name	Scientific Name										
Canada Thistle	<i>Cirsium arvense</i>	B	X	X	X	X	X	X	X	X	MPs 0.2-0.4,10.8-12.1, 18.9-19.3, 19.5-19.7, 20.2-20.5,21-21.2, 23.4-23.5,24.3-24.5,25.6-27.3,27.9-29.1,29.4-33.5, 36.2-36.9,38.6-40,40.2-40.8,40.9-41.6,42.9-44.7,44.9-46.1,51.9-52.1,58.6-59.5
Bull Thistle	<i>Cirsium vulgare</i>	B		X	X			X			MPs 4.5-5.2,5.4-6,10.8-12.1,12.6-13,18.9-19.3,20.2-20.5,22.3-22.6,24.3-24.5,25.6-27.3,27.9-29.1,30.6-33.5,33.7-36.1,36.2-36.9,37-38.5,38.6-40,40.2-40.8,42.9-44.7,44.9-46.1,51.9-52.1,77.8-77.9
Field Bindweed	<i>Convolvulus arvensis</i>	C	X	X		X	X	X	X	X	Not Observed
Common Crupina	<i>Crupina vulgaris</i>	A									Not Observed
Houndstongue	<i>Cynoglossum officinale</i>	B	X	X	X	X	X		X	X	MPs 33.7-36.1,36.2-36.9,42.9-44.7,44.9-46.1
Cypress spurge	<i>Euphorbia cyparissias</i>	A									Not Observed
Leafy Spurge	<i>Euphorbia esula</i>	B	X	X		X	X	X		X	MPs 12.4,13.6-15,15.3-15.6,16.5-17.9
Myrtle Spurge	<i>Euphorbia myrsinites</i>	A									Not Observed
Skeletonleaf Bursage	<i>Franseria discolor</i>	A	X						X	X	Not Observed
Curly Cup / Gum Weed	<i>Grindelia squarrosa</i>						X				Not Observed

Table C-1 Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

		Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Carbon County, WY	Located During 2007 Field Surveys ¹
Common Name	Scientific Name										
Halogeton	<i>Halogeton glomeratus</i>	C		X		X	X				Widespread, Wamsutter Compressor Station to the Wyoming-Colorado border
Foxtail Barley	<i>Hordeum jubatum</i>								X		Not Observed
Hydrilla	<i>Hydrilla verticillata</i>	A									Not Observed
Black Henbane	<i>Hyoscyamus niger</i>	B		X	X	X	X	X	X		MPs 5-8
Common St. Johnswort	<i>Hypericum perforatum</i>	C	X						X	X	Not Observed
Dyer's Woad	<i>Isatis tinctoria</i>	A	X			X			X	X	Not Observed
Kochia / Fireweed / Summer Cypress	<i>Kochia scoparia</i>						X				Not Observed
Perennial Pepperweed / Tall Whitetop	<i>Lepidium latifolium</i>	B	X	X	X	X	X	X	X	X	MP 40, MPs 92.7-93.6
Sericea Lespedeza	<i>Lespedeza cuneata</i>	A									Not Observed
Dalmation Toadflax	<i>Linaria dalmatica</i>	B	X	X		X	X		X	X	Not Observed
Yellow Toadflax	<i>Linaria vulgaris</i>	B	X				X		X	X	Not Observed
Wyeth Lupine	<i>Lupinus wyethii</i>										Not Observed
Purple Loosestrife	<i>Lythrum salicaria</i>	A	X						X	X	Not Observed
Scotch Thistle	<i>Onopordum acanthium</i>	B	X				X		X	X	MPs 19.5-19.7, 21-21.2, 25.6-27.3, 27.9-29.1, 29.4-30.5, 30.6-33.5, 33.5-42
Plains Pricklypear	<i>Opuntia polyacantha</i>										Not Observed
African Rue	<i>Peganum harmala</i>	A									Not Observed
Sulfur Cinquefoil	<i>Potentilla recta</i>	C					X				Not Observed
Russian Thistle / Tumbleweed	<i>Salsola tragus</i>						X				MPs 58.6-59.5, 116.3-17.5

Table C-1 Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

		Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Carbon County, WY	Located During 2007 Field Surveys ¹
Common Name	Scientific Name										
Mediterranean Sage	<i>Salvia aethiopsis</i>	A									Not Observed
Giant Salvinia	<i>Salvinia molesta</i>	A									Not Observed
Tansy Ragwort	<i>Senecio jacobaea</i>	A									Not Observed
Perennial Sowthistle	<i>Sonchus arvensis</i>	C	X						X	X	Not Observed
Medusahead	<i>Taeniatherium caput-medusae</i>	A									Not Observed
Salt Cedar / Tamarisk	<i>Tamarix</i> spp.	B	X	X		X			X	X	MPs 18.9-19.3,19.5-19.7,22.3-22.6,40.2-40.8,92.7-93.6,102.8-116.3
Common Tansy	<i>Tanacetum vulgare</i>	B	X						X	X	
Common Mullein	<i>Verbascum thapsus</i>	C		X	X		X	X	X		MPs 4.5-5.2,5.4-6,10.8-12.1,12.6-13,18.9-19.3,30.6-33.5,33.7-36.1,36.2-36.9,42.9-44.7

¹Source: WWE 2008.

