BLM

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Bureau of Land Management

Environmental Assessment

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Dead Horse Lateral Right-of-Way Amendment for a Natural Gas Pipeline

UTU-67385

Location: T23S-R19E, Sections 20, 29, 30, 31
T24S-R19E, Sections 6, 31
T24S-R18E, Sections 1, 12, 13, 24, 25, 36 (State of Utah)
T25S-R19E, Sections 4, 5, 6, 9, 15, 16, 21, 22, 27, 34
T26S-R19E, Sections 2 (State of Utah), 3, 11, 12, 13
T26S-R20E, Sections 18, 19

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1.0 PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of amending right-of-way (ROW) UTU-67385, which authorized the construction, operation, maintenance, and termination of a natural gas pipeline and compressor booster station (referred to as booster station) in Grand County, Utah. This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) to disclose and analyze the environmental consequences of the UTU-67385 Right-of-Way Amendment. The EA assists the Bureau of Land Management (BLM) in project planning by evaluating the potential significance of environmental impacts. As defined by the Council on Environmental Quality (CEQ), the significance of a federal action is determined by the context of the action in relation to the overall project setting, as well as the intensity of direct, indirect, and cumulative effects resulting from the project.

If the BLM determines that the an alternative would not result in significant impacts beyond those already addressed in the BLM's 2008 Moab Resource Management Plan (RMP), the BLM would prepare a Finding of No Significant Impact and Decision Record approving the selected alternative. If the project is found to result in significant impacts, an Environmental Impact Statement may be prepared.

1.2 Background

On December 2, 1991, ROW UTU-67385 was granted to Western Gas Resources, Inc. (WGR), authorizing the construction, operation, maintenance and termination of an underground natural gas trunk pipeline and gathering system. The pipeline system was designed to transport oil and gas from productive wells in what is now the Cane Creek Unit near Dead Horse Point State Park in the Big Flat area to the Northwest Pipeline near the intersection of Blue Hills Road and US Highway 191. The 1991 ROW (hereafter referred to as the existing ROW or existing ROW route) is 26.9 miles long and 50 feet wide (See Map 1, Appendix C). It authorized construction of one trench to hold a 1.5-inch electrical cable, a 4-inch fuel gas line, a 6-inch crude oil line, and an 8-inch natural gas line. One booster station was authorized on federal land in Section 27, Township 25 South, Range 19 East (T25S-R19E) and another booster station would have been built and operated on State of Utah land in Section 36, T24S-R18E. A gas processing plant was planned for construction on State of Utah land in Section 5, T24S-R20E on the east side of US 191. On May 15, 2008, the ROW was assigned to Paradox Pipeline LLC from WGR. On March 11, 2010, the ROW was assigned to Fidelity Exploration & Production Company (the Operator).

To-date, none of the authorized facilities have been constructed because drilling to the target reservoirs continued to present technical challenges and commercial production success has been uncertain. Historic natural gas production from wells that were drilled to produce oil has been too variable to reliably predict gas production volumes. With no pipeline system in place, natural gas has been flared at productive wells.

As additional wells were drilled, the BLM entered into discussions with the Operator to address alternatives to the disposition of the natural gas resource through flaring. Under the general requirements for onshore oil and gas operations (43 Code of Federal Regulations [CFR] 3162.1), an operator shall comply with applicable laws and regulations. These include, but are not limited to, conducting all operations in a manner that results in maximum ultimate economic recovery of oil and gas with minimum waste. In addition, such operations would cause minimum adverse effect on ultimate recovery of other mineral resources. Notice to Lessees and Operators (NTL-4A) provides the BLM authority to allow flaring of oil well gas under certain conditions. An operator must request approval to vent or flare produced natural gas by submitting 1) an evaluation report supported by engineering, geologic, and economic data which demonstrates to the satisfaction of the Supervisor that conservation of gas, if required, would lead to premature abandonment of recoverable oil reserves; or 2) an action plan that will eliminate flaring of gas within one year from the date of application.

The State of Utah also regulates the flaring of natural gas to provide for delivery of the gas product to market or other beneficial use. Title 40 Chapter 6 Section 3 of the State of Utah Administrative Code (UAC) (40-6-3) states: *The waste of oil or gas is prohibited.* UAC Rule 649-3-20(1.1) limits flaring of oil well gas from an individual well to 1,800 thousand cubic feet (MCF) per month.

To-date, the Operator voluntarily limited its natural gas production from producing wells and continued to investigate options to conserve the resource while communicating with the BLM, the Utah Board of Oil, Gas and Mining (Board), and the Utah Division of Oil, Gas and Mining (UDOGM) as to possible alternative disposition of the gas. Since 1998, the Operator has filed Requests for Agency Action with the Board to be able to continue flaring natural gas. Eight orders have been approved by the Board to permit flaring from specific wells. The most recent order, approved in May 2013, modified the previous orders to allow flaring on a unit basis (Cane Creek Unit). It approved flaring up to 3,000 MCF per day with not more than 650 MCF per day from any single well. After June 30, 2014, the Operator would need to petition the Board for an authorization to conduct any flaring that is above the approved limits.

Regulations of the BLM and the State of Utah both seek to minimize the waste of oil and gas resources, including gas that is lost at the expense of capturing oil in situations where the oil is more profitable. When gas is produced with oil, but not captured for market, the resource loss can be measured both in dollars -that would have been paid for the gas as a commodity- and in British thermal units (BTUs)- the energy value that would have contributed to the domestic energy supply.

The Operator decided that constructing a pipeline to transport natural gas to commercial markets provided the only viable option that would eliminate flaring of natural gas above the approved limits. Other options for gas disposition were investigated but their implementation would require installation of infrastructure that would likely result in undesirable consequences in areas of high public use (See Sections 2.5.3, 2.5.4, and 2.5.5). A request for the amendment of ROW UTU-67385 was initially filed by the Operator on November 29, 2012, at the BLM's Moab Field Office (FO). This proposal included the infrastructure necessary to facilitate natural gas transport in consideration of gas volumes projected from the most recent drilling results. The proposed route follows as much of the existing ROW as possible. Pipeline construction costs which have greatly increased since 1991, and other technical considerations, precluded the inclusion of an oil transportation pipeline in this proposal, which would require burying the pipeline along its entire length. High paraffin content is characteristic of oil produced from Cane Creek wells. In cold weather, pipelines would be more likely to plug because the paraffin would solidify. The formation of solids in a pipeline would require frequent maintenance during the winter months to perform repairs.

As a result of ensuing discussions with the BLM, the Operator reevaluated the pipeline route that it had proposed and suggested another route that included segments that would deviate from the existing ROW route. The purpose of the alternative route is to provide offsets from the State Highway (SH) 313 Scenic Byway and Cowboy Campground, as well as to bypass the Lone Mesa Campground, all of which were not in existence when the existing ROW was granted. While developing the alternative segments, the Operator incorporated existing designated and non-designated routes as available thereby minimizing impacts to soils, vegetation, visual resources, recreation, and wildlife habitat. The proposed revised route is about 3 miles shorter than the existing ROW route which further minimizes resource impacts.

The Operator resubmitted its application for a ROW amendment to the Moab FO on April 5, 2013, to include the revised route. The current application comprises the Proposed Action, Alternative A, in this EA. The proposed pipeline route follows the existing 1991 ROW grant for 17.4 miles (91,897 feet). The proposed 24-mile long pipeline route would be 2.9 miles shorter than the existing 26.9-mile ROW route. Proposed changes to the existing ROW and the Operator's rationale for the change are summarized in Table 1-1.

Table 1: Comparison of the Existing ROW to the Proposed Action

Proposed ROW Amendment	1991 Existing ROW	Reason for Change
24-mile pipeline route	26.9-mile pipeline route	• Shorter route moves pipeline away from SH 313 Scenic Byway.
12-inch natural gas pipeline only.	Trench to hold 1.5-inch electrical cable, a 4-inch fuel gas line, a 6-inch crude oil line, and an 8-inch natural gas line.	• Reduces installation costs. • No need for electricity to well pads or infrastructure facilities. • Oil transport problematic.

Proposed ROW Amendment	1991 Existing ROW	Reason for Change
Aboveground pipeline along most of the route outside of Big Flat.	Buried pipeline for the total length.	• Reduces the need to blast through near-surface bedrock. • Reduces visual scarring. • Reduces installation costs.
Pipeline route to the west of Cowboy Campground	Pipeline route immediately adjacent to Cowboy Campground.	• Eliminates blasting through a large rock outcrop adjacent to SH 313 that is used as access to Cowboy campground.
Route to the east of Horsethief Campground and offset from SH 313.	Route east of Horsethief Campground adjacent to SH 313.	• Avoids placing pipeline adjacent to SH 313.
One booster station in NE/4 (Lots 1 and 2) Section 6, T25S-R19E.	Two booster stations: One station in Section 27, T25S-R19E. One station in Section 36, T24S-R18E.	• Booster station would not be visible to observers on SH 313. • Compressor noise would not be audible to campers or other recreational users along SH 313.
Pipeline route west of Dubinky Well.	Pipeline route east of Dubinky Well.	• Avoids construction adjacent to Dubinky Wash.
Pipeline would end at the new gas processing plant near Dubinky Road and Blue Hills Road, Sections 20 and 29, T23S-R19E.	ROW travels from Dubinky Road eastward along Blue Hills Road to end at the processing plant in Section 5, T24S-R20E adjacent to and east of US 191.	• Utilizes the existing Greentown pipeline rather than constructing a new pipeline along Blue Hills Road.

