



ENVIRONMENTAL ASSESSMENT DOI-BLM-CO-N040-2009-0070-EA

Spruce Creek to Mamm Creek Natural Gas Pipeline Project

**Garfield County, Colorado
November 2009**



Lead Agency:

USDI Bureau of Land Management
Glenwood Springs Field Office
2300 River Frontage Road
Silt, CO 81652

Cooperating Agency:

USDA Forest Service
White River National Forest
220 Grand Avenue
Glenwood Springs, CO 81601

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Lead Agency: USDI Bureau of Land Management, Glenwood Springs Field Office
Cooperating Agency: USDA Forest Service, White River National Forest
Responsible Official: Steve Bennett, BLM Field Manager
Project Leader: Rebecca Beavers, BLM Natural Resources Specialist

Draft Prepared by

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Prepared for

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EXECUTIVE SUMMARY

ETC Canyon Pipeline, LLC (ETC) has proposed to install approximately 8.1 miles of 24-inch diameter and 3.3 miles of 12-inch diameter buried steel natural gas pipeline and related above-ground valve facilities. The 24-inch pipeline would begin at an existing 24-inch pipeline interconnect located in Section 9, Township 7 South, Range 94 West (T7S, R94W), Sixth Principal Meridian, and terminate at a point in Section 16, T7S, R93W. The 12-inch pipeline section would begin at the termination point of the 24-inch pipeline in Section 16, T7S, R93W and would terminate within Section 29, T7S, R93W, on National Forest System (NFS) lands. The proposal is referred to as the ETC Spruce Creek to Mamm Creek Pipeline Project. As proposed, the pipeline would be located entirely within Garfield, County, Colorado. Of the total 11.4 miles of pipeline, approximately 6.6 miles would be installed on BLM-managed lands and 1.9 miles on NFS-managed lands within the White River National Forest (WRNF). The remaining 2.9 miles would be on private lands.

The purpose of the proposed pipeline project is to support the development oil and gas resources consistent with existing Federal lease rights. The action is needed to expand the current natural gas gathering infrastructure in order to provide a gathering and transportation system to developing gas producing fields within the area.

The total line capacity of the pipeline would be approximately 300 million standard cubic feet (mmscf) per day. In the initial operating phase, the proposed pipeline would gather and transport approximately 100 mmscf per day of natural gas and operating pressures. The actual gas volumes would be dependent upon available produced gas and operating pressures. The proposed 24-inch and 12-inch pipelines are designed to handle anticipated increases in natural gas production from wells currently being drilled as well as future wells to be drilled by operators in the area. The 24-inch pipeline would provide increased gas-gathering capacities to serve other potential gathering contracts and other potential gathering contracts for oil and gas activities located farther to the east as existing pipeline infrastructures continue to experience maximum capacities.

ETC has requested a 40-foot-wide permanent right-of-way (ROW), with an additional 35-foot width of a temporary use permit for pipeline construction. The pipeline would connect to the recently constructed 24-inch ETC South Parachute Loop pipeline, which would deliver produced gas to interconnects located north of Parachute, Colorado, and would be installed adjacent to existing pipeline and/or road corridors where possible. Existing roads would be used to access the construction workspace. Three temporary staging areas are proposed for use during mobilization and demobilization and for delivery of pipe materials. One staging area would utilize an existing well pad (EnCana J16W) to minimize new disturbance at the termination point of the 24-inch pipeline near Grass Mesa. The second staging area would be approximately 0.46 acre in size, located on Youberg property near a proposed bore beneath Beaver Creek. The third staging area would be approximately 0.23 acre in size, located on NFS lands adjacent to West Mamm Creek Road. The third staging area is currently used as pullout area along the existing road, and no new vegetation impacts would be needed.

A 0.07-acre area at the southeastern end of the pipeline, at the tie-in to existing pipelines from oil and gas wells operated by Laramie II Energy Company, would be disturbed and retained over the long term. This area would be used for a gas metering facility, a launcher/receiver, and an associated valve set.

Construction may occur with two construction spreads (one spread on each end) and is scheduled to start in July 2010. Anticipated completion of the construction would be approximately 14 to 16 weeks later. The pipeline would be operated on a year-round basis.

The 24-inch and 12-inch diameter pipelines would offset existing pipelines by a distance of 20 feet and installed at a depth to allow at least 36 inches of soil cover above the top of the pipe. Where irrigation ditches are encountered, ETC would bore beneath the ditches to maintain water flow and prevent damage to the integrity of the ditch. As mentioned above, the bore technique would also be used to install the pipeline under Beaver Creek. The purposed of this measure is to protect the Town of Rifle Watershed and habitat for a BLM and USFS sensitive fish species, the Colorado River cutthroat trout.

The Spruce Creek to Mamm Creek project would traverse several Federal land management jurisdictional boundaries and therefore falls under provisions listed in Sec. 28 (c)(2) of the Mineral Leasing Act, which state that “where the surface of the Federal lands involved is administered by two or more Federal agencies, the Secretary (of Interior) is authorized, after consultation with the agencies involved, to grant or renew rights-of-way or permits through the Federal lands involved.” Thus, although this project would cross a combination of NFS and BLM-managed public lands, only one ROW grant would be issued, by the BLM.

After completion of construction, all disturbed areas (including the ROW, travel routes, and staging areas) would be returned to preconstruction grades and contours. Topsoil would then be replaced over the ROW from the area in which it was stripped. Revegetation using one or more native seed mixes approved by the BLM would be the primary method for stabilizing soils, controlling erosion, impeding infestations of noxious weeds, and returning the disturbed areas to a self-sustaining community of desirable native species. Where the pipeline crosses private lands, the landowner would have the final say in selection of a seed mix consistent with previous and intended future land uses.

FONSI
DOI-BLM-CO-N040-2009-0070-EA

The USDI Bureau of Land Management (BLM), Glenwood Springs Field Office and the USDA Forest Service, White River National Forest (WRNF) have reviewed the attached Environmental Assessment of the Spruce Creek to Mamm Creek natural gas pipeline project proposed by ETC Canyon Pipeline, LLC. The project design and approved mitigation measures result in a Finding of No Significant Impact on the human environment for the Proposed Action. Therefore, an Environmental Impact Statement under the National Environmental Policy Act (NEPA) is not necessary to analyze the impacts further.

DECISION RECORD

DECISION: It is my decision to approve the Proposed Action of the Spruce Creek to Mamm Creek Pipeline.

RATIONALE:

1. This decision will provide for the orderly, economical, and environmentally sound gathering and conveyance of natural gas resources from valid Federal oil and gas leases.
2. Large portions of the project alignment will follow existing pipeline corridors. Segments where new corridors must be constructed have been located and designed to minimize adverse environmental consequences.
3. This decision does not authorize the initiation of construction activities on BLM or National Forest System (NFS) lands. Those activities will be authorized only upon issuance by BLM of a Right-of-Way Grant for portions of the pipeline on BLM lands and issuance by the WRNF of a Special Use Permit and Temporary Use Permit for portions of the project on NFS lands.

MITIGATION: Environmental impacts will be avoided, minimized, or mitigated by the following:

- Construction of the pipeline along an existing pipeline corridor to the extent practicable.
- Project design components (including boring beneath Beaver Creek) to protect water quality for the Town of Rifle Watershed and the Colorado River cutthroat trout, a BLM and USFS sensitive fish species.
- Timing limitations to prohibit construction from December 1 through April 30 to protect wintering big game.
- A variety of additional restrictions applied as stipulations to the BLM Right-of-Way Grant and the WRNF Special Use Permit and Temporary Use Permit.

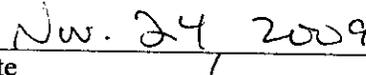
Copies of the Spruce Creek to Mamm Creek Natural Gas Pipeline EA are available for review at the BLM Glenwood Springs Field Office located at 2300 River Frontage Road, Silt, Colorado 81652.

NAME OF PREPARER: Rebecca Beavers, Natural Resource Specialist, Project Lead

SIGNATURE OF AUTHORIZED OFFICIAL:



Authorized Officer



Date

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1. INTRODUCTION

ETC Canyon Pipeline, LLC (ETC) has proposed to install approximately 8.1 miles of 24-inch diameter and 3.3 miles of 12-inch and buried steel natural gas pipeline and related above-ground valve facilities. The 24-inch pipeline section would begin at an existing 24-inch pipeline interconnect located in Section 9, Township 7 South, Range 94 West (T7S, R94W), Sixth Principal Meridian and terminate at a point in Section 16, T7S, R 93W. The 12-inch pipeline section would begin at the termination point of the 24-inch pipeline in Section 16, T7S, R93W, and would terminate within Section 29, T7S, R93W, on National Forest System (NFS) lands. The proposal is referred to as the ETC Spruce Creek to Mamm Creek pipeline.

Figures 1 and 2 show the project location and the proposed alignment relative to surface land ownership, respectively. Appendix A provides a detailed legal description of the proposed alignment.

1.1 Purpose and Need

The purpose of the action is to develop oil and gas resources consistent with existing Federal lease rights. The action is needed to expand the current natural gas gathering infrastructure in order to provide a gathering and transportation system for natural gas fields in the area. Initially, the pipeline would gather and convey natural gas from Federal and Fee wells operated by Laramie Energy II, LLC.

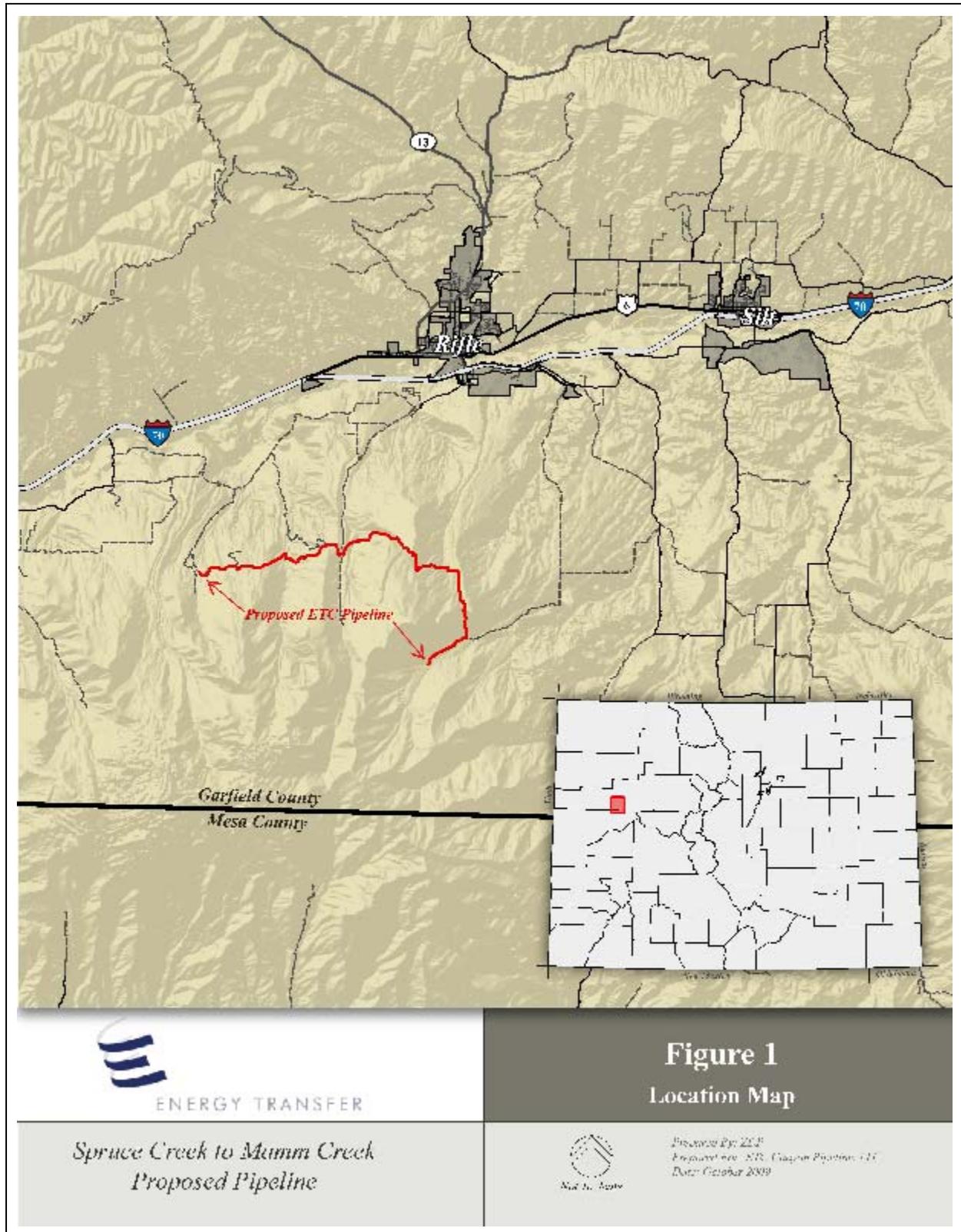
The total line capacity of the pipeline would be approximately 300 million standard cubic feet (mmscf) per day. In the initial operating phase, the proposed pipeline would gather and transport approximately 100 mmscf per day of natural gas at expected operating pressures. The actual gas volumes would be dependent upon available produced gas and operating pressures. The proposed 24-inch and 12-inch pipelines are designed to handle anticipated increases in natural gas production from wells currently being drilled as well as future wells to be drilled by oil and gas operators in the area. The 24-inch pipeline would provide increased gathering capacities in order to serve other potential gathering contracts farther to the east, as existing pipeline infrastructures continue to experience maximum capacities.

1.2 Authorizing Actions and Relationship to Statutes and Regulations

Application for this project was made under the Mineral Leasing Act of 1920 (MLA), as amended. The MLA (Sec. 28 (a)) authorizes Federal agencies to grant rights-of-way (ROWs) for pipeline purposes for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced. The MLA (Sec. 28 (e)) further gives Federal agencies authority to allow temporary uses of Federal lands for construction, operation, and maintenance of pipelines. The U.S. Department of Interior Bureau of Land Management (BLM) and U.S. Department of Agriculture Forest Service (USFS) implementing regulations for this portion of the MLA are found at 43 CFR 2800/2880 and 36 CFR 251.

The MLA directs the agencies to require the applicant to submit a plan of construction, operation, and rehabilitation for ROWs. ETC's submission of a Plan of Development (POD) satisfies this requirement. In addition, the MLA at Sec. 28 (h)(2) gives Federal agencies the authority to impose stipulations on pipeline projects for the following:

- (A) Requirements for restoration, revegetation, and curtailment of erosion of the surface of the land.
- (B) Requirements to insure that activities in connection with the right-of-way or permit would not violate applicable air and water quality standards or related facility siting standards established by or pursuant to law.

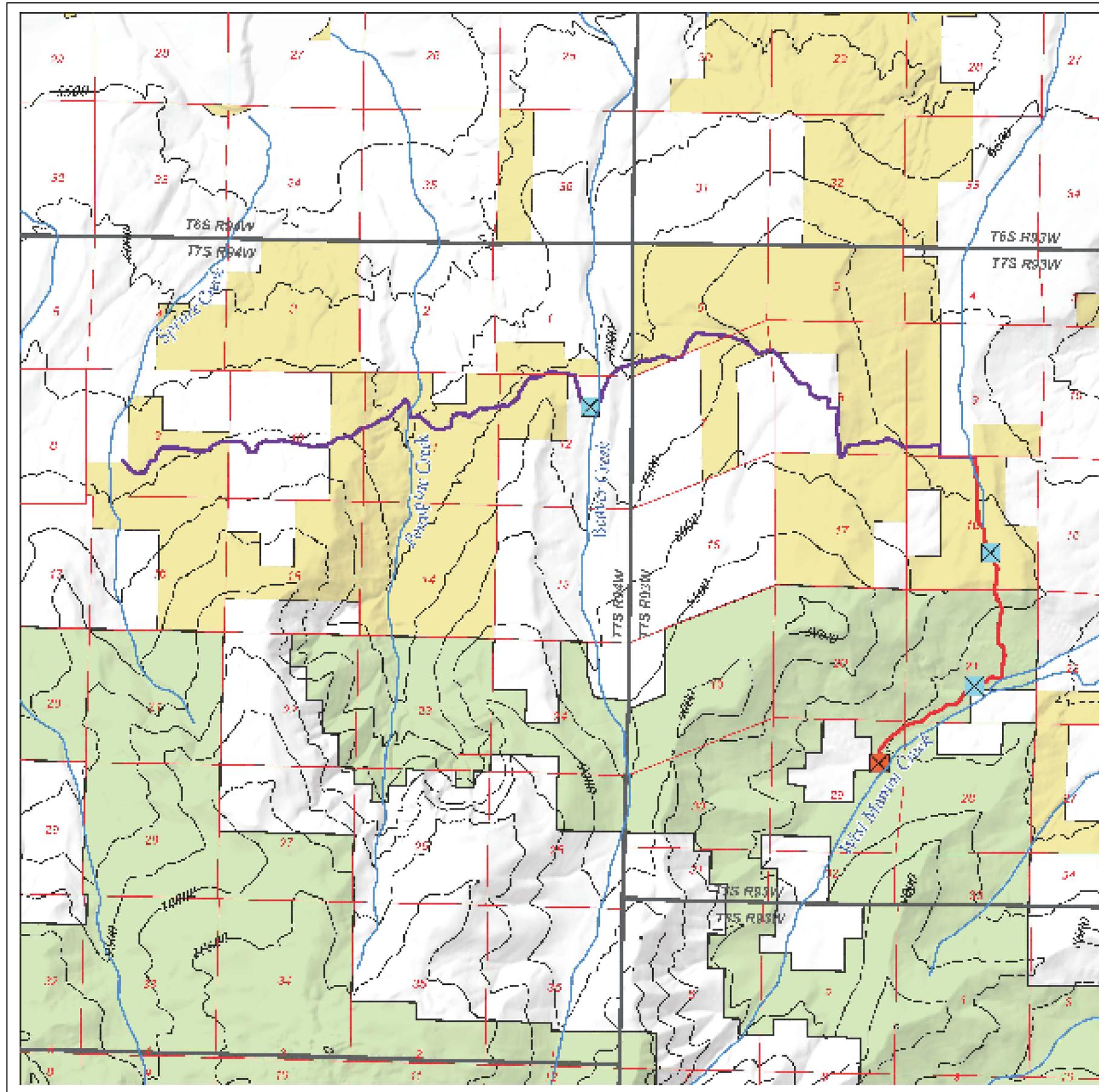




ENERGY TRANSFER

Spring Creek to Mutton Creek
Proposed Pipeline

Figure 2
Proposed Pipeline Routes



- BLM or Land Management Lands
- Wildlife Natural Gas Lease
- Fresh Water
- County Boundary
- Section Boundary
- Proposed Pipeline - 24 to 26 miles
- Proposed Pipeline - 17 to 18 miles
- Proposed Sighting Area
- Gate Structure - Mutton Dam
- Gate - Mutton Dam

0 1000 2000
Feet

Figure 2 - 2/14
 Project No. 2010-00002 Rev. 02
 Date: 02/14/14
 Project: Energy Transfer

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(C) Requirements designed to control or prevent:

- Damage to the environment (including damage to fish and wildlife habitat)
- Damage to public or private property
- Hazards to public health and safety

(D) Requirements to protect the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes. Such regulations shall be applicable to every right-of-way granted.

The Spruce Creek to Mamm Creek project traverses several Federal land management jurisdictional boundaries and therefore falls under provisions listed in Sec. 28 (c) (2) of MLA: “[W]here the surface of the Federal lands involved is administered by two or more Federal agencies, the Secretary (of Interior) is authorized, after consultation with the agencies involved, to grant or renew rights-of-way or permits through the Federal lands involved.” Thus, although this project would cross a combination of public lands managed by the BLM, Glenwood Springs Field Office, or the USFS White River National Forest (WRNF), Rifle Ranger District, a single ROW grant would be issued for the entire project by the BLM.

Of the total 11.4 miles of pipeline, approximately 6.6 miles would be installed on BLM-managed lands and 1.9 miles on NFS-managed lands. The remaining 2.9 miles would be on private properties. A list of Federal permits, approvals, and authorizing actions necessary to construct, operate, maintain, and abandon the proposed pipeline is provided in Table 1.

Table 1. Federally Required Permits, Approvals, and Authorizing Actions		
<i>Agency</i>	<i>Permit or Consultation</i>	<i>Applicability</i>
Bureau of Land Management	EA preparation	NEPA compliance
	Right-of-way grant	Pipeline construction, operation and maintenance on BLM-managed lands
	Antiquities and cultural resource permits	Inventory, excavate, and/or remove cultural or historic resources
U.S. Forest Service	EA participation	NEPA compliance
	Temporary use permit	Pipeline construction, operation, and maintenance on NFS lands
	Road use permit	Commercial use of Forest Service Road – Operation and maintenance of FR824
	Timber sale contract	Tree removal on NFS lands
U.S. Army Corps of Engineers	Nationwide Permit 12 Pre-construction Notification	Work in waters of the U.S.
U.S. Fish and Wildlife Service	ESA Section 7 consultation	Informal consultation process for threatened and endangered species

1.3 Decisions to be Made Based on this Environmental Assessment

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the outcome of this Environmental Assessment (EA) is a Decision Record documenting that the Proposed Action would either significantly affect or not significantly affect the human environment. In the case of the former, the lead agency prepares a Finding of No Significant Impact (FONSI); in the case of the latter, the lead agency prepares

an Environmental Impact Statement (EIS). The responsible official will decide on an alternative based on the analysis contained in this EA. This analysis considers the environmental consequences of the Proposed Action as submitted by ETC and modified in consultation with BLM and WRNF, as well as a variety of mitigation measures identified by BLM and WRNF and attached to the BLM Right-of-Way Grant and WRNF Special Use Permit and Temporary Use Permit as protective stipulations (see Appendix B).

If the Proposed Action is not approved, the result is denial by BLM and WRNF of ETC's application—i.e., the No Action alternative. Other alternatives were considered but not analyzed in detail due to their impracticability or infeasibility.

The Decision Record associated with this EA does not itself constitute approval of the Proposed Action but instead provides a basis for BLM and WRNF to issue the respective Right-of-Way Grant, Special Use Permit, and Temporary Use Permit, which in turn authorize the commencement of ground-disturbing activities on Federal lands.

1.4 Scoping, Consultation, and Coordination

In preparing this EA, the BLM has coordinated with the following agencies:

- WRNF for portions of the project affecting NFS lands
- U.S. Army Corps of Engineers (USACE) relative to impacts to waters of the U.S. pursuant to Section 404 of the Clean Water Act
- U.S. Fish and Wildlife Service (USFWS) relative to Federally listed, proposed, or candidate threatened or endangered species pursuant to Section 7 of the Endangered Species Act (ESA)
- Affected Native American Tribes

Notification to the public consisted of mailing letters to 22 interested parties on April 24, 2009. Additionally, a press release was published in the Glenwood Springs *Post Independent* on April 27, 2009, and the Proposed Action was posted on the Glenwood Springs BLM's web page. Five comment letters were received from interested individuals and organizations. Appendix C presents a synopsis of these comments and agency responses. Where appropriate, responses to the public comments and concerns have been incorporated into the EA.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

2.1.1 Project Summary

The proposal to construct approximately 8.1 miles of 24-inch and 3.3 miles of 12-inch buried steel natural gas pipeline and related valve facilities would involve a 40-foot-wide permanent ROW and an adjacent 35-foot-wide temporary construction area. The pipeline would connect to the recently constructed 24-inch ETC South Parachute Loop pipeline, which would deliver produced gas to interconnects located north of Parachute, Colorado, and would be installed adjacent to existing pipelines and/or road corridors where possible. Existing roads would be used to access the construction workspace. Three temporary staging areas are proposed for use during mobilization and demobilization of equipment and for the delivery of pipe and materials. One staging area for construction equipment and materials would use an existing oil and gas well pad (EnCana J16W) at the termination point of the 24-inch pipeline near Grass

Mesa. The second staging area would include approximately 0.46 acre of new surface disturbance on private (Youberg) and would be used to support boring of the pipeline beneath Beaver Creek. The third staging area, representing 0.07 acre of new disturbance, would be constructed on NFS land at the southern termination point of the 12-inch pipeline and would be used for a “pig” launcher/receiver at the tie-in to gathering lines from the Laramie Energy II wells on private surface lands (Johnson and McClung).

The purpose of boring beneath Beaver Creek is to protect the City of Rifle Municipal Watershed and potential habitat for native cutthroat trout. Except for the bore beneath Beaver Creek, all streams would be crossed using the dry trench method, in which any surface water is diverted around the construction area through a flume so as not to impede water flow. Construction may occur with two construction spreads (one spread on each end) and is scheduled to start in fall 2009. Anticipated completion of construction would be approximately 14 to 16 weeks later. The pipeline would be operated on a year-round basis.

The 24-inch and 12-inch pipelines would be offset from an existing pipeline by a distance of 20 feet and would be installed at a depth to provide at least 36 inches of cover above the pipe. Where irrigation ditches are encountered, ETC would bore beneath the ditches in order to maintain water flow and prevent damage to the integrity of the ditch and injury to users.

The Proposed Action consists of permanent below-ground and above-ground pipeline facilities as well as temporary facilities needed during construction. Permanent facilities include pig launchers/receivers, block valves, pipeline markers, and cathodic protection (anti-corrosion) test stations. The various segments of the pipeline and associated facilities would be installed in compliance with BLM, WRNF, or private landowner stipulations, as applicable (see Appendix B for BLM and WRNF stipulations).

After the final installation of the pipeline, all disturbed areas (including the ROW, vehicle travel routes, and staging areas) would be returned to pre-construction grades and contours. Topsoil would then be replaced into areas from which it was stripped. Revegetation would be the primary method to stabilize soils and ensure permanent erosion control over the long term. ETC would be responsible for the monitoring of the operations of the pipeline once construction is completed.

Impacts, in terms of surface disturbance, resulting from implementation of the Proposed Action are summarized in Table 2.

Table 2. Proposed Action Surface Disturbance Summary (acres)				
<i>Land Status</i>	<i>Permanent ROW</i>	<i>Temporary ROW</i>	<i>Staging/TUAs</i>	<i>Totals</i>
BLM	31.98	26.74	0.18	58.9
WRNF	9.22	8.10	0.07	17.39
Private	12.09	13.79	0.46	26.34
Totals	53.29	48.63	0.71	102.63

2.1.2 Detailed Description

Major elements of the Proposed Action are described in more detail under the general headings of project facilities, construction, restoration, and operations and maintenance. These elements include standard and project-specific surface-use stipulations to avoid, minimize, or mitigate impacts to natural resources as a result of the Proposed Action. The BLM and WRNF stipulations are provided in Appendix B.

Project Facilities

A 75-foot-wide work area would be required on both Federal and private lands during construction, of which 40 feet would be maintained as a permanent pipeline ROW. On certain steep slopes, such as the ridge just east of the Porcupine Creek crossing, the ROW work area would be reduced in width to approximately 50 feet to minimize impacts to the riparian corridor. An above-ground facility, consisting of a pig launcher/receiver and custody transfer meter, would be installed at the southernmost end of the proposed pipeline on NFS land within Section 29. This facility would be located within the 40-foot permanent ROW. The 12-inch pipeline would connect to the existing 8-inch Laramie Energy II pipeline at this point.

The civil engineering surveys were performed by Topographic Survey Company to identify the centerline of the pipeline and the boundaries on both sides of the ROW. Independent Environmental Inspectors (EIs) retained by ETC would be responsible for verifying that the limits of authorized construction work areas are staked and approved access roads are signed prior to construction.

The following sections describe the various pipeline construction phases, which are typical for a project of this type.

Clearing and Grading

Clearing, grading, and other disturbance of soil and vegetation would be limited to the minimum area required for safe construction operations within the approved ROW and extra workspaces. Root systems of trees would be left in place where feasible and where they would not pose a safety concern for workers or an impediment to equipment or rubber-tired vehicle access. The herbaceous vegetation crown would be maintained to the extent possible where blading of the ROW and extra workspaces are not necessary. Once clearing has been performed to remove any obstacles or debris, grading would follow to remove the topsoil and surface rock, and stockpile it within the edge of the ROW for redistribution following construction. Where the ROW parallels existing pipelines, the topsoil would be placed over the existing pipelines to ensure that topsoil is not mixed with trench spoils.

All brush and other materials that are cleared would be windrowed within the ROW or in temporary use areas. Following construction, these materials would be dispersed over the ROW to impede future access along the ROW and to provide wildlife habitat unless ROW stipulations dictate otherwise. Trees and rocks would be voided of dirt and strategically placed on ROW to impede future access.

Trenching

Construction methods used to excavate a trench would vary depending on soil, terrain, and related factors. Where possible, rotary trenching machines would be used. In situations such as steep slopes, unstable soils, high water table, or deep or wide trench requirements, conventional tracked backhoes (trackhoes) would generally be used.

Measures would be taken to ensure that access is provided for property owners or tenants to move vehicles, equipment, and livestock across the trench where necessary. Adequate precautions would also be taken to ensure that livestock are not prevented from reaching water sources because of the open trench. These would include contacting livestock operators, providing adequate crossing facilities, or other measures as needed.

The construction contractor would also ensure that a natural egress ramp in the trench (stream or road crossing) or a soft or hard plug ramp for wildlife and cattle are provided every 0.5 mile to allow animals to escape from the trench.

A typical trench would be excavated approximately 36 inches wide at the bottom, and the sides would be sloped to Occupational Safety and Health Administration (OSHA) specifications. The depth of the trench would be approximately 66 to 72 inches. However, the depth would vary with the conditions encountered. The cover from top of pipe to ground level as graded to finish ROW would be in conformance with U.S. Department of Transportation (USDOT) regulations. Occasionally, the trench would be excavated to depths greater than the minimum values specified. Greater depths of cover would be required at crossings of unpaved roads, other pipelines, streams, or other obstructions. At a minimum, the trench would be excavated to a depth to allow a clearance of 24 inches between the pipeline and other pipelines or underground facilities. Other pipelines are exposed during trenching would be padded to prevent damage. Machine excavation would not be performed closer than 10 feet from any existing pipeline encountered in the ROW unless authorized by the owner/operator of that pipeline. Existing pipeline locations would be marked in the field and 48-hour prior notification given to the operator of the underground utility.

Pipeline crossings of unimproved, lightly traveled, or rural roads would be made with a mechanical ditching machine or a backhoe. Installation at these locations, including cleanup and restoration of road surfaces, would usually be completed within one day. In such cases, provisions would be made to detour or control passage of traffic during construction.

Where large rocks are encountered, tractor-mounted mechanical rippers or rock trenching equipment may be used to facilitate excavation. No blasting is anticipated.

Boring

Boring techniques would generally be used under Garfield County Roads to avoid disrupting traffic in accordance with the governing agency requirements and permitting agreements. For both cased and uncased crossings, auger and directional boring techniques would be implemented.