Appendix D

Special Status Species Identified for the Project

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
MAMMALS						
Spotted bat	<i>Euderma maculatum</i>	BLM-CO	This species inhabits a wide variety of habitats from semi-desert shrublands to montane forests. Requires rocky cliffs for suitable roosting habitat.	Low. Although suitable foraging and roosting habitat occurs along the proposed route, the nearest documented occurrence for this species is 30 miles west of the proposed route in Dinosaur National Monument.	No.	Fitzgerald et al. 1994.
Townsend's big-eared bat	<i>Plecotus townsendii</i>	BLM-WY; BLM-CO; CO-SPC; WY-SPC.	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 may also be used.	Low. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 2008.
Fringed myotis	<i>Myotis thysanodes</i>	BLM-WY; BLM-CO; WY-SPC.	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 in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Yuma myotis	<i>Myotis yumanensis</i>	BLM-CO.	This species inhabits Basin-prairie shrublands, riparian shrub, grassland, barren areas, cliffs, and rock outcrops. Roosts primarily in human-built structures (buildings 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 2008; WNDD 2008.
Long-eared myotis	<i>Myotis evotis</i>	BLM-WY	This species typically occurs at mid-elevation coniferous forests such as ponderosa pine and piñon-juniper woodlands. Roosts in caves and mines.	Low. This species could occur within suitable habitats in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	BLM 2008a; Fitzgerald et al. 1994.
Wyoming pocket gopher	<i>Thomomys clusius</i>	BLM-WY; WY-SPC.	This species is known to occur in upland drier ridge tops (gravelly loose soils) in greasewood habitat. Nests in a maternal burrow, and usually feeds underground in a shallow tunnel, pulling roots and plants underground.	Low. The known range of this species is limited to the southeastern corner of Sweetwater County.	No. This species has been found <5 miles northeast of the project route in Wyoming.	WGFD 2008; WNDD 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Black-footed ferret	<i>Mustela nigripes</i>	FE; CO-E; WY-SPC.	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. The FWS has not block-cleared prairie dog towns in portions of the proposed route in Wyoming and ferret surveys would be required in prairie dog colonies of suitable size and density.	No. Potentially suitable habitat for this species could occur within white-tailed prairie dog colonies of suitable size and density.	Fitzgerald et al. 1994; USFWS 2008a.
White-tailed prairie dog	<i>Cynomys leucurus</i>	BLM-WY; WY-SPC.	This species occupies basin-prairie and mountain-foothill shrublands, sagebrush-grasslands, barren and overgrazed areas, and agricultural areas.	High. A total of 32 active white-tailed prairie dog colonies were identified along the Project ROW in 2007 (24 in Wyoming and 8 in Colorado). A total of 37 active colonies were identified along the Project ROW in 2008 (10 in Colorado and 27 in Wyoming).	No.	Fitzgerald et al. 1994; WWE 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Pygmy rabbit	<i>Brachylagus idahoensis</i>	WY-SPC.	This species occurs in southwestern Wyoming, in isolated populations in Lincoln, Uinta, Sweetwater, Sublette, and Fremont Counties. Pygmy rabbits are sagebrush obligate species; primarily found in dense western big sagebrush communities, preferably where at least two other species of sagebrush and forbs occur as well.	High. This species has been observed in the vicinity of the proposed route in Wyoming.	No.	WGFD 2008; WNDD 2008.
Swift fox	<i>Vulpes velox</i>	BLM-WY	Short-grass and mid-grass prairie. Dens typically occur on small hills and ridges.	None.	Yes. The proposed route is outside the core range of the swift fox.	BLM 2008a; Fitzgerald et al. 1994.
BIRDS						
White-faced ibis	<i>Plegadis chihi</i>	WY-BLM; BLM-CO	Marshes, wetlands, wet meadows, and streams. Nesting habitat usually consists of dense vegetated islands surrounded by water >18" in depth.	Low. Potentially suitable foraging habitat occurs along Piceance Creek and the White, Yampa, and Little Snake Rivers. The only documented breeding in Moffat County, Colorado, occurs at Brown's Park NWR.	No.	BLM 2008a; Kingery 1998.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Trumpeter swan	<i>Cygnus buccinators</i>	WY-BLM	Lakes, ponds, marshes, and wetlands.	Low.	Yes. No documented nesting records exist for Colorado and suitable habitat is lacking in the Wyoming portion of route. Occurrence would be limited to migrating or dispersing individuals.	BLM 2008a; CDOW 2008a.