1.3 Need for the Proposed Action

BLM's underlying need is to respond to the Operator's proposal, which would provide maximum ultimate recovery of the natural gas resource produced from the Operator's wells and useful disposition of the natural gas via transport to an existing pipeline system and commercial markets. The BLM's need is based upon avoiding waste and promoting conservation of the natural gas resource. Waste of oil or gas is defined as a reduction in the quantity or quality of oil and gas ultimately producible from a reservoir under prudent and proper operations or the avoidable surface loss of oil or gas (43 CFR 3160.0-5). The BLM's need to avoid waste relates to the availability of producible natural gas, its functional use of a source of energy, and its low cost to public consumers relative to other sources of energy, all of which assist in driving increased consumption of natural gas during the economic downturn.

The BLM's need extends to compliance with Section 303(d) of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1733): *In connection with the administration and regulation of the use and occupancy of the public lands, the Secretary is authorized to cooperate with the regulatory and law enforcement officials of any State or political subdivision thereof in the enforcement of the laws or ordinances of such State or subdivision. Such cooperation may include reimbursement to a State or its subdivision for expenditures incurred by it in connection with activities which assist in the administration and regulation of use and occupancy of the public lands.* Therefore, BLM cooperation with the State of Utah to meet the requirements and interests of the state also drives the BLM's need to respond to the proposal.

The BLM's need includes consideration of the proposal in a manner that protects other natural resources, life and property, including minimizing impacts to air quality, cultural resources, floodplains, Native American religious concerns, recreation, soils, vegetation, visual resources, and wildlife.

In particular, the BLM's need extends to protecting air quality. The BLM recognizes air as a valuable natural and public resource that needs to be protected through prudent management and appropriate mitigation. Where a BLM-authorized activity has the potential to affect the air resource, this activity must be managed appropriately, consistent with BLM planning objectives and in compliance with the Clean Air Act. Consistent with the BLM's multiple-use mandate, BLM actions and use authorizations will comply with appropriate direction in the Clean Air Act "to preserve, protect, and enhance the air quality in national parks …and other areas of special national or regional natural, recreational, scenic, or historic value" [Section 160 (2)]. The BLM's need, therefore, extends to the consideration of an action that would reduce the emissions of pollutants to the atmosphere by providing an alternate disposition of natural gas produced from the Operator's wells. Reducing emissions from a BLM-authorized activity would facilitate BLM compliance with the Clean Air Act.

1.4 Purpose of the Proposed Action

The BLM is considering approval of the amendment to ROW UTU-67385 because the activity is an integral part of BLM's oil and gas leasing program under authority of the Mineral Leasing Act of 1920 (MLA), as amended by the FLPMA and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The MLA officially authorized and directed the Department of the Interior to "regulate all surface-disturbing activities conducted (on federal lands) pursuant to any lease issued" under the MLA. Section 28(a) of the MLA, as amended (30 USC 185), authorizes the Secretary of the Interior to grant qualified applicants ROWs through federal lands for transporting oil, gas, or other products. The MLA also accommodates issuance of Temporary Use Permits [Section 28(e)] to supplement a pipeline ROW for purposes of constructing, operating, maintaining and terminating the pipeline, protecting the natural environment, and providing for public safety.

The BLM administers ROW regulations included in 43 CFR 2800 under the FLPMA and 43 CFR 2880 under the MLA. It is BLM's objective to grant ROWs on public lands in a manner that protects the natural resources associated with federal lands and adjacent lands and prevents unnecessary or undue degradation to public lands.

1.5 Conformance with BLM Land Use Plan

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

***Plan*:** Moab Field Office Record of Decision and Resource Management Plan (RMP)

Date: October 2008

Conformance Review:

Page 65: Lands and Realty Goals and objectives
"Meet public needs for use authorizations such as rights-of-way, alternative energy sources, and permits while minimizing adverse impacts to resource values."

Page 65: LAR-7
The Proposed Action involves some lands identified as avoidance areas for rights-of way that are consistent with the oil and gas leasing and other surface-disturbing activities identified in Appendix A of the RMP (BLM, 2008) to protect important resources. The potential impacts of granting an exception to this stipulation will be analyzed in the EA.

Page 73: Minerals Goals and Objectives
"Provide opportunities for environmentally responsible exploration and development of mineral and energy resources subject to appropriate BLM policies, laws and regulations."

Page 75: MIN-15
Oil and gas leases issued prior to the RMP will continue to be managed under the stipulations in effect when issued. Environmental best management practices will be incorporated into subsequent permits and authorizations to mitigate impacts and conflicts with other uses and resource values.

Page 83: REC-20; Page A-8
The Proposed Action involves some lands identified as No Surface Occupancy in the RMP to protect developed recreation sites. The potential impacts of granting an exception to this stipulation will be analyzed in the EA (See Chapter 4, Visual Resource Management).

Page 102: SOL-WAT-5; Page A-5
The Proposed Action involves some lands identified as No Surface Occupancy in the RMP to protect Public Water Reserves (PWRs) and springs. The potential impacts of granting an exception to this stipulation were reviewed by the BLM. The BLM concludes that there would be no potential impacts to the PWRs and associated water resources from this proposal. The pipeline is surface laid within the PWR areas with minimal surface disturbance. Therefore, an exception to this requirement would be granted.

Page 104: SOL-WAT-27; Page A-6
The Proposed Action involves some lands identified with a Timing Limitation in the RMP to protect saline soils in the Mancos Shale. The Timing Limitation is from December 1 to May 31 to minimize watershed damage. This Timing Limitation is considered in the EA.

Page 141: WL-36; Page A-17
The Proposed Action involves some lands identified as No Surface Occupancy in the RMP to protect Bighorn Sheep migration habitat. The No Surface Occupancy requirement is considered in the EA.

1.6 Relationship to Statutes, Regulations, or Other Plans

This EA was prepared in conformance with NEPA and with all applicable regulations and policies subsequently implemented, including the CEQ regulations (40 CFR Parts 1500-1508), BLM National Environmental Policy Act Handbook H-1790-1, and U.S. Department of the Interior (DOI) Department Manual (DM) 516, Environmental Quality. While determining whether to approve a Proposed Action, the BLM follows the procedures contained in the agency's NEPA Handbook (H-1790-1), which was issued January 30, 2008. Regulatory authorities and guidance that may apply to the Proposed Action are shown in Table 1-2.

Table 1-2: Regulatory Authorities and Guidance

Federal Authorities	Responsibilities
Surface Operating Standards for Oil and Gas Exploration and Development, 4th Edition (Gold Book, 2007)	Procedures for surface-disturbing operations on federal lands.
Hydraulic Considerations for Pipelines Crossing Stream Channels (2007)	Procedures for pipeline construction on federal lands.
Cultural Resources	
BLM Native American Trust Resource Policies (303 DM 2 and 512 DM 2); BLM H-8120-1 – General Procedural Guidance for Native American Consultation; BLM Manual 8120, Tribal Consultation under Cultural Resources; Executive Order (EO) 13175 Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 2000); EO 13007 Indian Sacred Sites (61 FR 26671, May 1996); American Indian Religious Freedom Act of 1978 (Public Law [PL] 95-341; 42 United State Code [USC] 1996)	Native American consultation regarding possibly affected traditional cultural properties.
Archaeological and Historic Data Preservation Act of 1974 (PL. 86-253, as amended by PL 93291; 16 USC 469); Archaeological Resources Protection Act of 1979 (PL. 96-95; 16 USC. 470aa-mm); National Historic Preservation Act of 1966, Section 106, (PL 89-665; 16 USC. 407(f) and 36 CFR Part 800)	Requirement for cultural resource inventories to determine the presence of cultural resources and protection of sites discovered during project operations.
Native American Graves Protection and Repatriation Act of 1990 (PL 101-601)	Procedures to be followed in the event of discovery of human remains.
Rangeland and Livestock Grazing	
BLM Rangeland Health Standards and Guidelines (43 CFR 4100, Subpart 4180)	Consistency with rangeland standards in grazing allotment.
Paleontological Resources	