Auger boring involves excavating a bore pit on one side of the crossing and a receiving pit on the other side. A power unit mounted on rails or a side-boom boring machine attached to a deadman is used to drive the auger inside a heavy-walled pipe casing until the power unit reaches the leading edge of the bore pit. The power unit is disconnected from the auger, backed up, and a segment of the carrier pipe welded to the casing segment already driven. Additional auger and carrier pipe segments are added successively until the bore reaches the other side of the crossing in the receiving pit. Soil excavated by the auger is removed from the pit by a backhoe. Once through, the power unit backs out the auger one segment at a time, leaving the gas pipeline in place under the crossing. In the receiving pit, the casing segment is removed for use at the next crossing.

Directional boring involves using a hydraulic powered machine to drill a near horizontal bore hole for great distances. This method utilizes conventional drill bits attached to drill pipe in order to drill a borehole for the required length. Drilling muds (bentonite) are pumped through the drill bit and in turn carry cuttings back along the drill pipe and are then recovered into tanks located at the power unit. All drilling muds are then filtered and recycled. Once the borehole has been drilled to the desired length, the drill bit is removed and a backreamer attached to the drill pipe. The backreamer is pulled back through the borehole to clean and size the hole. Multiple sizes of backreamers are pulled through the borehole until the desired diameter is achieved. Once the final backreamer has been pushed through, the pre-

welded and tested carrier pipe is then attached to the backreamer and pulled through the borehole. The carrier pipe is then welded to the main pipeline at each end.

The Beaver Creek crossing would be bored utilizing a conventional auger bore to avoid impacts to wetlands and waters of the U.S. in the Rifle Municipal Watershed as well as to minimize impacts to potential habitat for Colorado River cutthroat trout. Care would be taken not to allow equipment to travel across the stream or to allow debris or sediment to be transported into the stream as a result of construction activities.

Pipe Installation

Pipe installation would include stringing, bending for horizontal or vertical angles in the alignment, welding the pipe segments together, x-ray inspection, coating the joint areas to prevent corrosion, and then lowering-in and padding.

Stringing

Line pipe would be shipped directly from the manufacturer by trucks to the ROW. Each individual joint of pipe would be unloaded by cranes or tractors equipped with side booms and slings, and strung parallel to the trench. Sufficient pipe for road or stream crossings would be stockpiled at staging areas near the crossings.

Stringing operations would be coordinated with trenching and installation activities to properly manage the construction time at a particular tract of land. Gaps would be left at access points across the trench to allow crossing of the ROW.

Bending

After the joints of pipe are strung along the trench but before the joints are welded together, individual joints of the pipe would be bent to accommodate horizontal and vertical changes in direction. Field bends would be made utilizing a hydraulically operated bending machine. Where the deflection of a bend exceeds the allowable limits for a field-bent pipe, factory (induction) bends would be installed.

Welding

After the pipe joints are bent, the pipe is lined up end-to-end and clamped into position. The pipe is then welded in conformance with 49 CFR Part 192, Subpart E. "Welding of Steel Pipelines" and API 1104, "Standard for Welding Pipelines and Related Facilities," latest edition.

X-Ray Inspection

All welds are visually inspected by a qualified inspector using non-destructive radiographic methods. At a minimum, radiographic inspection would be conducted in accordance with DOT requirements. A specialized contractor, certified to perform radiographic inspection, would be employed to perform this work. Any defects would be repaired or cut out as required under the specified regulations and standards.

Coating

To prevent corrosion, the pipe is externally coated with fusion-bonded epoxy coating prior to delivery. Power Crete-coated pipe would be installed in all bore locations. After welding, field joints are sandblasted, flocked, and coated with a synergy coating. Before the pipe is lowered into the trench, the

pipeline coating is visually inspected and tested with an electronic detector, and any faults or scratches (“holidays”) would be repaired.

Lowering-In and Padding

Once the coating operation has been completed, a section of the pipe is lowered into the trench. Side-boom tractors are used to lift the pipe, position it over the trench, and lower it in place. Inspection would be conducted to verify that minimum cover is provided; the trench bottom is free of rocks or other debris; external pipe coating is not damaged; and the pipe is properly fitted and installed into the trench. Specialized machines are used to sift soil fines from the excavated subsoils to provide rock-free pipeline padding and bedding. In rocky areas, padding material or a rock shield are used to protect the pipe.

Backfilling

Backfilling would begin after a section of the pipe has been successfully placed in the trench and final inspection has been completed. Backfill would be conducted using a bulldozer, rotary auger backfiller, padding machine, or other suitable equipment. Backfilling of the trench would generally use the subsoil previously excavated from the trench, except in rocky areas where imported select fill material may be needed. Backfill would be graded and compacted by being tamped or walked in with a wheeled or tracked vehicle. Compaction would be performed to 95% maximum density as determined by AASHTO T-99 at all County Road crossings. Backfill of trenches would not be performed where the soil is frozen to the extent that large consolidated masses are formed that would not “break down.” Contractor would then re-spread the topsoil to return the surface to its original grade. In agricultural areas, the Environmental Inspector would test the backfill to ensure that it has been replaced at the same compaction density as the adjacent undisturbed soil. Any excavated materials or materials unfit for backfill would be utilized or properly disposed of in conformance with applicable laws or regulations.

The construction contractor would place a mound over the trench approximately 6 inches high to account for subsidence. On Federal lands, a variance is required to eliminate the mound. On private lands, written authorization from the property owner is required to eliminate the mound.

Pressure Testing

The entire pipeline would be tested in compliance with USDOT regulations (49 CFR Part 192). Prior to filling the pipeline for a pressure test, each section of the pipeline is cleaned by passing reinforced poly pigs through the interior of the line. Incremental segments of the pipeline are then be filled with compressed air to the desired maximum pressure, and held for the duration of the test (8 hours minimum).

The compressed air is discharged into the atmosphere following the completion of the test. Notification to all nearby residents as well as the Garfield County Dispatch Center would be made prior to the pressure test and blowdown.

Restoration

After the final installation of the pipeline, all disturbed portions of the construction areas (including the ROW, travel routes, and staging areas) would be returned to pre-construction grades and contours. Topsoil would then be replaced over the ROW from the area in which it was stripped.

Revegetation would be the primary method to stabilize soils and ensure permanent erosion control over the long term. Requirements for revegetation are presented in Appendix B. Every effort would be made

to complete final cleanup and installation of permanent erosion control measures within 30 days after final backfilling is completed.

Permanent waterbars, berms, and/or sediment barriers (e.g., straw bales, straw wattles, and/or silt fences) would be installed across the ROW upslope of streams and wetlands. A mulch or fiber matting would be applied to disturbed surfaces within 100 feet of these crossings unless otherwise directed by the BLM or WRNF. Additional information on measures to protect surface waters and ensure appropriate reclamation of disturbed areas is provided in Appendix B.

Operations and Maintenance

ETC would be responsible for the monitoring of the operations of the pipeline once construction is completed. Maintenance and operating personnel would be coordinated from the district office along the system so that any area can be reached within a short period in case of an emergency or malfunction. These personnel would be qualified and trained employees of ETC.

2.1.3 Design Criteria, Stipulations, and Best Management Practices

ETC has committed to follow certain mitigation measures (also known as “design criteria”) as part of the proposed construction and maintenance activities. These mitigation measures/design criteria, outlined in the POD that accompanied the ROW application, would be followed during construction and operation/maintenance of the pipeline and associated facilities. Appendix B lists the BLM and WRNF stipulations to be applied as terms and conditions to approval of the ROW and special use authorizations. Industry standard Best Management Practices (BMPs) for resource protection would also be employed throughout the project.

2.2 Project Alternatives

BLM and WRNF considered alternatives to the Proposed Action through internal scoping and in coordination. These are summarized below.

2.2.1 No Action Alternative

The No Action Alternative would be to deny the right-of-way application for the use of Federally administered lands, and construction of the pipeline would therefore not occur. In accordance with Council on Environmental Quality (CEQ) regulations, the impacts of this alternative are evaluated in this EA to provide a baseline to compare impacts associated with the Proposed Action.

2.2.3 Alternatives Considered but not Analyzed in Detail

Three other alternative pipeline routes were considered but eliminated from further analysis based on impracticability or infeasibility. These alternatives are summarized below, along the rationale for eliminating them from further consideration.

One alternative would have followed Beaver Creek into private property in the Tee Pee Park area and then headed eastward through a conventional trench to tie into the Laramie Energy II Johnson-McClung well pads along Mamm Creek. This route was not considered further because it would cross the West Mamm Inventoried Roadless Area (IRA) on NFS land. Additionally, the extensive cut and fill required along this portion of the route would have made it essentially unbuildable due to unstable slopes and the impacts to visual resources.

A second alternative would also have connected to the Laramie Energy II Johnson-McClung well pads from Tee Pee Park but would have been bored beneath the West Mamm IRA. Evaluation of this alternative proved it to be economically infeasible due to the length of the bore and the elevation change required.

A third alternative would have been similar to the Proposed Action but would differ from it by heading eastward from Flat Iron Mesa toward Grass Mesa and then southward along West Mamm Creek, instead of southward from Flat Iron Mesa. This alternative was dropped due to the potential for extensive visual impacts to the Grass Mesa rural residential area and to known populations of a sensitive plant species, Harrington's penstemon.

2.3 Plan Conformance Review

2.3.1 BLM Land Use Plan

The Proposed Action is subject to and has been reviewed for conformance with the following plans (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Glenwood Springs Resource Management Plan (BLM 1984).

Dates of Relevant Amendments: November 1991 – Oil and Gas Leasing and Development – Final Supplemental Environmental Impact Statement; March 1999 – Oil and Gas Leasing & Development Final Supplemental Environmental Impact Statement.

Decision Number and Page: Record of Decision, Glenwood Springs Resource Management Plan Amendment, November 1991, page 3. Record of Decision, Glenwood Springs Resource Management Plan Amendment, March 1999, page 15.

Decision Language: “697,720 acres of BLM-administrated mineral estate within the Glenwood Springs Resource Area are open to oil and gas leasing and development, subject to lease terms and (as applicable) lease stipulations.” This decision was carried forward unchanged in the 1999 RMP amendment (BLM 1999).

Discussion: The Proposed Action is in conformance with the 1991 and 1999 Oil and Gas RMP amendments because the Federal mineral estate proposed for development is open for oil and gas leasing and development.

BLM Standards for Public Land Health: In January 1997, Colorado BLM approved the Standards for Public Land Health. The five standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. The environmental analysis must address whether the Proposed Action or alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate land health conditions relative to these resources. These analyses are presented in Chapter 3 of this EA.

2.3.2 WRNF Land Use Plan

For the portions of the project on NFS lands, the Proposed Action is also subject to and has been reviewed for conformance with the following plans:

Name of Plan: White River National Forest Land and Resource Management Plan (LRMP) (“Forest Plan”), 2002 Revision, as amended (USFS 2002).

Date Approved: April 2, 2002; amended in March 2005, January 2006, and March 2006.

Discussion: The WRNF Forest Plan provides long-term, Forest-wide goals and objectives for NFS lands in the WRNF. The Forest Plan includes Management Area (MA) standards and guidelines to define the desired conditions and identify areas where different management activities may be implemented and different types of public are allowed. The Proposed Action was designed to be consistent with all applicable WRNF Forest Plan direction (MA and Forest-wide).

The project supports the WRNF Land and Resource Management Plan (LRMP) (2002 as amended) direction that is applicable to the Proposed Action in the following sections:

- Strategy 2c.5 – Over the life of the plan, respond to requests for leasing, exploration, and development of mineral and energy resources in accordance with regulations and forest plan availability and specific lands decisions (page 1-11).
- Strategy 2c.11 – Over the life of the plan, approve special-use proposals that are consistent with desired conditions, standards, and guidelines (page 1-11).

The project area is within Management Area 5.41, Deer and Elk Winter Range. These are areas where multiple-use principles are applied to emphasize habitat management for deer and elk. They include lands classified as winter ranges and areas used during average winters. These areas consist of both forested and non-forested habitats, generally in the lower elevation fringes of the forest. Many areas are south-facing slopes where snowmelt and green-up occur earlier in the spring, and snow accumulation does not occur until late autumn.

Desired Condition: Human activities are managed so that deer and elk can effectively use the area. Activities that may be managed or restricted include burning, rangeland management, timber harvest, habitat manipulation, recreation, minerals exploration and development, and road management. Population herd objectives are established in coordination with the Colorado Division of Wildlife (CDOW). Herd objectives are established in cooperation with the CDOW. To protect wintering big game from disturbance, winter recreation use, both motorized and non-motorized, is generally confined to designated travelways or use corridors.

Standards and guidelines from MA 5.41 that are directly related to the project for both project implementation and rehabilitation include “Vegetation management practices will be used to maintain or improve deer and elk habitat objectives.”

The Proposed Action is consistent with these Forest-wide goals and objectives because it would use landscape compatible design of facilities, is proposed on lands available for oil and gas development, and is consistent with the MA desired conditions, standards, and guidelines.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the human and natural environmental resources that could be affected by the Proposed Action. This EA draws upon information compiled in the BLM and Forest Service RMPs covering the project area. In addition, a Land Health Assessment (LHA) for the Rifle-West area that addresses the Standards for Public Land Health was completed in 2004.

A variety of laws, regulations, and policy directives mandate the evaluation of the effects of a Proposed Action and alternative(s) on certain critical environmental elements. Some of the critical elements that require inclusion in this EA are not present; others may be present but would not be affected by the Proposed Action and alternative (Table 3). Only the mandatory critical elements that are present and affected are described in the following narrative. This environmental analysis also addresses whether the Proposed Action or alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate the Standards for Public Land Health.

Table 3. Critical Elements of the Human Environment									
<i>Critical Element</i>	<i>Present</i>		<i>Affected</i>		<i>Critical Element</i>	<i>Present</i>		<i>Affected</i>	
	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>		<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>
Air Quality	X		X		Prime or Unique Farmlands		X		X
ACECs		X		X	Special Status Species*	X		X	
Cultural Resources	X		X		Wastes, Hazardous or Solid	X		X	
Environmental Justice		X		X	Water Quality, Surface and Ground*	X		X	
Floodplains		X		X	Wetlands and Riparian Zones*	X		X	
Invasive Non-native Species	X		X		Wild and Scenic Rivers		X		X
Migratory Birds	X		X		Wilderness and Wilderness Study Areas/ Inventoried Roadless Areas		X		X
Native American Religious Concerns		X		X					

In addition to the critical elements, this EA addresses other resources that would be affected by the Proposed Action, as discussed in Section **3.2 Other Affected Resources**.

3.1 Critical Elements

3.1.1 Air Quality

Affected Environment

Congress passed the Clean Air Act (CAA) in 1960 with amendments in 1967, 1970, 1977, and 1990. The purpose of the Act is to protect the quality of the nation’s air resources and along with human health and welfare. Administration of the CAA, while a Federal law, is a state responsibility. In Colorado, this task falls under the Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD). The Act established National Ambient Air Quality Standards (NAAQS), which were generally adopted by the State of Colorado along with more stringent Colorado Ambient Air Quality Standard (CAAQS) for sulfur dioxide (SO₂, 3-hour averaging time).

The NAAQS and CAAQS define the maximum legally allowable concentration of each criteria pollutant. Criteria pollutants include carbon monoxide (CO), nitrogen dioxides (NO_x), ozone (O₃), particulate matter less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}), sulfur dioxide (SO₂), and lead (Pb). The project area lies within Garfield County, which has been described as an attainment area under CAAQS and NAAQS (Colorado Ambient Air Quality Standards and National Ambient Air Quality Standards) for all criteria pollutants. An attainment area is an area where ambient air pollution quantities are below (i.e., better than) NAAQS standards.

Environmental Consequences

Proposed Action

The Roan Plateau RMPA/EIS describes potential effects from oil and gas development within the Glenwood Springs Resource Area (BLM 2006:4-26 to 4-37). Analysis was completed with regard to greenhouse gas emissions, a near-field and far-field analysis for “criteria pollutants” (PM₁₀, PM_{2.5}, CO, SO₂, and NO_x) and hazardous air pollutants (benzene, ethylbenzene, formaldehyde, hydrogen sulfide, toluene, and xylenes). Sulfur and nitrogen deposition, acid neutralizing capacity, and a visibility screening analysis were also completed in the Roan Plateau RMPA/EIS. Because the visibility screening analysis showed potential impacts at one or more Class I areas, a refined visibility analysis was also completed. The refined visibility analysis indicated a “just noticeable” impact on visibility for one day each at two Class I areas (Black Canyon of the Gunnison National Park and the Mt. Zirkel Wilderness). For the other pollutants analyzed, the implementation of oil and gas development under the Roan Plateau RMPA/EIS would have either no adverse impacts or negligible long-term adverse impacts on air quality. Since the Proposed Action is within the scope of the reasonable foreseeable development (RFD) scenario analyzed in that document, it is anticipated that the Proposed Action would be unlikely to have adverse effects on air quality.

Activities described in the Proposed Action would result in localized short-term increases in emissions from vehicles and trenching equipment and fugitive dust from installation of the pipeline and use of access roads. Concentrations would be below applicable ambient air quality standards as analyzed in the Roan Plateau RMPA/EIS. However, it is anticipated that construction activities could produce high levels of fugitive dust in dry conditions without dust abatement. To mitigate dust generated by these activities, ETC would be required to implement dust abatement strategies such as watering the access road and construction areas and/or by applying a dust suppressant approved by BLM (see Appendix B).

Since the Roan Plateau RMPA/EIS was approved, ongoing scientific research has identified the potential impacts of anthropogenic “greenhouse gas” (GHG) emissions and their effects on global climatic conditions. These anthropogenic GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and several trace gases, as identified by the Intergovernmental Panel on Climate Change (IPCC). Through complex interactions on a global scale, these GHG emissions cause a net warming effect of the atmosphere primarily by decreasing the amount of heat energy radiated by the Earth back into space.

In 2001, the IPCC predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2007) supports these predictions but has acknowledged that there are uncertainties regarding how climate change may affect different regions. In 2007, the IPCC also concluded that “warming of the climate system is unequivocal” and “most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations” (National Academy of Sciences 2007).

The assessment of GHG emissions and climate change is an ongoing scientific endeavor. Many existing climate prediction models are global in nature. Climate change science is rapidly advancing and is increasingly able to predict likely future conditions at regional levels. However, scientific uncertainty remains, and the lack of proven scientific tools designed to predict climate change on local scales limits the ability to project potential future impacts of climate change from individual projects.

Although the current project will likely contribute to future emissions of GHGs to the atmosphere, there currently is no scientific tool that allows the translation of specific quantities of emissions from a particular activity into a change in average annual global surface temperature.

No Action Alternative

Under the No Action alternative, the project components included in the Proposed Action would not be approved or constructed. Therefore, no new or additional emissions of pollutants from vehicles and equipment engines and no fugitive dust from disturbed surfaces associated with the project would occur.

3.1.2 Cultural Resources

Affected Environment

Section 106 of the National Historic Preservation Act (NHPA) (P.L. 89-665; 80 Stat. 915; 16 U.S.C. 470) and its implementing regulations found at 36 CFR Part 800 requires Federal agencies to take into account the effects their actions will have on cultural resources for any endeavor that involves Federal monies, Federal permitting or certification, or Federal lands. Because of this, consideration of the environmental consequences of the proposed action extends to the pipeline in its entirety, whether the surface ownership is Federal or private.

The project area covers approximately 206 acres, including Federal and private lands (119.71 acres of BLM lands, 32.19 acres of NFS lands, and 54.27 acres of private lands). The literature review conducted by Aztec Archaeological Consultants (AAC) through the OAHP "COMPASS" online archives and at the GSFO indicated that there have been numerous previous cultural resource surveys related to oil and gas development, transmission lines, and seismic lines in the area. Twelve previously documented sites are located within 0.25 mile of the proposed pipeline corridor.

The acreage investigated by the current Class III inventories included 121.3 acres (59% of the project area) and was completed by AAC in May and June 2009. The discrepancy in acres between the Class III inventory and the total project area is because a total of 84.9 acres of BLM land in Section 9, T7S, R94W and Sections 6, 7, and 16, T7S, R93W were excluded. This was due to the fact that those areas were recently inventoried for other energy-related projects.

The project area includes eight sites and three isolated finds. Six of the eight sites were previously documented properties. Three of the eight sites are recommended as eligible for inclusion on the National Register of Historic Places (NRHP).

Environmental Consequences

Proposed Action

Although eight cultural resources were identified in the inventories, the Proposed Action has limited potential to affect known cultural resources in the project area. For archaeological sites, direct impacts result primarily from disturbance of surface and subsurface sediments. For historic properties with

protohistoric or historic structural remains, direct impacts result from damage to or destruction of these structures. Direct impacts are generally concentrated in the development phase of the proposed action, although they can occur whenever the ground is subject to physical disturbance or other alteration.

Direct impacts would occur to portions of four of the identified sites. Two of the four sites are recommended as not eligible for inclusion in the NRHP. The two eligible sites are located adjacent to the proposed ROW, which was restricted to previously disturbed areas as part of the Proposed Action to protect known cultural resources in the Porcupine Creek area. In its investigation report, AAC recommended protective barrier fencing and cultural resource monitoring for additional protection of these two sites. A portion of one of the ineligible sites near the southeastern end of the pipeline would be directly affected by the Proposed Action. Although this historic site is ineligible, the BLM agrees with AAC's recommendation to install protective barrier fencing along both sides of the proposed ROW through the site and extending 100 feet beyond the site to avoid inadvertent damage to intact structures on the site (see Appendix B). However, BLM does not believe that monitoring of the non-eligible site is needed.

The BLM has made a determination of “**no adverse effect**” for the Proposed Action, and formal consultation was initiated with the Colorado State Historic Preservation Officer (SHPO on July 24, 2009. The BLM received a letter of concurrence on these findings on July 30, 2009. This determination was made in accordance with the 2001 revised regulations [36 CFR 800.4(d)(1)] for Section 106 of the NHPA, the BLM/SHPO Programmatic Agreement (1997), and the Colorado Protocol (1998)]

No Action

Under this alternative, the proposed pipeline would not be installed. As a result, both known and undiscovered cultural resources would be more protected, and the potential degradation of site condition and integrity would be reduced.

3.1.3 Invasive Non-Native Plant Species (includes an analysis of Public Land Health Standard 4)

Because the proposed pipeline ROW parallels a number of existing pipelines and roads, existing areas of surface disturbance are present throughout the project area. These existing disturbances contain some weed infestations, including two non-native biennial forbs (broadleaf weeds)—musk thistle (*Carduus nutans*) and plumeless thistle (*C. acanthoides*)—along the roads and pipeline corridors and colonizing into adjacent plant communities. A non-native perennial forb, Canada thistle (*Cirsium arvense*), occurs in more mesic (moist) sites. Other weeds in the vicinity of the project area and potentially becoming problematic in areas of surface disturbance include a non-native annual grass (cheatgrass, *Anisantha tectorum*, non-native biennial forbs such as spotted knapweed (*Centaurea stoebe* ssp. *micranthos*) and houndstongue (*Cynoglossum officinale*), and a variety of other invasive species. Cover by noxious weeds in the general area is estimated at <1% of the total plant cover.

All of the weedy forbs listed above except cheatgrass are on the Colorado Department of Agriculture “List B” of noxious weeds in the State. These are defined as “weed species for which the Commissioner (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) develops and implements State noxious weed management plans designed to stop their continued spread.” Cheatgrass is a “List C” species for which a State noxious weed management plan will be developed in the future.

Environmental Consequences

Proposed Action

Surface-disturbing activities create conditions favorable for the invasion and establishment of noxious weeds and other invasive non-native species, particularly when these species are currently present in the surrounding area. Since some noxious weeds are present in the immediate vicinity of the proposed ROW and access roads, the potential for increased weed density and new weed invasions following construction is high. Mandatory noxious weed control would be required on the ROW for the life of the project in accordance with BLM and WRNF terms and conditions for project approval (see Appendix B), the Colorado Noxious Weed Act, and the Garfield County Integrated Weed Management Plan.

No Action Alternative

Under the No Action alternative, no vegetation clearing or surface-disturbing activities would take place on public lands. Therefore, invasive non-native species would not be expected to increase at as rapid rate as under the Proposed Action.

Analysis of Public Land Health Standard 4 for Plant and Animal Communities (partial, see also Special Status Species; Vegetation; Wildlife, Aquatic; and Wildlife, Terrestrial)

Based on project design components and the protective stipulation presented in Appendix B, the Proposed Action would not jeopardize the viability of any plant population as a result of the proliferation of non-native, invasive species. The project would have no significant adverse effects on habitat condition, utility, or function or on species abundance and distribution at a landscape scale. Public land health standard 4 would continue to be met.

3.1.4 Migratory Birds

Affected Environment

The term “migratory birds” applies generally to native bird species protected by the Migratory Bird Treaty Act (MBTA). As used in the MBTA, “migratory birds” include native resident species that remain in an area throughout the year as well migrant species that move from northern to southern latitudes and from higher to lower elevations to avoid winter conditions and a seasonal shortage of suitable food.

For most migrant and native resident species, nesting habitat is of special importance because it is critical for supporting reproduction in terms of both nesting sites and food. Also, because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

Among the wide variety of species protected by the MBTA, special concern is usually given to the following groups:

- Species that migrate across long distances, particularly Neotropical migrant passerines that winter in tropical or Southern Hemisphere temperate zones.
- Birds of prey, which require large areas of suitable habitat for finding sufficient prey.
- Species that have narrow habitat tolerances and hence are vulnerable to extirpation from an area as a result of a relatively minor habitat loss.

- Species that nest colonially and hence are vulnerable to extirpation from an area and hence are vulnerable to extirpation from an area as a result of minor habitat loss.

BLM Instruction Memorandum No. 2008-050 provides guidance toward meeting the agency's responsibilities under the MBTA. This guidance directs Field Offices to promote the maintenance and improvement of habitat quantity and quality for migratory birds of conservation concern to avoid, reduce, or mitigate adverse impacts on their habitats to the extent feasible and in a manner consistent with regional or statewide bird conservation priorities. Because of the many species of migratory birds potentially present within Field Office boundaries, BLM has focused its protection on species listed by the USFWS as Birds of Conservation Concern (BCC). This listing resulted from the 1988 amendment to the Fish and Wildlife Conservation Act, which mandates USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973."

The current BCC list (USFWS 2008a) for Bird Conservation Region 16 (Southern Rockies/Colorado Plateau) includes 12 species potentially present in or near the ETC project area: the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), flammulated owl (*Otus flammeolus*), yellow-billed cuckoo (*Coccyzus americanus*), Lewis's woodpecker (*Melanerpes lewis*), willow flycatcher (*Empidonax traillii*), gray vireo (*Vireo vicinior*), pinyon jay (*Gymnorhinus cyanocephalus*), juniper titmouse (*Baeolophus griseus*), Brewer's sparrow (*Spizella breweri*), and Cassin's finch (*Carpodacus cassinii*). Of these, the bald eagle, golden eagle, flammulated owl, yellow-billed cuckoo, Lewis's woodpecker, and Brewer's sparrow also have special status as BLM or USFS sensitive species or candidate threatened or endangered species and hence are discussed in the section of this EA titled **Special Status Species**.

None of the BCC species in the GSFO area are commonly associated with mixed mountain shrub and oakbrush habitats such as dominate the proposed pipeline corridor. Migratory birds commonly associated with these habitat types but are not on the BCC list include Neotropical migrants such as the dusky flycatcher (*Empidonax oberholseri*), western scrub-jay (*Aphelocoma californica*), blue-gray gnatcatcher (*Poliophtila caerulea*), Virginia's warbler (*Vermivora virginiae*), MacGillivray's warbler (*Oporornis tolmiei*), lazuli bunting (*Passerina amoena*), lesser goldfinch (*Carduelis psaltria*), black-headed grosbeak (*Pheucticus melanocephalus*), spotted towhee (*Pipilo maculatus*), and green-tailed towhee (*P. chlorurus*).

Sagebrush shrublands in the project area provide potential habitat for one BCC species, Brewer's sparrow. However, the areas of sagebrush along the proposed ROW corridor are generally too patchy to support substantial numbers of Brewer's sparrows. The area is also near the upper elevational limit of this species. Other species associated with sagebrush shrublands that occur, but are not BCC species, include the western meadowlark (*Sturnella neglecta*), vesper sparrow (*Pooecetes gramineus*), and lark sparrow (*Chondestes grammacus*). Also, the golden eagle and prairie falcon are more likely to hunt across sagebrush areas than in the other habitat types in the project area, all of which contain taller, denser woody vegetation.

Areas of quaking aspen or other deciduous trees (including along drainages) provide potential habitat for a BCC species, the flammulated owl, as well as Neotropical migrants such as the cordilleran flycatcher (*Empidonax difficilis*), western wood-pewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), house wren (*Troglodytes aedon*), and warbling vireo (*Vireo gilvus*). A BCC species of riparian habitats, the willow flycatcher, is an obligate in riparian shrublands dominated by tall willows or structurally similar species, but this habitat type does not occur along the drainages in the project area.

The small area of spruce/fir forest near the southeastern end of the corridor and along West Mamm Creek may support limited numbers of coniferous forest species, including one BCC species, Cassin's finch, and potentially the flammulated owl. The area is generally below the elevational range of Cassin's finch for nesting, but use during winter is possible when individuals or flocks move to lower areas in search of food. Other species potentially nesting in the scattered coniferous forest stands include Neotropical migrants such as Hammond's flycatcher (*Empidonax hammondi*), western tanager (*Piranga ludoviciana*), plumbeous vireo (*Vireo plumbeus*), yellow-rumped warbler (*Dendroica coronata*), chipping sparrow (*Spizella passerina*), dark-eyed junco (*Junco hyemalis*), and pine siskin (*Carduelis pinus*).

Stands or scattered individuals of pinyon pine and Utah juniper provide some habitat for three pinyon-juniper obligates on the BCC list: the pinyon jay, juniper titmouse, and gray vireo. Of these, the last species is unlikely to occur because of the location of the project area outside the known nesting range, located farther to the west. Other migrants occurring in the limited pinyon-juniper include neotropical migrants such as the gray flycatcher (*Empidonax wrightii*), Say's phoebe (*Sayornis saya*), mountain bluebird (*Sialia sialis*), blue-gray gnatcatcher, and black-throated gray warbler (*Dendroica nigrescens*). During winter, three additional species—Clark's nutcracker (*Nucifraga columbiana*, Townsend's solitaire (*Myadestes townsendi*), and the cedar waxwing (*Bombycilla cedrorum*)—may congregate in pinyon-juniper habitats in search of pine nuts (the nutcracker) or juniper berries (the solitaire and waxwing).

Management Indicator Species. Of the migratory birds listed above, two species—Virginia's warbler and Brewer's sparrow—are classified by WRNF as Management Indicator Species. It is the intent of the WRNF Forest Plan that habitat quality and quantity be maintained and distributed in a manner that provides for interactive, viable populations of wildlife species.