Barrow's goldeneye	<i>Bucephala islandica</i>	BLM-CO	This species occupies wetlands, lakes, reservoirs, and rivers. Nesting habitat consists of ponds and wetlands in higher elevation forest areas.	Low. Suitable habitat is located along Piceance Creek and the White, Yampa, and Little Snake rivers. Although this species has the potential to occur along the proposed route, most breeding records have been from higher elevations.	No.	CDOW 2008a; Kingery 1998.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Northern goshawk	<i>Accipiter gentilis</i>	BLM-WY; BLM-CO; WY-SPC.	This species occupies mature, closed-canopied coniferous and aspen forests habitats. This species nests in open older-aged class coniferous forests and aspen stands.	Low. Suitable foraging habitat and marginal nesting habitat occurs along the proposed route in southern Moffat County and along the proposed route in Rio Blanco County. No active nests occur in the vicinity of the proposed route.	No.	Kingery 1998;
Golden eagle	<i>Aquila chrysaetos</i>	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 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 two active nests have been identified within 1 mile of the project ROW.	Kingery 1998; WWE 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Ferruginous hawk	<i>Buteo regalis</i>	BLM-WY; BLM-CO; CO-SPC; WY-SPC.	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.	Moderate. This species could occur within suitable habitats along the project route, although no active nests have been documented in the vicinity of the project ROW.	No.	Kingery 1998; WWE 2008; WNDD 2008.
Swainson's hawk	<i>Buteo swainsoni</i>	BLM-CO; WY-SPC.	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 occur on cliffs or rock outcrops.	High. This species could occur within suitable habitats along the project route, especially in areas with suitable trees and large shrubs for nesting.	No. An active nest was located along the Project ROW in Colorado in 2008.	Kingery 1998; WGFD 2008.
Bald eagle	<i>Haliaeetus leucocephalus</i>	CO-T; WY-SPC.	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 along the White, Yampa, and Little Snake rivers.	Kingery 1998; WWE 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
American peregrine falcon	<i>Falco peregrinus</i>	BLM-WY; CO-SPC; WY-SPC.	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. Most peregrine falcon nests in northwest Colorado are located in Dinosaur National Monument 30 miles northwest of the proposed route.	No.	BLM 2008a; Kingery 1998.
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	BLM-CO; BLM-WY; CO-SPC; WY-SPC.	This species is typically found at the interface of sagebrush, serviceberry, chokecherry, oakbrush, and grasslands. Leks are located on open ridges.	Low. This species could occur within suitable habitats (i.e., sagebrush/oakbrush interface) along the project route. Approximately 5 historic leks occur 10-15 miles northeast of the proposed route in Moffat County, Colorado.	No.	BLM 2008a; CDOW 2008a.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Greater sage-grouse	<i>Centrocercus urophasianus</i>	BLM-WY; BLM-CO; CO-SPC; WY-SPC.	Sage-grouse are 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 occurs within suitable habitats along the project route. Occurrence by this species has been documented within the project vicinity in Wyoming and Colorado.	No. Suitable breeding habitat for this species is scattered along the project route. A total of 6 active lek sites were identified within 4 miles of the project ROW in Colorado and 2 active leks within 2 miles of the project ROW in Wyoming.	BLM 2008a; Connelly et al. 2000; Kingery 1998; WWE 2008; WNDD 2008.
Mountain plover	<i>Charadrius montanus</i>	BLM-WY; BLM-CO; CO-SPC; WY-SPC.	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 northern portion of the project route in Wyoming.	No. Approximately 11.7 miles of mountain plover habitat is crossed by the proposed route in Wyoming. This species has been documented along the proposed route in Wyoming.	BLM 2008a; Kingery 1998; WNDD 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Black tern	<i>Chlidonias niger</i>	BLM-CO	This species is found near reservoirs, lakes, and ponds. Nesting occurs in large cattail marshes adjacent to open water.	Low. Although this species could occur along the proposed route, suitable habitat is very limited. Occurrence would be limited to migrating and dispersing individuals.	No.	CDOW 2008a; Kingery 1998.
Long-billed curlew	<i>Numenius americanus</i>	WY-BLM; BLM-CO.	Grasslands and wet meadows.	Low. Potentially suitable habitat occurs along portions of the proposed route. A small breeding population may occur in Moffat County, Colorado	No.	BLM 2008a; Kingery 1998.