Paleontological Resources Preservation Act of 2009	Requirement for paleontological resource inventories to determine the presence of fossil resources and protection of sites discovered during project operations.
Land Management and Use	
Mineral Leasing Act of 1920 (30 USC. 181-163, as amended); Federal Onshore Oil and Gas Leasing Reform Act of 1987 (30 USC § 181 et seq.)	Provides authority for issuing federal mineral leases and encourages private exploration and development. Provides authority for issuing grants for oil and gas pipeline rights-of-way.
Onshore Oil and Gas Operations, including 43 CFR 3160.0-5	Defines “Waste of oil or gas” as any act or failure to act by the operator that is not sanctioned by the authorized officer as necessary for proper development and production and which results in: (1) A reduction in the quantity or quality of oil and gas ultimately producible from a reservoir under prudent and proper operations; or (2) avoidable surface loss of oil or gas.
Federal Land Policy and Management Act of 1976, Section 201(a) (PL 94-579; 43 USC 1701 et seq.)	Management of federal lands under principles of multiple use and sustained yield while protecting environmental resources.
National Environmental Policy Act of 1969 (PL 91-190; 42 USC 4321); 40 CFR Parts 1500-1508 CEQ implementation of NEPA; BLM Handbook H-1790-1; U.S. Department of the Interior Department Manual 516, Environmental Quality	Evaluation of impacts to environmental resources that may result from a proposed action prior to its implementation.
43 CFR 3160, Subpart 3160-Onshore Oil and Gas Operations	Governs operations associated with the exploration, development, and production of oil and gas deposits from leases issued or approved by the United States.
Vegetation	
Federal Noxious Weed Act of 1974 (7 USC §§ 2801-2814, January 3, 1975, as amended 1988 and 1994); Noxious Weed Control and Eradication Act of 2004 (7 USC 7781-7786)	Monitoring and treatment of weed infestations including performance of corrective actions.
Water Quality	
EO 11988 Floodplain Management (43 CFR 6030)	To avoid long and short-term adverse impacts associated with the occupancy and modification of floodplains.
Wilderness Characteristics	
BLM Manual 6310 Conducting Wilderness Characteristics Inventory on BLM Lands	Identification of lands displaying wilderness characteristics.
Wildlife	
Bald Eagle and Golden Eagle Protection Act of 1940 (16 USC. 668-668d, 54 Stat. 250) as amended (PL 95-616 (92 Stat. 3114)) November 8, 1978.	Coordination, consultation and impact review regarding eagles.
Endangered Species Act of 1973 (PL. 85-624; 16 USC 661, 664 1008)	Coordination, consultation and impact review regarding federally listed threatened and endangered species.
Migratory Bird Treaty Act of 1918 (16 USC 703-712, as amended); EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds; BLM Memorandum of Understanding WO-230-2010-04 To Promote the Conservation of Migratory Birds	Migratory bird impact coordination and protection of nesting migratory birds.

State of Utah Authorities	Responsibilities
Utah Oil and Gas Conservation General Rules – All Rules-R649; R649-2-2; R649-3-20	Rules applying to all lands in the state in order to conserve the natural resources in the state, to protect human health and the environment, to prevent waste, and to realize the greatest ultimate recovery of oil and gas; applicability to lands of the United States and lands subject to the jurisdiction of the United States to the extent lawfully subject to the state's power; compliance with flaring limits.
UAC R746-409.Pipeline Safety	Rule applies to inspections, accidents, operation and maintenance plans, emergency plans, and remedies.
Utah Department of Transportation Regulations for Legal and Permitted Vehicles, Sections 400, 500 and 600	Size and weight limits for trucks; transport of explosives.
Air Quality	
UAC R307-101-1, R200, R400 series, R307-205-5, R307-205-6; Clean Air Act, 42 USC 7401 et seq.	Compliance with the national and Utah ambient air quality standards (NAAQS); permits to construct and permits to operate; dust control to reduce fugitive dust.
Cultural Resources	
Section 106 of National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.) and Advisory Council Regulations on the Protection of Historic and Cultural Properties, as amended (36 CFR. Part 800)	Utah State Historic Preservation Office consultation on cultural resource survey, evaluation, and mitigation.
Water Quality	
UAC R317-8; Clean Water Act, 33 USC 1251; State Program Requirements (40 CFR 123)	Regulates discharges of pollutants into the waters of the United States and quality standards for surface waters.
Wildlife	
Utah Division of Wildlife Resources (UDWR) Rules and Regulations, Rule 657 series; UAC Title 23, Wildlife Resources of Utah. Utah Division of Wildlife Resources	Coordination on wildlife and state-sensitive species; management of big game and wildlife.
Grand County Authorities	**Responsibilities**
County Code and Zoning Resolution applicable to construction permits and conditional use permits.	Construction/use permits.
County codes	Road use agreements/oversize trip permits, access permits, and road crossings; noxious weed control.

The Proposed Action is consistent with the goals and objectives in the Grand County General Plan (Grand County, 2012). The Grand County General Plan Update lists several policies related to a diversified economy, the management of natural resource development, multiple use of the public lands, and the expeditious processing of use permits for economic uses of public lands. The plan supports responsible natural resource use and development, including growth and development in Grand County.

1.7 Identification of Issues

The BLM conducted internal review and public scoping to solicit input and identify environmental issues associated with the Proposed Action. Onsite inspections of the pipeline route were conducted by the BLM on September 11, 2012, and January 29, 2013, during which issues of concern were identified. The evaluation of issues resulted in the identification of design or operational elements to avoid, minimize, or mitigate impacts. The design elements were incorporated into the Proposed Action by the Operator. The Interdisciplinary Team (IDT) Checklist documents the internal issues raised and the resources that may be impacted by the Proposed Action (Appendix A).

Public input is used to refine BLM-identified issues and identify new issues or possible alternatives to the Proposed Action. The BLM posted the Proposed Action on the Environmental Notification Bulletin Board (ENBB) on January 14, 2013, to notify the public of the proposal. In addition, the BLM published a notice in the Moab Times-Independent on January 24, 2013, to inform the public of the proposal and to initiate a public scoping period for identifying issues that extended until February 19, 2013. Appendix B provides documentation of the comments received during public scoping and details of the BLM's consideration of the issues that were identified. Appendix C contains maps of the pipeline route as it relates to some of the affected resources that were identified as issues. The issues identified for analysis are listed below:

1.7.1 Air Quality

- What are the potential impacts to air quality from emissions during construction and after operation of a pipeline?
- What are the impacts from dust generation?
- What are the potential impacts to air quality from greenhouse gas emissions?

1.7.2 Cultural Resources/Native American Religious Concerns

- What are the potential impacts to sites deemed eligible for inclusion in the National Register of Historic Places (NRHP)?
- What are the possible effects to historic properties?

1.7.3 Floodplains

- What are the potential impacts to dry washes and floodplains that would be crossed by the proposed pipeline, both above and below the surface?

1.7.4 Recreation

- What are possible impacts to recreational activities within the heavily used Labyrinth Rims/Gemini Bridges Special Recreation Management Area?

1.7.5 Socioeconomics

- What are possible impacts to the economy of Grand County?

1.7.6 Soils

- What are the potential impacts to soil resources, including topsoil, BLM sensitive soils, and biotic soil crusts, from construction?
- What are the potential impacts to sensitive soils including wind erodible and moderately saline soils from this project, both during and after construction?

1.7.7 Vegetation

- What are the effects of a temporary destruction/removal of vegetation along the proposed pipeline route?

1.7.8 Visual Resources

- What are the potential impacts to lands managed as Visual Resource Management II?
- What are the potential impacts to visual resources from developed campgrounds?

1.7.9 Wildlife/Migratory Birds/Utah BLM Sensitive Animal Species

- What are the potential impacts to pronghorn antelope and bighorn sheep habitat?
- What are the potential impacts to the bighorn sheep migration?
- What are the potential impacts to nesting migratory birds and raptors from construction operations?
- What are the potential impacts to white tailed prairie dogs, ferruginous hawks, kit fox, and burrowing owls and their habitat?

1.8 Issues Considered but Eliminated from Further Analysis

The BLM considered analyzing other issues identified during scoping but eliminated them from further analysis according to the rationale provided in the following sections. Details of comments received during the scoping period are provided in Appendix B.

1.8.1 Socioeconomic Impacts to Recreation and Tourism

During scoping, concerns were expressed by the public about the economic costs (negative socioeconomic impacts) of a 12-inch aboveground pipeline in terms of impacts to Grand County tourism, including impacts to recreationists and recreational companies from visual, dust, noise, land disturbance, and related impacts during and after pipeline construction.

The BLM assessed this issue by evaluating available quantitative data regarding visitor use of the Big Flat area, particularly visitors to the Island in the Sky District of Canyonlands National Park (ISKY) and Dead Horse Point State Park (DHPSP). Nine active oil and gas well locations are located within approximately one mile of SH 313 and are visible to observers along the scenic byway. Three wells were drilled in the early 1990s and three others were drilled in the mid-2000s. The three remaining wells were constructed and/or drilled from May through December 2012, with work being performed on all three locations during August and September 2012 (Cane Creek Unit 12-1, 13-1, and 28-2). Traffic counts compiled at ISKY have increased from 1991-2012, suggesting that observation of the nine wells has not deterred visitors from traveling to the parks along SH 313 (NPS, 2013).