Virginia's warbler breeds in the foothills of Colorado, generally between 6,000 feet and 9,000 feet in elevation. Nesting habitats include pinyon-juniper woodlands, ponderosa pine forests, dense shrublands of tall species such as Gambel's oak, and riparian areas (Kingery 1998). Breeding is initiated in early May and can continue through late July. The diet of Virginia's warbler is exclusively insects, which they capture by probing and gleaning, hovering, or sallying ("flycatching") among the dense shrubs (Ehrlich et al. 1988, Olson and Martin 1999). Most of the population of Virginia's warbler in Colorado occurs in the western part of the state or in the Front Range foothills. Partners in Flight estimated that the total population of Virginia's warbler in Colorado (approximately 100,000) comprises slightly over 25% of the global population of the species (RMBO 2007). No definitive population trends for Virginia's warbler have been determined, although breeding bird surveys indicate only a slight (0.4%) decline over the last 35 years (Audubon Watchlist 2009). Threats to the species include habitat loss and fragmentation due to improvements for livestock, land development, and roads. Wildland fires also affect this species adversely by reducing the height and density of shrub foliage.

Brewer's sparrow is considered an obligate of sagebrush communities (Braun et al. 1976, Paige and Ritter 1999, Holmes and Johnson 2005) and throughout most of its range is most closely associated with landscapes dominated by big sagebrush (Weins and Rotenberry 1981, Rotenberry 1999). During winter, the species may also occur in desert shrublands, such as creosote bush. Factors that influence Brewer's sparrow occupancy and abundance include the amount of sagebrush cover, sagebrush patch size, spatial distribution of patches, and the extent of disturbance and fragmentation. During the nesting season, adults feed largely on insects that they catch while foraging among the shrub foliage or on the ground. Outside the nesting season, Brewer's sparrows feed largely on seeds, although insects are taken opportunistically throughout the year. Although Brewer's sparrow is considered globally "secure" by the Colorado Natural Heritage Program due to its wide distribution across North America, nesting surveys in the Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forest show a decline of over 50% during the past 25 years (Holmes and Johnson 2005). Brewer's sparrow population viability is likely linked to extensive alteration of sagebrush steppe habitat in conjunction with livestock grazing, alteration of natural fire

regimes, and invasion by exotic plants (Holmes and Johnson 2005). Habitat loss and fragmentation due to development also threaten the species.

Environmental Consequences

Proposed Action

The Proposed Action would result in the conversion of approximately 100 acres of primarily shrubland habitat to a grass/forb community along the pipeline corridor. Because this project is planned to occur outside the breeding season, no direct impact to nesting birds or active nests (including eggs and fledglings) are anticipated. Adults and fledglings that have not begun migrating south would be displaced to nearby habitats during the construction process in order to avoid loud machinery, vehicles, and human activities and to search for food. The zone of reduced habitat use along the construction route would vary depending on the species, the type of construction activity, and the amount of screening provided by the habitat but could extend more than 300 feet away from the construction zone. If construction occurs outside the nesting season as planned, this displacement would be temporary, with use by birds recovering rather quickly as the construction activities move past an area. However, if construction were to occur during the nesting season, the zone of reduced use would have a longer effect, because some or most of the birds that might otherwise nest nearby would instead nest elsewhere—potentially including less suitable habitats that result in fewer or no fledged offspring—or fail to nest at all that year.

A stipulation attached to ROW grants and permits issued by the BLM and WRNF under the Proposed Action would minimize construction-related effects by prohibiting removal of vegetation during the 60-day period May 15 to July 15 (see Appendix B). An exception to this stipulation would be granted if a nesting survey conducted for ETC by a qualified biologist results in finding no active nests of a BCC species within 100 feet of the pipeline alignment. If such a nest is found, construction within 300 feet of the nest would be delayed until successful fledging or failure due to natural causes.

Following construction, the pipeline ROW would be seeded with a mix of native perennial grass species approved by BLM or WRNF, respectively. Potentially, portions of the pipeline on private lands may be seeded with a different mix containing non-native perennial pasture grasses and non-native perennial forbs (e.g., alfalfa or sweetclover), depending on the preference of the surface landowner. Many decades would be required for the ROW to begin to revert to a more native habitat type, even assuming no periodic re-disturbance to upgrade the pipeline or add another pipeline.

In addition to direct and indirect habitat loss is the effect of habitat fragmentation on nesting bird species. While the width of the pipeline corridor would not create a movement barrier to birds—unlike, for example, some small mammal species—it would have the effect of reducing the patch size of some tree or shrub stands and increasing the amount of habitat edge. Thus, habitat-interior species—which include most of the BCC species and Neotropical migrants listed above—would be subject to additional habitat loss due their tendency to avoid the newly created habitat edge along the corridor. While the effective width of a habitat edge varies by bird species and type of habitat, a width of up to 300 feet is possible for some species. Bird species associated with grass/forb rather than shrubland communities, or with habitat edges instead of habitat interiors, would benefit slightly from the habitat modification once reclamation has been achieved. Edge species tend to include habitat generalists, such as the migratory American robin (*Turdus migratorius*) and the resident black-billed magpie (*Pica hudsonius*) and house finch (*Carpodacus mexicanus*).

One common edge species in the region is the brown-headed cowbird (*Molothrus ater*). This species is a nest parasite on some songbird species, notably including vireos and warblers. The female cowbird lays

an egg in the nest of its victim. The larger and sooner hatching cowbird nestling then ejects the eggs or young of the host species.

Notwithstanding the sources of direct and indirect impacts discussed above, the direct or indirect loss of habitat and amount of habitat fragmentation associated with the Proposed Action would be unlikely to have a discernible effect on population sizes of any of the BCC species or other birds discussed above. This conclusion is based on both the small amount of actual habitat loss, the transitory nature of the construction phase, and the presence of existing habitat fragmentation in the project area that already has created smaller habitat patches and greater habitat edges than in an undeveloped area.

Management Indicator Species. The minor amount of habitat loss under the Proposed Action and the dense screening provided by the oakbrush habitat that dominates the area are such that impacts to populations of Virginia's warbler would not be affected at detectable levels, although a few individuals could be prevented from nesting or feeding in otherwise suitable habitat. The 60-day timing limitation (TL) to prevent removal of vegetation during the period May 15 to July 15 (see Appendix B) should further reduce the potential for direct impacts on this species. An exception to this TL would be granted only if surveys during the nesting season demonstrated no active Virginia's warbler nests in the area to be cleared.

Brewer's sparrows are less likely than Virginia's warblers to occur along the corridor due to the marginal quality of the sagebrush communities in terms of areal extent compared to the oakbrush communities favored by Virginia's warbler. However, if Brewer's sparrows are present, the same 60-day TL would also provide protection to this species in terms of destruction of active nests.

No Action Alternative

Under this alternative, the pipeline would be constructed because BLM and WRNF would deny the ROW and permit applications submitted by ETC. Therefore, this alternative would result in no direct, indirect, or cumulative impacts to these species.

3.1.5 Native American Religious Concerns

Affected Environment

The proposed action is located within a larger area identified by the Ute Tribes as part of their ancestral homeland. Cultural resource inventories (see **Cultural Resources**) were conducted to determine if any areas might be culturally sensitive to Native Americans. No areas were identified during the inventories, and none is currently known by the BLM within the project area. Additionally, the Ute Tribe (Northern Ute), Southern Ute, and Ute Mountain Ute Tribes were notified of the proposed action on July 24, 2009. No responses, questions, or requests for additional information have been received by September 18, 2009.

Environmental Consequences

Proposed Action

Direct impacts of construction have the potential to irreparably damage or destroy buried culturally sensitive sites. Additionally, impacts that affect the physical setting could result in a loss of what makes an area significant. Other unidentified culturally sensitive or significant locations may occur in the areas that have not been identified by the Ute tribes. All known Native American sites would be avoided by the

project. However, unauthorized modification of roads, pipelines, and well pads may lead to adverse impacts.

Cumulative impacts of increased development, accesses, construction, operation, and maintenance may adversely affect these sites, possibly degrading the cultural significance by either destroying the sensitive area or its landscape setting. Impacts to the auditory and visual environment may be of importance in considering values placed on some sites by Native American tribes, thus impacting them. Mitigation measures designed to protect resources of potential Native American concern are presented in Appendix B.

No Action Alternative

Under this alternative, the proposed pipeline would not be constructed. As a result, both known and undiscovered Native American resources would be more protected and the potential degradation of site condition and integrity would be reduced.

3.1.6 Special Status Species (includes an analysis of Public Land Health Standard 4)

This section is divided into plants and animals, with applicable subsections, and includes BLM and USFS sensitive species as well as Federally listed, proposed, or candidate threatened or endangered species. The analysis of the impacts addresses the geographic location and habitat characteristics of the project relative to species potentially present in the project vicinity. A Wildlife Management Indicator Species (MIS) report, Biological Evaluation (BE), and Biological Assessment (BA) were prepared by Rocky Mountain Ecological Service (RMES) for portions of the project on NFS lands.

Plants

Affected Environment

Federally Listed, Proposed, or Candidate Threatened or Endangered Plant Species

The USFWS (2009) lists two threatened and two candidate plant species as occurring or potentially occurring (based on habitat requirements) in Garfield County (USFWS 2009). These species, their status, and their habitat associations in the region are as follows:

Colorado hookless cactus (*Sclerocactus glaucus*). Federally listed as threatened. Occurs on fine soils in clay badlands derived from the Uinta formation in western Colorado.

Ute ladies-tresses orchid (*Spiranthes diluvialis*). Federally listed as threatened. Occurs on seasonally saturated soils along drainages or in naturally subirrigated or artificially irrigated meadows.

DeBeque phacelia (*Phacelia submutica*). Candidate for Federal listing. Occurs on clayey, alkaline soils near the town of DeBeque.

Parachute penstemon (*Penstemon debilis*). Candidate for Federal listing. Occurs on shale scree slopes on the cliffs of the Roan Plateau.

All of the above listed plant species were dropped from detailed consideration because their range distributions are outside the project areas or habitats necessary for their life requirements are not found within the project area (please see the Biological Assessment, located in the Administrative Record for this project at the BLM office in Silt, Colorado, for more information. Information on species status,

distribution, and ecology was derived from USFWS recovery plans, Colorado Natural Heritage Program data base maps and reports, personal knowledge of the author and reviewing biologists, various scientific studies and reports, and correspondence with USFWS biologists.

BLM and USFS Sensitive Plant Species

Colorado BLM sensitive plant species with suitable habitat and/or occurrence records in Garfield County include the following: DeBeque milkvetch (*Astragalus debequaeus*), Naturita milkvetch (*Astragalus naturitensis*), adobe thistle (*Cirsium perplexans*), Piceance bladderpod (*Lesquerella parviflora*), Roan Cliffs blazing-star (*Mentzelia rhizomata*), and Harrington's penstemon (*Penstemon harringtonii*). Of these, suitable habitat is present within the proposed pipeline corridor for only one species, Harrington's penstemon.

The USFS lists 32 sensitive plant species as occurring or potentially occurring in the WRNF. Of these, only one species—Harrington's penstemon—occurs in habitat types, elevational ranges, and geographical portions of the WRNF within the project vicinity. However, suitable habitat does not occur on NFS lands that would be crossed by the proposed corridor.

Harrington's penstemon is a narrowly endemic species plant found primarily in dry, sagebrush-dominated communities between 6,400 and 9,400 feet in elevation. Throughout its range, occurrences of *P. harringtonii* are often characterized by sparse herbaceous cover, such as along fences and cow paths. (e.g., see Panjabi and Anderson 2006). In May 2009, RMES conducted surveys along the proposed ROW. Suitable habitat was found along many areas of the ROW, but individuals or populations of this species were limited to western portions of the corridor, west of Flatiron Mesa. Most of these populations occur in sagebrush communities on rocky or stony loam soils.

The staked ROW crossed many areas with widely scattered plants, as well as a few higher density clusters in areas with optimal habitat conditions. Dense, non-native grasses used for reclamation along the existing ROW are probably hindering the reestablishment of *P. harringtonii* into previously occupied areas.

Most of the observations were "single occurrences" comprising one or a few individuals, while the remainder (8) were more extensive groupings. Population density of the groupings was estimated by sampling 10-foot by 10-foot areas. The mean number of plants in the groupings was approximately 2.5 per 100 square feet, or 1,089 plants per acre. A total of 8.55 acres of *P. harringtonii* were observed within the proposed limits of disturbance of the pipeline. No plants were found south of Flatiron Mesa. Near West Mamm Creek, the morphologically and ecologically similar *P. osterhoutii* was present in areas that appeared suitable for *P. harringtonii*, but none of the latter was observed.

Environmental Consequences

Proposed Action

Federally Listed, Proposed, or Candidate Threatened or Endangered Plant Species

During field surveys for special status plant species, no Federally listed, proposed, or candidate threatened or endangered plant species were observed, nor was suitable habitat present in the project area for any of these species. Consequently, the Proposed Action would have "**No Effect**" on these species.

BLM and USFS Sensitive Plant Species

On June 10, 2009, representatives from Aspen Environmental Field Services (AEFS), Wagon Wheel Consulting, and BLM Ecologist Beth Brenneman and BLM project lead Rebecca Beavers visited the proposed route to observe the scale and extent of *P. harringtonii* plants and population. ETC agreed to reduce the disturbance corridor of portions of the pipeline to avoid especially dense populations of *P. harringtonii*. ETC also agreed to flag these sections on the ground to minimize the potential for impacts outside the approved limits of disturbance and to have AEFS Environmental Inspectors observe the construction in these areas to further reduce the potential for unnecessary impacts.

Based on the mean population density of Harrington's penstemon in occupied areas of the proposed pipeline corridor, it is estimated that 8.55 acres of occupied habitat would be affected. With a mean density of 1,089 plants per acre in the occupied areas, this equates to a direct loss of approximately 9,310 plants due to stripping of vegetation and topsoil.

Additional loss of plants may result from equipment traveling outside the ROW. This loss could include direct mortality of the plants, soil disturbance sufficient to allow invasion by weeds, and soil compaction sufficient to alter moisture infiltration. It is unknown whether *P. harringtonii* would be able to successfully reestablish on the ROW. Many other pipeline projects in the area have used relatively aggressive grass species for reclamation, which may hinder germination or establishment of penstemons colonizing from nearby undisturbed areas. Additionally, any weed control measures conducted along the ROW during revegetation would be likely to also kill or injure any penstemons volunteering into the area. Therefore, while colonization of the ROW by *P. harringtonii* is possible over the long term, it should be conservatively assumed that effects to the local population would be permanent.

No Action Alternative

The No Action alternative would result in no construction activities along the proposed pipeline corridor because no ROW grants or WRNF permits would be granted. Therefore, this alternative would have no direct, indirect, or cumulative impacts to special status plant species.

Analysis of Public Land Health Standard 4 for Plant and Animal Communities (partial, see also Vegetation; Wildlife, Aquatic; and Wildlife, Terrestrial).

The Proposed Action would not jeopardize the viability of any population of special status plant species due to habitat loss, modification, fragmentation, or indirect effects. The project would have no significant consequence on habitat condition, utility, or function or any discernible effect on species abundance or distribution at a landscape scale. Public land health standard 4 would continue to be met.

Animals

Affected Environment

Federally Listed, Proposed, or Candidate Threatened or Endangered Animal Species

Eight Federally listed, proposed, or candidate threatened or endangered animal species are potentially present in or impacted by actions occurring in Garfield County. These species, their status, and their distributions and habitat associations in the region are summarized below:

Canada Lynx (*Lynx canadensis*) – Federally listed as threatened. Canada lynx occupy high-latitude or high-elevation coniferous forests characterized by cold, snowy winters and an adequate prey base

(Ruggiero et al. 1999). The preferred prey of Canada lynx throughout their range is the snowshoe hare (*Lepus americanus*). In the western United States, lynx are associated with mesic forests of lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen in the upper montane and subalpine zones, generally between 8,000 and 12,000 feet in elevation. Although snowshoe hares are the preferred prey in Colorado, lynx in also feed on other species such as the mountain cottontail (*Sylvilagus nuttallii*), pine squirrel (*Tamiasciurus hudsonicus*), and blue grouse (*Dendragapus obscurus*).

Approximately 1.9 miles of the proposed pipeline corridor occur within the Battlement Lynx Analysis Unit (BLAU) (WRNF LAU #90) (Figure 3). The BLAU contains 55,931 acres (USFS 2007, updated 03/12/07) excluding private lands. The USFS has identified the BLAU as primarily a habitat linkage area between the Battlement Mesa to the east and Grand Mesa to the west, with only about 35% comprising denning or winter foraging habitats. However, the BLAU is capable of supporting Canada lynx, with all necessary habitat components to fulfill ecological and life-cycle needs.

Lynx habitat in the BLAU is categorized into four types: (1) denning habitat, (2) winter foraging habitat, (3) other lynx habitat, and (4) unsuitable lynx habitat. Environmental baseline statistics of lynx habitat in the BLAU are summarized in Table 4, after Broderdorp (2003).

Table 4. Project Impacts to Battlement Lynx Analysis Unit			
<i>Habitat Type</i>	<i>Total Acres</i>	<i>Acres Affected</i>	<i>Percent Affected</i>
Denning	8,771.6	--	0.00
Winter Foraging	4,391.6	--	0.00
Other	2,403.9	0.5	0.02
Unsuitable	23.9	--	0.00
Non-habitat	31,619.0	16.9	0.05
Private	8,717.4	--	0.00
Total	55,927.4	17.4	0.07

At its eastern end, the BLAU overlaps and abuts a portion of the Battlement Mesa Lynx Linkage Area, which links the Battlement Mesa area with habitats in the Buzzard Park and Spruce Mountain areas on the White River and the GMUG (Grand Mesa/Uncompahgre/Gunnison) National Forests. No portion of this project would be located within the Battlement Mesa Lynx Linkage Area.

Colorado River Fishes. Four species of Federally listed big-river fishes occur within the Colorado River drainage basin near or downstream from the project area. These endangered species are the razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and bonytail [chub] (*G. elegans*). Designated Critical Habitat for the razorback sucker and Colorado pikeminnow includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle. This portion of the Colorado River lies a few miles north of the project area. The nearest known habitat for the humpback chub and bonytail is within the Colorado River approximately 70 miles downstream from the project area. Only one population of humpback chub, at Black Rocks west of Grand Junction, is known to exist in Colorado.

Greenback Cutthroat Trout (*Oncorhynchus clarki stomias*). Federally listed as threatened. The greenback cutthroat trout was not identified on the USFWS list for Garfield County; however, recent surveys have identified a population in Cache Creek, located several drainages east of the project area.

The greenback is the subspecies of cutthroat trout native to the Platte River drainage on the Eastern Slope of Colorado, while the Colorado River cutthroat trout (*O. c. pleuriticus*) is the subspecies native to Garfield County and throughout the Western Slope of Colorado. Although the occurrence of greenbacks in Cache Creek and potentially elsewhere in the GSFO and WRNF areas is apparently the result of human intervention (e.g., sanctioned or *ad hoc* transplantation of fish from the Eastern Slope), its status as threatened applies to Western Slope populations. However, because drainages within the project area do not support this species, it is not considered further.

Mexican Spotted Owl (*Strix occidentalis*). Federally listed as endangered. This large owl nests, roosts, and hunts in mature coniferous forests in canyons and foothills. The only extant populations in Colorado are in the Pikes Peak and Wet Mountain areas of south-central Colorado and the Mesa Verde area of southwestern Colorado. Because no known occurrences or suitable habitat are present in the project vicinity, this species is not considered further.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*). Candidate for Federal listing. This secretive species occurs in mature riparian forests of cottonwoods and other large deciduous trees with a well-developed understory of tall riparian shrubs. Riparian areas in the project area do not provide suitable habitat for this species. It also is not known to occur in the cottonwood corridor along the Colorado River a few miles north of the project area, and occurrence there is unlikely due to the patchy nature of the stands and the general lack of a tall-shrub understory. For these reasons, this species is not considered further in this document.

BLM and USFS Sensitive Animal Species

Table 5 lists the Colorado BLM and Region 2 USFS sensitive animal species with geographic and elevational ranges and habitat requirements potentially including the project area. None of the BLM or USFS sensitive animal species is known or likely to occur along the proposed pipeline corridor, at least not on a regular basis, and most are listed as “unlikely” based on project location and habitat types. However, a few species are listed in the table as “possible,” indicating a greater likelihood of occurrence, or “present,” indicating that they are known to occur. These species are addressed below.

Fringed Myotis (*Myotis thysanodes*) and Townsend’s Big-eared Bat (*Plecotus townsendii*). Both of these species hunt for aerial insects over pinyon-juniper woodlands, montane conifer woodlands, and semi-desert shrublands such as occur within or near the proposed pipeline corridor. Although they commonly roost in caves, rock crevices, mines, or buildings, they also may roost in tree cavities.

Northern Goshawk (*Accipiter gentilis*). This raptor nests in subalpine spruce/fir or aspen forests but may move to lower elevation woodlands during winter in search of prey.

Flammulated Owl (*Otus flammeolus*). Along with the two bats and the goshawk, this species is probably the most likely (least unlikely) to use the project area, although the limited extent of conifers and aspen minimizes that potential as well. The potential for use of the site is greatest in the southeastern portion, adjacent to the West Mamm Creek riparian corridor and closest to suitable forest habitats. Nighttime vocalization playback surveys for this species along West Mamm Creek did not result in observations.

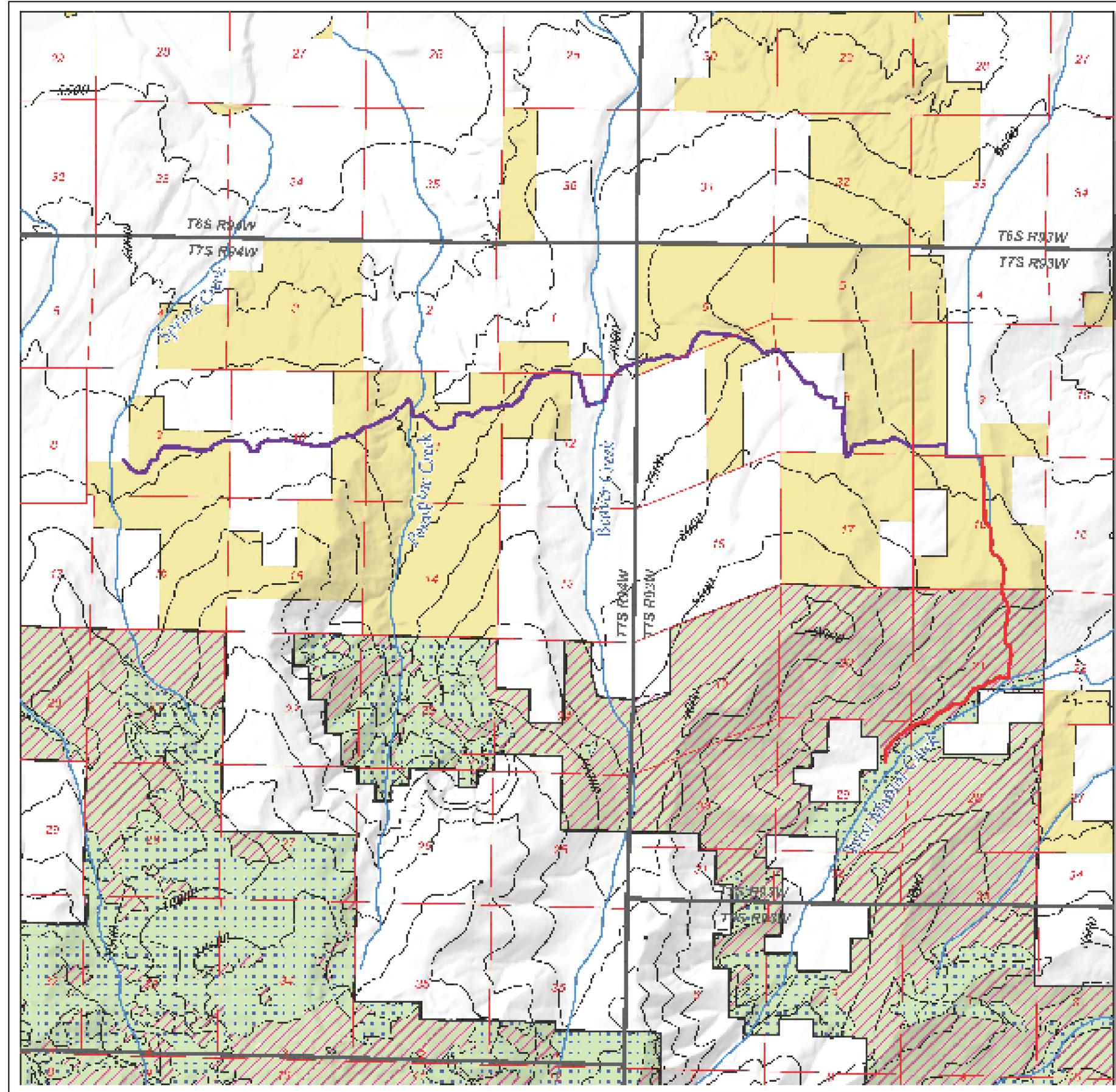
Bald Eagle (*Haliaeetus leucocephalus*). Removed from the Federal list of threatened or endangered species in August 2007, this large raptor is now considered a sensitive species and remains protected by the Bald and Golden Eagle Protection Act (BGEPA) as well as the MBTA. Bald eagles both nest and roost along the Colorado River a few miles north of the project area, but the habitats through which the pipeline would pass do not provide suitable habitat except for infrequent and transitory use while hunting.



ENERGY TRANSFER

Spring Creek to Alamo Creek
Proposed Pipeline

Figure 3
Battlement Lynx Analysis Unit
Northeast Portion



- Battlement Land Management Units
- Maximum Potential Forest Cover
- Private Lands
- County Boundary
- Section Boundary
- Proposed Pipeline - 24 in. Diameter
- Required Right-of-Way - 175 ft. Diameter
- Section Corner Markers
- Forest 24 in. Type Habitat
- North
- Scale: 1" = 500' (Approx.)

0 500 1000
Feet

Figure 3 - 07/04
 Prepared by: JAC/MS/ML/STW
 Date: 07/04/2010
 Project: Energy Transfer

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Table 5. BLM and USFS Sensitive Animal Species Potentially Present or Potentially Affected			
<i>Common Name</i>	<i>Agency</i>	<i>Habitat</i>	<i>Potential for Occurrence</i>
Fringed myotis	BLM, USFS	Breeds and roosts in caves, trees, mines, and buildings; hunts over pinyon-juniper, montane conifer, and semi-desert shrubland habitats.	Possible
Townsend's big-eared bat	BLM, USFS	Breeds and roosts in caves, trees, mines, and buildings; hunts over pinyon-juniper, montane conifer, and semi-desert shrubland habitats.	Possible
Northern goshawk	BLM, USFS	Predominantly uses spruce/fir forests but will also use Douglas-fir, various pines, and aspens.	Possible – Habitat marginal
Ferruginous hawk	BLM, USFS	Hunts in grasslands and semi-desert shrublands; nests on cliffs or trees.	Unlikely – Outside normal range
Bald eagle	BLM, USFS	Nests and roosts in mature cottonwood forests along rivers, large streams, and lakes.	Present along Colorado River
Flammulated owl	USFS	Depends on cavities for nesting, open forests for catching insects, and brush or dense foliage for roosting at elevations of 6,000 – 10,000 feet.	Possible – Habitat marginal
Lewis's woodpecker	USFS	Open pine forests, burned areas with abundant snags and stumps, riparian and rural cottonwoods, and pinyon-juniper woodlands.	Unlikely – Habitat marginal
Olive-sided flycatcher	USFS	Mature subalpine spruce/fir and montane Douglas-fir forests, especially on steep slopes.	Unlikely – Habitat marginal
Purple martin	USFS	Nests at the edges of old-growth aspen stands, usually near a stream, spring, or pond.	Unlikely – Habitat marginal
Loggerhead shrike	USFS	Open riparian areas, grasslands, and semi-desert shrublands; sometimes occurs in pinyon-juniper.	Possible – Habitat marginal
Brewer's sparrow	BLM, USFS	Sagebrush shrublands, mountain parks; may be found in alpine willow stands.	Possible – Habitat marginal
Northern leopard frog	BLM, USFS	Wet meadows and the banks and shallows of marshes, ponds, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches.	Possible – Habitat marginal; Present in Spruce Creek
Bluehead sucker	BLM, USFS	Variety of areas from headwater streams to large rivers.	Unlikely – Not known from GSFO
Flannelmouth sucker	BLM, USFS	Generally restricted to rivers and major tributaries.	Present in Colorado River
Roundtail chub	BLM, USFS	Generally restricted to rivers and major tributaries.	Present in Colorado River
Colorado River cutthroat trout	BLM, USFS	Occurs in clear, cool headwaters streams with coarse substrates, well-distributed pools, stable streambanks, and abundant stream cover.	Present in Beaver Creek; Unlikely in Porcupine Creek

Loggerhead Shrike (*Lanius ludovicianus*). The shrike is a predatory songbird that feeds on mice, small birds and lizards, and large insects (e.g., grasshoppers). Occurrences in western Colorado are widely scattered in open pinyon-juniper, riparian, semi-desert shrubland areas, mostly farther to the west.

Brewer's Sparrow (*Spizella breweri*). This Neotropical migrant is essentially a sagebrush obligate, although it may occasionally nest in other semi-desert shrublands. Sagebrush is a significant component of the habitat along the pipeline corridor, but the stands are generally too patchy to support nesting by this species. Therefore, if this species were to occur, it is most likely to do so as a migrant or vagrant. The Brewer's sparrow is considered by the WRNF as a Management Indicator Species (see **Migratory Birds**).

Leopard Frog (*Rana pipiens*). This species, also considered by the WRNF as a Management Indicator Species, differs from toads and salamanders by being almost totally limited to perennial aquatic sites. Also unlike toads and salamanders, the northern leopard frog also requires areas of good water quality and abundant aquatic vegetation for breeding and of adjacent semi-aquatic vegetation for cover when adults disperse short distances to feed. Leopard frogs feed primarily on emergent adults of aquatic insects or on terrestrial insects attracted to the water. They mostly are associated with areas of standing water (ponds and pools). Use of streams is generally limited to slow-flowing reaches and adjacent overflow areas. Leopard frogs seldom occur in ponds that contain fish, which may feed on their egg masses or larvae (tadpoles). Many ponds that appear otherwise suitable are not occupied by leopard frogs because of their isolation from other such areas and the limited ability of the frogs to disperse across upland habitats. Also, many ponds—including both natural ponds and human-built stock ponds—go dry often enough to eliminate any small population of frogs that may have colonized the site.

None of the streams, wetlands, or ponds in the project area was found during site surveys to support northern leopard frogs, nor have they been reported in conjunction with surveys for fish. However, it has been found in Spruce Creek relatively near the project area and is therefore potentially present in suitable sites within or near the proposed pipeline ROW.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*). This is the subspecies of cutthroat trout native to the western slope of Colorado. It occurs in headwater streams and lakes in the region, particularly in waters that have not been subject to, and are isolated from, areas where non-native trouts have been introduced for sportfishing. Hirsh et al. (2006) indicate that Colorado River cutthroat trout occur in Beaver Creek.