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FC; BLM-WY; BLM-CO; CO-SPC; WY-SPC.	This species inhabits lowland deciduous woodlands, willow and alder thickets, mature cottonwood-riparian woodlands, deserted farmlands, and orchards. Breeding typically occurs in riparian woodlands.	None. No observations of this species have been documented within the project vicinity.	Yes. The dense riparian habitat necessary to support yellow-billed cuckoos is not present in the project area.	Kingery 1998; WGFD 2008, WNDD 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Western burrowing owl	<i>Athene cunicularia hypugea</i>	BLM-WY; CO-SPC; CO-T; WY-SPC.	This species nests 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. Two active nests were identified in Wyoming during summer 2007 surveys.	BLM 2008a; Kingery 1998; WWE 2008.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT; CO-T	Habitat includes mixed conifer forests and hardwood forests with canyons. This species also utilizes riparian areas. Nests typically occur in caves, potholes, or rock fissures in narrow, steep wall canyons. The species exhibits a high level of nest site fidelity.	Low. The nearest documented occurrence for this species is in Dinosaur National Monument 35 miles west of the proposed route.	Yes	CDOW 2008a; Kingery 1998; USFWS 2004.
Sage thrasher	<i>Oreoscoptes montanus</i>	BLM-WY; WY-SPC.	This species inhabits basin-prairie and mountain-foothills shrubland, and nesting occurs in or beneath sagebrush shrubs.	Low. This species is a summer resident in Sweetwater County. No sage thrashers were seen during the 2007 surveys.	No.	BLM 2008a; WGFD 2008; WWE 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Baird's sparrow	<i>Ammodramus bairdii</i>	WY-BLM	Grasslands, fallow weedy fields.	Low.	Yes. The proposed route is outside the breeding range of this species. Therefore, occurrence would be limited to migrating or dispersing individuals.	BLM 2008a.
Sage sparrow	<i>Amphispiza belli</i>	BLM-WY; CO-SPC; WY-SPC.	This species inhabits basin-prairie and mountain-foothills shrubland, and nesting occurs in or beneath sagebrush shrubs.	High. This species is an uncommon summer resident in Sweetwater County and local summer resident in western Colorado. Sage sparrows were seen during the 2007 surveys.	No.	BLM 2008a; CNHP 2008; Kingery 1998; WWE 2008.
Brewer's sparrow	<i>Spizella breweri</i>	BLM-WY; CO-SPC; WY-SPC.	This species typically occurs in basin-prairie and mountain-foothills shrublands, especially sagebrush and woodland chaparral. Nest sites typically occur in shrubs.	High. This species is a common summer resident in Sweetwater, Moffat, and Rio Blanco Counties. This species was not observed during 2007 surveys.	No.	Kingery 1998; WGFD 2008; WWE 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Loggerhead shrike	<i>Lanius ludovicianus</i>	BLM-WY; CO-SPC	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.	High. This species could nest within suitable habitat along the project route.	No. This species was observed in the vicinity of the ROW during 2007 surveys.	BLM 2008a; Kingery 1998; WWE 2008.
AMPHIBIANS						
Northern leopard frog	<i>Rana pipiens</i>	BLM-CO; BLM-WY; CO-SPC; WY-SPC.	Typical habitats include wet meadows and the banks and shallows of marshes, ponds, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. Breeding season is generally May 1-August 15.	High. This species has been documented in suitable habitat along the project route.	No.	BLM 2008a; CDOW 2008a; FERC 2005a,b.
Great Basin spadefoot	<i>Spea intermontana</i>	BLM-CO; BLM-WY; WY-SPC.	Breeds in pools and stock ponds filled by heavy rains or flooding in basins and rocky canyons, in areas with sagebrush, semidesert shrubland, or piñon-juniper woodlands. Breeding season is generally May 1-August 15.	Moderate. This species has been documented in the vicinity of the proposed project in suitable habitat (e.g., stock ponds, temporary wetlands) in Colorado and Wyoming.	No.	BLM 2008a; CDOW 2008a; CNHP 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Boreal toad	<i>Bufo boreas boreas</i>	FC; CO-E; WY-SPC.	Restricted to areas with suitable breeding habitat in spruce-fir forests and alpine meadows. Breeding habitat includes lakes, marshes, ponds, and bogs with sunny exposures and quiet, shallow water. Breeding season is generally May 1-August 15.	Low. This species could occur within counties crossed by the proposed project; however suitable habitat (based on known occurrence records) is not likely crossed.	Yes.	BLM 2008a; CDOW 2008b.
REPTILES						
Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	BLM-CO; WY-SPC.	This species inhabits rock outcrops in the sagebrush communities.	Low. This species could occur within suitable habitats along the project route in Sweetwater County, Wyoming.	No.	Baxter and Stone 1980; WGFD 2008; WNDD 2008.
FISH						
Bluehead sucker	<i>Catostomus discobolus</i>	BLM-CO; BLM-WY; WY-SPC.	Found exclusively in moving water from headwater streams to large rivers. It is absent in areas of standing water, requiring water of moderate-to-fast velocity. The species also prefers a rock substrate. Known to inhabit the Colorado River drainage. Spawning occurs in late spring and early summer.	High. This species is found in the White, Yampa, and Little Snake Rivers and has the potential to occur at or near the proposed crossing.	No.	CDOW 2008a; USFWS 2004 ^a , 2008.