To assess possible impacts from the three most recently drilled wells, the BLM compared 2011 visitor data to ISKY and DHPSP to 2012 visitor data during the months of May through mid-December.

Table 1-3: 2011 and 2012 Park Visitor Data

	May	June	July	Aug	Sept	Oct	Nov	Dec	Total May-Dec
2011	61,585	62,889	54,899	59,702	67,046	48,956	14,943	6,972	376,990
2012	64,383	55,233	55,292	57,898	80,537	45,161	17,964	8,064	384,529

Source: UDNR, 2013; Estimates derived from NPS, 2013.

The total number of visitors to both DHPSP and ISKY increased two percent from 2011 to 2012 during the months when the well pads were being constructed and/or the wells were being drilled. Although the comparison of visitor numbers does not provide conclusive evidence that park visitation is unaffected by drilling operations visible to travelers on the scenic highway, the data do indicate that visitors would likely continue to visit these parks despite observable construction equipment and/or drilling rigs.

The BLM evaluated visitor use of the Horsethief Campground during the months of August and September 2009-2012. Visitor use during August showed an increase from 2011 to 2012. Visitor use in September showed a slight decline in campground use from 2011. The BLM concluded that the data did not show obvious upward or downward trends in those months. Construction or drilling activities apparently did not deter visitors from using Horsethief Campground in 2012. The possibility that tourism may be adversely affected by the construction and operation of the proposed pipeline cannot be substantiated from available data.

Therefore, the BLM did not analyze impacts to recreation in relation to possible declining tourism resulting from implementation of the Proposed Action because such an analysis would be speculative.

1.8.2 Socioeconomic Impacts Related to Pipeline Costs and Commodity Prices

During scoping, concerns were expressed by the public about conducting an economic analysis to justify the direct and indirect costs and benefits of building the pipeline, including an analysis of the ratio of real and expected volumes of gas for a 20-year period in relation to current and foreseeable future low prices.

This EA analyzes the impacts to affected resources from the Proposed Action. The BLM does not speculate as to how much natural gas may be produced, how much the pipeline would cost, or how the cost of the pipeline would compare to the value of the natural gas that would be delivered through the pipeline now and in the future. Until recently, approximately 50 percent of the wells drilled in the Big Flat area were not commercially productive. Drilling was considered exploratory, and the wells were drilled for the economic and energy value of the oil they produce. Natural gas is a co-product of these wells that are drilled for the energy and economic value of their oil.

From 1990-2012, natural gas reached a low of $1.47 per MCF in May 1992 and a high of $10.79 per MCF in July 2008 (EIA, 2013a). For the week ending June 26, 2013, the price of natural gas was $4.14 per MCF (EIA, 2013). U.S. natural gas price volatility has been less sensitive to international geopolitical events and the world financial markets than the price of oil. Cold weather during the winter of 2012-2013 contributed to increases in residential and commercial consumption and higher overall natural gas consumption over the past month. During 2012, power generation from natural gas in the U.S. rose by 21 percent above 2011 levels. Natural gas accounts for almost 25 percent of energy consumption in the U.S., so it can be presumed that the national demand for the product will be sustained into the future.

The BLM's regulatory authority can require the Operator to construct a pipeline even if the value of the gas does not off-set the entire cost of the pipeline. To compare the cost of the pipeline to the historically varying price of natural gas and to the volumes anticipated from the Operator's wells would be extremely speculative and ultimately irrelevant in consideration of the purpose and need for the action.

1.8.3 Impacts Related to Pipeline Safety

During scoping, concerns were expressed by the public about the safety of installing and operating a 12-inch pipeline on the ground surface. Concerns included pipeline security, neglect, aging, and exposure to harsh weather; e.g., the ROW needs to be safe for use by hunters, recreational vehicles, equestrians, and other recreational users. The BLM acknowledges these public concerns. To address these concerns and other issues related to safe pipeline operation by the public, the BLM requested information from the Operator specifically with respect to safety issues. Concerns related to public safety are addressed in Appendix D. The pipeline would be constructed to meet or exceed accepted industry standards and in compliance with all applicable regulatory guidelines (UAC Rule 746-409.Pipeline Safety); therefore, the BLM chose not to further consider this issue with additional analysis.

1.8.4 Cumulative Industrialization of the Area

During scoping, concerns were expressed by the public that the creation of such a large pipeline would advance future oil and gas development in the area as well as mar the existing uses. The BLM analyzed reasonable foreseeable development in the Big Flat-Hatch Point area using historical data compiled for 1984-2004 to predict future oil and gas activity while recognizing that a reliable forecast is limited by changes in economic conditions and technology (BLM, 2005). The BLM predicted that 3-5 wells would be drilled annually in the Big Flat-Hatch Point Reasonable Foreseeable Development Scenario (RFDS) area over a 15-year period, with perhaps 20-40 wells drilled in the Cane Creek Unit. The BLM concluded in the RFDS that the number of wells that are likely to be drilled in this area could resemble field development. Since 2005, 10 wells have been drilled in the Cane Creek Unit area, eight of which are currently in production (UDOGM, 2013b). An average of 1.4 wells has been drilled each year, which is below the RFDS projection.

Most of the leases issued for minerals within the Cane Creek Unit were issued prior to 1990. Drilling for oil and gas is consistent with the Operator's valid existing lease rights. The BLM's consideration of the Proposed Action responds to concerns regarding the disposition of natural gas, which is currently being flared, from existing productive wells, contrary to federal and state regulations. The Moab RMP instituted protections to ensure that the relevant aspects of the resources and resource values present would be retained to the extent possible in consideration of the BLM's multiple use mandate. Therefore, the BLM chose not to further consider this issue with additional analysis.

1.8.5 Relocating the Pipeline Route Outside of a Citizen-Proposed Wilderness Characteristic Area and Lands included in the Red Rock Wilderness Act

During the scoping period, the Southern Utah Wilderness Alliance (SUWA) requested that the pipeline route be relocated outside of lands within the scope of the proposed Red Rock Wilderness Act (H.R. 1630/S. 769) and outside of lands it considers to display wilderness characteristics. The pipeline route within the scope of the proposed Red Rock Wilderness Act/citizen wilderness characteristic area includes portions of Sections 21, 22, and 27, T25S-R19E.

To fulfill its FLPMA obligations, the BLM would update an inventory of wilderness characteristics if new information concerning resource conditions becomes available that meets the BLM's minimum standards. As part of the wilderness characteristics review undertaken by Moab BLM in 2006-2007, the BLM confirmed its earlier finding that the area which the proposed pipeline would cross lacked wilderness characteristics. To date, the BLM has received no new information, either internally or from external groups, to suggest that its earlier conclusions lack validity.

Despite this absence of new information, in February 2013 the BLM reexamined a 900 acre area that is part of the much larger unit (Labyrinth Canyon) evaluated in 2007. The BLM chose to reexamine this 900 acre area because (1) it incorporates all the area likely to be affected by the proposed pipeline and (2) it is completely bounded by designated travel plan routes from the 2008 RMP. Should these routes be found to meet the definition of a “wilderness road”, or constitute significant impacts on naturalness within the context of Manual 6310, the entire area would be separated from the larger wilderness characteristics proposal and thus far fail to meet the 5,000 acre minimum size criterion required by Manual 6310.

Utilizing the guidance of Manual 6310, the BLM concluded that the area in question was bounded by routes which meet the definition of wilderness roads and constitute significant impacts on naturalness. The BLM also noted other disturbances on naturalness within the area in question, including an operating oil well. Given these impacts, the BLM concluded that the lands in question lacked sufficient size to be designated as an area with wilderness characteristics. Consequently, the BLM concludes that the conditions that existed during the evaluation of the Labyrinth Canyon Unit in 2006–2007 (BLM, 2007), of which the area examined in 2013 is a part, have not changed (BLM, 2013). The environmental consequences of actions allowable under the RMP for this area are sufficient to allow an analysis of impacts from the alternatives analyzed in this EA.

The BLM notes that it is not required to manage lands proposed by external groups for protection under the terms of the Red Rock Wilderness Act to a non-impairment standard. The Proposed Action is considered an appropriate use of the surface under the stipulations of the RMP. Therefore, the issue identified by SUWA during scoping did not suggest an alternative action that would resolve any outstanding issues, and the BLM chose not to further consider this issue with additional analysis.

1.9 Summary

This chapter presents the purpose and need for the proposed pipeline project, as well as the relevant issues; i.e., those elements or resources that could be affected by the implementation of the proposed project as identified by the public and BLM interdisciplinary review. The alternatives are presented in Chapter 2. Chapter 3 includes current conditions of the resources that may be affected. The potential environmental impacts or consequences resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified resources.

2.0 DESCRIPTION OF ALTERNATIVES

2.1 Introduction

Chapter 2 includes the description of the Proposed Action (Alternative A), the No Action alternative (Alternative B), and Alternative C. Alternatives that were not fully analyzed are described in Section 2.5. A comparison among alternatives is included in Section 2.6.