Beaver Creek is a small second-order stream approximately 3 to 5 feet wide and averaging 1 to 2 feet deep. This creek is in relatively good condition, with a well-developed riparian plant community, including shrubs such as Bebb willow (*Salix bebbiana*), thinleaf alder (*Alnus tenuifolia*), hawthorn (*Crataegus erythrophoda*), and redtwig dogwood (*Swida sericea*). Beaver Creek provides water for the Town of Rifle, and stringent resource protection measures are in place to protect the creek.

Hirsch et al. (2006) reported that competitor species—the brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), or rainbow trout (*Oncorhynchus mykiss*)—are not present in Beaver Creek. However, the BLM aquatic biologist reports that brown trout have been observed in Beaver Creek downstream from the project area (T. Fresques pers. comm. 2009).

Porcupine Creek does not appear suitable for Colorado River cutthroat trout or other trout species due to flashy flows, heavy sediment loads, and periodic periods when the stream goes dry, and no fish species are believed to occur there (T. Fresques pers. comm. 2009). These conditions are reflected in the lack of a distinct riparian habitat (see **Wetlands and Riparian Zones**) as well as the wide, shallow channel morphology typical of sediment-laden streams.

West Mamm Creek is also of limited quality for fish due to seasonally limited flows and heavy sediment loads, as well as locally well-developed but discontinuous riparian vegetation.

Bluehead Sucker (*Catostomus discobolus*), Flannelmouth Sucker (*C. latipinnis*), and Roundtail Chub (*Gila robusta*). These native non-game fishes generally have habitat requirements similar to those of the Federally listed big-river fishes described above. All three species are known to occur in the Colorado River. The bluehead sucker is more likely than the other two species to inhabit small streams such as Beaver Creek, but it has not been found in that stream during electrofishing surveys.

Environmental Consequences

Proposed Action

Federally Listed, Proposed, or Candidate Animal Species

Canada Lynx. As shown in Table 4 above, the proposed pipeline would result in direct impacts to 0.5 acre of “Other” habitats and 16.9 acres of “Non-Habitat” within the BLAU. Both of these impacts would occur adjacent to FR317, at the northern boundary of the BLAU. After construction of the pipeline, the corridor would not be used for motorized access, except during emergencies or for treatment of noxious weed. Outside the small amount of NFS lands, the ROW would pass through pinyon-juniper, sagebrush, and Gambel’s oak habitats, which are not considered lynx habitat.

Indirect impacts to lynx would include truck traffic, operation of heavy equipment, and human presence along FR317 for approximately 3 weeks during the clearing, construction, testing, and reclamation of the pipeline. After completion, occasional travel along FR317 (once per week or less) could occur in connection with inspection of the pipeline and maintenance of the few above-ground facilities. FR317 is already “snow compacted route” as documented by the USFS because of winter snowmobile travel. Because pipeline construction would occur during the snow-free months, the project would have no measureable increase in snow compaction along this route. Long-term use of the road by pipeline employees would not result in a measureable change in the pattern or intensity of winter use of FR317.

Because the Proposed Action would not have a significant direct or indirect impact to suitable lynx habitat or affect the ability of lynx to disperse through the area, construction and operation of the proposed Spruce Creek to Mamm Creek pipeline would have “**No Effect**” on this species.

Endangered Colorado River Fishes. Although the proposed pipeline would cross minor tributary drainages, project design for crossing of streams, and protective stipulations attached by BLM and WRNF (Appendix B) would minimize the potential for increased transport of sediment into the Colorado River. Furthermore, the razorback sucker, Colorado pikeminnow, humpback chub, and bonytail are adapted to naturally high sediment loads. Most of the threats to these species throughout their range consist of depletion in flows, reductions in suitable in-stream and along-stream habitats that support spawning, and prior introduction of predatory non-native gamefishes. Because construction and operation of the proposed Spruce Creek to Mamm Creek pipeline would deplete flows in the Colorado River or alter the Colorado River or its 100-year floodplain, the Proposed Action would have “**No Effect**” on the four Federally listed endangered big-river fishes.

BLM and USFS Sensitive Species

Of the sensitive species listed in Table 5 as “possible” or “present” and discussed above, the minor amount of direct or indirect loss of suitable habitat, the transient nature of their potential use of the area, and the brief period of construction-related activities in any given area of the corridor combine to result in negligible potential for adverse impacts. The bases for this determination are as follows:

Fringed Myotis and Townsend's Big-eared Bat. No caves or other suitable roosting sites occur along the proposed pipeline corridor. Loss of large trees, potentially also used for roosting, would be negligible. Loss of habitat above which the bats could search for aerial prey would also be minimal, and disturbance due to construction activities would not occur at night when the bats are feeding.

Northern Goshawk. During winter, some vagrant goshawks may move to lower elevations, primarily in pinyon-juniper or aspen habitats. The corridor would cross or pass near only minor areas of these habitat types. Because of their large home ranges, particularly during winter, any avoidance by vagrant goshawks of the project area would not constitute a significant loss of hunting habitat.

Bald Eagle. Although bald eagles nest and roost along the Colorado River a few miles north of the site, the potential for use of the proposed pipeline corridor or adjacent areas is very low. Any such use would most likely be by an individual hunting across large expanses of open upland habitats during winter. The pipeline corridor would represent a negligible fraction of such potential winter hunting habitat, and the reclaimed grass-forb community would provide better habitat for prey than the current shrubland types.

Flammulated Owl. This small bird of prey is potentially present along the proposed pipeline corridor, primarily in the riparian habitat along West Mamm Creek near the southeastern end of the pipeline and secondarily in small stands of aspen. Use of habitat types directly affected by the project would probably be limited to hunting for small prey, which would occur at night while construction is not occurring. The amount of suitable hunting habitat lost during construction of the pipeline would be negligible—particularly where construction would parallel an existing pipeline such as along West Mamm Creek.

Loggerhead Shrike. Although the project area is farther east than the documented nesting range in western Colorado, the habitat types within or near the proposed corridor include suitable conditions. However, given the low likelihood of occurrence of shrikes at all, and especially during the nesting season, impacts are more likely to consist of disturbance-related displacement of a migrant or vagrant during the non-nesting season. Any by a migrant or vagrant would be temporary and occur over such a large area that pipeline-related impacts would be negligible, if they occurred at all. The 60-day TL to prohibit removal of vegetation during the period May 15 to July 15 (see Appendix B) would further minimize the potential for impacts to nesting shrikes.

Brewer's Sparrow. Although sagebrush habitat types occur along the proposed pipeline corridor, they appear marginal for this species. The 60-day TL to prohibit removal of vegetation during the period May 15 to July 15 (see Appendix B) would avoid or minimize the potential for impacts to nesting Brewer's sparrows. Construction activities outside this period could cause individuals to avoid the disturbance while feeding. However, this impact would be limited in duration at any point along the corridor, and individuals are expected to feed across very large home ranges outside the nesting season, thus minimizing the severity of this potential indirect impact.

Northern Leopard Frog. If this species were present, it would be vulnerable to the same types of impacts as fishes—i.e., inflow of sediments that decrease water quality for reproduction and for survival of aquatic plants. However, because this species has not been found in streams or ponds in the project area, no direct or indirect impacts are expected to result from the Proposed Action.

Colorado River Cutthroat Trout. Project design includes boring beneath Beaver Creek, which is the only drainage in the area known or likely to support this native trout subspecies. Ground-disturbing activities outside the buffer zone established for the boring—and outside the buffer zone established to protect the Town of Rifle water supply—are not expected to contribute sediments to the stream due to the distances involved and the intervening upland and riparian vegetation.

Bluehead Sucker, Flannelmouth Sucker and Roundtail Chub. As with the ecologically similar Colorado River endangered fishes described above, these species are adapted to naturally high sediment loads and therefore would not be affected by increased in sediment transport to the Colorado River. Furthermore, protective stipulations for water quality (see Appendix B) would minimize this potential. However, these species are vulnerable to alterations in flow regimes in the Colorado River due to depletion of flows in tributaries, as well as other causes (evaporative losses from dams, withdrawals for irrigation or municipal water supplies, etc.). The proposed pipeline project would not affect runoff in Beaver Creek, Porcupine Creek, West Mamm Creek, or other drainageways in the project area.

No Action Alternative

Because construction of the pipeline and ancillary facilities would not occur under this alternative, no impacts to special status animal species would occur.

Analysis of Public Land Health Standard 4 for Plant and Animal Communities (partial, see also Vegetation; Wildlife, Aquatic; and Wildlife, Terrestrial).

Based on the protective stipulations listed in Appendix B, the Proposed Action would not jeopardize the viability of any population of special status animal species due to habitat loss, modification, fragmentation, or indirect effects. The project would have no significant consequence on habitat condition, utility, or function or any discernible effect on species abundance or distribution at a landscape scale. Public land health standard 4 would continue to be met.

3.1.7 Wastes, Hazardous or Solid

Affected Environment

BLM Instruction Memoranda numbers WO-93-344 and CO-97-023 require that all NEPA documents list and describe any hazardous and/or extremely hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project. Appendix L of the GSFO's Draft Supplemental Oil & Gas Leasing & Development EIS (BLM 1998), Hazardous Substance Management Plan, contains a comprehensive list of materials that are commonly used for oil and gas projects. It also includes a description of the common industry practices for use of these materials and disposal of the waste products. These practices are dictated by various Federal and state laws and regulations and the BLM standard stipulations that would accompany any authorization resulting from this analysis. The most pertinent of the Federal laws dealing with hazardous materials contamination are as follows:

- The Oil Pollution Act (Public Law 101-380, August 18, 1990) prohibits discharge of pollutants into waters of the US, which by definition would include any tributary, including any dry wash that eventually connects with the Colorado River.
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Public Law 96-510 of 1980) provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment. It also provides national, regional, and local contingency plans. Applicable emergency operations plans in place include the National Contingency Plan (40 CFR 300, required by section 105 of CERCLA), the Region VIII Regional Contingency Plan, the Colorado River Sub-Area Contingency Plan (these three are Environmental Protection Agency produced plans), the Mesa County Emergency Operations Plan (developed by the Mesa County Office of Emergency Management), and the BLM Grand Junction Field Office Hazardous Materials Contingency Plan. The White River National Forest does not have its own hazardous materials contingency plan.

- The Resource Conservation and Recovery Act (RCRA) (Public Law 94-580, October 21, 1976) regulates the use of hazardous substances and disposal of hazardous wastes. Note: While oil and gas lessees are partially exempt from RCRA, holders of ROW grants are not. Exempt wastes would include those associated with well production and transmission of natural gas through the gathering lines, and the natural gas itself. Waste generated by construction activities would not be exempt.

Emergency response to releases of hazardous materials or petroleum products on BLM lands are handled through the BLM Grand Junction Field Office contingency plan. BLM would have access to regional resources if justified by the nature of an incident.

Non-hazardous, solid wastes that may be encountered in the project area are those commonly associated with construction activities (e.g., construction debris, fuels, and lubricants).

Environmental Consequences

Proposed Action

No listed or extremely hazardous wastes, in excess of threshold quantities, would be used or produced by construction or operation of the facilities. Possible pollutants that could be released during the construction phase of this project would include diesel fuel, hydraulic fluid, solvents, and lubricants. These materials would be used during construction of the pipeline and associated facilities as well as for refueling and maintaining equipment and vehicles. Explosives may also be used for blasting rock on portions of the pipeline corridors. Smaller quantities of other materials such as herbicides, paints, and other chemicals would be used during project operation and maintenance. These materials would be used to control noxious weeds, facilitate revegetation on the ROW, and operate and maintain meter stations during the life of the project. Potentially harmful substances used in the construction and operation would be kept onsite in limited quantities and trucked to and from the site as required. No hazardous substance, as defined by 40 CFR 355 would be used, produced, stored, transported, or disposed in amounts above threshold quantities.

Solid waste (garbage, human waste, etc.) would be generated during construction activities and, to a limited extent, during project operations. These would be removed to a landfill or water treatment facility as needed, and all would be removed prior to interim reclamation.

Surface water or groundwater could be impacted under the Proposed Action. While uncommon, an accident could occur that could result in a release of any of these materials. A release could result in contamination of surface water or soil. In the case of any release, emergency or otherwise, the responsible party would be liable for cleanup and any damages. Depending on the scope of the accident, any of the above-referenced contingency plans apply to provide emergency response. At a minimum, the BLM Grand Junction Field Office contingency plan would apply on both BLM and USFS lands.

These laws, regulations, standard lease stipulations, and contingency plans and emergency response resources are expected to adequately mitigate any potential hazardous or solid waste issues associated with the Proposed Action.

No Action Alternative

Under the no action alternative, the project components included in the Proposed Action would not be approved or constructed. Therefore, there would be no release of any of these materials associated with the no action alternative.

3.1.8 Water Quality, Surface and Ground (includes an analysis of Public Land Health Standard 5)

Surface Water, Including Waters of the U.S.

Affected Environment

The project area is located within the Colorado Headwaters-Plateau (HUC 14050006) drainage basin unit (EPA 2008). The climate of the project area is semiarid; annual precipitation ranges from approximately 11.5 inches in the project area to more than 30 inches at the higher elevations near the drainage divide to the south (Robson and Banta 1995). Thus, perennial surface water flow is limited to larger streams.

The pipeline crosses two perennial streams (Beaver and Porcupine Creeks) and a number of intermittent and ephemeral streams that are “waters of the U.S.” as defined by the U.S. Army Corps of Engineers (USACE) in 33 CFR Part 328. Utility line (including pipeline) crossings fall under USACE Nationwide Permit (NWP) 12, while road crossings are covered under NWP 14.

Wetland determinations and surveys for waters of the U.S. were performed by Rocky Mountain Ecological Service (RMES) staff on April 22-24, 2009. These surveys were conducted as outlined in the 2006 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. The wetlands in the project area were adjacent to and abutting relatively impermanent waters in unnamed tributaries to Spruce Creek, Porcupine Creek, and Beaver Creek, as well as adjacent to and abutting the relatively permanent waters of Porcupine and Beaver Creeks (see **Wetlands and Riparian Zones**, below).

According to the *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission [WQCC] Regulation No. 37)(CDPHE 2007), Spruce Creek, Porcupine Creek, and West Mamm Creek are within segment 4a, which includes all tributaries to the Colorado River from its confluence with the Roaring Fork River to a point immediately below its confluence with Parachute Creek. Following is a brief description of segment 4a.

- Segment 4a – This segment has been classified aquatic life cold 2, recreation 2, water supply, and agriculture. Aquatic life cold 2 indicates that this water course is not capable of sustaining a wide variety of cold or warm water biota due to habitat, flows, or uncorrectable water quality conditions. Recreation class 2 refers to waters that are not suitable or intended to become suitable for primary contact recreation. This segment is, however, suitable or intended to become suitable for potable water supplies and agricultural purposes that include irrigation and livestock use.

The portions of Spruce and West Mamm Creeks within the project area are well vegetated, with stable banks and riparian vegetation sufficient to provide cover and habitat for aquatic and riparian fauna. The portion of Porcupine Creek within the project area is very disturbed due to movement of the parent materials upstream of the site. A large outcrop of Green River shale and sandstone was uplifted and has produced a large slide area, forming the northern cliffs of Battlement Mesa. As this site naturally erodes, it delivers massive amounts of shale and sandstone to Porcupine Creek. As this material makes its way down the creek, its constant shifting and bed movement preclude the establishment of hydrophytic vegetation or development of hydric soils.

These drainages are not currently on the State of Colorado’s *Stream Classifications and Water Quality Standards* (CDPHE, WQCC Regulation No. 37) (CDPHE 2007) list. This segment is listed as impaired due to selenium on the State of Colorado’s *303(d) List of Water Quality Limited Segments Requiring TMDLS* (CDPHE, WQCC Regulation No. 93) (CDPHE 2006a). One creek in segment 4a, Alkali Creek, is on the State of Colorado’s *Monitoring and Evaluation List* (CDPHE, WQCC Regulation No. 94)

(CDPHE 2006b) for *E. coli* and metals; however, this creek is outside the project area and therefore not discussed further in this analysis.

A small number (<5) samples of water quality from these perennial streams are available in the public record, all from Porcupine and West Mamm Creeks (USGS 2009). None of the samples analyzed levels of selenium or *E. coli*; other parameters appear to not exceed acceptable limits.

Beaver Creek is within segment 7. Following is a brief description of segment 7.

- Segment 7 – This segment has been classified aquatic life cold 1, recreation 1A, water supply, and agriculture. Aquatic life cold 1 indicates that these waters are capable of sustaining a wide variety of cold water biota. Recreation class 1A refers to waters where primary contact uses have been documented or are presumed to be present. This segment is suitable or intended to become suitable for potable water supplies and agricultural purposes that include irrigation and livestock use.

The section of Beaver Creek in the project area is well vegetated, with stable banks and riparian vegetation sufficient to provide cover and habitat for aquatic and riparian fauna. The stream contains a population of Colorado River cutthroat trout and is part of the Rifle Municipal Watershed. These drainages are not currently on the State of Colorado's *Stream Classifications and Water Quality Standards* (CDPHE, WQCC Regulation No. 37) (CDPHE 2007) list. This segment is listed as impaired due to selenium on the State of Colorado's *303(d) List of Water Quality Limited Segments Requiring TMDLS* (CDPHE, WQCC Regulation No. 93) (CDPHE 2006a), but is not on the State of Colorado's *Monitoring and Evaluation List* (CDPHE, WQCC Regulation No. 94) (CDPHE 2006b).

Limited water quality data are available for Beaver Creek. Only three samples in the public record (from 1976, 1977, and 2007) have sampled for selenium, all of which found levels to not exceed CDHPE standards; all other parameters sampled were also predominantly within acceptable limits (Woodling 2008, USGS 2009).

Environmental Consequences

Proposed Action

Potential impacts to surface water associated with the Proposed Action include increased erosion and sedimentation of streams due to changes in channel morphology caused by road and pipeline crossings. Surface waters would be most susceptible to sedimentation during construction activities. After this period, reclamation activities would substantially reduce surface exposure, decreasing the risk to surface waters over the long term.

Although surface waters would be most susceptible to sedimentation over the short term, the access roads would remain in place during the life of the pipeline and would continue to channel runoff during periods of precipitation. Sedimentation and stream channel impacts associated with pipeline installation would be reduced through the implementation of best management practices (BMPs) and other preventive measures, such as boring beneath Beaver Creek.

The jurisdictional stream crossings would require filing of pre-construction notices with the USACE in order to be granted nationwide permits. Additionally, construction in riparian areas within the Rifle Municipal Watershed would require a permit from the town of Rifle. Refer to Appendix B for protective stipulations to be applied to mitigate the potential for adverse impacts to surface water. Through the use of these stipulations, BMPs associated with construction activities, prompt reclamation, and the

implementation of the preventative measures associated with the treatment of fluids, impacts to surface waters would be minimized and should be minor.

ETC would not require any water supply from the Rifle Watershed. Pressure testing of the pipeline would be conducted with compressed air rather than water.

No Action Alternative

Under the no action alternative, the project components included in the Proposed Action would not be approved or constructed. Therefore, there would be no new or additional stream crossings, use of access roads, or disturbed surfaces associated with the no action alternative.

Analysis of Public Land Health Standard 5 for Water Quality

Surface water quality is expected to continue to meet the criteria set by the State, thus meeting the land health standard. With the protective stipulations listed in Appendix B, the Proposed Action would be unlikely to prevent Standard 5 from being achieved.

Groundwater

Affected Environment

The proposed project would be located within the Colorado Division of Water Resources (CDWR) Water Division 5, the Colorado River Basin Main Stem. The groundwater in this division is generally found in both alluvial and sedimentary bedrock aquifers.

The project area is in the lower Piceance Basin aquifer system. Unconsolidated alluvial aquifers are the most productive aquifers in the Basin. The groundwater exists in shallow, unconsolidated alluvium associated with the Colorado River (BLM 2006) and consists of unconsolidated boulders, cobbles, gravel, sand, silt, and clay. The thickness of the alluvium is variable, but tends to be thinner at the basin margins due to increased slopes and higher flow velocities and thicker in the lower reaches where alluvium can accumulate. Alluvial wells are typically less than 200 feet deep, with water levels ranging from 50 to 100 feet.

The chemical quality of groundwater is dependent on the mineral composition and hydrologic properties of the aquifer. Factors such as surface contact, porosity, and rate of water movement all influence water quality. The quality of alluvial groundwater in the Colorado River Basin can vary widely and is affected by return flow quality, mineral weathering and dissolution, cation-anion exchange with alluvial minerals, and organic compound loading from fertilizer and pesticide leaching.

The most important bedrock aquifers in the area are known as the upper and lower Piceance Basin aquifer systems. The upper aquifer system is about 700 feet thick and consists of several permeable zones in the Uinta Formation and the upper part of the Parachute Creek Member of the Green River Formation (EPA 2004). Sub-aquifers in the upper zone consist of silty sandstone and siltstone, with enhanced permeability from natural fracturing. The lower aquifer system is about 900 feet thick and consists of a fractured dolomitic marlstone of the lower Parachute Creek Member (EPA 2004). It is semi-confined below the Mahogany Zone and above the Garden Gulch Member (the middle member) of the Green River Formation. Natural fracturing and dissolution of evaporite minerals has enhanced permeability in this zone. South of the Colorado River, these aquifers have largely been eroded off, exposing the Wasatch Formation. The Wasatch Formation consists primarily of shales with minor lenticular sandstones that are water bearing in localized areas. Of lesser importance is the Cretaceous Mesaverde Group. Although the

Mesaverde Group contains some water-bearing intervals (Glover et al. 1998), the depth to the top of the Mesaverde aquifer beneath the project area is more than 5,300 feet. The water quality of this aquifer is considered poor due to total dissolved solids (TDS) ranging from 1,000 to 3,000 milligrams per liter in this area of the basin (Robson and Banta 1995).

Groundwater is recharged from snowmelt at higher elevations. In the Piceance Basin, groundwater flows from recharge areas near the margins of the basin to discharge areas near principal stream valleys. The groundwater moves laterally and/or upward, discharging directly into streams, springs, and seeps. Natural discharge areas generally are found along the Colorado River and its tributaries (USGS 2007b).

According to CDWR, numerous (19) fresh-water wells are located within a 0.5-mile radius of the proposed pipeline ROW, with the majority north of the corridor. Many of the wells are concentrated within the Porcupine and Beaver Creek drainage basins. Of these wells, ten are designated for domestic use, one for commercial use, two for livestock watering, one for irrigation, and for “other” uses. The only well information available is for a domestic well near the end of the 12-inch pipeline that terminates on NFS lands. Well depth is 75 feet, and yield is 10 gallons per minute. The shallow depth of this well indicates that it was probably completed in surface alluvium. Since the use of the well is primarily domestic, it is assumed that the quality of the water is suitable for human consumption.

Environmental Consequences

Proposed Action

Due to the nature of the Proposed Action—installation of a pipeline at a depth of approximately 36 inches along a linear route—potential impacts to groundwater resources are unlikely. Alluvial groundwater is tributary to the stream system and would be affected by surface water management. It is highly unlikely that any deep groundwater resources would be affected.

No Action Alternative

Under the No Action alternative, the project components included in the Proposed Action would not be approved or constructed. Therefore, no impacts to groundwater resources would occur.

3.1.9 Wetlands and Riparian Zones (includes an analysis of Public Land Health Standard 2)

Affected Environment

All wetlands along the proposed pipeline route were delineated in April 2009 (see Figure 4). The delineation was conducted following technical guidelines set forth in USACE *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006). These guidelines define wetland on the basis of three criteria: hydric soils, hydrophytic vegetation, and hydrology. Wetlands are considered “jurisdictional” under Section 404 of the Clean Water Act if they are hydrologically connected to waters of the U.S., which include perennial streams and intermittent or ephemeral streams that are hydrologically connected to a perennial stream. Using these criteria, RMES flagged, sequentially numbered, and recorded wetlands on maps using a sub-meter global positioning system (GPS). Field data and GPS data were used to determine approximate acreages.

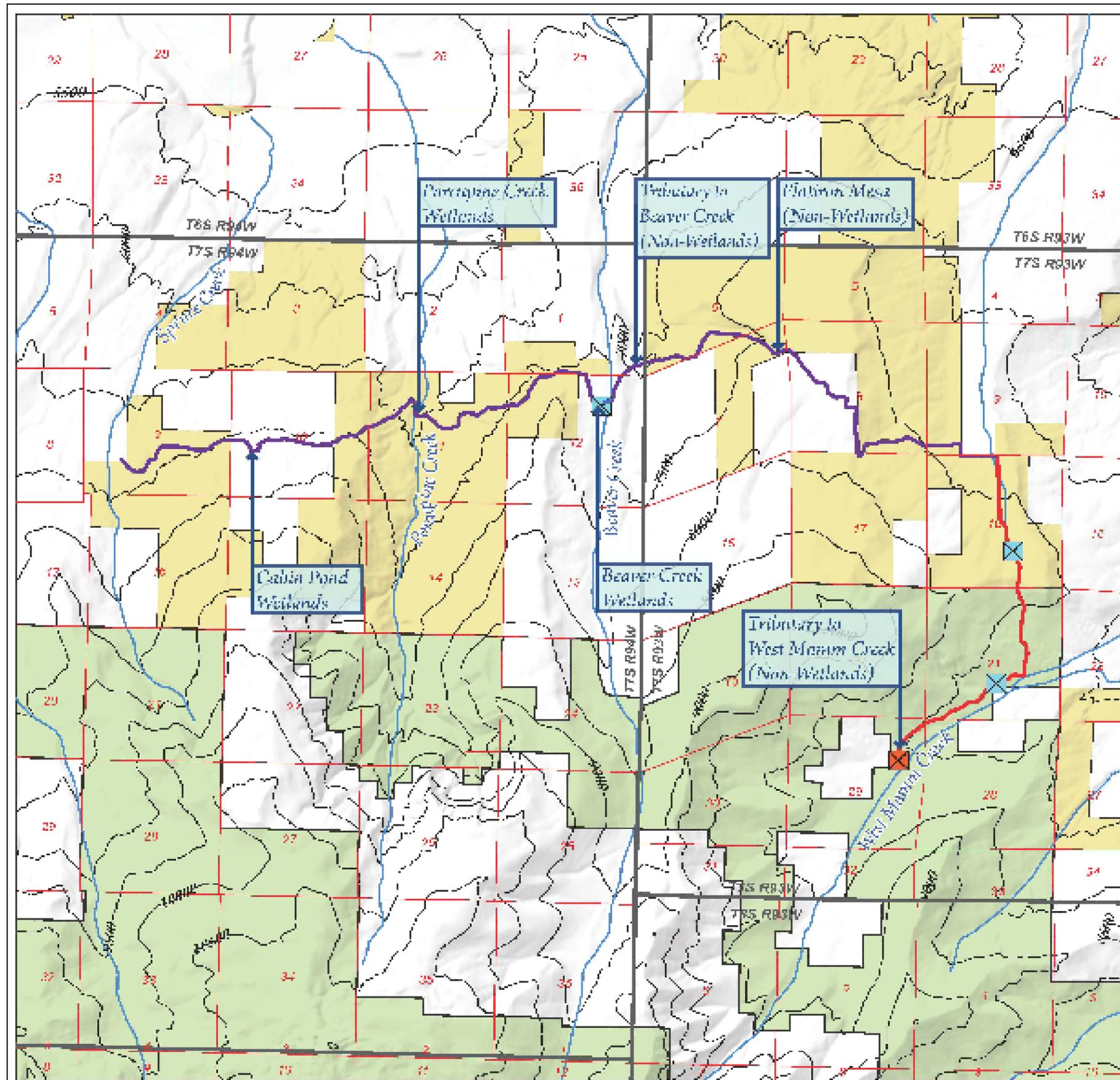
Delineated jurisdictional wetlands and/or riparian corridors within or adjacent to the proposed pipeline alignment are described below. Two agricultural ditches that the pipeline would cross were not flowing at the time and were therefore not delineated. Wetland indicator status was taken from USFWS 1988, which includes the following categories:



ENERGY TRANSFER

Spence Creek to Mannum Creek
Proposed Pipeline

Figure 4
Wetland Locations



- Beaver Creek Alluvial Flood
- West Nile Wetland Flood
- Flood
- County Boundary
- Section Boundary
- Proposed Pipeline - 24 in. Diameter
- Proposed Pipeline - 36 in. Diameter
- Scale - 300 Feet

0 1000 2000 Feet
Scale 1:25000
Figure 4 - 0214
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- Obligate Wetland (OBL) – occurs almost always in wetlands (>99%)
- Facultative Wetland (FACW) – usually occurs in wetlands (67% to 99%)
- Facultative (FAC) – equally likely to occur in wetlands or nonwetlands (34% to 66%)
- Facultative Upland (FACU) – usually occurs in nonwetlands (67% to 99%)
- Obligate Upland (UPL) – occurs in wetlands in another region but almost always occurs in nonwetlands in the region specified (>99%).

Cabin Pond. A historic pond was constructed near an old homestead near the western end of the proposed pipeline. A ditch carries water from upstream sources to this pond. The ditch did not support hydrophytic vegetation or hydric soils and therefore was not delineated as a wetland. However, the pond met all three criteria, and a total area of 0.15 acre of jurisdictional wetlands was delineated. The shoreline of the pond had a dense vegetation cover dominated by a FAC shrub, wild licorice (*Glycyrrhiza lepidota*); a FAC graminoid, slender rush (*Juncus tenuifolia*); a FACW graminoid, Baltic rush (*J. balticus*); and an OBL graminoid, water foxtail (*Alopecurus aequalis*).

Grazing by cattle has impacted these wetlands, including the delivery of fine sediments into the system as a result of excessive foraging on the vegetation and trampling of the soft soil.

Porcupine Creek. At the proposed pipeline crossing of this perennial stream, streamside vegetation did not meet the definition of a wetland, due in part to constant shifting of the bed and a natural influx of large amounts of sediment from an outcrop of Green River shale upstream. It is not unusual for riparian corridors to fail to meet the definition of a wetland, because the banks often are elevated sufficiently above the stream that soils are only seasonally saturated at or near the surface. This has precluded the development of hydric (at least seasonally saturated or inundated and generally anaerobic) soils or of shallow-rooted hydrophytic herbaceous species.

The visually and ecologically dominant species in this area was narrowleaf cottonwood (*Populus angustifolia*), classified as FAC, while understory species were mostly upland grasses, forbs, and shrubs. Although the lack of dominance by FACW or OBL species and the absence of hydric soils did not support delineation of Porcupine Creek in the vicinity of the proposed alignment as a wetlands, the stream is classified as a waters of the U.S.

Beaver Creek. In the area where the pipeline would be bored beneath this perennial stream, the riparian corridor was dominated by a dense canopy of three FACW woody plants—boxelder (*Negundo aceroides*), thinleaf alder (*Alnus tenuifolia*), and Bebb willow (*Salix bebbiana*)—with lesser amounts of another FACW species, redbow dogwood (*Swida sericea*), and a non-indicator riparian shrub, the hawthorn *Crataegus erythrophoda*. Associated species in the understory included a non-native but widely naturalized FACW grass, creeping redbow (*Agrostis stolonifera*), along with two non-native mesophytic (moist-site) FACU grasses, orchardgrass (*Dactylis glomerata*) and Kentucky bluegrass (*Poa pratensis*), and two non-native forbs mesophytic forbs, Alsike clover (*Trifolium hybridum*)(FAC) and common dandelion (*Taraxacum officinale*)(FACU).