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Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Mountain sucker	<i>Catostomus platyrhynchus</i>	BLM-CO; WY-SPC.	Typically 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.	High. This species is found in the White, Yampa, and Little Snake Rivers and Piceance Creek and has the potential to occur at or near the proposed crossing	No.	USFWS 2004a.
Bonytail	<i>Gila elegans</i>	FE; CO-E	Historically, bonytails were present in the Colorado River system, which includes the Yampa, Green, Colorado and Gunnison rivers. Today, there are no known populations in Colorado. They can be found in the Green River drainage in Utah and Mohave Reservoir on the Arizona-Nevada border. This fish typically lives in large, fast-flowing waterways of the Colorado River system. Spawning occurs in June and July.	None. No known populations occur in Colorado. The last occurrence by this species in the Yampa River was recorded at the confluence of the Green River (Echo Park) in 1979. In July 2000, CDOW released 5,000 fingerlings at Echo Park to augment wild populations.	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.	CDOW 2008b; FERC 2005a,b; USFWS 2004a, 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	FE; CO-T	Historically, the pikeminnow occurred in great numbers throughout the Colorado River system from Green River in Wyoming to the Gulf of California in Mexico. In Colorado, they are currently found in the Green, Yampa, White, Colorado, Gunnison, San Juan and Dolores rivers. This species thrives in swift flowing muddy rivers with quiet, warm backwaters. Spawning occurs June through August.	High. This species has been documented <2 miles from the proposed crossing. The project route would intersect critical habitat for this species at the Yampa River crossing. Potential water depletions from the Colorado River drainage could impact suitable habitat.	No.	CDOW 2008b; CNHP 2008; USFWS 2004a, 2008.
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	CO-SPC; BLM-CO; BLM-WY; WY-SPC.	Historically, this species was found throughout the Colorado River drainage in Colorado, Wyoming, Utah, Arizona, and New Mexico. Now limited to isolated headwater streams and lakes. This species thrives in cool, clear water of high elevation streams and lakes. Most populations are limited to elevations above 7,000 feet. Spawning occurs in spring.	Low. In northwest Colorado, this species distribution is limited to isolated headwater streams and lakes of the White and Yampa River systems. The nearest population occurs approximately 10 miles south of the proposed route in Garfield County, Colorado.	No.	Behnke 1992; CDOW 2008b.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Flannemouth sucker	<i>Catostomus latipinnis</i>	BLM-CO; BLM-WY; WY-SPC.	The flannemouth sucker inhabits larger streams and rivers in all habitat types including riffles, runs, eddies, and backwaters. Known to inhabit the Colorado River drainage. Spawning occurs in spring and early summer.	High. This species is known to occur in Piceance Creek and the White, Yampa, and Little Snake Rivers and has the potential to occur at or near the proposed crossing.	No.	CDOW 2008a; USFWS 2004a.
Humpback chub	<i>Gila cypha</i>	FE; CO-T	The historic range of the humpback is similar to the pikeminnow, occurring in great numbers throughout the Colorado River system from Green River in Wyoming to the Gulf of California in Mexico. Today, they can be found in deep, canyon-bound portions of the Colorado River system such as Black Rocks and Westwater canyons on the Colorado River and Yampa Canyon inside Dinosaur National Monument. This species prefers deep, fast-moving, turbid waters often associated with large boulders and steep cliffs. Spawning occurs in late spring.	None. The closest known population occurs more than 40 river 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.	CDOW 2008b; USFWS 2004a, 2008.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Razorback sucker	<i>Xyrauchen texanus</i>	FE; CO-E	Originally widespread in the Colorado River system, wild populations were reduced to a small number of individuals in the Yampa, Colorado and Gunnison rivers in Colorado. Reproducing populations remain only in the middle Green River in Utah and in an off-channel pond in the Colorado River near Grand Junction. This species is found in deep, clear to turbid waters of large rivers and some reservoirs over mud, sand or gravel. Spawning occurs in late spring and early summer.	None. The closest known population occurs more than 40 river 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.	CDOW 2008b; FERC 2005a,b; USFWS 2004a, 2008.
Roundtail chub	<i>Gila robusta</i>	CO-SPC; BLM-CO; BLM-WY; WY-SPC.	Main channels of large rivers, and is most often found in murky pools near strong currents. Known to occur in the rivers of the Colorado River Basin. Spawning occurs in spring and early summer.	High. This species is known to occur in Piceance Creek and the White, Yampa, and Little Snake Rivers and has the potential to occur at or near the proposed crossing.	No.	CDOW 2008a; USFWS 2004a.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
PLANTS						
Debris milkvetch	<i>Astragalus detritalis</i>	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.	High. A total of six populations were observed throughout the length of the project route.	No. This species occurs within suitable habitat throughout the project route.	Spackman et al. 1997; Smith 2004; FERC 2005b.