2.2 Alternative A - Proposed Action

The Proposed Action is to authorize a ROW amendment to construct, operate, maintain, and eventually decommission a 24-mile (126,512 feet) long and 12-inch diameter natural gas pipeline, known as the Dead Horse Lateral, which would transport produced natural gas from the Operator's oil and gas wells in the Big Flat area to a new natural gas processing plant near Blue Hills Road. The pipeline would be constructed above and below ground across State of Utah and Federal lands as shown in Table 2-1. It would remain in operation as long as the Operator's producing wells supply sufficient gas to justify its use. The typical life of a productive well may last as long as 30 years.

Table 2-1: Land Ownership

Surface Owner	Length (feet / miles)	Buried (feet / miles)	Surface (feet / miles)
Federal	117,707 / 22.3	28,279 / 5.4	89,428 / 16.9
State of Utah	8,805 / 1.7	0	8,805 / 1.7
Total	126,512 / 24.0	28,279 / 5.4	98,233 / 18.6

A compressor booster station (referred to as booster station) would be constructed along the pipeline route to optimize system functionality and facilitate gas flow to the gas processing plant. A booster station along the pipeline keeps the pressure high enough to allow the gas to flow. After additional compression and processing at the gas plant, the natural gas would be directed through the existing Greentown Pipeline, which travels parallel to the Blue Hills Road, to the existing Williams-operated Northwest Pipeline near U.S. Highway 191 and commercial markets. After pipeline construction, the total ROW width of 50 feet may be utilized for maintenance purposes. Construction of the proposed pipeline and supporting facilities would require amendment of existing ROW UTU-67385. Approximately 17.4 miles (91,897 feet) of the proposed pipeline route (72.6%) would follow the existing ROW route. Appendix I contains diagrams and schematics illustrating pipeline construction operations and facilities that would be constructed to enable pipeline operation.

All applicable federal, state, and county regulations would be adhered to during pipeline construction and operation. Construction operations would employ the principles contained in the BLM's *Hydraulic Considerations for Pipelines Crossing Stream Channels* (2007) and *Surface Operating Standards for Oil and Gas Exploration and Development, 4th Edition* (Gold

Book) (2007). Cultural resource clearance inventories and other required surveys were performed prior to construction and reports of findings submitted to the BLM.

Environmental protection measures and safety procedures committed to by the Operator are listed in Section 2.2.6. The Operator would utilize an independent 3rd party compliance monitor to ensure that pipeline construction operations would be conducted in accordance with applicable conditions of approval, if approved.

2.2.1 Location and Access

The project area, inclusive of the pipeline route, booster station, and staging areas, is located in Grand County, Utah, located 12 to 15 miles west to northwest of Moab. It would be reached by traveling north from Moab along US Highway 191 until reaching SH 313, which would be followed west/southwestward toward ISKY and DHPSP. The pipeline route originates at the Kane Springs Federal 19-1 well pad on Big Flat and travels northward following SH 313 until departing this highway to travel northward cross-country to meet and follow Dubinky Well Road (County Road 137). The pipeline route crosses Blue Hills Road (County Road 138) and continues northward to the location of the proposed gas processing plant (See Map 2 and Table 2-2).

The pipeline would be placed within the existing road ROW for SH 313 and the maintenance corridor for the Class B Dubinky Well Road where topography allows, minimizing the possibility of encountering unidentified cultural resource sites and generally avoiding other environmental resource concerns. The ROW width for SH 313 is 100 feet from each side of the centerline.

Where the pipeline route would travel cross-country, the route was chosen to follow Class D roads (BLM designated routes) and non-designated routes as much as possible. Existing roads/routes would be used for access to the pipeline route where they are available. New roads would not be constructed.

The location of booster station and the gas processing plant were chosen to avoid areas of concentrated public use. The booster station would be constructed on a 3-acre site along the pipeline route north of Bartlett Flat approximately three miles from the Lone Mesa Campground. The booster station location was re-located from the UTU-67385 location in Section 27, T26S-R19E, to remove it from view along SH 313 and away from Horsethief Campground. The proposed gas processing plant would be constructed on a 10-acre site near a large aboveground electric transmission line, northeast of the intersection of Dubinky Well Road and Blue Hills Road and north of a ridge.

Table 2-2: Location of Pipeline Route

T-R	Section	Quarter/Quarter	Surface Owner	Additional Information
Pipeline Route				
T26S-R20E	SECTION 19	NE/4, SE/4, SW/4	Federal	Buried pipeline would leave the CCU 19-1 well pad and travel north cross-country to the intersection with the well access road southwest of SH 313.
	SECTION 18	SE/4, NE/4, SW/4, NW/4	Federal	Buried pipeline southwest of and parallel to SH 313.
T26S-R19E	SECTION 13	NE/4, NW/4	Federal	Buried pipeline south of and parallel to SH 313.
	SECTION 12	SW/4	Federal	Buried pipeline south of and parallel to SH 313.
	SECTION 11	N/2, SE/4, SW/4	Federal	Buried pipe south of and parallel to SH 313. Aboveground pipeline would be installed west of the SH 313- ISKY road intersection after crossing the ISKY road by boring under the paved road. Pipeline route would travel cross-country and bypass Cowboy Campground to the west within the NW/4 Section 11. This detour would avoid an area of exposed bedrock near the highway that would have required blasting adjacent to the campground. Pipeline would be buried west of Cowboy Campground to avoid an existing gravel pit and the intersection of 2 Class D roads, and then re-surface to travel aboveground.
	SECTION 2	SW/4, NW/4	State of Utah	Aboveground cross-country pipeline.
	SECTION 3	NE/4	Federal	Aboveground cross-country pipeline.
T25S-R19E	SECTION 34	SE/4, NE/4, NW/4	Federal	Aboveground cross-country pipeline.
	SECTION 27	SW/4, NW/4	Federal	Aboveground cross-country pipeline.
	SECTION 22	SW/4	Federal	Aboveground pipeline.
	SECTION 21	SE/4, NE/4	Federal	Aboveground pipeline.
	SECTION 16	SE/4, NE/4	Federal	Aboveground pipeline.
	SECTION 9	SE/4, NE/4	Federal	Aboveground pipeline would be open-cut trenched beneath Spring Canyon Bottom Road. North of Spring Canyon Bottom Road, pipeline would be open-cut trenched beneath Dubinky Well Road to its east side.
	SECTION 4	SW/4, NW/4, SE/4	Federal	Aboveground pipeline northeast and parallel to Dubinky Well Road.

T-R	Section	Quarter/Quarter	Surface Owner	Additional Information
	SECTION 5	NW/4, NE/4	Federal	Aboveground pipeline northeast and parallel to Dubinky Well Road.
	SECTION 6	NE/4	Federal	Aboveground pipeline north and parallel to Dubinky Well Road.
T24S-R19E	SECTION 31	SW/4, SE/4	Federal	Aboveground pipeline northeast and parallel to Dubinky Well Road.
T24S-R18E	SECTION 36	SE/4, NE/4	State of Utah	Aboveground pipeline would be open-cut trenched beneath Dubinky Well Road to the west side in state Section 36.
	SECTION 25	SW/4, NW/4	Federal	Aboveground cross-country pipeline would pass to the west of Dubinky Well in W/2 of Section 25.
	SECTION 24	SW/4, SE/4, NE/4, NW/4	Federal	Aboveground pipeline on west side of Dubinky Well Road. Pipeline would be bored beneath Dubinky Well Road to its east side in NW/4.
	SECTION 13		Federal	Aboveground pipeline east and parallel to Dubinky Well Road.
	SECTION 12		Federal	Aboveground pipeline east and parallel to Dubinky Well Road.
	SECTION 1	SE/4, NE/4	Federal	Aboveground pipeline east and parallel to Dubinky Well Road.
T24S-R19E	SECTION 6	NW/4	Federal	Aboveground pipeline east and parallel to Dubinky Well Road.
T23S-R19E	SECTION 31	SW/4, NW/4, NE/4	Federal	Aboveground pipeline east and parallel to Dubinky Well Road in SW/4, NW/4, S/2NE/4. Pipeline would be open-cut trenched beneath Dubinky Well Road to its NW side in the NE/4. Buried pipeline NW and parallel to Dubinky Well Road in NE/4.
	SECTION 30	SE/4	Federal	Buried pipeline NW and parallel to Dubinky Well Road.
	SECTION 29	SW/4, NW/4, NE/4	Federal	Buried pipeline NW and parallel to Dubinky Well Road. Pipeline would be open-cut trenched across Blue Hills Road. UTU-67385 south-north segment ends at Blue Hills Road. Buried pipeline NW and parallel to upgraded Class D road (would require blading, grading, and gravel application to support travel in all-weather conditions). Buried pipeline to connect to gas processing plant located in Sections 29 and 20.
Booster Station and Gas Processing Plant				
T25S-R19E	SECTION 6	NE/4 (Lots 1 and 2)	Federal	Booster station.