Based on dominance by wetland indicator species and the presence of hydric soils of supporting hydrology, the riparian habitat along this segment of Beaver Creek was delineated as a wetlands. The delineated wetlands within the pipeline corridor comprised 0.36 acre on one bank and 0.26 acre on the opposite bank, for a total of 0.62 acre. The stream is classified as a waters of the U.S. Some delivery of fine sediments into Beaver Creek and adjacent wetlands has already occurred as a result of grazing by cattle and runoff from the adjacent CR317.

Beaver Creek Tributary Channel. To the east of Beaver Creek along the proposed pipeline alignment is an unnamed ephemeral tributary. This tributary has a distinct channel that conveys primarily snowmelt and heavy spring rainfall and connects hydrologically to a perennial stream. It therefore would probably be considered a jurisdictional waters of the U.S. It was not delineated as a wetland due to an absence of hydric soils and hydrophytic vegetation. Dominant species include non-indicator shrubs such as hawthorn, Gambel's oak, and sagebrush, with an understory of non-native mesophytic herbs typical of moist areas in lands grazed by cattle (i.e., Kentucky bluegrass and common dandelion).

Flatiron Mesa Tributary Channel. At the western end of Flatiron Mesa, farther east of Beaver Creek, is another unnamed tributary that carries primarily snowmelt and runoff from heavy spring rains. As with the Beaver Creek tributary described above, its distinct channel and its hydrologic connectivity with a perennial stream would probably support a determination that it is a jurisdictional waters of the U.S. However, like the other unnamed tributary, it was not delineated as a wetland owing to a dearth of hydric soils or hydrophytic vegetation. Dominant species again include the non-indicator shrubs hawthorn and Gambel's oak and the non-native mesophytic herbs Kentucky bluegrass and common dandelion.

West Mamm Creek Tributary Swale. Although West Mamm Creek supports a diverse and well-developed riparian corridor in the project vicinity, it is located on the opposite (east) side of an existing roadway from the pipeline and is not expected to be affected by the project. However, an unnamed tributary to West Mamm Creek is located on the west side of the proposed new pipeline where it would parallel an existing pipeline near the eastern terminus. This drainageway does not have distinct channel ("bed and banks") but instead is fully vegetated and thus would be considered an "upland swale." Frequent and protracted near-surface saturation is indicated by hydric soils, but the swale does not support hydrophytic vegetation.

Dominant species include quaking aspen (FAC) in the overstory, with two FACU shrubs, serviceberry (*Amelanchier alnifolia*) and roundleaf snowberry (*Symphoricarpos rotundifolia*), along with Woods rose (*Rosa woodsii*) (FAC) in the understory. The herbaceous stratum includes a native OBL grass, bluejoint reedgrass (*Calamagrostis canadensis*); a non-native FACU pasture grass, orchardgrass; and a non-native non-indicator grass, smooth brome.

Environmental Consequences

Proposed Action

Direct impacts to wetlands and riparian habitats are not anticipated from this proposal, as no construction or other related activities would cross or drain directly into wetlands. The proposed pipeline would cross the feeder ditch at the western end of the project area, but this ditch does not support wetlands.

Indirect impacts to wetlands could occur despite judicious application of best management practices (BMPs). These impacts to wetlands could include increased delivery of fine sediments from construction of the ROW and from nearby road surfaces. The potential also exists for accidental spills of chemicals into wetlands.

The indirect impacts of increased fine sediments could include the smothering of vegetation, which could reduce plant diversity in wetland areas. Fine sediments could also decrease pool depths, smother eggs of fish or amphibians, and reduce aquatic macroinvertebrate diversity and abundance. The degree to which these effects would be noticed would depend on their amount and duration. Spilled chemicals would probably decrease aquatic macroinvertebrate diversity and could produce localized die-offs of fish or amphibian eggs or larvae downstream from the ROW. The extent and level of potential impacts from spills would depend on what is spilled, how much is spilled, and the success and timeliness of cleanup.

No Action Alternative

Under the No Action alternative, the project components included in the Proposed Action would not be approved or constructed. Therefore, no impacts to wetlands or riparian areas associated with the proposed pipeline project would occur.

Analysis of Public Land Health Standard 2 for Riparian Systems

The Proposed Action would be unlikely to prevent Standard 2 from being achieved. Additionally, the stipulations described in Appendix B, and the installation and monitoring of BMPs, would help ensure that public land health standard 2 for wetlands and riparian areas would continue to be met.

3.2 Other Affected Resources

In addition to the critical elements, the resources presented in Table 6 (continued on next page) were considered for impact analysis relative to the Proposed Action and No Action alternative. This section discusses resources that are present and would be affected by the Proposed Action or No Action alternative.

Table 6. Other Resources Considered in the Analysis			
<i>Resource</i>	<i>NA or Not Present</i>	<i>Present and Not Affected</i>	<i>Present and Affected</i>
Access and Transportation			X
Cadastral Survey	X		
Fire/Fuels Management	X		
Forest Management		X	
Geology and Minerals			X
Law Enforcement	X		
Paleontology			X
Noise			X
Range Management			X
Realty Authorizations	X		
Recreation		X	
Socio-Economics			X
Soils			X
Vegetation			X
Visual Resources			X
Wildlife, Aquatic			X
Wildlife, Terrestrial			X

3.2.1 Access and Transportation

Affected Environment

Primary access to the eastern portion of the project would be from I-70, Exit #94 at Airport Road east of Rifle, to West Mamm Creek Road (County Road 319)(CR319). Primary access to the western portions of the project area would be from I-70, Exit #81 at Rulison along the Rulison Road (CR323) and the Rifle-Rulison Road (CR320) to either the Spruce Creek Road (CR329) or the Beaver Creek Road (CR317). Existing traffic throughout most of the project area is heavy due to current oil and gas exploration and development activity.

As described in detail in the Proposed Action, three staging areas would provide main access to/from the pipeline. The access route to the pipeline and the EnCana J16W well pad staging area would be from the West Mamm Creek Road onto Grass Mesa along the Grass Mesa BLM Road and across Grass Mesa on existing BLM access roads. Access to the second staging area of 0.46 acre, located on private property near the Beaver Creek bore, would be from Beaver Creek Road. The third staging area of 0.07acre would be along West Mamm Creek on Forest Service Road 818 (FSR 818), where the WRNF currently has a 0.25-acre parking area. Other access to the pipeline would be along private roads or the proposed ROW.

ETC would be required to obtain a Road Use Permit for use of FSR 818. A component of the permit would include providing a structural analysis of the road based on estimated traffic loads, providing insurance and bonding, submitting an operating plan and a traffic control plan, placing gravel on the surface, and maintaining the road. Based on the results of the structural analysis, additional surfacing may be required to be placed to support the increase in traffic for the duration of the project. In addition, a short section of slope (lying within the pipeline ROW) near the truck turnaround would be laid back to provide better sight distance along the road. No spoils from pipeline construction would be placed on the travelway.

Trucks hauling pipe would travel loaded along FSR 818 for approximately 1.5 miles to a truck turnaround point located on the ROW. From this point, access by most vehicles would be along the pipeline ROW to either the J16W well pad or the existing WRNF facility. Light pickup traffic and trucks mobilizing construction equipment would be allowed to travel to the staging area located at the end of the 12-inch section of pipeline. Construction equipment used on the 12-inch section would demobilize from the J16W well pad staging area.

Environmental Consequences

Proposed Action

The Proposed Action would result in a marked increase in truck traffic along private, Garfield County, BLM, and Forest Service roads for the duration of the project. Vehicle traffic would include truck trips for delivery of the pipe, fittings, and related materials; mobilization and demobilization of heavy equipment; construction inspection and supervision; and daily commuting of the workforce. The affected roads could be subject to short-term closures for safety. Measures would be taken to minimize these impacts through scheduling of vehicle trips. Roads affected by the increase in traffic include the following:

- CR 317 – Beaver Creek Road
- CR 319 – West Mamm Creek Road
- CR 320 – Rifle-Rulison Road
- CR 323 – Rulison Road
- CR 329 – Beaver Creek Road
- BLM Grass Mesa Road
- FSR 818 – West Mamm Creek Road

Actual construction of the pipeline would take place in four phases. The anticipated increases in traffic for the four phases are shown in Table 7. The duration of each phase is based on working 10-hour days and 6 days per week.

Table 7. Anticipated Traffic Increases		
<i>Type of Traffic</i>	<i>Trips per Day</i>	<i>Total Trips</i>
Phase 1 – Clearing and Trenching (5 weeks)		
Construction Personnel	36	1,080
Inspection	12	360
Light Truck Traffic	24	720
Heavy Truck Traffic	9	270
Phase 2 – Welding and Pipe Inspection (6 weeks)		
Construction Personnel	72	2,592
Inspection	72	2,592
Light Truck Traffic/Buses	14	504
Heavy Truck Traffic	6	216
Phase 3 – Pressure Testing Pipeline (2 days)		
Construction Personnel	9	18
Inspection	1	2
Light Truck Traffic	8	16
Heavy Truck Traffic	3	6
Phase 4 – Recontouring and Reseeding (5 weeks)		
Construction Personnel	36	1,080
Inspection	12	360
Light Truck Traffic	24	720
Heavy Truck Traffic	9	270

All vehicles would be licensed to meet USDOT regulations. All permits would be obtained as required by Garfield County for trucking of heavy and/or wide loads. Road maintenance would be performed as needed or as required by managing agencies. Dust control would be a daily construction activity to mitigate any public impact.

Equipment would remain within the three staging areas—the EnCana J16W well pad, the Beaver Creek bore location, and on NFS lands at an existing parking area along FSR 818—for the minimum time necessary. Once the pipe has been strung for welding along the ROW, the staging areas would be used for pipeline access only. The staging area on NFS lands would require only surface improvements; no vegetation would be cleared. This staging area would then be reclaimed as a parking area and the existing sign replaced.

No Action Alternative

This alternative would not have an impact on access or transportation, because the development activities would not occur.

3.2.2 Geology and Minerals

Affected Environment

The project area is located within the southern Piceance Basin, a broad elongate structural basin located at the eastern edge of the Colorado Plateau. The basin is highly asymmetrical and deepest along its eastern side near the White River Uplift, where more than 20,000 feet of sedimentary rocks are present. It is bounded on the north by the Uinta Mountain uplift; on the east by the Grand Hogback Monocline, which lies along the western flank of the White River Uplift; on the southeast by the Gunnison and Uncompahgre Uplifts; and on the northwest by the Douglas Creek Arch, which separates it from the Uinta Basin. Surface exposures in the Piceance Basin are primarily sedimentary rocks of the Green River and Wasatch Formations.

The youngest rocks in the area are Quaternary in age and are distributed as unconsolidated sedimentary surface deposits. Landslide deposits (Q1) cover most of the study area and consist principally of large slump blocks of basalt irregularly veneered with young (Pinedale) glacial drift. Other areas consist of mudflows and outwash plains from receding glacial blocks that once covered the highland areas to the south, including Battlement and Grand Mesas. The 12-inch pipeline would be located predominantly on Wasatch Formation sediments, from the terminus in Section 29, T7S, R93W, through Section 21 and including the southern portion through Section 16.

Approximately 1,800 linear feet of the proposed pipeline in Section 21 would be located on Quaternary gravels, as would another 2,500-foot segment extending southward from the tie-in point with the 24-inch line. The 24-inch line is located predominantly on Quaternary landslide deposits, with the exception of two isolated areas of Wasatch Formation sediments in Sections 10 and 12, T7S, R94W. Isolated areas of Quaternary gravels are also present within the area in the NENE Section 7 and SWNW Section 8, T7S, R93W. Table 8 (next page) lists these formations along with other localized mapped units most prevalent in the area surrounding the pipeline corridor and their characteristics.

The area that encompasses the proposed pipeline corridor is located south of the Colorado River at elevations ranging from approximately 6,840 feet on the western initiation point of the 24-inch line (Section 9, T7S, R94W) to approximately 7,850 feet as it skirts the southwest edge of Flatiron Mesa (Section 6, T7S, R93W). Total relief within the area is approximately 1,500 feet. Slopes range from less than 5 percent to greater than 60 percent in steepness.

Mineral resources within the southern portion of the Piceance Basin include oil and gas deposits, coal, and minor amounts of sand and gravel. Oil and gas production is generally from unconventional tight sands. Deeper production zones occur within the lower Mesaverde include the Rollins, Cozette, and Corcoran sands. Most of the natural gas reservoirs produce varying amounts of liquid condensate.

The entire project area is underlain by the Cameo-Fairfield Coal group of the Williams Fork Formation. Currently, the project area contains no coal leases. Subsurface depth to coal zones is predicted to be greater than 6,000 feet within the area, and mining depths generally do not exceed 3,000 feet. Production of coalbed natural gas is limited by, among other parameters, rock permeability, which decreases with depth due to the pressure of overlying strata. Coalbed natural gas production has been cited at depths above 7,000 feet within the Piceance Basin (RMAG 2003). Because these coal beds may contain natural gas, the potential exists for future gas production from upper Mesaverde/Coal Ridge coal beds where permeability has been preserved.

Limited amounts of salable mineral resources are located within the project area. These include sand and gravel in Quaternary deposits along stream valleys and in terrace deposits on mesa tops. According to the

Colorado Geological Survey (CGS 1999), these deposits are of little commercial value because the gravels contain abundant silt and clay matrix and secondary calcium carbonate cements.

Table 8. Geologic Formations in the ETC Pipeline Area				
<i>Map Symbol</i>	<i>Formation Name</i>	<i>Age</i>	<i>Characteristics</i>	<i>Location</i>
Qa	Unconsolidated alluvium deposits	Holocene	Gravel, sand, and silt	Stream valleys and alluvial fans
Ql	Landslide deposits	Pleistocene & Holocene	Heterogeneous rapid gravity flow deposits of clay- to boulder-sized materials	Mesa sideslopes
Qgo	Older gravels and alluvium	Pleistocene	Terrace, outwash, and pediment deposits	Mesa summits
Qbb	Basaltic boulder gravel	Pleistocene	Gravel, sand, and silt	Stream valleys and alluvial fans
Qg	Unconsolidated deposits	Pleistocene	Young gravels (Bull Lake and younger) Stream, terrace, and outwash gravels	Stream valleys and alluvial fans
Tgl	Lower part of Green River Formation	Eocene	Shale, sandstone and marlstone	Mesa sideslopes between the Spruce Creek and Porcupine Creek drainages
Two	Wasatch Formation	Eocene & Paleocene	Claystone, shale, siltstone, sandstone bedrock	Outcrops on mesa sideslopes and summits
Kmv	Mesaverde Formation	Upper Cretaceous	Variiegated claystone, siltstone, sandstone, and conglomerate with some coal beds	Below Tw and not exposed in the project area
Source: Tweto 1979, Ellis and Freeman 1984, Shroba and Scott 1997				

Environmental Consequences

Proposed Action

The Proposed Action would result in the removal of surface materials and the excavation of subsurface materials along the proposed corridor. Extraction and displacement of sedimentary rocks would occur. The project would result in minimal effect on geologic resources and no effect on economic mineral resources.

No Action

Under the No Action Alternative, the Proposed Action would not be constructed, and associated impacts would not occur.

3.2.3 Paleontology

A pedestrian survey for paleontological resources was made of the proposed 24-inch pipeline route where it appeared that fossils could potentially be observed on the surface and at some of the nearby Wasatch Formation exposures. No fossils were found. A pedestrian survey for paleontological resources was made of the entire route of the proposed 12-inch pipeline route, and no fossils were found on the surface.

The survey was conducted by permission of the BLM under Paleontological Resources Use Permit #C-60230.

The entire ROW for the proposed pipeline route would be considered Class 3a and Class 4 under the new Potential Fossil Yield Classification (PFYC) system. This is similar to Condition 2 under the older guidelines of the BLM Paleontology Resources Management Manual and Handbook H-8270-1 (July 1998). No fossils were found during the preconstruction survey. Therefore, no portion of the proposed route would be considered Class 5 (Condition 1).

Affected Environment

The proposed pipeline is in an area where the surface geological formation is the Wasatch Formation of Lower Eocene Age (55 million years before present). The entire route is covered with heavy vegetation, and the 24-inch pipeline would be installed adjacent and parallel to an existing natural gas pipeline. At the initiation point on the west end, the ground surface is a little less covered by vegetation, with apparently a fairly deep soil cover supporting juniper trees, sagebrush, and other low growing shrubs and oak brush in many areas. Grass covers much of the route, especially along the existing pipeline corridor. Some good exposures of Wasatch Formation are present along the route but not within the existing or proposed limits of disturbance. Several of these exposures were checked, and no fossils were found on the surface.

At a point along the route between stakes marked as Station 195-202 and the top of a ridge and parallel to the existing pipeline, the new pipeline would pass through a layer of channel sandstones. Large pieces of this previously disturbed sandstone were lying around the area and on top of the existing pipeline route. All of these were checked, and no fossils were visible. The 12-inch section of the proposed pipeline is in an area covered by dense vegetation consisting of grasses and other groundcovers, oakbrush, serviceberry, sagebrush, and occasional juniper trees. This portion of the pipeline would cross through undisturbed ground and would not parallel an existing pipeline. The ground showed evidence of livestock use, and the route of the pipeline would follow what is apparently a well-used livestock trail southward to the roadside and along the north side of the road in a southwesterly direction to the tie-in point.

Environmental Consequences

Proposed Action

The work would be take place in the Shire Member of the Wasatch Formation, which has produced various types of fossils in the past. The proposed route seems to be almost entirely through an area of quite deep soil cover, with the exception of the channel sandstone mentioned above. No evidence was apparent during the surveys to indicate that any fossils were disturbed during construction of the earlier pipeline. Based on conditions, impacts to paleontological resources are not anticipated.

No Action

Under the No Action Alternative, the Proposed Action would not be constructed, and associated impacts would not occur.

3.2.4 Noise

A variety of county, ranch, and oil-and-gas roads are the primary source of human-caused noise within the project area. This is particularly true at the western and eastern ends of the proposed route, which lie in closer proximity to areas of human use.. These local sources create an ambient noise level that is high

relative to other parts of the project area. The middle portion of the proposed route is more remote, and background noise levels are lower. No residences are present within the project area. People who would be subject to noise generated in the project area, for the most part, employees of the oil and gas companies and travelers along major county roads. Ranchers, recreational visitors (e.g., hunters), and wildlife would also be subject to noise generated in the area.

The Proposed Action would occur within a rural setting characterized by fairly recent oil and gas development activities. Noise levels in the area are presently created by traffic serving existing wells and ongoing drilling and completion activities.

Environmental Consequences

Construction of the proposed pipeline would generate moderate noise levels. Based on an average noise level of 85 dBA at 50 feet from a construction site, the construction noise could be above 55 dBA within 1,500 feet of the site. The 55 dBA level is not a regulatory requirement but a threshold recognized as not expected to adversely affect public health and welfare (EPA 1974). Elevated noise levels would occur along access roads as vehicles and heavy equipment travel and from to the site. People and wildlife could be disturbed by elevated noise levels during construction. However, elevated noise levels would occur between sunrise and sunset and would be of relatively short duration in any given area. No specific mitigation is identified.

No Action

Under the No Action Alternative, the Proposed Action would not be constructed, and associated impacts would not occur.

3.2.5 Range Management

The proposed pipeline route would be located on six grazing allotments, including five on BLM lands and one on NFS lands. Most of the grazing permits are small ranching operations, typically cow-calf operations, and are highly dependent on the forage resources in the allotments for spring, summer, and fall feeding. Livestock management practices are limited to the permit terms of period of use and restrictions on the number and kind of livestock allowed. An exception to this limited management being practiced is on the Beaver Mamm Allotment (BLM 2005). The Beaver Mamm Allotment is divided into three pastures, with livestock rotated from the lowest to the highest pasture during the period of use (BLM 2005). Table 9 (next page) summarizes the permitted grazing use on each BLM allotment and the single Forest Service allotment. Rangeland improvements that could be affected by the project include fences and stock watering source.

Environmental Consequences

Proposed Action

Surface-disturbing activities associated with pipeline construction would result in the initial loss of approximately 7.6 animal unit months (AUMs) of forage on BLM allotments, increased human activities for the short-term, and the spread of noxious weeds and other invasive non-native species. The forage loss would persist until successful reclamation of disturbed areas occurred. On areas that are disturbed and rehabilitated, herbaceous vegetation and herbaceous forage production typically recovers to pre-disturbance levels in approximately three to five years depending on moisture conditions.

Table 9. Grazing Allotments in the Project Area					
<i>Authorization</i>	<i>Allotment Name & Number</i>	<i>Livestock Kind & Number</i>	<i>Season of Use</i>	<i>Percent Federal</i>	<i>AUMs</i>
BLM Allotments					
0500001	Beaver Mamm #08104	Cattle 79	5/15 – 10/15	100%	400
0500157	Beaver Mamm #08104	Cattle 45	5/15 – 10/15	100%	228
0507550	Beaver Creek #08113	Cattle 73	5/12 – 10/14	11%	41
0500001	Porcupine Creek #08119	Cattle 49	5/7 – 6/20	100%	72
0503869	Porcupine Creek #08119	Cattle 29	5/7 – 6/20	100%	43
0507632	Porcupine Creek #08119	Cattle 11	6/16 – 9/30	84%	33
0507632	Porcupine Creek #08119	Cattle 70	10/1 – 10/15	84%	29
0507632	Spruce Gulch #08121	Cattle 196	5/16 – 6/30	38%	113
0507632	Spruce Gulch #08121	Cattle 25	10/1 – 10/30	38%	9
0507516	Spruce Gulch #08121	Cattle 14	5/15 – 9/30	80%	51
WRNF Allotment					
15-2710	Hunter Creek*	Cow and Horse 118 cow/calf pairs	6/15 – 10/15	58%	623
*This allotment is currently in non-use. It is expected that the permit will transfer within the next year or two and that the allotment will then be stocked.					

It is anticipated that the level of impacts expected from implementation of the Proposed Action would not require the adjustment of stocking rates. The level of forage utilization would be monitored on affected allotments and, if necessary, adjustments in livestock use would be made to protect land health. An increase in human activity related to construction and maintenance of the Proposed Action would cause cattle to move away from locations where construction is taking place. The negative impact that an increase in human activity would have on grazing livestock would be expected to be minor. Livestock might benefit from improved access along the eastern portion of the project due to the Proposed Action opening access to areas of the allotments that are difficult to access now because of thick brush and steep slopes. Improvement in livestock distribution would improve forage utilization throughout the allotment.

Effects of increased human activity and construction equipment also could increase the introduction and spread of noxious weeds and the subsequent degradation of rangeland health. See the section title **Invasive Non-Native Plant Species** for a detailed discussion of the effects of these plants and of mitigation measures related to the Proposed Action.

Removal of allotment fences and cattle guards during pipeline construction would allow cattle to escape their pastures and drift onto other pastures and/or allotments. The open trench could present a hazard to livestock and limit movement within the allotment. Best management practices (including constructing

trenches with natural egress ramp in the trench) and conditions of approval (including repairing or replacing any range improvements impacted by construction – COA #27) are designed to mitigate impacts to allotments and/or cattle.

No Action

The No Action alternative would result in no loss of forage or other adverse impacts on livestock or ranching operations, because the pipeline would not be constructed.

3.2.6 Recreation

Affected Environment

The proposed pipeline would be located on a combination of BLM, NFS, and private lands. The BLM public lands crossed by the proposed route are part of the Glenwood Springs extensive recreation management area (ERMA) where management is for dispersed/undirected recreation activities. The RMP does not have any specific, measurable, or targeted recreation management objectives for ERMAs. However, the RMP provided a general overview of appropriate experience and activity opportunities that occur by adopted Recreation Opportunity Spectrum (ROS) class.

The proposed pipeline corridor would be within the Semi-Primitive Motorized opportunity class characterized by a predominantly unmodified natural environmental of moderate to large size that provide: (1) some opportunity for isolation from the sights and sounds of man, (2) an opportunity to have a high degree of interaction with the natural environment, (3) an opportunity for moderate challenge and risk and the ability to use outdoor skills, and (4) an explicit opportunity to use motorized equipment. No developed recreation facilities exist within the project area. The primary use is hunting in the fall and early winter. Some dispersed recreation does occur; however, numerous areas and opportunities exist nearby for this type of recreation without the oil and gas development.

The NFS lands crossed by the proposed route are in management area 5.41. The ROS for this management area is semi-primitive non-motorized in the winter and summer. The majority of the use in this area is dispersed camping, hiking, wildlife viewing, and hunting. Dispersed recreation use in this area has increased over the past couple of years because access has improved due to oil and gas development.

Mamm Peaks Outfitters has a special recreation use areas that includes the project area and also uses the area in conjunction with their WRNF Special Use Permit.

Environmental Consequences

Proposed Action

In the short-term, the Proposed Action would result in increased vehicle traffic, dust, noise, and human activity within the project area. The proposed timing of installation is late summer/early fall for approximately 16 weeks. This has the potential to create user conflicts during the hunting season. Specific mitigation measures are included in Appendix B to avoid or minimize these potential impacts. Depending on timing, the proposal also has the potential to displace deer and elk, which may also affect hunters. Mamm Peaks Outfitters may also be temporarily indirectly affected during the installation of the pipeline.

Over the project's 20- to 30-year operating life, the development of natural gas wells, the auxiliary production facilities, and the presence of workers would directly alter the physical, social, and administrative character of the recreation settings. The ROS class would change from the Semi-Primitive Motorized (SPM) class to the Roaded-Natural (RN) class. The RN class is described as providing (1) an equal opportunity to affiliate with other users or to be isolated from the sights and sounds of man, (2) an opportunity to have a high degree of interaction with the natural environment, (3) an ability to practice outdoor skills may be important, and (4) opportunities for both non-motorized and motorized recreation. Providing opportunities for moderate challenge and risk and the ability to use outdoor skills is not highly important. The RN setting is characterized by a moderate evidence of the sight and sound of humans. Resource modifications and uses are evident, but should harmonize with the natural environment.

The long-term change from an SPN to an RN setting would be consistent with the GSFO RMP priorities for recreation management within ERMAs because, as part of the GSFO ERMA, the Project Area does not have recreation setting prescriptions that require the maintenance of recreation setting character. Changes in the physical, social, and administrative setting characteristics of the recreation setting would likely displace traditional users who enjoy participating in dispersed recreation activities in *Semi-Primitive Motorized* recreation settings.

No Action

Under the No Action alternative, the proposed pipeline would not be constructed. Therefore, recreation would not be subject to the adverse impacts associated with the Proposed Action.

3.2.7 Socio-Economics

Affected Environment

Much of the labor and equipment for construction and support would be drawn from the labor and equipment pools found in Mesa County and central Garfield County. The area has been the scene of ongoing natural gas development for 15 years, and activity has intensified over the last five to seven years. A significant labor and equipment pool already exists in the Grand Junction and Rifle areas.

The July 2006 population of Garfield County was estimated at 53,020, and the Mesa County population was estimated at 135,468 (Colorado State Demography Office 2008). The number of jobs in Garfield and Mesa counties in December 2007 was estimated at 37,438 and 79,963, respectively (Colorado Department of Labor and Employment 2008). The rate of population growth has been well above the average for the state, as has the rate of job growth. Principal economic sectors in Garfield County are office administrative services, sales and retail trade, and food preparation and serving. Principal economic sectors in Mesa County are sales and retail trade, office administrative services and construction and extraction. The total number of workers employed in oil and gas development is difficult to define since development-related occupations appear in a variety of economic sectors. However, oil and gas drilling and production have been one of the strongest forces driving recent economic growth. Other economic activities that occur in the project area include hay production and livestock grazing.

According to Census 2000, the only minority population of note in the impact area is the Hispanic community (Colorado State Demography Office 2008). Persons describing themselves as Hispanic or Latino represented 10.0 percent of the Mesa County population and 16.7 percent of the Garfield County population, less than the Colorado state figure for the same group, 17.1 percent. Blacks, American Indians, Asians, and Pacific Islanders each accounted for less than one percent of the population, below the comparable State figure in all cases. The census counted 7.0 percent of the Mesa County population and 4.6 percent of the Garfield County population as living in families with incomes below the poverty

line, compared to 6.2 percent for the entire state. Both minority and low-income populations are dispersed throughout the area.

Environmental Consequences

Proposed Action

Construction of the pipeline could require a maximum workforce of up to 300 people. The duration of construction is estimated to be 14 to 16 weeks. The Proposed Action would be of limited duration, while the oil and gas industry in Garfield and Mesa Counties is relatively large and mature. The influx of people from outside the area would be relatively small and temporary. Only specialty equipment and personnel would come from outside the area. The likelihood is that most of the labor and equipment used would be drawn from local sources; however, some may come from out of state. This means that little or no change would be produced in the size of the local workforce or the local population. Sufficient infrastructure (i.e., government services, retail, and housing) already exists.

Motels, restaurants, grocery stores, gas stations, and vehicle and equipment repair shops may all experience additional activity. The facilities developed by the Proposed Action would nominally expand the local property tax base. The net effect of these impacts would be considered beneficial, but minor.

No Action

Under the No Action Alternative, the Proposed Action would not be constructed, and associated impacts would not occur.

3.2.8 Soils (includes an analysis of Public Land Health Standard 1)

Affected Environment

The proposed pipeline would be located on generally north-facing slopes between 6,350 and 7,750 feet elevation, with gradients ranging from less than 5% to greater than 60%, and would cross the soil types described in Table 10 (continued on the next page).