Nelson milkvetch	<i>Astragalus nelsonianus</i>	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, Wyoming.	No. This species could occur within potentially suitable habitat from MP -0.0 to MP 52.0 and from MP 104.5 to MP 141.7.	Spackman et al. 1997.
Park rockcress	<i>Boechera fernaldiana</i>	BLM-CO	This species occurs on limestone and sandstone outcrops (usually Weber sandstone) in mixed desert shrub and pinyon-juniper communities, often in pine duff in shade.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project route in the extreme western portion of Moffat County, Colorado.	Spackman et al. 1997.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Ownbey's thistle	<i>Cirsium ownbey's</i>	BLM-CO; WY-BLM	Juniper, sagebrush, and riparian communities. Often associated with alcove seeps and abandoned stream channels. Elevation 5,500-6,200 feet.	High. This species could occur within potentially suitable habitat along the proposed route along riparian areas or semi-moist environments.	No.	Spackman et al. 1997.
Many stemmed spider-flower	<i>Cleome multicaulis</i>	BLM-CO; WY-BLM	Semi-moist, open saline banks of shallow ponds and lakes with Baltic rush and bulrush. Often grows in bands just above rushes and extends into greasewood and saltgrass communities. Elevation 7,500-8,000 feet.	High. This species could occur within potentially suitable habitat along the proposed route along riparian areas or semi-moist environments.	No	Fertig 1994; Spackman et al. 1997.
Ephedra buckwheat	<i>Eriogonum ephredoides</i>	BLM-CO	This species occurs on sparsely vegetated slopes on white shales of the Green River Formation and soils derived from them.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project route in the extreme western portion of Rio Blanco County, Colorado.	Spackman and Anderson 2002.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Utah genetian	<i>Gentianella tortuosa</i>	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. No observations of this species have been documented within the project vicinity.	Yes. The project route does not occur within the elevational range of this species in Rio Blanco County, Colorado.	Spackman et al. 1997.
Narrow-stem gilia	<i>Gilia stenothyrsa</i>	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 period: Late May-June. Elevation: 5,000-6,000 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 MP 103 to MP 141.7.	Spackman et al. 1997.
Dudley Bluffs bladderpod	<i>Lesquerella congesta</i>	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 MP 128 and MP 141.7.	Spackman et al. 1997.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Piceance bladderpod	<i>Lesquerella parviflora</i>	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.	High. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. This species was found during spring 2008 surveys at MP 15 and MP 15.4.	Spackman et al. 1997.
Narrow-leaf evening primrose	<i>Oenothera acutissima</i>	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. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project route in western Moffat County, Colorado.	Spackman et al. 1997.
Rollins cryptanth	<i>Oreocarya rollinsii</i>	BLM-CO	This species occurs on white shale slopes of the Green River Formation in pinyon-juniper or cold desert shrubland communities.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project route in western Moffat County, Colorado.	Spackman et al. 1997.
Contracted Indian ricegrass	<i>Oryzopsis contracta</i>	BLM-CO; WY-BLM	Basin and foothills areas on dry, sandy soils. Elevation 4,800-7,500 feet.	Low. This species could occur within potentially suitable habitat along the proposed route in Rio Blanco County, Colorado.	No.	Fertig 1994; Spackman et al. 1997.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Gibben's beardtongue	<i>Penstemon gibbensii</i>	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.	High. This species could occur within potentially suitable habitat along the project route in Sweetwater County, Wyoming.	No. This species could occur within potentially suitable habitat from MP 0.0 to MP 52 and from MP 103 to MP 141.7. This species was identified in the project vicinity during the 2004 field surveys.	Fertig 1994; Spackman et al. 1997.
Dudley Bluffs twinpod (a.k.a. Piceance twinpod)	<i>Physaria obcordata</i>	FT	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.	High. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. Suitable habitat for this species occurs between MP 128 and MP 141.7. This species was identified in the general project vicinity during 2004 field surveys (although not along the proposed ROW).	Spackman et al. 1997.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Western prairie-fringed orchid	<i>Platanthera praeclara</i>	FT	This orchid occurs most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.	None. This species would not occur along the project route.	Yes. This species is not expected within the project vicinity based on known occurrences and overall range.	FERC 2005b.
Persistent sepal yellow-cress	<i>Rorippa calycina</i>	BLM-CO; WY-BLM	Riverbanks and shorelines on sandy soils near the high-water line. Elevation 4,300-6,800 feet.	High. This species could occur within potentially suitable habitat along the proposed route along riparian areas or semi-moist environments.	No	Fertig 1994; Spackman et al. 1997.