T-R	Section	Quarter/Quarter	Surface Owner	Additional Information
T23S-R19E	SECTION 20	SW/4, SE/4	Federal	Gas processing plant located north of aboveground electric power lines; Class D road may need 2,934 feet of blading within the pipeline construction corridor to facilitate safe truck access with a 14-foot road width.
	SECTION 29	NW/4, NE/4	Federal	
Temporary Work Areas for Staging and Boring				
T26S-R20E	SECTION 18	NW/4	Federal	Staging area #1. Existing 3-acre gravel pit. No new disturbance.
	SECTION 11	SE/4, SW/4	Federal	Temporary work areas for road boring beneath the ISKY road. 0.46 acre on each side of the road or 0.92 acre total (approximately 100 feet x 200 feet)
T25S-R19E	SECTION 15	NE/4	Federal	Staging area #2. Lone Mesa Campground, 6.5 acres. No new disturbance.
	SECTION 9 SECTION 4	NW/4 SW/4	Federal Federal	Staging area #3. Cattle use area on 3 acres. May need blading. Class D road may need 1,550 feet of blading along a 14-foot width to facilitate safe access.
T24S-R19E	SECTION 31	SE/4	Federal	Staging area #4. Existing 3-acre gravel pit. No new disturbance. Class D road may need 1,700 feet of blading along a 14-foot width to facilitate safe access.
T24S-R18E	SECTION 24	NW/4	Federal	Temporary work areas for road bore beneath Dubinky Well Road. 0.46 acre on each side of the road or 0.92 acre total (approximately 100 feet x 200 feet)
T23S-R19E	SECTION 31	SW/4	Federal	Staging area #5. Abandoned 1.5-acre well pad. Pad would be cleared of rock and brush.
	SECTION 31	NW/4	Federal	Staging area #6. Intersection of Dubinky Well and Blue Hills Road, 3 acres. Area would be cleared of rock and brush.

2.2.2 Pipeline Design

The design, materials, construction, operation, maintenance, and termination practices of the pipeline would meet or exceed safe and proven engineering practices, industry standards, and would comply with all applicable requirements. While this gathering line will not be regulated, the pipeline would be designed and constructed to meet and exceed federal and industry standards that would be applied to a similar transmission pipeline. The Federal government establishes minimum pipeline safety standards under 49 CFR, Parts 190 through 199. The Gas Pipeline Safety Division of the Utah Public Utilities Commission regulates and inspects pipelines, and enforces intrastate gas pipeline safety requirements contained in UAC Title 54 Chapter 13, UC 54-13-1 through 54-13-7. Applicable industry standards include, but are not limited to: API 5L, API 6D, ASME 31.8 and other pipeline material standards (ANSI, ASTM).

The 12-inch pipeline would be comprised of steel pipe with a 12.75-inch outside diameter and 0.375-inch wall thickness. The wall thickness would be sufficient to ensure structural integrity. The natural gas moved through this pipeline is intended to be totally in vapor (gaseous) phase, and no liquids are expected within the line. The aboveground portion of the pipeline would be designed to operate at a lower stress level and greater wall thickness than is typical for pipelines to ensure public and environmental safety. No portion of the pipeline would operate above 200 pounds per square inch (psi). The pipeline would be built with components rated to a minimum of ANSI 300 which correlates to 740 psi. The pipe itself would be able to safely convey natural gas at 2,470 psi before the steel would begin to yield. A Supervisory Control and Data Acquisition (SCADA) system would be used to monitor pipeline pressures and gas flow rates in real-time. Emergency Shutdown (ESD) valves would be installed at the booster station and gas processing plant. The external surface of the steel pipe would acquire a rust color over time.

The aboveground section of the pipeline would largely be left unrestrained so as to allow for thermal expansion to occur freely in order to prevent additional stresses to the pipe. The movement due to thermal expansion is expected to occur mainly in the lateral direction (perpendicular to the pipe) with some movement in the axial direction (along the pipe). The bends in the pipeline route would help to absorb this motion and spread the effects over many smaller areas of movement. The heavier than usual pipe wall, buried road crossings, the SCADA and ESD systems would provide a level of risk management. See Appendix D for additional information.

2.2.3 Construction Operations

Equipment needed to install the pipeline includes flatbed trailers, pipe bending machines, track mounted sidebooms, trenching machines, trackhoes, backhoes, water trucks, and pickup trucks. Installation equipment, pipe, and other construction materials would be hauled to the job by flatbed semi-tractor trailers and temporarily stored at up to six staging areas. Pipe would be transported from staging areas to strategic locations along the pipeline route within the construction corridor on a daily basis. Construction equipment may be left overnight within the construction corridor. The staging areas were chosen to utilize areas of existing disturbance as much as possible. Staging area locations may require mowing, blading, or rock removal to provide a level equipment storage area or facilitate access. Segments of the two Class D roads that would be used for access to staging areas 1 and 4 may require blading within the existing 14-foot running surface to ensure safe travel conditions for heavy equipment. A list of the staging areas along with their locations and associated surface disturbances are provided in Table 2-3.

Table 2-3: Staging Areas

Staging Area	Location	Short-term Disturbance (acres)	Existing Disturbance (acres)
1 – gravel pit near SH 313 and Long Canyon Road	T26S-R20E, Section 18	-	3.0
2 – Lone Mesa Campground	T25S-R19E, Section 15	-	6.5
3 – cattle use area	T25S-R19E, Sections 4 & 9	3.0	
4 – gravel pit north of Bartlett Flat	T24S-R19E, Section 31	-	3.0
5 – abandoned well pad	T23S-R19E, Section 31	1.5	-
6 – Dubinky Road/Blue Hills Road intersection	T23S-R19E, Section 31	3.0	-
Total		7.5	12.5

The pipeline would be buried for a total of 5.4 miles. It would be installed aboveground the remainder of the route. The pipeline would be buried for approximately 3.8 miles in the Big Flat area due to scenic sensitivity and 1.6 miles near the intersection of Dubinky Well and Blue Hills Roads due to potential flooding concerns. The soils in these areas are anticipated to be sufficiently deep to provide adequate pipe coverage after installation in a trench. The pipeline would also be buried below unpaved Class B and Class D roads; where the pipeline would approach to within 100 feet of either side of Mineral Point and Mineral Bottom Roads; and possibly beneath some ephemeral washes. The pipeline would be installed on the surface along the central portion of the route where bedrock is close to or at the surface. Installing the pipeline aboveground would prevent visual scarring by eliminating the need to remove the shrub and tree cover that would result from trenching. The ground surface would not, in general, be bladed prior to installation on the surface. Vegetation would not be removed unless necessary to enable the safe use of installation equipment. Trees would be avoided where possible.

All pipeline installation equipment and vehicles would be restricted to operating within the construction corridor and would use adjacent roads/routes where available to minimize surface disturbance during construction activities. Approximately 22 miles of the 24-mile length of the pipeline route would follow designated or undesignated roads/routes. The width of the temporary use construction corridors would vary according to route proximity to adjacent roads and whether installation is aboveground or buried. The Operator plans to use a cross-country route in some areas to provide greater separation between the pipeline and Cowboy Campground, Dubinky Well, Dubinky Wash, and SH 313.

Aboveground pipeline construction. The Operator would use a temporary construction corridor up to 50 feet wide where the aboveground pipeline would be installed adjacent to Dubinky Well Road, a designated route, or a non-designated route. The individual segments of pipe would be placed in their appropriate sequence and welded along the road/route prior to installation, either in a trench or on the surface. One lane of Dubinky Well Road would be used for equipment operations where the aboveground pipeline would be installed adjacent to the road.

Aboveground segments of the pipeline route would travel cross-country where existing routes are not available. A 50-foot construction corridor would be located within a 200-foot corridor that has been inventoried for the presence of cultural resources. The exact location of the construction corridor within the inventoried area would be determined in consideration of site-specific environmental conditions, such as the presence of cultural resources, trees, boulders, or bedrock ledges. The Operator would provide shape files of the final cross-country route to the BLM after the precise location of the pipeline route has been determined. Allowing the determination of the route to respond to the site-specific conditions within the inventoried area would provide sufficient flexibility for the safe movement of vehicles and equipment. The existing character of the landscape would be retained as much as possible; however, it may be necessary to blade or grade the surface in some areas to provide safe equipment access. In such areas, the Operator would minimize the level of effort needed and retain as much of the natural vegetation as possible. The aboveground pipeline would require supports in areas where the ground surface is rough or if washes are present. The pipeline would be restrained on supports that would be secured into the ground with concrete. If the terrain in a particular area is conducive to moving rock to facilitate placement of the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline.