Table 10. Soil Types Along the ETC Pipeline Corridor			
<i>Soil Association and % of Route</i>	<i>Soil Description</i>	<i>Slope (%)</i>	<i>Erosion Hazard*</i>
<i>Rifle Area Soil Survey – 82.8% of Pipeline Length</i>			
Arvada Loam 0.4%	Deep, well-drained soil on saline alluvial fans and terraces from 5,100 to 6,200 feet. Surface layer is loam about 3 inches thick; subsoil is silty clay loam about 14 inches thick. Permeability is very slow and surface runoff is moderately rapid.	6-20%	Severe
Badlands 0.8%	Shallow, poorly-drained, nearly barren areas showing no soil characteristics; formed from residuum derived from soft shale and sandstone. Surface runoff is very rapid.	Steep to very steep	Very severe
Bucklon-Inchau Loams 0.6%	Well-drained soils on ridges and mountainsides from 7,000 to 9,500 feet. Surface layer is loam 3 to 5 inches thick; upper subsoil, where present, is brown clay loam about 15 inches thick. Permeability is slow to moderate, surface runoff is medium.	25-50%	Severe

Table 10. Soil Types Along the ETC Pipeline Corridor			
Soil Association and % of Route	Soil Description	Slope (%)	Erosion Hazard*
Cimarron Loam 3.2%	Deep, well-drained soil formed in alluvium in narrow valleys from 7,500 to 9,000 feet. Surface layer is loam about 4 inches thick; subsoil is silty clay to silty clay loam up to 30 inches thick. Permeability is slow and surface runoff is medium.	2-12%	Moderate
Morvall Loam 1.6%	Deep, well-drained soil formed in reworked alluvium on mesas and sides of valleys from 6,500 to 8,000 feet. Surface layer is loam about 5 inches thick; upper subsoil is clay loam about 12 inches thick. Permeability is moderate and surface runoff is slow.	3-12%	Slight
Morvall-Tridell Complex 56.5%	Deep, well-drained soils on alluvial fans and mesa sides from 6,500 to 8,000 ft. Surface layer is loam or stony loam up to 10 inches thick; upper subsoil is clay loam to very stony loam about 12 inches thick. Permeability is moderate to moderately rapid, surface runoff is medium.	6-25%	Moderate
Nihill Channery Loam 1.6%	Deep, well-drained soil on alluvial fans and valley sides from 5,000 to 6,500 feet. Surface layer is channery loam about 11 inches thick; upper subsoil is very channery loam about 7 inches thick. Permeability is moderately rapid and surface runoff is slow.	6-25%	Severe
Torrifluvents 0.5%	Deep soil formed in floodplain alluvium. Surface layer ranges from loamy sand to clay loam and underlying layers are sandy to stony loam and clay loam. Supports riparian vegetation; water table is 2 to 4 feet subsurface.	0-6%	Slight
Torriorthents-Camborthids-Rock Outcrop Complex 8.7%	Exposed sandstone and shale bedrock, and shallow to deep soils formed on foothills and mountainsides. Clay to stony loam, covered by rock eroded from outcrops. Contains variable amounts of gravel and cobbles.	15-70%	Moderate to Severe
Torriorthents-Rock Outcrop Complex 4.6%	Exposed sandstone and shale bedrock, and shallow to moderately deep soils formed over alluvium on foothills and mountainsides. Stony clay to stony loam, covered with stones weathered from outcrops.	15-70%	Moderate to Severe
Villa Grove-Zoltay Loams 4.3%	Deep, well-drained soils on mountainsides and alluvial fans from 7,500 to 7,600 feet. Surface layer is loam 4 to 20 inches thick; upper subsoil is clay loam to cobbly clay 11 to 35 inches thick. Permeability is slow to moderately slow, runoff is slow to medium.	15-30%	Slight to Moderate
Holy Cross Area Soil Survey – 17.2% of Pipeline Length			
Fughes-Godding Families Complex 1.0%	Found on slumps and landslides between 7,000 and 9,000 feet. Surface layer is silt loam to cobbly silty clay up to 45 inches thick; upper subsoil is clay to very cobbly silty clay loam up to 60 inches thick. Permeability is slow, runoff is moderate.	5-40%	Slight to Moderate
Herm-Fugues Families Complex, Eroded 16.2%	Found on hills made of residuum between 6,500 and 8,500 feet. Surface layer is silt loam to silty clay loam up to 20 inches thick; upper subsoil is clay to silty clay loam, 12 to 38 inches thick. Permeability is slow to moderately slow, runoff is rapid.	5-40%	Moderate
*Erosion hazard in Holy Cross Area Survey is represented here by cut and fill slope stability hazard.			

As indicated in Table 10, the proposed pipeline alignment would include parts of two soil surveys. The northern portion, including the entirety of the 24-inch pipeline segment, is addressed by the *Soil Survey of Rifle Area, Colorado* (USDA 1985). The southern portion, containing most of the 12-inch pipeline, is

addressed by the *Soil and Ecological Land Unit Survey, Holy Cross Area, Colorado* (USDA 1995). Unfortunately, the soil types in these two surveys do not align well with each other with regard to name, spatial extent, or physical description. For example, the Rifle Area Survey describes overall erosion hazard for each soil type, while the Holy Cross Area Survey describes mass movement potential, cut-and-fill slope stability, and revegetation limitations.

Environmental Consequences

Proposed Action

The Proposed Action would result in the short-term loss of approximately 102.6 acres of vegetation, including 17.4 acres on Forest Service land; essentially all of this area would be reclaimed following pipeline installation. In general, the route that would be affected by the Proposed Action contains adequate vegetation buffers and moderate (8% to 30%) slopes that would minimize the potential for sediment transport. However, construction activities would cause slight to moderate increases in local soil loss, loss of soil productivity, and sediment available for transport to surface waters. Potential for such soil loss and transport would increase as a function of slope, soil type, width of construction corridor, and proximity to streams.

Approximately 3.4% of the pipeline route (3.5 acres) would be located on soils with severe to very severe risk of erosion or slope instability, while soils along approximately 13.3% of the route (13.6 acres) are rated as “moderate to severe.” Approximately 2.4 miles (2.9 acres of disturbance, or 2.8% of the portion on BLM land) would be constructed in areas with erosive soils on slopes steeper than 30%. The current GSFO land use plan (BLM 1999) provides for a requirement that surface-disturbing activities include special design or mitigation measures to minimize adverse impacts associated with construction on highly erodible soils and steep slopes. In most of these areas along the proposed corridor, such as the steep slope immediately east of the Porcupine Creek crossing, the pipeline route would be cleared to the minimum possible width, with pipe staged and welded at the toe of the slope and pulled into position before being laid into the trench. Additional short stretches (up to 100 feet) within erosive soils may be temporarily steepened beyond 30% during construction. Erosion and soil transport in all areas would be protected by proper BMPs incorporated as protective stipulations (see Appendix B).

No Action Alternative

Under the No Action alternative, the proposed pipeline would not be constructed. Therefore, the risk of soil impacts resulting from the Proposed Action would be eliminated.

Analysis of Public Land Health Standard 1 for Upland Soils

Pipeline construction has the potential to increase erosion and other soil damage. However, based on project design and implementation of the protective stipulations listed in Appendix B, the Proposed Action would not prevent Standard 1 from being met.

3.2.9 Vegetation (includes an analysis of Public Land Health Standard 3)

Affected Environment

The Spruce Creek to Mamm Creek Pipeline project area would be constructed on the last relatively flat area north of the steep Battlement Mesa and Mamm Peak areas. To the west of the project area is Spruce Creek; to the east are Flatiron Mesa and Grass Mesa. The lowest elevation of the route is where the pipeline crosses Porcupine Creek at 6,400 feet; the highest elevation of the route is at the crest of Flatiron

Mesa at 7,820 feet. The primary vegetation types along the proposed pipeline corridor are summarized below:

Gambel's Oak Shrubland. This diverse community type is found at higher elevations of the project area and generally on north-facing slopes. The amount of Gambel's oak ("oakbrush") (*Quercus gambelii*) varies, depending primarily on elevation and aspect. In some areas, the type consists almost entirely of dense, tall oakbrush with few associated shrubs and a sparse herbaceous understory due to extreme shading by the oak canopy and competition for light, moisture, and space. In areas of elevated soil moisture, another tall shrub, chokecherry (*Padus melanocarpa* var. *virginiana*), is sometimes present and locally co-dominant. On slightly drier exposures, the oakbrush shares dominance with serviceberry (*Amelanchier* cf. *alnifolia*). More open stands may include roundleaf snowberry (*Symphoricarpos rotundifolia*) in the understory, occasionally accompanied by wax currant (*Ribes cereum*).

Mixed Mountain Shrubland. On drier slopes at lower elevations or on sunnier aspects than the oak and serviceberry, the habitat is dominated by mountain-mahogany (*Cercocarpus montanus*) and varying amounts of bitterbrush (*Purshia tridentata*). Because of the more open canopies of these shrubs, the herbaceous layer is denser and more diverse. Associated forbs vary with elevation, site moisture, and shrub density but commonly include tailcup lupine (*Lupinus caudatus*), Rocky Mountain penstemon (*Penstemon strictus*), Watson's penstemon (*Penstemon watsonii*), aspen daisy (*Erigeron speciosus*), running fleabane (*Erigeron flagellaris*), Drummond's rockcress (*Boechera drummondii*), Nuttall's larkspur (*Delphinium nuttallianum*), small-leaf pussytoes (*Antennaria parviflora*), lambs-tongue groundsel (*Senecio integerrimus*), longleaf phlox (*Phlox longifolia*), sticky false starwort (*Pseudostellaria jamesii*), and narrowleaf mountain trumpet (*Collomia linearis*). Native perennial graminoids include elk sedge (*Carex geyeri*) and a variety of grasses such as bluebunch wheatgrass (*Pseudoroegneria spicata*), slender wheatgrass (*Elymus trachycaulus*), and junegrass (*Koeleria macrantha*).

Sagebrush Shrubland. Lower and drier portions of the project area are commonly dominated by sagebrush. Like the more mesic shrubland types described above, this type is diverse, varying considerably with elevation and aspect. At higher elevations, and often forming a mosaic with the Gambel's oak-mixed mountain shrubland type, the dominant species is mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) mixed with black sagebrush (*A. nova*), bitterbrush, snowberry, and sticky rabbitbrush (*Chrysothamnus viscidiflorus*). These shrublands generally support a diverse herbaceous component. Common grasses include Indian ricegrass (*Achnatherum hymenoides*), bluebunch wheatgrass, slender wheatgrass, western wheatgrass (*Pascopyrum smithii*), bottlebrush squirreltail (*Elymus elymoides*), junegrass, and muttongrass (*Poa fendleriana*). Common forbs include tapertip onion (*Allium acuminatum*), running fleabane, mariposa lily (*Calochortus nuttallii*), lobeleaf groundsel (*Packera multilobata*), tailcup lupine, death camas (*Toxicoscordion venenosum*), coppermallow (*Sphaeralcea coccinea*), balsamroot (*Balsamorhiza sagittata*), and Indian paintbrush (*Castilleja* sp.). Brittle prickly pear (*Opuntia fragilis*), a cactus, is also common. Harrington's penstemon (*Penstemon harringtonii*) occurs most frequently in this habitat type (see **Special Status Species, Plants**)

At the lowest elevations, the project area is typically dominated by basin big sagebrush (*A. t.* ssp. *tridentata*), often with scattered Utah juniper (*Sabina utahensis*) and with varying amounts of greasewood (*Sarcobatus vermiculatus*), fourwing saltbush (*Atriplex canescens*), and rubber rabbitbrush (*Chrysothamnus nauseosus*). Common grasses include Indian ricegrass, galleta grass (*Pleuraphis jamesii*), western wheatgrass, thickspike wheatgrass (*Elymus lanceolatus*), bluebunch wheatgrass, needle-and-thread grass (*Hesperostipa comata*), and Sandberg bluegrass (*Poa secunda*). Coppermallow and tapertip onion are common forbs.

Pinyon-Juniper Woodland. Stands of pinyon pine (*Pinus edulis*) and Utah juniper—generally consisting almost entirely of the latter—occur at lower to middle elevations of the project area, often interspersed

within sagebrush shrublands or drier types of mixed mountain shrubland. This habitat type is best developed along the western end of the ROW, primarily on BLM or private lands and only secondarily on NFS lands. Associated shrubs include bitterbrush, serviceberry (*Amelanchier cf. utahensis*), broom snakeweed (*Gutierrezia sarothrae*), and skunkbrush (three-leaf sumac) (*Rhus trilobata*). In general, the sparse herbaceous layer consists of graminoids such as cheatgrass (*Anisantha tectorum*), western wheatgrass, Indian ricegrass, bottlebrush squirreltail, muttongrass, and Sandberg bluegrass. Forbs are a minor component.

Burned Area (Historically Pinyon-Juniper and Gambel's Oak Woodland). Native grasses are dominant over most of this area. Winterfat (*Krascheninnikovia lanata*) and rubber rabbitbrush, both native shrubs, occur sporadically. Common grasses include non-native cheatgrass and native junegrass, Indian ricegrass, and slender wheatgrass. Non-native annual forbs such as prickly lettuce (*Lactuca serriola*), tumble mustard (*Sisymbrium altissimum*), and redstem filaree (*Erodium cicutarium*) have invaded after the fire but are not a dominant component. While the pinyon-juniper trees were effectively killed by the fire, the Gambel's oak, Utah serviceberry, and chokecherry have resprouted aggressively.

Existing Pipeline ROWs. While the proposed route bisects many of the above-mentioned habitat types, much of the area has already been impacted by previous pipeline construction activities. Along the existing ROWs, reclamation of the area has changed the vegetation communities to more grass-dominated habitat types. Non-native grasses such as smooth brome (*Bromopsis inermis*), orchardgrass (*Dactylis glomerata*), and intermediate wheatgrass (*Thinopyrum intermedium*) dominate these areas, although native western wheatgrass is also present and may have been seeded also. Noxious weeds such as Canada thistle (*Cirsium arvense*) and plumeless thistle (*Carduus acanthoides*) are widespread in these areas but not common or dense. Some native forbs such as lupine (*Lupinus* spp.) and coppermallow are also present but uncommon.

Aspen and Spruce/Fir Forest. On NFS lands at the southeastern end of the proposed corridor, the proposed corridor passes through a small area of quaking aspen (*Populus tremuloides*) with lesser amounts of Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies bifolia*). While the aspen trees in this area are mature, the spruce/fir component is in the seedling/sapling and post-pole stage. This is a common seral relationship in which spruce and fir germinate and grow in the relatively cool, moist understory of the aspens and gradually replace them. The understory in this system includes low-growing shrubs such as common juniper (*Juniperus communis*), Woods' rose (*Rosa woodsii*), and roundleaf snowberry as well as a diverse grass/forb understory. Perennial grasses in the herbaceous layer include the native mountain brome (*Bromopsis marginatus*) as well as the non-native smooth brome.

Environmental Consequences

Proposed Action

The construction of the temporary and permanent ROW would result in approximately 102.7 acres of vegetation clearing on BLM, NFS, and private lands. Table 11 (next page) lists the amount of direct impacts, by vegetation type.

The pipeline ROW would be reclaimed during the same growing season as construction, using one or more seed mixes approved by BLM (see Appendix B). On private lands, the seed mix would be subject to approval by the surface landowner. Because BLM's seed mix menus that are appropriate for the project area consist entirely of native perennial grasses, reclamation of disturbed areas along the pipeline corridor would result in the conversion of exist shrub- or tree-dominated communities to grass-dominated communities. Over time, however, natural colonization of the reclaimed areas by forbs and woody plants from nearby undisturbed areas is expected. Because natural colonization would require many years or

decades, periodic reopening of the corridor to replace or add a new pipeline would interrupt this process and restart the revegetation process.

With implementation of reclamation practices specified in Appendix B, including topsoil handling, seeding, mulching, and weed control, the establishment of desirable herbaceous vegetation on the ROW sufficient to minimize wind or water erosion and invasion by weeds within 3 to 5 years.

Table 11. Acres of Vegetation Impacts within the Proposed Pipeline Corridor				
<i>Vegetation Type</i>	<i>BLM Lands</i>	<i>NFS Lands</i>	<i>Private Lands</i>	<i>Total</i>
Gambel's Oak Shrubland	16.1	5.4	1.9	23.4
Mixed Mountain Shrubland	18.0	8.4	14.1	40.5
Pinyon/Juniper Woodland	10.0	0.0	0.9	10.9
Sagebrush Shrubland	10.7	3.1	8.7	22.5
Aspen/Spruce-Fir Forest	0.0	0.5	0.0	0.5
Riparian Shrubland	3.1	0.1	0.6	3.8
Total	66.9 ac	17.5	26.2	101.6

No Action

Because no construction would occur under the No Action alternative, direct or indirect impacts to existing vegetation communities along the proposed pipeline corridor would occur.

Analysis of Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Invasive Non-Native Plant Species; Special Status Species; Wildlife, Aquatic; and Wildlife Terrestrial

The Proposed Action would not jeopardize the viability of any plant population or plant community type and have no significant consequences on habitat condition, utility, or function or discernible adverse effects on species abundance or distribution. Public land health standard 3 would continue to be met.

3.2.10 Visual Resources

Affected Environment

The proposed pipeline would be located on a combination of BLM, NFS, and private lands. The associated infrastructure at the end of the 12-inch pipeline would be on NFS lands. The project area is on the last relatively flat area north of the steep Battlement Mesa and Mamm Peak areas. To the west of the project area is Spruce Creek; to the east are Flatiron Mesa and Grass Mesa. The primary vegetation types along the route include mixed mountain shrubland, Gambel's oak shrubland, and sagebrush shrubland, with pinyon pine and Utah juniper scattered throughout these types. An area of quaking aspen and spruce/fir occurs near the southeastern end of the corridor; narrow ribbons of riparian shrubland and woodland are present along Beaver and West Mamm Creeks, respectively. Most of the proposed pipeline route follows an existing ROW that has been reclaimed and revegetated to a grass-dominated community.

The BLM portion of the project area contains evidence of oil and gas exploration and development. The area is also used for dispersed recreation, primarily hunting in the fall and early winter. The experience of the users of this area is affected by the scenery; modification of the existing landscape is evident since the

project area is within and adjacent to an existing pipeline ROW. Electrical transmission lines and numerous dirt roads also cross through the project area multiple times.

Most of the proposed pipeline corridor crosses BLM land classified as visual resource management (VRM) Class IV, which provides for management activities that require major modifications of the existing character of the landscape. These activities may dominate the view; however, an attempt should be made to minimize the impact of these activities through location, minimizing disturbance, repeating basic elements, and using BMPs.

One section of the 12-inch pipeline would run through BLM lands designated as VRM Class III. The objective of Class III is to partially retain the existing character of the landscape. Management activities may attract the attention of the viewer but should not dominate the view.

The remainder of the 12-inch portion of the pipeline would be located on NFS lands in management area 5.41, where scenery is managed to provide a range of scenic integrity objectives from low to moderate. (Forest Plan, pg. 3-57). This project is located adjacent to West Mamm Road (FR818), which is a Sensitivity Level 1 route. This area is used for both commodity and non-commodity opportunities and is an example of a "working forest." Ample evidence of oil and gas exploration and production, timber harvesting, and livestock grazing is present in the area. Dispersed recreation occurs throughout the year and includes driving for pleasure, viewing scenery, various types of OHV travel (4-wheel drive trucks, ATVs, motorcycles), snowmobiling, hunting, and dispersed camping. The experiences of the users are affected by the surrounding scenery, and the scenic views are important to the users of this area. The Scenic Integrity Objective for this project is rated as "Low."

Environmental Consequences

Proposed Action

To avoid or minimize impacts to visual resources, the proposed route would run parallel to existing roads and an existing ROW as much as possible, incorporating the existing ROW into the proposed ROW for this pipeline on one side. To minimize vegetation clearing (a total of 102 acres), the ROW would be cleared in a straight line. Measures such as scalloping and feathering the edges of the corridor would increase the amount of vegetation clearing required. Additional design criteria are included in Appendix B to further minimize impacts to visual resources.

During pipeline installation, short-term contrasts to visual resources would occur. Vegetation removal and excavation would alter the form, line, and color of the existing landscape. These impacts would not be visible from the I-70 corridor, nor would they be visible from the Town of Rifle. These impacts would primarily affect the dispersed recreation users of the area.

After final installation of the pipeline, all disturbed portions of the construction areas (including the ROW, travel routes, and staging areas) would be returned to pre-construction grades and contours. Topsoil would then be re-placed onto the regarded surface from the area where it was stripped. Revegetation would be the primary method to stabilize soils, ensure erosion control over the long term, and enhance visual resources along the ROW. Revegetation would use one or more seed mixes approved by BLM and would be conducted in conformance with the requirements presented in Appendix B.

Permanent project facilities on NFS lands would be painted Federal Standard colors 34083 for spruce/fir sites or 34095 for aspen/oak sites using "flat" finish to reduce reflectivity. The existing pipeline infrastructure adjacent to the road at the Johnson-McClung tie-in on NFS lands would be removed as part

of the proposal. This would have a minor beneficial impact on visual resources in this area. The Proposed Action would be consistent with scenery management direction on Federal lands.

No Action

Under the No Action alternative, the proposed pipeline would not be installed. Therefore, no new impacts to visual resources would occur. The existing pipeline infrastructure adjacent to the road at the Johnson-McClung tie-in on NFS lands would remain in place under this alternative.

3.2.11 Wildlife, Aquatic (includes an analysis of Public Land Health Standard 3)

Affected Environment

The proposed pipeline corridor would cross two perennial streams (Beaver Creek and Porcupine Creek), both of which are tributary to the Colorado River. The corridor would parallel another stream, West Mamm Creek, for a short distance near its southeastern end.

In terms of aquatic life, all of these streams are limited primarily by flows, which are flashy and seasonally very low, and by heavy sediment loads. Other limiting factors include type of substrate and the presence, density, and width of riparian plant communities. These streams are sourced both directly and indirectly from snowpack at higher elevations on the flanks of Battlement Mesa. Much of the recharge from snowpack enters the streams as groundwater inflow from colluvium and shallow bedrock. Substrates vary longitudinally along the streams and include reaches dominated by cobbles, finer sediments, and plant detritus.

Fish surveys by CDOW and USFS have documented the presence of greenback cutthroat trout—a Federally listed threatened subspecies—in upper reaches of Cache Creek, located several drainages to the east. Another native trout subspecies, the Colorado River cutthroat trout, is known to occur in Beaver Creek but not in Porcupine or West Mamm Creeks. This subspecies is listed as sensitive by both BLM and USFS; see the section on **Special Status Species** for detailed information.

A non-native sportfish, the brook trout (*Salvelinus fontinalis*), occupies lower reaches of Beaver Creek. This trout of eastern North America has been widely introduced in mountainous areas of Colorado because of its tolerance for slightly warmer waters than the cutthroat trout and its ability to reproduce successfully in streams with very small flows.

Aquatic macroinvertebrates living in perennial streams such as Beaver Creek during a portion of their lifecycles include larvae of stoneflies, mayflies, and some caddisflies in fast-flowing reaches with rocky or detrital substrates. Both the aquatic larvae and winged adults of stoneflies, mayflies, and caddisflies are probably the main prey for trout in Beaver Creek, along with terrestrial invertebrates that land or fall onto the surface or are carried into the stream in runoff from adjacent uplands. In slow-flowing portions of Beaver Creek with fine substrates, and in Porcupine and West Mamm Creeks, aquatic macroinvertebrates probably include the larvae of midges, mosquitoes, and some caddisflies. These species are able to tolerate relatively warm, turbid, and poorly oxygenated waters, and their more abbreviated larval stages allow them to reproduce in intermittent streams and in seasonally inundated overbank areas.

Environmental Consequences

Proposed Action

As described at length in relation to the Colorado River cutthroat trout in the section on **Special Status Species**, the Proposed Action has been designed to prevent or minimize disturbance to Beaver Creek by boring beneath the stream. The two ends of the bore would be located outside the riparian corridor, with sufficient intervening vegetation buffer to limit incidental runoff from the construction areas into the stream.

At the trenched crossing of Porcupine Creek, the width of the construction corridor would be kept the minimum width possible to limit modification to the streambed. Indirect impacts due to runoff from the construction zone on the approach/departure sides of the stream would also be limited by narrowing the construction corridor and not stockpiling soil or other excavated material in proximity to the stream. No direct disturbance to West Mamm Creek would occur, the location of the proposed new pipeline in that area to the opposite side of the existing roadway would minimize the potential for indirect impacts.

No Action Alternative

Because the No Action alternative would not involve removal of vegetation or installation of a pipeline along any portion of the proposed ROW, no impacts to aquatic wildlife are expected.

Analysis of Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Special Status Species; Vegetation; and Wildlife, Terrestrial)

The Proposed Action would not jeopardize the viability of any aquatic vertebrate species. The project would have no significant consequences on habitat condition, utility, or function or discernible adverse effects on species abundance or distribution at any landscape scale. Public land health standard 3 would continue to be met.

3.2.12 Wildlife, Terrestrial (includes an analysis of Public Land Health Standard 3)

Affected Environment

Mammals

Small mammals associated with habitats that dominate the proposed pipeline corridor area include the rock squirrel (*Spermophilus variegatus*), golden-mantled ground squirrel (*S. lateralis*), least chipmunk (*Tamias minimus*), and Hopi chipmunk (*T. rufus*) in addition to cottontail rabbits (*Sylvilagus* spp.), the bushy-tailed woodrat (*Neotoma cinerea*), and a variety of native mice. A small area of spruce/fir near the southeastern end of the corridor may also support some red squirrels, although the site is near the lower elevational limit of their range.

Small carnivores potentially present in the area include the long-tailed weasel (*Mustela frenata*), western spotted skunk (*Spilogale gracilis*), and ringtail (*Bassariscus astutus*) in addition to the nearly ubiquitous striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*). These species are most likely to occur along the drainages, near the margins of dense oakbrush, in pinyon-juniper woodland, or in the small area of aspen and spruce/fir. Larger carnivores expected to occur include the bobcat (*Lynx rufus*) and, along shrubland edges and openings, the coyote (*Canis latrans*). Black bears (*Ursus americanus*) make use of oaks and the associated chokecherries and serviceberries for cover and food, while mountain lions (*Felis concolor*) are likely to occur during seasons when mule deer (*Odocoileus hemionus*) are present.

Black bears are especially attracted to stands of oak, chokecherry, and serviceberry during fall when putting on fat for the coming winter. Consequently, CDOW has mapped a black bear fall concentration area covering approximately 25 square miles in the oakbrush habitats on north-facing slopes south of I-70 in the Rulison area. Mountain lions are found throughout the region in areas with dense cover and that support populations of deer.

The mule deer is a recreationally important species that are common throughout suitable habitats in the region. The 11.4 miles of proposed pipeline ROW include approximately 8.5 miles within mule deer winter range and 0.8 mile of mule deer winter concentration area as mapped by CDOW. Deer fecal pellets were common within and near the corridor during surveys. Although mostly mapped as winter range, the corridor also receives use by deer during the summer, and the eastern most 2.4 miles are mapped by CDOW as mule deer summer range. Some fawning probably occurs in the general area, particularly in areas such as Flatiron Mesa and along the drainages that provide a suitable combination of cover and forage, as well as abundant water to support lactation. During the fall, including hunting seasons, deer are likely to congregate in the middle-elevation areas typified by oakbrush/serviceberry, which provides dense cover and is transitional between lower elevation winter habitats (sagebrush, pinyon-juniper, and hay meadows) along the Colorado River valley and higher elevation summer habitats (aspen, spruce/fir, and mountain meadows) on the nearby WRNF.

Another big game ungulate (hoofed animal), the Rocky Mountain elk (*Cervus elaphus nelsonii*), is also present in the area and is considered a Management Indicator Species by the WRNF. The CDOW estimates elk herd numbers annually by monitoring hunter kill success and conducting winter aerial counts. Based on herd size estimates derived from CDOW's monitoring, it is clear that elk populations are high both locally and throughout Colorado. In particular, numbers of elk in and near the WRNF are currently above herd objectives in the Data Analysis Units (DAUs) that overlap the project area. Statewide, the elk population trend was generally upward from 1997 to 2004 (26% overall increase), but decreased by 6% from 2004 to 2005. All of the elk herds in the general region surrounding the project area have been actively managed over the past decade to reduce populations to levels within the population objectives for the respective DAUs.

A portion of the project area lies within a large DAU of 2,477 square miles, which includes a small portion of the WRNF (198 square miles, or 8% of the DAU). Approximately 20% of the winter range for this herd occurs on NFS lands, primarily within the Grand Mesa/Uncompahgre/Gunnison (GMUG) National Forest, with the remainder on BLM (25%) or private (54%) lands. Most of the important winter range is on the lower flanks of Battlement Mesa south of Rifle, Silt, and New Castle. At this time, no identified major concerns are associated with this portion of the elk population that summers on the WRNF.

Birds

Perching birds commonly associated with oak-serviceberry habitats include migratory nesters such as the dusky flycatcher, American robin (*Turdus migratorius*), blue-gray gnatcatcher (*Poliopitila caerulea*), Virginia's warbler, MacGillivray's warbler, lazuli bunting, lesser goldfinch, black-headed grosbeak, and spotted towhee) as well as year-round residents such as the black-billed magpie (*Pica hudsonia*), western scrub-jay (*Aphelocoma californica*), and both the black-capped chickadee (*Poecile atricapillus*) and mountain chickadee (*P. gambeli*), the latter mostly in aspen and spruce/fir. Areas of trees support resident woodpeckers such as the northern flicker (*Colaptes auratus*) and the hairy and downy woodpeckers (*Picoides villosus*, *P. pubescens*) as well as a variety of Neotropical migrant species that nest in abandoned woodpecker holes or in the tree canopies (see **Migratory Birds**).

Birds of prey may nest in conifers and aspen, or very tall oaks, associated with the CCMDP area, although no raptor nests were found during project-specific surveys. The raptor most likely to occur in the area is a nocturnal species, the great horned owl (*Bubo virginiana*). Two woodland hawks, the Cooper's (*Accipiter cooperii*) and sharp-shinned (*A. striatus*), may also fly through wooded portions of the area in search of small birds or small mammals and could nest in the aspens, subalpine conifers, or larger pinyons and juniper. Red-tailed hawks (*Buteo jamaicensis*) are also common in the region but hunt in more open habitats with shorter vegetation such as sagebrush, grasslands, and pastures. Redtails nest in trees or on cliffs.

One gallinaceous species, the wild turkey (*Meleagris gallopavo*), is also common in mountain shrub habitats, where the acorns, berries, and invertebrate prey in the dense leaf litter provide abundant food. Another upland gamebird, the blue grouse (*Dendragapus obscurus*), is potentially present in aspen and conifer habitats in the easternmost portion of the project area, although this area is below the usual elevational range for this mountain species.

Reptiles and Amphibians

The project area is above the elevational range of most reptile species known to occur in Garfield County. Species most likely to occur include the western fence lizard (*Sceloporus undulatus*) and gopher snake (bullsnake) (*Pituophis catenifer*) in xeric shrublands or grassy clearings and the western terrestrial garter snake (*Thamnophis elegans*) along creeks. Other reptiles potentially present along creeks, although more commonly found at lower elevations than the site, are the milk snake (*Lampropeltis triangulum*) and smooth green snake (*Opheodrys vernalis*).

No amphibians are known to occur along the corridor, although some existing stock ponds and slow-flowing portions of the drainages are potentially suitable for the northern leopard frog, a BLM and USFS sensitive species known to occur in Spruce Creek (see **Special Status Species**).

Environmental Consequences

Proposed Action

Construction and reclamation of the ROW would convert approximately 7.5 acres of existing shrub-dominated communities to a herbaceous community of perennial grasses. Through time, forbs and, more slowly, woody plants could colonize the reclaimed areas from nearby undisturbed areas. However, the process of succession from seeded grasses to native forbs and shrubs would require many years or decades. Initially, the process could be impeded by periodic treatment for weeds, which also would kill or injure any colonizing native forbs and shrub seedlings. Over the long term, colonizing forbs and shrubs would also be likely to be removed for periodic maintenance or updating of the pipeline or the addition of another adjacent line.

The conversion of shrubby habitats to grasses would reduce foraging, nesting/breeding, and sheltering habitat for a number of wildlife species. Because no long-term human occupancy of the ROW (i.e., use as a road or trail, etc.) is expected, few and minor long-term indirect impacts would occur other than direct habitat loss or modification. The disturbance corridor may fragment portions of the route to a level that some species can no longer find suitable habitat in large enough blocks or far enough from habitat edges. However, while the fragmentation of habitats may occur, the relatively minor impact relative to the expanses of similar habitat types nearby is expected to result in no discernible population effects, although individuals may be forced to move to other, less suitable sites (assuming that the more suitable sites are already occupied). This would have the effect of reducing the survival and reproductive success of some individuals.