Table D-1 Special Status Species Identified for the Piceance Lateral Pipeline Project

Common Name	Scientific Name	Status ¹	Habitat Association	Potential for Occurrence Along the Proposed Project Route	Eliminated From Detailed Analysis (Yes/No)	References
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>	FT	This species is found in sub-irrigated alluvial soils along streams, and in open meadows in flood plains. Flowering period: July-September. Elevation: 4,200-7,000 feet.	Low. This species was not observed during the 2004 field surveys. The closest known occurrence is approximately 50 miles west of the project route.	No. This species is not expected within the project vicinity based on known occurrences and overall range. However, suitable habitat for this species was observed at several locations in Colorado.	Fertig 1994; Spackman et al. 1997.

¹FE = 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.

CO-SPC = Colorado Species of Concern.

WY-SPC = Wyoming Species of Concern.

BLM-CO = Colorado BLM Sensitive Species.

BLM-WY = Wyoming BLM Sensitive Species.

Appendix E

Cultural Resource Inventory

Table E-1 Summary of Sites Recorded During the Overland Pass Piceance Lateral Cultural Resource Inventory

Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5MF312	X			X						X		X				
5MF1707.3		X		X			X			X ¹	X	X				
5MF1915	X	X		X			X		X ¹		X		X	X	X	
5MF2985	X						X			X ^{1,2}		X				
5MF2988	X			X						X ^{1,2}		X				
5MF2989	X						X		X		X		X	X	X	
5MF2990	X						X		X ¹		X		X	X	X	
5MF2992	X						X		X ¹		X		X	X	X	
5MF2993	X						X		X ¹		X		X	X	X	
5MF2994	X						X		X ¹		X		X	X	X	
5MF3001	X						X		X ¹		X		X	X	X	
5MF3002	X			X					X ¹		X		X	X	X	
5MF3003	X			X					X ¹		X		X	X	X	
5MF3006	X			X			X		X ¹		X		X	X	X	
5MF3008	X						X			X ¹	X	X				
5MF3009	X						X			X ¹	X	X				

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Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private - Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5MF3010		X					X			X		X				
5MF3172	X						X		X		X		X	X	X	
5MF3190	X						X			X ^{1,2}		X				
5MF3193	X						X			X ¹	X	X				
5MF3195	X						X		X ¹		X		X	X	X	
5MF3196/5MF3171	X						X		X ¹		X		X	X	X	
5MF3198	X					X			X ¹		X		X	X	X	
5MF3327	X			X						X ^{1,2}		X				
5MF3328/48SW8861	X			X	X				X ¹		X			X	X	
5MF3587	X						X		X ¹		X		X	X	X	
5MF4143.3		X				X	X		X ^{1,3}		X	X		X		
5MF5379	X						X			X ¹	X	X				
5MF5382	X						X			X ¹	X	X				
5MF5389	X			X					X		X		X	X	X	
5MF5403	X						X		X ¹		X		X	X	X	
5MF5445	X						X		X		X		X	X	X	

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	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5MF5451.1		X					X			X	X	X				
5MF5451.2		X					X			X ¹	X	X				
5MF5452.1		X					X			X ¹	X	X				
5MF5452.2		X					X			X ¹		X				
5MF5680	X			X			X			X ¹	X	X				
5MF5681	X						X			X ¹	X	X				
5MF5682/5MF2997	X			X			X		X ¹		X		X	X	X	
5MF5686	X			X			X		X ¹		X		X	X	X	
5MF5687	X					X			X		X		X	X	X	
5MF5691	X						X			X ^{1,2}		X				
5MF5692		X					X			X ¹	X	X				
5MF5693	X	X					X		X		X		X	X	X	
5MF5694	X			X						X ¹	X	X				
5MF5778		X					X			X ¹	X	X				
5MF5821.2		X					X			X		X				
5MF5823.1		X					X			X ¹	X	X				

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Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private - Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5MF5849	X					X			X		X		X	X	X	
5MF6170	X						X			X	X	X				
5MF6246	X					X			X		X		X	X	X	
5MF6535	X	X					X			X		X				
5MF6536	X						X		X		X		X	X	X	
5MF6537	X					X				X		X				
5MF6538	X			X						X		X				
5MF6539	X						X		X		X		X	X	X	
5MF6540		X					X		X		X		X	X	X	
5MF6541		X		X						X		X				
5MF6542	X						X		X				X	X		
5MF6543		X					X		X		X		X	X	X	
5MF6544	X						X			X		X				
5RB3405.1		X					X			X ^{1,2}	X	X				
5RB765	X						X			X		X				
5RB4160.4		X					X			X	X	X				

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	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private - Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5RB4161.4		X					X			X	X	X				
5RB4921		X	X							X ¹	X	X				
5RB4924		X	X							X ¹	X	X				
5RB4925	X						X			X ¹	X	X				
5RB4926	X						X		X ¹		X		X	X	X	
5RB4927	X						X		X ¹		X		X	X	X	
5RB4929		X	X							X		X				
5RB4930		X					X			X ¹	X	X				
5RB4932		X	X							X ¹	X	X				
5RB4933		X	X							X ¹		X				
5RB4934		X	X							X ¹	X	X				
5RB4935		X	X							X ¹	X	X				
5RB4939		X	X							X ¹	X	X				
5RB5684		X					X		X				X	X		
5RB5685	X						X		X				X	X		
5RB5686		X	X							X		X				