Buried pipeline construction. Installing a buried pipeline typically requires a temporary construction corridor of 75 feet where the pipeline would be buried adjacent to SH 313 in Big Flat or Dubinky Well Road near Blue Hills Road. Equipment would operate on the side of the trench nearer to the adjacent road. The area immediately adjacent to the pipeline route may require grading and/or blading where the terrain is too rough for placement of equipment. Vegetation would be removed prior to construction of the trench, which would be mechanically cut and excavated with a backhoe or trencher. The top of the trench would be slightly wider than the 3-foot bottom width. Spoils, subsoils, and topsoil would be temporarily placed in the remainder of the 75-foot construction corridor in piles opposite the working side of the trench. Topsoil, as available, would be stored separately from the spoils and placed in piles adjacent to the spoil piles. A pipeline segment would be installed at least 4 feet deep to ensure a minimum cover of 3 feet. After the pipe is lowered in the trench, spoils would be replaced in the trench and compacted. If needed, backfill materials would be obtained from an approved source and brought to the construction area. Extra spoil would be placed adjacent to the trench and spread along the trench. Topsoil redistributed on top of the spoils. Spoil materials may be used to camouflage the appearance of the pipeline route from the adjacent road.

Site-specific conditions may require the pipeline to be buried at depths greater than four feet. For example, where the pipeline would cross under a road's wing ditches, the depth of the trench would be increased to six feet to provide a safe depth between road maintenance operations and the pipe.

An open trench would be left open for the least amount of time possible. An open trench may be temporarily filled in some areas to facilitate safe crossing by livestock or wildlife. The Operator would delineate an open trench with flagging or fencing if left open overnight.

Wash crossings. The procedures that would be followed where crossing ephemeral drainages would be designed to prevent pipeline inundation or exposure of the pipeline to the hydraulic forces of flood events. Most washes are less than 40 feet in width and would require no special construction procedures when being crossed by aboveground pipe. Washes of this size can safely be spanned by the pipe without supports; however, site-specific evaluations conducted during construction and routine inspections would assess the spatial relationship between wash, pipeline, and adjacent road (if present) to determine if supports would be needed to address possible future hydrological conditions. The pipe would be installed at the elevation of the adjacent ground or higher to ensure that it is above the 100-year flood water level.

Supports would consist of stanchions or A-frames and cables. The stanchions at smaller washes may consist of two vertical supports with a horizontal support upon which the pipeline will rest. The stanchions would be constructed from scrap 6-inch (approximate) pipe sourced locally. The surface laid pipeline segments across larger washes, including Dubinky Wash, would be evaluated by an engineer prior to construction to determine if support is necessary to span the wash. The type of support would be determined at the time of construction in consideration of functional advantage and visual impacts. If an A-frame is used, one frame would be constructed on either side of the wash from which an anchored cable would be suspended. The pipe would be suspended from the cable and supported from both sides of the wash. The supports would be secured into the ground with concrete. A preliminary evaluation of wash crossings indicated that Dubinky Wash would be crossed using A-frame supports. The height of the A-frame at Dubinky Wash would be determined by the relative heights of the wash banks and the estimated height of a 100-year flow. As shown in Appendix I, a typical A-frame is approximately 10 feet in height. The stanchions and A-frame supports would rest on the surface over time to a color similar to the pipeline.

Buried pipeline segments would be installed a minimum of 6 feet below all current wash bottom elevations. Generally, this increased depth would be extended for a distance of half the width of the wash on either side of the wash. For example, if the wash is 20 feet wide, the increased depth would extend 10 feet beyond each side of the wash. Disturbed stream banks would be stabilized with natural erosion control materials including rocks, erosion control blankets, rip rap, or other stabilizing materials.

Road crossings. Road crossings would be performed either by open-trenching beneath the road surface or by boring. Open trenching would be used on Class D road crossings and most, if not all, Class B road crossings. To avoid disrupting traffic, a horizontal directional drill (HDD) would be used to bore beneath SH 313 at the intersection with the ISKY road. Using the HDD would require two temporary use areas approximately 100 feet wide by 200 feet long on both sides of the road where the bore would enter and exit the surface. The HDD would drill a pilot hole beneath the surface at a depth that maintains minimum coverage requirements, after which the hole would be enlarged with a reamer to a diameter sufficient to accommodate the pipe diameter. A pre-welded and pre-tested section of pipe would be pulled into the hole from the side of the bore hole opposite the drilling equipment. After placement of the pipe beneath the road, the pipeline would be installed on the surface. After boring under the ISKY road the pipeline would remain underground for approximately 100 feet to the west of the road to prevent observation of the pipeline from SH 313 where it re-surfaces above the ground.

Public access. Through traffic in both lanes would be maintained on SH 313 at all times during pipeline construction. One lane of Dubinky Well Road would be used for equipment operations where installing the pipeline adjacent to this road so that the other lane would remain open to through traffic. Alternatively, vehicle traffic may be routed to detour along the temporary use construction corridor. Appropriate controls would be in place during construction within a roadbed or adjacent shoulders of the road to warn the public and control traffic. Traffic cones and "construction zone" signs would be used to notify oncoming traffic of construction operations. Flagmen would be placed at either end of the work area if visibility is less than 100 yards. Installation of the pipeline along a Class D road may result in temporary through-traffic delays. All unpaved Class B and Class D roads would be restored to existing road conditions after pipeline installation.

Pressure testing. A hydrostatic pressure test would be performed for the entire pipeline system after construction is complete. The pipeline would be tested to at least 110 percent of maximum operating pressure prior to operation using air, inert gas, or water. If water is used, the water source would be a permitted source and/or obtained from a private owner that holds valid water rights. Disposal of the test water, if used, would be in conformance with applicable state and BLM requirements.

2.2.4 Infrastructure Requirements

Pipeline infrastructure may include valves, pigging facilities, and tie-in risers for possible connections to gathering lines from wells. Such infrastructure would be prefabricated off-site and installed within the 50-foot maintenance ROW where needed. Permanent well site equipment, such as well site compressors or dehydrators, would not be needed for functional operation of the pipeline.

Pig receivers and launchers would be used to clean and inspect the interior of the pipeline. One pig launcher would be installed at the southern end of the pipeline at the Kane Springs Federal 19-1 well pad and another launcher at the northern end of the pipeline at the gas processing plant. Two additional pig launchers would be installed at the booster station. Each pig launcher is approximately 6 feet high and 15 feet long.

Aboveground valves would be installed to ensure safe operations and provide the opportunity for connection to existing or possible future facilities. Seven 3-foot high tie-in risers would be installed within the 50-foot ROW where well gathering lines would connect to the pipeline. Each riser would be surrounded by a pipe barrier, approximately 3 feet long and 3 feet wide.

The Operator has been unable to predict gas volumes with certainty because its wells are primarily oil wells, and an assessment of estimated gas production volumes is underway. The capacity of all the equipment that would be installed at the booster station and the gas processing plant would depend on the results of the assessment.

Booster station. An access road to the booster station would be constructed within the 3-acre site, which would be fenced with a 6-foot chain link fence and locked to prevent public entry. The Operator would install a chain link fence that is coated dark green or a natural tone dark color and install lath along perimeter of the fence. The lath would be obtained in a flat dark color consistent with the BLM standard environmental color chart (Sudan brown, Juniper green or similar color) to blend with the color of the natural surroundings. All final color selections would be approved by the BLM. A motion activated light would be installed at the gate. Additional lights would be installed on and inside the compressor buildings that would be manually operated only when needed. All lighting would be downcast.

At this time, the Operator estimates that up to four 400-hp compressors and a generator, and a 400-barrel tank would be installed at the booster station. The four compressors would be installed as a modular package. Each compressor would be contained within its own enclosed building with 10-12 foot sidewalls. The 400-barrel tank would be approximately 20 feet tall.

Gas processing plant. The 2,934-foot Class D road from Blue Hills Road to the 10-acre gas processing plant location would require upgrading to BLM resource road standards by grading, blading, and gravel application to provide all-weather travel along a 14-foot running surface. The construction width for the upgraded Class D road would be 35 feet. The gas processing plant would be fenced and gated to prevent public entry. Downcast lighting would be available for emergency use at night.

The gas plant would be operated with a generator and would contain compression equipment, a flare, a distillation tower, and other gas processing equipment. Gas piping, including electrical service lines, lighting, and piping to the flare, would be installed on 17-foot stanchions to facilitate access throughout the plant site. The Operator estimates that compressors supplying approximately 2,000 horsepower would suffice to supply additional compression prior to delivery to the Greentown Pipeline which connects to the Northwest Pipeline. The buildings around the compressors would have 10 to 12-foot sidewalls and other equipment, such as generators, coolers, processing skids, natural gas liquids tank storage, would be approximately 15 feet in height.

The stainless steel distillation column would enable the recovery of natural gas liquids prior to gas delivery to the Northwest Pipeline. The 24-inch diameter distillation column, which would be the tallest component at the plant site, would be 71 feet in height. A light would be installed at the top of the column only if required by regulation.

The flare would enable continued oil production at the wells in case of interruptions with natural gas delivery. A flare would be needed if upset conditions prevent compression and/or processing of the gas. The flare at this site would also be needed if for the residual gas is unable to be delivered from the plant to the Northwest Pipeline. The flare would not be in operation on a regular basis. The 12-inch diameter stainless steel flare stack would be 50 feet tall and smokeless. When in use, a flame would be visible from the top of the stack. A light would be installed at the top of the flare stack only if required by regulation. Automatic flares would also be maintained at the wells if the booster station were to be temporarily shut down or if needed for temporary maintenance operations.