Species that prefer grass-dominated habitats would benefit from conversion of shrublands to reclamation grasses. Larger mammals such as deer, elk, coyotes, bobcats, and other species may increase their use of the ROW as a travel corridor. Similarly, while tree- or shrub-nesting songbirds and some species of small mammals would suffer from the relatively small area of direct habitat loss, species associated with grassy habitats could increase.

Impacts from disturbance associated with human activity and operation of vehicles and heavy equipment during construction would create a temporary zone of reduced use along the corridor. This zone would vary in width depending on the particular habitat type (and associated density of screening), the sensitivity of the particular species, and the season. Overall, however, the zone of reduced use would remain in a given area for a relatively short time, because construction would progress along the entire length of the pipeline in a few weeks. Areas of more protracted disturbance (i.e., slower construction pace) would be expected at the trenched crossing of Porcupine Creek, the bored crossing beneath Beaver Creek, and potentially the tie-in near West Mamm Creek.

In terms of the two recreationally important big game ungulates, construction would occur outside the winter season, owing to application of a big game winter timing limitation (TL) stipulation for the period from December 1 through April 30 (see Appendix B). Because construction would not occur during fall, impacts to black bears while gorging themselves on acorns and berries would not occur. The timing following the big game winter TL would also minimize the potential for disturbance-related impacts to nesting raptors. Additionally, construction would have to be delayed or suspended until completion of nesting by any raptors that may begin to nest within or near the corridor (see Appendix B).

No Action Alternative

Because the No Action alternative would not include clearing of vegetation, trenching, or installation of a pipeline, impacts to terrestrial wildlife species would not result.

Analysis of Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Special Status Species, Vegetation and Wildlife, Aquatic)

The Proposed Action would not jeopardize the viability of any aquatic vertebrate species. The project would have no significant consequences on habitat condition, utility, or function or discernible adverse effects on species abundance or distribution at any landscape scale. Public land health standard 3 would continue to be met.

3.3 Summary of Cumulative Impacts

The *Glenwood Springs Oil and Gas Leasing and Development Final Supplemental EIS* (FSEIS) (BLM 1999) analyzed three alternatives for oil and gas development in the Glenwood Springs Resource Area (GSRA). The assessment included an analysis of impacts of past, present, and reasonable foreseeable future actions, including predicted future oil and gas development, on both public and private lands. Since the FSEIS presents the most current analysis of cumulative impacts in the project area, it is incorporated by reference.

Until relatively recently, modifications of the region have been characteristic of agricultural and ranching lands, with localized industrial impacts associated with the railroad and I-70 highway corridors. More recently, these changes are cumulative to the growth of residential and commercial uses, utility corridors, oil and gas developments, and other rural industrial uses. These increasing activity levels have accelerated the accumulation of impacts in the area. These impacts have included (1) direct habitat losses; (2) habitat fragmentation and losses in habitat effectiveness; (3) elevated potential for runoff,

erosion, and sedimentation; (4) expansion of noxious weeds and other invasive species; and (5) increased noise and traffic and reductions in the scenic quality of the area (BLM 1999: 4-1 to 4-68).

None of the cumulative impacts described in the FSEIS was characterized as significant, and new technologies and regulatory requirements have reduced the impacts of some land uses. Nonetheless, it is clear that past, present, and reasonably foreseeable future actions has had and would continue to have adverse affects on various elements of the human environment. The anticipated impact levels for existing and future actions range from negligible to locally major, and primarily negative, for specific resources. The primary reasons for this assessment are twofold: (1) the rate of development, particularly oil and gas development, is increasing in the area, resulting in an accelerated accumulation of individually nominal effects; and (2) the majority of residential and commercial expansion, as well as oil and gas development, have occurred, and is likely to continue to occur, on private holdings where mitigation measures designed to protect and conserve resources are not in effect.

It is clear that the Proposed Action would contribute to the collective adverse impact for some resources. Although the contribution would be very minor, the Proposed Action would contribute incrementally to the collective impact to air quality, vegetation, migratory birds, terrestrial wildlife, and other resources.

4. DOCUMENTATION PREPARATION AND REVIEW

The initial Proposed Action was drafted by Lisa Sakata of Aspen Environmental Field Services, with participation by Rocky Mountain Ecological Services, Inc. Project representatives for the applicant included Jake Latham and Rob Thompson of ETC Canyon Pipeline, LLC, and Jimmy Smith of Wagon Wheel Consulting, Inc. David Grisso of EnCana Oil and Gas (USA), Inc., participated relative to the existing EnCana pipeline and tie-in facilities. The EA was prepared and reviewed by BLM, Glenwood Springs Field Office staff, with major input by the USFS, White River National Forest Resource staff in the Supervisor’s Office and the Rifle Ranger District for actions on NFS land (Table 12).

Table 12. BLM and USFS Interdisciplinary Team Authors and Reviewers		
<i>Name</i>	<i>Title</i>	<i>Areas of Participation</i>
BLM, Glenwood Springs Field Office		
Rebecca Beavers	Natural Resource Specialist	EA Project Lead, Access and Transportation
DJ Beaupeurt	Realty Specialist	Realty Project Lead, Right-of-Way Permit
Beth Brenneman	Ecologist	Invasive Non-native Species, Special Status Species (Plants), Vegetation
John Brogan	Archaeologist	Cultural Resources, Native American Religious Concerns
Karen Conrath	Geologist	Groundwater, Paleontology, Geology and Minerals
Allen Crockett	Supervisory Natural Resource Specialist	Migratory Birds, Special Status Species (Wildlife and Fish), Aquatic and Terrestrial Wildlife, NEPA Compliance
Will Howell	Petroleum Engineer	Downhole COAs
Noel Ludwig	Hydrologist	Air, Noise, Soil, Surface Water, U.S. Waters, Wetlands and Riparian Zones
Isaac Pittman	Rangeland Management Specialist	Range Resources

Table 12. BLM and USFS Interdisciplinary Team Authors and Reviewers

<i>Name</i>	<i>Title</i>	<i>Areas of Participation</i>
USFS, White River National Forest		
Natasha Goedert	Wildlife Biologist	Migratory Birds, Special Status Species (Wildlife and Fish), Aquatic and Terrestrial Wildlife
Donna Graham	Landscape Architect	Scenic Resources
Kyle Grambley	Recreation Specialist	Recreation
Rick Haskins	Realty Specialist	Special Use Permit
Karla Mobley	Civil Engineer Technician	Road Design, Pipeline Construction
Skye Sieber	NEPA Coordinator	Forest Plan Compliance, NEPA Compliance

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APPENDIX A

LEGAL DESCRIPTION OF THE PROPOSED PIPELINE ALIGNMENT

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**Right-of-Way Grant COC73824
ETC Spruce Creek to Mamm Creek Pipeline**

LEGAL DESCRIPTION

BLM and National Forest System Lands
November 19, 2009

Sixth Principal Meridian, Garfield County, Colorado

Township 7 South, Range 93 West:

Section 6, SW¹/₄SW¹/₄, SE¹/₄SW¹/₄, SW¹/₄SE¹/₄;

7, NE¹/₄NE¹/₄; NW¹/₄NE¹/₄;

8, NW¹/₄NW¹/₄, SW¹/₄SE¹/₄, SE¹/₄SE¹/₄;

9, SW¹/₄SW¹/₄;

16, NE¹/₄NW¹/₄, SE¹/₄NW¹/₄, SW¹/₄NE¹/₄, NW¹/₄SE¹/₄, SW¹/₄SE¹/₄;

17, NE¹/₄NW¹/₄, NW¹/₄NE¹/₄;

21, NW¹/₄NE¹/₄, SW¹/₄NE¹/₄, NW¹/₄SE¹/₄, SE¹/₄SW¹/₄, SW¹/₄SW¹/₄;

28, NW¹/₄NW¹/₄;

29, Lots 1, 5;

Township 7 South, Range 94 West:

Section 1, SE¹/₄SW¹/₄, SW¹/₄SE¹/₄;

9, Lot 7, NE¹/₄SW¹/₄, SE¹/₄SW¹/₄, NE¹/₄SE¹/₄, NW¹/₄SE¹/₄;

10, NW¹/₄SE¹/₄, NE¹/₄SE¹/₄, SE¹/₄NE¹/₄;

11, SW¹/₄NW¹/₄, NW¹/₄NW¹/₄, NE¹/₄NW¹/₄, SE¹/₄NW¹/₄, SW¹/₄NE¹/₄, SE¹/₄NE¹/₄;

12, NW¹/₄NW¹/₄, NE¹/₄NW¹/₄;

TOTAL PIPELINE ROW

11.4 miles long: BLM = 6.6 miles, USFS = 1.9 miles

Acres Disturbance (Permanent ROW, 40 feet wide): BLM = 31.98 acres, USFS = 9.22 acres

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APPENDIX B

SURFACE-USE STIPULATIONS
(INCLUDING STANDARD AND SITE-SPECIFIC STIPULATIONS)

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SURFACE-USE STIPULATIONS
Spruce Creek to Mamm Creek Pipeline
ETC Canyon Pipeline, LLC
Right-of-Way Grant COC73824, Natural Gas Pipeline

General Stipulations Applicable to All Activities within the Right-of-Way (ROW):

The following standard stipulations are applicable to all parts of the ROW, unless otherwise specified.

1. Administrative Notification. The operator shall not initiate any construction or other surface disturbing activities on the ROW without prior written authorization of the BLM. Such authorization shall be a written *Notice to Proceed* (Form 2800-15). Any *Notice to Proceed* shall authorize construction or use any as therein expressly stated and only for the particular location or use therein described.
 2. The operator shall conduct all activities associated with the construction, operation, and termination of the ROW within the authorized limits of the granted ROW.
 3. A copy of these stipulations, including exhibits and the Plan(s) of Development, if required, shall be kept on the project area and made available to persons directing equipment operation.
 4. Disposal of all liquid and solid wastes produced during construction or operation of the pipeline shall be in an approved manner so as to not adversely affect the air, soil, water, vegetation, or wildlife.
 5. Pipeline warning signs shall be installed within 5 days of completion of construction and prior to use of the pipeline for transportation of product. Pipeline warning shall be installed at all road crossings and shall be visible from sign to sign along the ROW. *For safety purposes each sign shall be permanently marked with the operator's name and shall clearly identify the owner (emergency contact) and purpose (product) of the pipeline.*
 6. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
 7. The operator agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601 *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the ROW (unless the release or threatened release is wholly unrelated to the operator's activity in the ROW). This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.
 8. The operator shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the operator shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601 *et seq.*) with regard to any toxic substances that are used, generated by, or stored on the ROW or on facilities authorized under this ROW grant (40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release of spill of any
-

toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

9. The operator shall schedule and conduct a preconstruction meeting with BLM prior to the operator's commencing construction and/or surface disturbing activities on the ROW. The operator, its agent, its contractor(s), and other parties involved with construction and/or any surface-disturbing activities associated with the ROW shall attend this meeting to review the stipulations of the ROW grant, including the POD as applicable.
10. The pipeline shall be buried to a minimum depth of 36 inches from the top of the pipe to the surface.
11. All above ground structures not subject to safety requirements shall be painted by The operator to the specifications of the AO.
12. Fire Suppression. Welding or other use of an acetylene or other torch with open flame shall be operated in an area barren or cleared of all flammable materials at least 10 feet on all sides of equipment. Internal combustion engines must be equipped with approved spark arrestors which meet either (a) the USDA Forest Service Standard 5100-1a or (b) Society of Automotive Engineers (SAE) recommended practices J335(b) and J350(a).
13. ROW Boundary. The exterior boundaries of the authorized ROW shall be clearly marked with staking and/or flagging before surface-disturbing activities occur.
14. Private Landowners and Existing Rights-of-Way. The operator shall obtain an agreement with any existing ROW operators prior to any disturbance or construction across or adjacent to any existing ROW. The operator shall provide to the BLM certification that agreements have been reached with affected private landowners. Affected private landowners are those individuals or parties that hold lands over which the ROW corridor will traverse or that control access to the corridor.
15. Existing Uses. The operator shall obtain agreements allowing construction with all existing authorized surface users of federal pad locations prior to surface disturbance or construction of the location, staging areas, or access across or adjacent to any existing well pad locations. In the case of privately owned surface, the operator shall certify to BLM that a Surface Use Agreement has been reached with the authorized surface user, prior to commencing construction.
16. Saturated Soils Conditions. When saturated soil conditions exist on or along the proposed ROW, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils
17. Dust Abatement. The operator shall implement dust abatement measures as needed or directed by the BLM authorized officer. The level and type of treatment (watering or application of various dust agents, surfactants, and road surfacing material) may be changed in intensity and must be approved by the BLM.
18. Drainage Crossings and Culverts. Construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g. burying pipelines, installing culverts) shall be timed to avoid high flow conditions and shall consist of either a piped stream diversion or the use of a coffer dam and pump to divert flow around the disturbed area.

Culverts at drainage crossings shall be designed and installed to pass a 25-year or greater storm event. On perennial and intermittent streams, culverts shall be designed to allow for passage of aquatic biota.

The minimum culvert diameter in any installation for a drainage crossing or road drainage shall be 18 inches. Crossings of drainages deemed to be jurisdictional waters of the U.S. pursuant to Section 404 of the Clean Water Act may require additional culvert design capacity. Due to the flashy nature of area drainages and anticipated culvert maintenance, the U.S. Army Corps of Engineers recommends designing drainage crossings for the 100-year event.

Pipelines installed beneath stream crossings shall be buried at a minimum depth of 4 feet below the channel substrate to avoid exposure by channel scour and degradation. Following burial, the channel grade and substrate composition shall be returned to pre-construction conditions.

Existing culverts throughout the pipeline corridor shall be replaced if they must be removed for installation of the pipeline. On ungraveled roads, vehicle travel shall be avoided during excessively wet or muddy conditions.

19. Jurisdictional Waters of the U.S. The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers (USACE) prior to discharging fill material into waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the U.S. are defined in 33 CFR Section 328.3 and may include wetlands as well as perennial, intermittent, and ephemeral streams. Permanent impacts to waters of the U.S. may require mitigation. Contact Sue Nall, USACE Regulatory Specialist, Colorado/Gunnison Basin Regulatory Office, at 970-243-1199 x16 or susan.nall@usace.army.mil.

For all crossings of jurisdictional streams, written documentation to the BLM authorized officer is required within 30 days of construction to indicate that the USACE was notified prior to construction or that 404 Permits have been obtained or are not required. Documentation may be a copy of the pre-construction notification form or an official letter from the USACE.

20. Wetlands and Riparian Zones. The operator shall restore temporarily disturbed wetlands or riparian areas. The operator shall consult with the BLM Glenwood Springs Field Office to determine appropriate mitigation, including verification of native plant species to be used in restoration.
- a. The Operator will implement a Stormwater Management Plan, as per requirements of Garfield County, the Colorado Department of Public Health and Environment (CDPHE), or the Colorado Oil and Gas Conservation Commission (COGCC).
 - b. Mechanical Integrity Tests (MIT) shall be performed per COGCC and U.S. Environmental Protection Agency (EPA) permitting requirements.
 - c. Pipeline integrity shall be air-tested, as opposed to hydro-tested, to reduce water usage and the need for water discharge.
- a. To the extent possible, riparian vegetation removed during trenching operations across streams shall be saved and replanted along the stream bank once construction is completed.
 - b. Crossings of all flowing streams and irrigation ditches that are not directionally bored shall be flumed to prevent any disruption in water flow. The trench shall be cut beneath the flume and a dry trench shall be maintained.
 - c. All pipeline welds shall be x-rayed within the Rifle Municipal Watershed and within 100 feet of any perennial or intermittent stream crossing.
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- d. All available topsoil shall be salvaged and re-spread onsite during ROW reclamation, with a minimum stripping depth of 6 inches.
- e. Boulders left on the ROW surface during reclamation shall be placed on the landscape in a generally random arrangement, with occasional short alignments of boulders to act as water bars or to block vehicle access.
- f. All silt fences left onsite during reclamation shall be removed by the end of the first growing season following ROW reclamation.

21. Reclamation. The goals, objectives, timelines, measures, and monitoring methods for final reclamation of oil and gas disturbances are described in Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS). Reclamation of pipeline corridors is considered final reclamation.

- a. Deadline for Reclamation. All temporarily disturbed areas resulting from pipeline construction slopes shall be reseeded within 30 days of completion of the pipeline construction to stabilize the soil and minimize weed infestations. This deadline is subject to being extended upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis.
- b. Topsoil Stripping, Storage, and Replacement. Topsoil shall be stripped following removal of vegetation during construction of the pipeline, temporary roads, staging areas, or other areas of surface disturbance. This shall include, at a minimum, the upper 6 inches of soil. Any additional topsoil present at a site, such as indicated by color or texture, shall also be stripped. The BLM may specify a stripping depth during the onsite visit. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation.
- c. Seedbed Preparation. For cut-and-fill slopes, initial seedbed preparation shall consist of backfilling and recontouring to achieve the configuration specified in the reclamation plan. For compacted areas, initial seedbed preparation shall include ripping to a minimum depth of 18 inches, with a maximum furrow spacing of 2 feet. Where practicable, ripping shall be conducted in two passes at perpendicular directions. Following final contouring, the backfilled or ripped surfaces shall be covered evenly with topsoil.

Final seedbed preparation shall consist of scarifying (raking or harrowing) the spread topsoil prior to seeding. If more than 90 days have elapsed between final seedbed preparation and seeding, and if the area is to be broadcast-seeded or hydroseeded, this step shall be repeated no more than 1 day prior to seeding to break up any crust that has formed.

Requests for use of soil amendments, including basic product information, shall be submitted to the BLM/USFS for approval.

- d. Seed Mixes. A seed mix consistent with BLM standards in terms of species and seeding rate for the specific habitat type shall be used on all BLM lands affected by the project. See “Site-Specific Stipulations” for the seed mix and seeding rate.

For private surfaces, the BLM menu-based seed mixes are recommended, but the surface landowner has ultimate authority over the seed mix to be used in reclamation. The seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5% by weight of other weed seeds. Seed may contain up to 2.0% of “other crop” seed by weight,

including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. Seed tags or other official documentation shall be supplied to the BLM Glenwood Springs Interagency Team at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.

- e. Seeding Procedures. Seeding shall be conducted no more than 24 hours following completion of final seedbed preparation.

Where practicable, seed shall be installed by drill-seeding to a depth of 0.25 to 0.5 inch. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover. Hydroseeding and hydromulching may be used in temporary seeding or in areas where drill-seeding or broadcast-seeding/raking are impracticable. Hydroseeding and hydromulching must be conducted in two separate applications to ensure adequate contact of seeds with the soil.

If interim revegetation is unsuccessful, the operator shall implement subsequent reseeding until interim reclamation standards are met. Requirements for reseeding of unsuccessful temporary seeding will be considered on a case-by-case basis.

- f. Mulch. Mulch shall be applied within 24 hours following completion of seeding. In areas of interim reclamation that used drill-seeding or broadcast-seeding/raking, mulch shall consist of crimping certified weed-free straw or certified weed-free native grass hay into the soil. Hydromulching shall be used in areas of interim reclamation where crimping is impracticable, in areas of interim reclamation that were hydroseeded, and in areas of temporary seeding regardless of seeding method.

NOTE: Mulch is not required in areas where erosion potential mandates use of a biodegradable erosion-control blanket (straw matting).

- g. Erosion Control. Cut-and-fill slopes shall be protected against erosion with the use of water bars, lateral furrows, or other measures approved by the authorized officer. Biodegradable straw matting, bales or wattles of weed-free straw or weed-free native grass hay, or well-anchored fabric silt fence shall be used on cut-and-fill slopes and along drainages to protect against soil erosion. Additional BMPs shall be employed as necessary to reduce erosion and offsite transport of sediment.
- h. Site Protection. The seeded species will be considered firmly established when at least 50 percent of the new plants are producing seed. If fencing is required, the authorized officer will approve the type of fencing to be used.
- i. Monitoring. The operator shall conduct annual monitoring surveys of reclaimed areas and shall submit an annual monitoring report to the authorized officer by **December 31** of each year. The monitoring program shall use the four Reclamation Categories defined in Appendix I of the 1998 DSEIS to assess progress toward reclamation objectives. The annual report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing the corrective actions or other measures specified by the authorized officer.
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22. Weed Control. The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the BLM Glenwood Springs Field Office *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. A Pesticide Use Proposal (PUP) must be approved by the BLM prior to the use of herbicides. Annual weed monitoring reports shall be submitted by **December 31**.
- a. The operator shall disinfect heavy equipment, hand tools, boots, and any other equipment used previously in a river, lake, pond, or wetland by routinely cleaning equipment using 130°F water and high-pressure sprayers to remove dirt, weed seeds, or foreign debris. This shall also be performed by contractors before equipment is brought onsite, regardless of where the equipment was used previously.
 - b. The operator shall clean trucks and equipment at wash stations in Rifle.
 - c. Monitoring and control of noxious weeds or other invasive non-native species attempting to establish within the project boundaries throughout the construction and production phases shall be performed in coordination with routine maintenance activities.
23. Big Game Winter Range. In conformance with the current land use plan that governs ROW actions, all activities related to pipeline construction on the Federal portion of the pipeline route are prohibited from **December 1 to April 30**.
- a. The operator shall report spills that might affect wildlife (in particular spills that impact water) to the local CDOW District Wildlife Manager within 24 hours of detection.
 - b. Wildlife crossovers (trench plugs) with ramps shall be installed on each side of trenches at maximum 0.25- mile intervals and at well-defined game trails to facilitate passage of big game across the open trench and to allow trapped wildlife to escape.
24. Trout. To protect water quality and reduce sedimentation, standard erosion control techniques shall be applied as outlined in POD, located in the Administrative Record at Glenwood Springs Field Office for this project. Implementation of the POD is intended to mitigate potential impacts to stream health by dispersing concentrated flows. Such practices shall include:
- a. Develop stormwater drainage systems that direct intercepted rainfall or snowmelt away from the stream.
 - b. Collect concentrated flows from any drainage in rock-armored depressions and convey the flows away from the stream channel in a rock-lined ditch.
 - c. Discharge the diverted flows into vegetated areas where sufficient plant material is available to trap sediments and enhance infiltration of the water.
25. Raptor Nesting. Raptor nest surveys in the project vicinity resulted in the location of one or more raptor nest structures within 0.125 mile of the pipeline route. To protect nesting raptors, a 60-day Timing Limitation (TL) shall be applied to the initiation of construction, drilling, or completion activities within the buffer width specified above. This TL shall apply during the period **March 15 to May 15** annually until project completion. An exception to this TL may be granted for any year in which a subsequent survey determines one of the following: (a) the nest is in a severely dilapidated condition or has been destroyed due to natural causes, (b) the nest is not occupied during the normal nesting period, (c) the nest was occupied but subsequently failed due to natural causes, or (d) the nest

was occupied but the nestlings have fledged and dispersed from the nest. In the case of a dilapidated nest or one that was destroyed due to natural causes, the TL shall apply to any alternate or replacement nest within the buffer widths specified above, unless an exception is granted for the alternate or replacement nest for one of the reasons listed. Because the nests were not active during the 2008 nesting survey, the TL does not apply to construction, drilling, or completion activities during 2008.

26. Birds of Conservation Concern. Pursuant to BLM Instruction Memorandum 2008-050, all vegetation removal is prohibited from May 15 to July 15 to reduce impacts to Birds of Conservation Concern (BCC). An exception to this COA will be granted if nesting surveys conducted no more than one week prior to vegetation removal activities indicate that no BCC species are nesting or otherwise present within 10 meters of the area to be disturbed. Nesting surveys shall include an aural survey for diagnostic vocalizations in conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under favorable conditions for detecting and identifying a BCC species.
 27. Range Management. Range improvements (fences, gates, reservoirs, pipelines, etc) shall be avoided during development of natural gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator will be responsible for repairing or replacing the damaged range improvement at least to its former state. If a new or improved access road bisects an existing livestock fence, steel frame gate(s) or a cattleguard with associated bypass gate shall be installed across the roadway to control grazing livestock. The operator shall contact the owner of improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be H-braced on both sides of the passageway prior to cutting the fence. Function use of these improvements shall be maintained at all times.
 28. Ips Beetle. To avoid mortality of pinyon pines due to infestations of the *Ips* beetle, any pinyon trees damaged during road, pad, or pipeline construction shall be chipped after being severed from the stump or grubbed from the ground, buried in the toe of fill slopes (if feasible), or cut and removed from the site within 24 hours to a location approved by the Colorado State Forest Service.
 29. Paleontological Resources. All persons associated with operations under this authorization shall be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM authorized officer of the findings. The discovery must be protected until notified to proceed by the BLM authorized officer.

Where feasible, the operator shall suspend ground-disturbing activities at the discovery site and immediately notify the BLM authorized officer of any finds. The BLM authorized officer will, as soon as feasible, have a BLM-permitted paleontologist check out the find and record and collect it if warranted. If ground-disturbing activities cannot be immediately suspended, the operator shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.
 30. Recreation. Signs shall be posted on public access roads during the fall big game hunting seasons to alert hunters that heavy equipment is using the roads should construction activities overlap into the big game hunting seasons. Once construction is complete, the ROW shall be closed to motorized use. This can be accomplished by placing large boulders across any potential access routes.
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31. Visual Resources. Production facilities shall be placed to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points—unless directed otherwise by the authorized officer due to other resource concerns—and shall be placed to maximize reshaping of cut-and-fill slopes and interim reclamation of the pad.

To the extent practicable, existing vegetation shall be preserved when clearing and grading for pads, roads, and pipelines. The authorized officer may direct that cleared trees and rocks be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features.

Above-ground facilities shall be painted a natural color selected to minimize contrast with adjacent vegetation or rock outcrops. The color shall be specified by the BLM Authorized Officer.

32. Cultural Resources. (*Disclosure of site location(s) information is prohibited under 43 CFR7.18.*)

- a. Education/Discovery. All persons in the area who are associated with this project must be informed that if anyone is found disturbing historic, archaeological, or scientific resources, including collecting artifacts, the person or persons will be subject to prosecution.

Pursuant to 43CFR10.4(g), the BLM authorized officer must be notified, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43CFR10.4 (c) and (d), activities must stop in the vicinity of the discovery and the discovery must be protected for 30 days or until notified to proceed by the authorized officer.

If in connection with operations under this contract the project proponent, his contractors, subcontractors, or the employees of any of them, discovers, encounters or becomes aware of any objects or sites of cultural or paleontological value or scientific interest such as historic or prehistoric ruins, graves or grave markers, fossils, or artifacts, the proponent shall immediately suspend all operations in the vicinity of the cultural or paleontological resource and shall notify the BLM authorized officer of the findings (16 U.S.C. 470h-3, 36CFR800.112). Operations may resume at the discovery site upon receipt of written instructions and authorization by the authorized officer. Approval to proceed will be based upon evaluation of the resource. Evaluation shall be by a qualified professional selected by the authorized officer from a Federal agency insofar as practicable. When not practicable, the operator shall bear the cost of the services of a non-Federal professional.

Within five working days the authorized officer will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator is likely to have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the authorized officer to complete an expedited review under 36 CFR 800.11, or any agreements in lieu thereof, to confirm through the State Historic Preservation Officer that the findings of the authorized officer are correct and the mitigation is appropriate.

The proponent may relocate activities to avoid the expense of mitigation and/or the delays associated with this process, as long as the new area has been appropriately cleared of resources and the exposed materials are recorded and stabilized. Otherwise, the proponent will be responsible for mitigation costs. The authorized officer will provide technical and procedural

guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the proponent will then be allowed to resume construction.

Antiquities, historic, prehistoric ruins, or objects of scientific interest that are outside of the authorization boundaries but directly associated with the impacted resource will also be included in this evaluation and/or mitigation.

Antiquities, historic, prehistoric ruins, or objects of scientific interest, identified or unidentified, that are outside of the authorization and not associated with the resource within the authorization will also be protected. Impacts that occur to such resources, which are related to the authorizations activities, will be mitigated at the proponent's cost including Native American consultation cost.

Colorado State Statutes CRS 24-80-1301 for Historic, Prehistoric, and Archaeological Resources, and for Unmarked Human Graves. PART 13 -UNMARKED HUMAN GRAVES OFFICE OF ARCHAEOLOGY & HISTORIC PRESERVATION

24-80-1301. Definitions.

As used in this part 13, unless the context otherwise requires:

- (1) "Commission" means the commission of Indian affairs;
- (2) "Disturb" means to move, open, expose, dig up, disinter, excavate, remove, carry away, damage, injure, deface, desecrate loot, vandalize, mutilate, or destroy;
- (3) "Human remains" means any part of the body of a deceased human being in any stage of decomposition;
- (4) "Land" means all lands, including submerged lands, located within the state of Colorado which are owned by the state or its political subdivisions, agencies, or instrumentality's or by any private person.
- (5) "Person" means an individual, limited liability company, corporation, unincorporated association, partnership, proprietorship, or governmental entity.
- (6) "Unmarked human burial" means any interment of human remains for which there exists no grave marker or any other historical documentation providing information as to the identity of the deceased.

24-80-1302. Discovery of human remains.

- (1) Except as provided in section 24-80-1303 with regard to anthropological investigations, any person who discovers on any land suspected human skeletal remains or who knowingly disturbs such remains shall immediately notify the coroner of the county wherein the remains are located and the sheriff, police chief, or land managing agency official.
 - (2) The coroner shall conduct an onsite inquiry within hours of such notification to attempt to determine whether such skeletal remains are human remains and to determine their forensic value. If the coroner is unable to make such determinations, the police chief, the sheriff, the
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- coroner, or the land managing agency official shall request the forensic anthropologist of the Colorado bureau of investigation to assist in making such determinations. If it is confirmed that the remains are human remains but of no forensic value, the coroner shall notify the state archaeologist of the discovery. The state archaeologist shall recommend security measures for the site.
- (3) Prior to further disturbance, the state archaeologist shall cause the human remains to be examined by a qualified archaeologist to determine whether the remains are more than one hundred years old and to evaluate the integrity of their archaeological context. Complete documentation of the archaeological context of the human remains shall be accomplished in a timely manner.
- (4)(a) If the onsite inquiry discloses that the human remains are Native American, the state archaeologist shall notify the commission.
- (b) The remains shall be disinterred unless the landowner, the state archaeologist, and the chairperson of the commission or his/her designee unanimously agree to leave the remains in situ.
- (c) Disinterment shall be conducted carefully, respectfully, and in accordance with proper archaeological methods and by an archaeologist who holds a permit issued under sections 24-80-405 and 24-80-406. In the event the remains are left in situ, they shall be covered over.
- (d) Without the landowner's express consent for an extension of time, disinterment shall be accomplished no later than ten consecutive days after the state archaeologist has received notification from the coroner pursuant to subsection (2) of this section.
- (e) The archaeologist who conducts the disinterment will assume temporary custody of the human remains, for a period not to exceed one year from the date of disinterment, for the purpose of study and analysis. In the event that a period in excess of one year is required to complete such study and analysis, the commission shall hold a hearing and may, based upon its findings, grant an extension. During the period that the human remains are in the temporary custody of the archaeologist who conducted the disinterment, an archaeological analysis and report shall be prepared. At the same time, a physical anthropological study shall be conducted to include, but not be limited to, osteometric measurement, pathological analysis, and age, sex, and cause of death determinations. The cost of the disinterment, archaeological analysis, and physical anthropological study shall be borne by the state archaeologist except when the human remains are recovered from private lands. In the latter case, if no party can be identified who will bear the cost of such scientific study; the state archaeologist shall bear such costs.
- (f) Upon completion of the studies pursuant to paragraph (e) of this subsection (4), the State Archaeologist shall consult with the commission regarding re-interment.
- (5) Those remains which are verifiably nonnative American and are otherwise unclaimed will be delivered to the county coroner for further conveyance to the Colorado state anatomical board.