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	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private - Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
5RB5687		X	X							X		X				
5RB5688		X	X							X		X				
5RB5689		X	X							X		X				
48CR1616	X							X		X	X	X				
48CR1911	X							X	X ^{1,2,4}					X	X	
48CR2009	X							X		X	X	X				
48CR2017	X							X	X ¹		X		X	X	X	
48CR5501	X							X		X	X	X				
48CR7914	X							X	X ¹		X		X	X	X	
48SW635	X				X					X ^{1,2}		X				
48SW1180	X				X					X ¹	X	X				
48SW1181	X				X			X		X ¹	X	X				
48SW1182	X							X		X ¹	X	X				
48SW1226		X			X			X	X ¹		X					X
48SW3680		X			X				X ¹		X					X
48SW3723	X				X					X ¹	X	X				

Table E-1 Summary of Sites Recorded During the Overland Pass Piceance Lateral Cultural Resource Inventory

Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
48SW3725	X				X			X	X ¹		X		X	X	X	
48SW6030	X				X					X ¹	X	X				
48SW6155	X				X					X ^{1,2}	X	X				
48SW8802	X				X					X ²	X	X				
48SW8803	X				X				X ¹					X	X	
48SW8809	X				X					X ¹	X	X				
48SW8810	X				X				X ¹		X		X	X	X	
48SW8817	X				X					X ¹	X	X				
48SW8819	X							X		X ¹	X	X				
48SW8834	X				X					X ¹	X	X				
48SW8835	X							X		X ¹		X				
48SW8837	X				X					X ¹		X				
48SW8838	X				X					X ¹		X				
48SW8842	X				X				X ¹				X	X		
48SW8844	X							X		X ^{1,2}		X				
48SW8846	X	X			X					X ¹	X	X				

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Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
48SW8847	X							X		X ¹	X	X				
48SW9142	X				X					X ²		X				
48SW9151	X				X					X ¹	X	X				
48SW9548	X				X					X ¹		X				
48SW10277		X			X					X ¹	X	X				
48SW10284	X				X				X ¹		X		X	X	X	
48SW12257	X				X				X		X		X	X	X	
48SW13691	X				X					X ¹		X				
48SW14337	X				X					X ¹	X	X				
48SW15597	X				X					X ¹	X	X				
48SW15606	X	X						X		X ¹		X				
48SW15607	X							X		X ¹	X	X				
48SW15732	X				X					X ¹	X	X				
48SW15733	X				X					X ^{1,2}		X				
48SW15734	X				X					X ¹		X				
48SW15735	X	X			X					X ¹		X				

Table E-1 Summary of Sites Recorded During the Overland Pass Piceance Lateral Cultural Resource Inventory

Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
48SW15736	X				X					X ¹	X	X				
48SW15738	X				X				X ¹		X		X	X	X	
48SW15739		X			X					X ¹	X	X				
48SW15742		X						X		X ¹	X	X				
48SW15743	X				X			X		X ^{1,2}		X				
48SW15744	X							X		X ^{1,2}		X				
48SW15749	X				X					X ¹	X	X				
48SW15751		X			X					X ¹	X	X				
48SW15756	X				X					X ¹	X	X				
48SW15757	X				X					X ¹	X	X				
48SW15824	X				X					X ¹	X	X				
48SW16341	X				X					X ¹	X	X				
48SW16348	X				X			X	X				X	X		
48SW16385	X							X	X				X		X	
48SW16962	X							X	X		X		X	X	X	
48SW16963		X			X					X	X	X				

Table E-1 Summary of Sites Recorded During the Overland Pass Piceance Lateral Cultural Resource Inventory

Smithsonian Number	Resource Type		Land Status						NRHP Eligibility		Project Impacts	Management Recommendation				
	Prehistoric	Historic	BLM-WRFO	BLM-LSFO	BLM-RFO	State of Colorado	Private - Colorado	Private – Wyoming	Eligible	Not Eligible	Intact Part of Site is within the Piceance Lateral Construction Corridor	No Further Work	Consider for Data Recovery	Monitor, Right-of-Way Construction	Monitor, Open Trench Inspection	Narrow Construction Corridor to Minimize Impacts
48SW16964	X				X				X					X	X	
48SW16965	X				X					X	X	X				
48SW16966	X				X					X	X	X				
48SW16967	X				X				X				X	X		
48SW16968	X				X					X		X				
48SW16969	X				X					X	X	X				
48SW16971	X							X	X		X		X	X	X	
48SW17021	X				X					X	X	X				
48SW17051	X							X		X		X				
48SW17052	X							X		X		X				
48SW17053	X							X		X		X				

¹Official NRHP determination of eligibility.

²Site has been destroyed.

³Noncontributing segment of an NRHP-eligible linear site.

⁴Officially eligible but recommended “need data.”

Source: Greubel et al. 2008.