24-80-1303. Discovery of human remains during an anthropological investigation.

- (1) Prior to the commencement of an anthropological investigation in which it is probable that skeletal remains will be discovered, the anthropologists conducting such an investigation shall apply to the state archaeologist for an excavation permit issued under the authority of section 24-80-405 (1)(g). Upon receipt of said permit by a qualified applicant, he shall notify the coroner and sheriff of the county in which the investigation shall be conducted.
- (2) When skeletal remains are discovered during such an investigation, the anthropologists shall determine whether such skeletal remains are human remains, and, if such remains are determined to be human remains, the anthropologists shall determine, whenever possible, the age and cultural affiliation of the individual. Based on such determinations, the anthropologists shall proceed as follows:
- (3) If it is determined that the human remains are of an individual who has been dead less than one hundred years, the anthropologists shall notify the coroner of the discovery and shall offer an opinion as to the forensic significance of the human remains. The coroner will respond to such notification within 24 hours, during which time all activity that could disturb such human remains shall cease. If, on the basis of the anthropologist's opinion or on an independent onsite inquiry, the coroner determines that the human remains are of no forensic significance, the anthropologists shall notify either the state archaeologist, if the human remains are those of a native American, or the Colorado state anatomical board, if the human remains are those of a human being who was not a native American.
- (4) If it is determined that the skeletal remains are human remains but of an individual who has been dead for more than one hundred years, notwithstanding the provisions of section 30-10-606 (1.2), C.R.S., the anthropologists need not notify the coroner but shall notify either the state archaeologist, if the human remains are those of a Native American, or the Colorado state anatomical board, if the remains are of a nonnative American.
- (5) Upon notification by the anthropologists of the discovery of the human remains of a native American, the state archaeologist shall notify the commission and shall thereafter proceed in accordance with the provisions of section 24-80-1302 (4).

24-80-1305. Violation and penalty

- (1) Any person who knowingly disturbs an unmarked human burial in violation of this part 13 commits a class 1 misdemeanor and shall be punished as provided in section 18-1-106 C.R.S.
 - (2) Any person who has knowledge that an unmarked human burial is being unlawfully disturbed and fails to notify the local law enforcement agency with jurisdiction in the area where the unmarked human burial is located commits a class 2 misdemeanor and shall be punished as provided in section 18-1-106, C.R.S.
- b. Mitigation. (*Disclosure of site location information is prohibited under 43 CFR 7.18*). An archaeological monitor conducted by a archaeological firm qualified and permitted to do this type of archaeological work within the Glenwood Springs Field Office area is required during all phases of construction of the pipeline in the NENW of Section 11, T7S, R94W; the SW & SE of Section 21, the NWNW of Section 28, and the NENE of Section 29, T7S, R93W. Maps with the exact location of sections of pipeline to be monitored will be provided to the excavation firm by the archaeological contractor.
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No ground-disturbing construction activities (topsoiling, ditching, etc.) shall begin prior to the archaeologist's arrival. ETC Canyon Pipeline is responsible for notifying the archaeological firm at least 72 hours in advance of any proposed ground disturbance in the specified areas. ETC Canyon Pipeline is responsible for any and all construction delays and/or damage to cultural manifestations due to insufficient notification of the archaeological contractor, and or noncompliance with the procedures.

Archaeological monitoring will involve on-the-ground visual inspection of all construction for the road/pipeline within the areas specified above. The archaeologists will follow all the ground-disturbing equipment at a cautionary distance, allowing time for the construction dust to settle and for visible detection of buried cultural features to occur. If cultural resources are discovered, all ground-disturbing activities in the vicinity of identified feature(s) will be halted and a buffer area at least 100 feet from the identified feature(s) will be protected from any additional disturbance until which time as the feature(s) is mitigated via data recovery. Appropriate samples for analysis to determine cultural/temporal affiliation, and subsistence will be collected and analyzed as appropriate. At least one stratigraphic profile will be made for each feature identified, and samples for paleoenvironmental reconstructions will be taken as appropriate. Periodic reporting to the BLM archaeologist of progress and findings will be completed on a weekly or more frequent schedule as deemed necessary by the BLM.

Temporary work fencing will be installed along both edges/sides of the ROW where it crosses through cultural sites in Sections 10 and 22. The fencing width shall extend 100 feet beyond the site boundaries in both directions. Fencing is not required for the portions of the pipeline to be monitored in Sections 21, 28, 29, T7S, R93W. Maps with exact location of sections of pipeline to be monitored will be provided to the excavation firm by the archaeological contractor.

The extension of Federal protection to cultural resources on affected portions of private land is specified in BLM Manual 8100.07 (Responsibility for Non-Federal Cultural Resources).

- c. Native American Religious Concerns. The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the BLM authorized officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).

SITE-SPECIFIC STIPULATIONS FOR BLM LANDS

1. Stream Crossings. Along steep slopes and/or riparian areas, the width of disturbance shall be reduced to the maximum degree possible.

At Beaver Creek, the pullback section of pipe shall be staged only within the approved workspace.

At Porcupine Creek, the operator shall remove the visible portion of an existing, defunct 3-inch diameter natural gas pipeline currently exposed within the creek adjacent to the stream crossing location.

The operator shall perform no activities that impinge upon or otherwise impact the jurisdictional "Cabin Wetlands" adjacent to the homestead near the western end of the pipeline route, as described in the Wetland Delineation Report (RMES 2009).

2. **Staging Areas.** The operator will be allowed to construct a truck turn-around and pipe unloading area on EnCana's J16W pad (T7S, R93W, NWSE of Section 16) in support of pipeline construction. Construction and reclamation work on J16W pad shall be done per specification shown on submitted plat. The operator shall be responsible for reclamation of disturbed surfaces on J16W and the nearby stock pond. Pipe shall not be stored on the well pad. All EnCana safety procedures must be followed when personnel is on the location (Personal Protective Equipment, Flame Resistant Clothing, etc).

3. **Seed Mixes.** For all BLM lands disturbed by the proposed project, ETC shall use a seed mix consistent with BLM standards in terms of species and seeding rate for the Pinyon-Juniper Woodland habitat type:

Common Name	Scientific Names	Variety	Season	Form	PLS lbs/acre*
Plant Both of the Following (15% Each, 30% Total)					
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	VNS	Cool	Bunch	2.0
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	Secar, P-7, Anatone, Goldar	Cool	Bunch	2.8
and Two of the Following (20% Each, 40% Total)					
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	Critana, Bannock, Schwendimar	Cool	Sod-forming	3.4
Slender Wheatgrass	<i>Elymus trachycaulus</i>	Revenue, Pryor	Cool	Bunch	3.3
Western Wheatgrass	<i>Pascopyrum smithii</i>	Rosana, Arriba	Cool	Sod-forming	4.8
and Two of the Following (15% Each, 30% Total)					
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Paloma, Rimrock	Cool	Bunch	2.8
Galleta	<i>Pleuraphis jamesii</i>	Viva florets	Warm	Bunch/Sod-forming	2.5
Muttongrass	<i>Poa fendleriana</i>	VNS	Cool	Bunch	0.4
Sandberg Bluegrass	<i>Poa sandbergii, Poa secunda</i>	VNS	Cool	Bunch	0.4
*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.					

4. **Sensitive Plant Species.** To protect Harrington's penstemon (a BLM sensitive plant species), the following will be met:
 - a. A pre-construction onsite meeting with the BLM ecologist shall be held to determine which locations along the ROW will be narrowed to minimize impacts to Harrington's penstemon.
 - b. The areas to be narrowed shall be flagged prior to or during the pre-construction meeting by ETC and will meet the approval of the BLM ecologist.

WRNF SITE-SPECIFIC STIPULATIONS

1. Facilities. All above-ground facilities at the current tie-in location of Laramie II to EnCana pipeline facilities (T7S, R93W, SESE Section 29) shall be removed prior to operation of the ETC pipeline. The only above-ground facility at the tie-in location shall be an ETC “pig launcher” and associated metering facility and valve set. The existing gravel at the tie-in location shall be removed to the road, nearby well pad, or other graveled driving surface. Following removal of the existing facilities and gravel, the site shall be revegetated with an approved seed mix.
2. Drainage Crossings and Culverts. On USFS land, the minimum diameter of culverts in roads shall be 18 inches for ditch relief and 24 inches for side drainage relief. Culvert inlets and outlets shall be armored; outlets in cross drainages shall be armored a distance of 10 feet along the drainage.
3. Seed Mixes. For all WRNF lands disturbed by the proposed project, ETC shall use a seed mix consistent with BLM standards in terms of species and seeding rate for the Mixed Mountain Shrub habitat type, plus 0.1 PLS lbs/acre of mountain big sagebrush.

Common Name	Scientific Names	Variety	Season	Form	PLS lbs/acre*
Plant Both of the Following (20% Each, 40% Total)					
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	VNS	Cool	Bunch	2.7
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	Secar, P-7, Anatone, Goldar	Cool	Bunch	3.7
and Two of the Following (15% Each, 30% Total)					
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	Critana, Bannock, Schwendimar	Cool	Sod-forming	2.5
Slender Wheatgrass	<i>Elymus trachycaulus</i>	San Luis	Cool	Bunch	2.5
Western Wheatgrass	<i>Pascopyrum smithii</i>	Arriba, Rosana	Cool	Sod-forming	3.6
and One of the Following (10% Total)					
Big Bluegrass	<i>Poa ampla</i>	Sherman	Cool	Bunch	0.3
Canby Bluegrass	<i>Poa canbyi, P. secunda</i>	Canbar	Cool	Bunch	0.3
Muttongrass	<i>Poa fendleriana</i>	VNS	Cool	Bunch	0.3
and One of the Following (10% Total)					
Letterman Needlegrass	<i>Achnatherum lettermanii</i>	VNS	Cool	Bunch	1.7
Columbia Needlegrass	<i>Achnatherum nelsonii, Stipa columbiana</i>	VNS	Cool	Bunch	1.7
Green Needlegrass	<i>Nassella viridula</i>	Lodorm, Cucharas	Cool	Bunch	1.4
and One of the Following (10% Total)					
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Nezpar, Paloma, Rimrock	Cool	Bunch	1.9
Junegrass	<i>Koeleria macrantha</i>	VNS	Cool	Bunch	0.1
*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.					

4. Visual Resources. Slash should be lopped and randomly scattered over disturbed areas to mimic the adjacent environment. Lop and scatter slash consisting of trees, shrubs, and limbs to no higher than 18 inches in height. Excess slash may be buried, burned, or used for firewood gathering. Forest Plan guidance regarding coarse woody debris will be met.
 - a. Stumps should be cut as low as possible to the ground to minimize visual impact. Stumps adjacent to the West Mamm Road (NSFR 818) and within 100 feet should be 8 inches or less. Beyond 100 feet and all other areas should be 12 inches or less.
 - b. Root wads created by any tree clearing activities that are visible in the foreground of open system roads shall be buried or otherwise removed from sight.
 - c. All equipment and construction debris (human-caused debris and trash, including old culverts) caused by pipeline construction operations shall be removed from the site at project completion.
 - d. All facilities including the metering facility, launcher/receiver, and associated valve set at a given site shall be painted the same color, as follows: Federal Standard colors 34095 for aspen/oak/sagebrush sites and 34083 for spruce/fir sites in a “flat” finish so it is non-reflective. Any existing facilities that do not match standard colors should be repainted. This applies to all above surface structures. If possible, the metering facility shall be located to utilize vegetation for screening off the road.
 - e. To assist with revegetation, root systems shall be left in place where feasible and only removed in the trench construction. The herbaceous vegetative crown shall be maintained to the extent possible where blading of the ROW and extra workspaces are not necessary.
 5. Road Use Permit. Prior to use of the West Mamm Creek Road (NSFR 818), a Road Use Permit must be obtained from the Forest Service.
 - a. Components of the permit include the following:
 - A structural analysis of NSFR 818 based on estimated traffic loads. The structural analysis must be prepared and signed by a Professional Civil Engineer licensed in the State of Colorado.
 - An operating plan and a traffic control plan prepared and signed by a Professional Civil Engineer licensed in the State of Colorado must be submitted and approved by the Forest Service designated representative.
 - Proof of liability insurance and a performance bond or other surety must be submitted prior to approval of the Road Use Permit.
 - b. ETC will be responsible for structural reinforcement of the travel way (if needed), surface rock replacement and road maintenance at intervals as determined by the Forest Service designated representative.
 - c. If road damage occurs and is not repaired by ETC in a timely manner, the performance bond will be used.
 - d. No spoils from pipeline construction will be allowed to be placed on the travel way.
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- e. No loaded pipe trucks will be allowed past the truck turnaround point located along the ROW (approximately 1.5 miles from the beginning of the Forest Service easement across private lands) without approval.
- f. Light pickup traffic and trucks mobilizing construction equipment will be allowed to travel to the staging area located at the end of the 12-inch section of pipeline.

APPENDIX C
PUBLIC COMMENTS AND RESPONSES

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PUBLIC COMMENTS AND RESPONSES

A Public Notice requesting comments on the proposal was published in the Glenwood Springs *Post Independent* on April 29, 2009, and the Rifle *Citizen Telegram* on May 7, 2009. In addition, the Public Notice was mailed directly to the Colorado Division of Wildlife, Garfield County Board of County Commissioners, Garfield County Road and Bridge Department, Wilderness Workshop, and adjacent landowners. The 30-day public comment period expired on May 28, 2009.

Following is a summary of the comments and responses.

Colorado Division of Wildlife (CDOW) – Letter from J.T. Romatzke, Area Wildlife Manager, dated May 28, 2009

Comment: CDOW favors a window of construction from June to October and strongly supports completing construction before the end of October. CDOW also favors daily working hours of 7 am to 5 pm.

Response: ETC has stated that construction would begin in mid July 2010 and extend for approximately 14 to 16 weeks, with pressure testing in October 2010. Assuming a mid July kickoff and minimal weather-related delays, reclamation and restoration of the ROW should be completed by the end of October 2010. ETC states that construction activities, except for pressure testing, would occur between the hours of 7 a.m. and 5p.m., six days a week (usually Monday through Saturday).

Comment: Development of a new pipeline in previously undisturbed habitat has the potential to create a significant amount of linear habitat fragmentation. Prior to pipeline development, ETC should establish baseline vegetation conditions and inventories to provide a basis for post-development habitat restoration to mimic pre-disturbance conditions.

Response: The EA includes the results of upland vegetation and wetland/riparian vegetation inventories. Restoration of temporarily disturbed areas would use desirable native perennial grasses but would not seek to reestablish broadleaf herbs (forbs) or woody plants. BLM has found that including forbs in the seed mix has a low success rate and precludes use of a certain suite of otherwise suitable herbicides for the control of noxious weeds and other invasive non-native plant species. Woody plants are generally not replanted on pipeline corridors because their presence limits options for weed control, the high cost and low success of including woody plants as nursery stock, and the potential for periodic re-disturbance of some areas of the corridor for maintaining or upgrading the pipeline.

Comment: The introduction or spread of undesirable non-native vegetation and noxious weeds is a challenge to control for large-scale ground disturbances such as pipelines. Weed impacts can be reduced by limiting the vehicles associated with the pipeline project, washing vehicles to prevent weed seed spread, segregating and managing topsoil separately, using certified weed-free seed and mulch, and conducting pre-disturbance weed surveys along the pipeline ROW. Weed management activities should be monitored along with reclamation success on at least an annual basis.

Response: BLM is well aware of the problems posed by weeds in areas of temporary disturbance such as pipelines. Except for washing of vehicles, which we have found to be impracticable for large-scale projects, the other measures identified by CDOW are routinely incorporated into BLM's pipeline approvals through stipulations attached to the ROW grant. For construction along the portion of the pipeline within National Forest System lands, the White River National Forest would require power washing to remove seeds, soil, and vegetative matter from equipment entering or exiting the corridor.

Comment: Vehicular traffic during and post construction can create short- and long-term impacts to wildlife. Development of a compressive traffic/travel management plan for the project can help avoid these impacts.

Response: ETC submitted a vehicular traffic and a comprehensive travel management plan in their Plan of Development (POD) for the project. The traffic plan states that construction activities, except for pressure testing, will only occur between the hours of 7 a.m. and 5 p.m., six days a week (usually Monday through Saturday). Construction is planned to begin mid July, 2010 and will last an estimated 14 to 16 weeks. All reclamation activities will be completed by the end of October 2010. Over the long term, vehicle trips will be reduced to periodical pipeline maintenance operations. Vehicle access to the pipeline would be restricted to main roads.

Comment: Streams and associated riparian areas are some of the most highly productive and valued wildlife habitats in Colorado. This project crosses Beaver, Porcupine, and Spruce Creeks. CDOW recommends using the minimum ROW width possible where the pipeline crosses streams and riparian areas and retaining as much native riparian canopy or streambank vegetation as possible. If a Temporary Use Permit is approved for the crossing of Porcupine Creek, its location should be moved at least 300 feet away from the creek and entirely out of the riparian area.

Response: The project will not cross Spruce Creek. At the crossing of Porcupine Creek, the construction corridor has been decreased to the minimum width possible (30 feet) for a distance of 853 feet on either side of the stream. The minimized ROW was designed as a result of steep slopes, but also to minimize any potential impacts to cultural resources in the immediate area. Due to the steep slopes along Porcupine Creek, its riparian area is very narrow at the crossing point, extending no more than 100 feet upslope from either bank.

At the crossing of Beaver Creek, ETC would bore beneath the creek to avoid disturbance to the stream and riparian vegetation. Staging of the pipe and associated surface disturbance would occur 120 feet from the stream bank. The eastern bore hole would be 100 feet from the stream centerline, while the western bore hole would be 150 feet from the stream centerline.

Comment: CDOW requests notification of hazardous materials spills, especially those that occur near a riparian area.

Response: The current Oil and Hazardous Materials Incident Contingency Plan in place for the BLM Glenwood Springs and Grand Junction Field Offices includes a statement that local representatives of CDOW be notified "if the spill or discharge is significantly impacting wildlife habitat or entering a stream or drainageway."

Garfield County Road and Bridge Department – Letter from Jake Mall, Administrative Foreman, dated April 30, 2009

Comments: Utilities placed within the ROW will require permitting from Garfield County Road and Bridge Department.

Upon completion of construction, an as-built of the pipeline shall be submitted to Garfield County in an electronic format.

Garfield County has approved haul routes that any vehicles hauling equipment or materials must abide with.

Garfield County has its own oversize/overweight permit system that is separate from the Colorado permit system. Any vehicles requiring oversize/overweight permits shall apply for them at the Garfield County Road and Bridge Department.

Response: BLM and ETC acknowledge the authority of Garfield County over its roads and bridges, including the items listed above. ETC has stated that they intend to comply fully with County requirements.

Wilderness Workshop – Email from Peter Hart, Conservation Analyst/Staff Attorney, dated April 27, 2009

Question: Does the project run through the Mamm Peak IRA?

Response: No.

Question: Does this parallel existing pipes or roads on FS lands (the map makes it look like it travels overland on the forest w/out an adjacent road)?

Response: From the southern pad on Grass Mesa, the 12-inch line follows an old road prism running south across the BLM and Forest to FSR 818, then follows FSR 818 to the tie-in with Laramie's 8-inch buried line.

Question: Does this replace the surface pipe that Laramie put in last year?

Response: We are not aware of any Laramie surface lines in this area.

Wilderness Workshop, High Country Citizens' Alliance, Colorado Wild – Letter from Peter Hart (Wilderness Workshop) for Lawton Grinter (High Country Citizens' Alliance) and Rocky Smith (Colorado Wild) dated May 27, 2009

Comment: Council on Environmental Quality (CEQ) guidelines require that BLM consider connected actions, similar actions, and cumulative actions together with direct and indirect impacts in its assessment of environmental impacts. NEPA documents must provide useful analysis of past, present, and future actions.

Response: Oil and gas development of the type represented by the ETC Pipeline was anticipated, analyzed and disclosed in the 1999 Final Supplemental Environmental Impact Statement (FSEIS) for oil and gas development in the Glenwood Springs Field Office (GSFO) area and updated in the cumulative impact analysis for the 2007 Resource Management Plan Amendment and Environmental Impact Statement (RMPA/EIS) for the Roan Plateau Planning Area. Furthermore, the Summary of Cumulative Impacts in the EA discusses the fact that actions authorized pursuant to the EA are cumulative with other oil and gas development as well as non-energy-related impacts (e.g. agricultural, industrial, commercial, and residential) associated with past, present, and anticipated future land uses of Garfield County. The cumulative impacts of the ETC Pipeline Project are within the range previously disclosed and analyzed in the earlier NEPA documents to which it is tiered. Finally, the EA addresses both direct and indirect impacts.

Comment: BLM has a duty to analyze this project in light of other existing, approved, and reasonably foreseeable development. Such analysis must disclose information about oil and gas related infrastructure that is directly or indirectly connected to this proposed pipeline.

Response: The EA addresses the existing Laramie Energy II wells that would tie in immediately to the pipeline, the potential for additional oil and gas development in the same area, and the presence of an existing pipeline along a portion of the route. The middle of these elements—potential future development—is speculative at present but is one basis upon which ETC designed the pipeline’s capacity, to avoid the need to install an additional or upgraded line in the foreseeable future.

Comment: *The agency has an obligation to undertake and disclose an analysis of surface disturbance associated with oil and gas development [in the entire Field Office area]. If the surface disturbance estimates included in the 1999 RFD have been surpassed, the agency can no longer tier to that document.*

Response: The Roan Plateau RMP Amendment and EIS of 2006, while not including the project area in terms of direct or indirect impacts, specifically disclosed and analyzed the reasonably foreseeable cumulative oil and gas development within the entire Field Office area. That amount of cumulative development has not been reached.

Comment: *BLM must undertake a NEPA analysis to determine whether or not special status species (particularly threatened or endangered species) and important habitat will be impacted by the proposed development. Any EA must adequately analyze the potential direct, indirect, and cumulative impacts of reasonably foreseeable development and connected actions [including habitat fragmentation] on special status species and habitat.*

Response: The EA for the ETC Pipeline Project addresses impacts to special status species, including listed, proposed, or candidate threatened or endangered species, BLM and U.S. Forest Service sensitive species, migratory birds, and other plants and terrestrial and aquatic wildlife. The EA also addresses mitigation measures and best management practices (BMPs) to avoid or minimize impacts to these species. The EA includes information taken from a Biological Assessment report prepared for USFS and BLM by a contractor. The outcome of that assessment was a determination of “No Effect” for all listed or proposed species potentially present in the project area or potentially affected by the project.

BLM disagrees with the reference in the comment to annual monitoring studies of wintering mule deer in the Pinedale Anticline area of Wyoming, for three reasons: (1) that area is quite different ecologically from the ETC project area, with relative gentle terrain and low-growing sagebrush providing little screening; (2) that herd is highly migratory, not remaining in general contact with the development as it expands each summer; and (3) while the conclusions in the comment cite 2005 as the most recent data set, subsequent years of monitoring (2006, 2007) showed that deer actually did return to pre-disturbance distribution patterns, which the authors stated could be indicating habituation.

Comment: *BLM must thoroughly analyze direct, indirect, and cumulative air quality impacts from this project as well as all connected actions before authorizing development. We further recommend consideration of these best management practices (BMPs): green completions, capturing greenhouse gas emissions, capturing HAPs, utilization of solar and wind power wherever feasible, dust suppression, and use of electric instead of diesel.*

Response: The BMPs cited in the comment relate to oil and gas development. This is a pipeline project that is intended to convey natural gas from the production to treatment facilities and/or larger intrastate or interstate pipelines. Natural gas is considered by many—including advocates of limitations on greenhouse gas emissions—as an important bridge fuel while renewable energy sources are being ramped up to meet a larger share of the nation’s energy demand. The only air quality impacts potentially associated with this project are fugitive dust emissions during construction. BLM will require ETC to coordinate dust suppression efforts with other operators along road segments used to support the construction phase of the project.

Comment: The EA must be in compliance with Prevention of Significant Deterioration regulations (PSD) requirements by aggregating interrelated and adjacent sources. In this case, BLM must ensure that emissions from proposed pipeline, compressor stations, and any feeder wells are aggregated together to ensure compliance with PSD regulations and the Colorado SIP [State Implementation Plan]. The proposed wells and downstream compressor stations and/or other pollutant emitting activities are all interrelated, adjacent, and under common ownership or control. Furthermore, they are all part of the same industrial grouping.

Response: The State of Colorado, as a surrogate for the U.S. Environmental Protection Agency, is the entity responsible for issuing air quality permits and enforcing PSD regulations.

Comment: BLM has not analyzed the climate change impacts resulting from oil and gas development in the Resource Management Plan, during the leasing phase, or during any previous portion of the authorization process for this project. These impacts must be analyzed now as the BLM prepares to authorize the proposed Master Development Plan.

BLM must analyze all life cycle emissions of the proposed development. The analysis should account for emissions from extraction, production, transportation, and end uses of natural gas. These emissions are within the ambit of BLM's obligation to analyze direct, indirect, and cumulative effects as well as connected actions.

Response: The EA includes a section on the relationship between greenhouse gas emissions and climate change. Emissions of greenhouse gases from the pipeline would be negligible. While emissions from wells, treatment facilities, and compressor facilities associated with the gas to be conveyed by the pipeline are more substantial, the section in the EA notes that the state of climate change science does not currently allow predictions of specific changes—whether qualitatively or quantitatively—at a given point in relation to a given source. Therefore, the “associated” impacts on climate change from the project are unknowable and speculative. Furthermore, as noted in an earlier response, natural gas is considered by many as an important bridge fuel while renewable energy sources are being ramped up.

Comment: BLM should implement measures (list provided in the comment) to protect these resources.

Response: Cultural and geological/paleontological resources were considered by BLM during the ETC Pipeline Project process, including a requirement for a cultural inventory of all lands and a paleontological inventory of any Class I or Class II lands. Stipulations specifically for the protection of cultural and geological/paleontological resources are included in Appendix B of the EA and would be attached to any subsequent authorizations issued pursuant to the EA (e.g., right-of-way approval).

Comment: BLM officials have assured us that this pipeline will not penetrate the Mamm Peak Roadless Area or any other IRAs. We would like confirmation of that in any EA and some assurance that this pipeline will not pave the way for future development within an IRA.

Response: The proposed pipeline project does not enter the Mamm Peak Inventoried Roadless Area. The proposed action in the EA describes the exact location of the project.

George Bauer (landowner in project vicinity and Professional Land Surveyor) – Letter dated April 29, 2009

Question: Would most of the proposed permanent and temporary ROW be in the existing cleared ROW? If the proposed pipe is paralleling their own pipe, why the 20-foot offset?

Response: The pipeline would be installed adjacent to the existing pipelines and/or roads where possible. In areas of special resource concern as determined in the field by the BLM during pre-construction reviews, clearing of the ROW may be limited to less than 75 feet to protect significant vegetation. When the 24-inch and 12-inch diameter pipeline is in an existing ROW, it will offset the existing pipeline by a distance of 20 feet. The 20-foot offset is a distance determined by the owners of the other pipelines within the ROW and the terrain. Rocky conditions require farther distances from existing pipelines so that a rock is not pushed into an existing line during construction, causing damage. Some owners of existing pipelines have a business policy that does not allow construction equipment to operate on top of existing lines, so new pipelines must offset existing lines and allow enough room for construction to occur safely.

Comment: *50 feet of additional temporary ROW room at the stream crossings seem excessive due to the fact that they plan on boring the creek. Extra length may be needed to stage pipe but to add width in the rocky terrain of Porcupine of Beaver Creeks is not necessary with a bore.*

Response: Only Beaver Creek and flowing irrigation ditches would be bored; Porcupine Creek would be crossed with a dry trench method. At the Beaver Creek crossing, the pullback section of pipe would be staged within the approved workspace, with no additional temporary use area required. At the Porcupine Creek crossing, the presence of cultural resources on one side of the creek and steep slopes on both sides would constrain the temporary use area widths to much less than 25 feet. Moreover, the pipeline ROW itself would be constricted near and through the stream.

Comment: *Topsoil needs to be excavated deeper than 6 inches where the topsoil depth exceeds 6 inches.*

Response: The list of stipulations attached to the EA addresses this requirement. BLM has found that over-excavation in areas of thin soil can result in dilution with unsuitable subsoil.

Comment: *If the proposal is to go through USFS lands, then its impact should be mitigated with the construction of a small pond to hold excess runoff and sedimentation.*

Response: Throughout the ROW on both BLM and National Forest System lands, ETC would be required to control runoff and offsite transport of sediments. Possible methods include, but are not limited to, construction of waterbars, stormwater relief ditches, and other BMPs. Pond construction is only one suitable option, and the USFS has not requested it except to provide for livestock or wildlife watering and wildlife habitat.

Comment: *Vehicles from out of the area need to be decontaminated due to the potential spread of noxious weeds.*

Response: The White River National Forest requires that all construction, heavy or off-road equipment and transport be power-washed to remove seeds, soil, and vegetative matter. The GSFO does not require vehicle washing but recommends that all vehicles entering a construction site be washed to remove weed seeds.

Curt Hanson (private citizen) – Email dated May 3, 2009

Comment: *The only problem that I have with gas and oil development is that they don't seem to bring the area they disturbed back normal as much as possible and that they are taking away public land for people to use and enjoy. If they want to drill on public land then these companies need to make some parking lots and signs available for the public so we can use this land and marked so we know what is public and private. There is far too much BLM land that is in accessible or no parking available. These*

companies block out access to the public like they own it and it's still public land. Make the public land more accessible and parking lots and signs for trailheads, so we all can enjoy the land.

Response: This particular project is for a pipeline rather than “oil and gas development” *per se*. With regard to reclamation, we recognize that reclamation success following oil and gas development has been and will continue to be a challenge. However, if revegetation is unsuccessful due to inadequate germination or establishment of seeded plants, the operator is required to make subsequent reseeding until the reclamation goals and objectives are met. In addition, the stipulations attached to the EA in Appendix B include detailed BLM requirements for reclamation of temporarily disturbed areas.

With regard to recreation, the project would not affect which roads or Federal lands remain open to the public. Where the project crosses private land, access is restricted by each individual landowner. The proposed pipeline alignment does not affect any trailhead or designated recreational area.