If visible from Blue Hills Road, the stainless steel flare stack and distillation column would be painted an earth tone color to be determined by the BLM.

2.2.5 Pipeline Construction Schedule and Personnel Requirements

Construction operations would be initiated as soon as possible after approval of the amendment. Procedures would be developed to ensure that pipeline installation occurs as quickly and safely as possible in a planned sequence of operations along the route. Approximately 120 days would be needed to construct the entire length of the pipeline. Approximately 45 days of the total construction time may be needed to install the buried segment through Big Flat. Up to two miles of pipe may be installed aboveground daily where the pipeline would cross Bartlett Flat. The presence of trees and uneven terrain would require more construction time. Construction activities would generally occur during daylight hours. Pipeline integrity testing may be performed at night.

Approximately 40 vehicles and 80 people would be utilized for pipeline installation. Vehicle traffic during construction operations would include the transportation of materials and heavy equipment, workforce commuting, and daily operation of construction equipment.

2.2.6 Routine Maintenance and Operations

The pipeline would operate 24 hours each day, 365 days a year. The Operator would adhere to applicable pipeline operational and maintenance standards. The buried section of the pipeline would be marked along its route with marker posts that feature warning signs that display, at a minimum, a visual warning, the contents of the line, and the pipeline operator's name and emergency contact information. These signs would be placed at line-of-sight intervals. Although typically installed to a height of seven feet to facilitate identification of the buried pipeline route, the Operator would consult with the BLM to determine sign height necessary for safety and visibility in the Big Flat area.

The 50-foot wide pipeline ROW would be routinely patrolled and inspected by personnel on foot or in vehicles to check for problems such as erosion, general condition, unauthorized encroachment, and any other conditions that could cause a safety hazard or require preventive maintenance. Drainage structures would be maintained and weed control performed while the pipeline is in operation. At a minimum, an annual line patrol would detect any integrity issues with the pipeline, pipe supports, valves, pigging facilities, tie-in risers, or other infrastructure installed for safe operation of the pipeline. The patrols would be conducted on foot, all-terrain vehicles (ATVs), or light vehicles if adjacent to a road. The acquired information would be compiled, cataloged, and filed for the life of the pipeline.

Pipelines generally require little maintenance. Pipeline valves would be exercised regularly to ensure they will seal when needed. Equipment may occasionally be brought to the pipeline route to facilitate maintenance operations. This equipment may be temporarily positioned at a well site, near a pig launcher, or some other location within the ROW until the need for their use has ended.

If pipeline damage were to occur from external sources and repair/replacement of the portion of a pipeline were necessary, detailed line break and emergency procedures would be followed. A safety manual for this specific pipeline system, including an Emergency Response Plan, would be developed prior to construction and would be submitted to the BLM. Standard emergency procedures include notification protocols, response procedures for fires, explosions, facility damage, adverse weather conditions, civil disorders, and vandalism. The chance of actual rupture for the pipeline would be low due to the low internal pressure and specified minimum yield strength level. See Appendix D for additional information.

2.2.7 Reclamation

Reclamation operations would be performed in general conformance with the Operator's Reclamation Plan for the Dead Horse Lateral Pipeline submitted to the Moab FO in July 2013. The Reclamation Plan emphasizes the importance of pre-disturbance planning, with consideration given to vegetation management, soil management, and facility visibility. Surface areas affected by pipeline construction and installation would be reclaimed. Reclamation of the surface along the pipeline route after construction would essentially comprise final reclamation. Immediate reclamation measures would be taken to stabilize disturbed areas, restore topsoil and encourage vegetative cover, and control erosion.

All equipment and materials not necessary for pipeline operation and maintenance would be removed from the ROW after construction is complete. Where soil depth allows, compacted areas to be seeded will be ripped to a minimum depth of six inches and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified and left with a rough surface. The surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration. Topsoil would be evenly distributed and aggressively revegetated. The Operator would use a certified weed-free seed mix intended to provide a self-sustaining plant community reflective of pre-disturbance vegetation. The Operator would utilize a seed mix specified by the BLM.

The pipeline route and areas disturbed from project implementation, including staging areas, would be seeded within 90 days of completion of the pipeline installation if occurring between September 15 and April 15, or as directed by the Authorized Officer (AO). Seeding would not be performed during the late spring or summer months. Mulch, silt fencing, waddles, hay bales, and other erosion control devices would be used on areas at risk of soil movement from wind and water erosion. During and following construction activities, disturbed areas would be monitored for the presence of noxious weed infestations. To minimize the introduction of noxious invasive species, construction contractors would be required to have equipment arrive at construction sites in a clean condition, free of weeds and soil. The Operator would periodically inspect the pipeline route and other temporary use areas for the presence of noxious weeds during the first two years following construction activities. If noxious weeds are identified, they would be promptly treated and controlled according to the Operator's approved Pesticide Use Proposal. The Operator would utilize spot-spraying of individual plants as the principal method of control rather than broadcast spraying large areas. Permanent vegetative cover in Big Flat and at the intersection of Dubinky Well Road and Blue Hills Road would be determined successful when the basal cover of desirable perennial species is representative of baseline survey conditions or at least 75 percent of the basal cover on adjacent or nearby undisturbed areas where vegetation is in a healthy condition. Reclaimed areas would be monitored semi-annually. Actions would be taken to ensure that reclamation standards are met as quickly as reasonably practical and are maintained during the life of the project. Reclamation monitoring would be documented in an annual reclamation report submitted to the AO by May 1. The report would document compliance with all aspects of the reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or will be taken to meet the objectives and standards. During the life of the pipeline, reclaimed areas receiving incidental disturbance during maintenance activities would be reseeded as soon as practical.

The Dead Horse Lateral would be decommissioned following the productive lives of all connected wells. Facilities at the booster station and gas processing plant would be removed. The buried pipe would be left in place; however, pig launchers and aboveground valves would be removed. The surface-laid pipeline would be removed from the ROW and disposed of appropriately. The surface above the pipeline route would be re-contoured to the approximate natural contours of the land. Disturbed areas along the ROW would be scarified and left with a rough surface. The ROW would be seeded to re-establish native/desired vegetation. Monitoring and inspections would be performed as previously described.

2.2.8 Surface Disturbance

Surface disturbance that would result from implementation of the Proposed Action includes the pipeline construction corridor along the pipeline route; three temporary staging areas; blading on portions of two Class D roads for access to two staging areas; upgrading a 2,934-foot Class D road to provide access to the gas processing plant from Blue Hills Road; the area needed to construct the booster station and gas processing plant; and the area needed to bore beneath SH 313. Three staging areas would utilize existing disturbed areas that are maintained for other primary uses, and their use is not included in the estimate of surface disturbance. These three staging areas include staging areas 1 and 4, which are used as gravel pits, and staging area 2, which is used as the Lone Mesa Campground. Pig launchers would be placed on an existing well pad or booster station and were not included in the disturbance estimate.

Long-term disturbance corresponds to the area that would not be reclaimed after pipeline construction, including the booster location, gas processing plant location, and the area that would be used by seven pipeline tie-in risers. The two bladed Class D roads that would be used to access two staging areas were conservatively assumed to be long-term disturbance in addition to the upgraded Class D road that would be used to access the gas processing plant. Residual disturbance from pipeline installation along the pipeline route was assumed to be negligible after initial reclamation operations reestablish desirable vegetation because functional use of the pipeline route would be restored. A summary of surface disturbance is provided in Table 2-4.

Table 2-4: Surface Disturbance Summary - Alternative A

Facility/Surface Use Area	Construction Disturbance (acres)	Reclamation (acres)	Long-term Disturbance (acres)
Pipeline Construction Corridor	161.0	161.0	0[1]
Boring Areas (2)	1.9	1.9	0
Staging Areas	7.5	7.5	0
Class D Road Blading (temporary access to 2 staging areas)	1.0	0	1.0
Class D Road Upgrade (Blue Hills Road to gas processing plant)	2.4	0	2.4
Booster Station	3.0	0	3.0
Gas Processing Plant	10.0	0	10.0
Total	186.8	170.4	16.4

[1] Pipeline tie-in risers within ROW cover <0.01 acre.

Surface disturbance on state-owned lands would result from the pipeline construction corridor only. The gas processing plant, booster station, staging areas, Class D road blading would take place on federal surface. Of the 186.8 acres of initial surface disturbance, 176.7 acres would take place on federal lands. The surface disturbance by surface ownership is provided in Table 2-5.

Table 2-5: Surface Disturbance by Surface Ownership (acres)

Surface Owner	Pipeline Construction Disturbance	Other Construction Disturbance	Total Construction Disturbance	Reclamation	Long-term Disturbance
Federal	150.9	25.8	176.7	160.3	16.4
State of Utah	10.1	0	10.1	10.1	0
Total	161.0	25.8	186.8	170.4	16.4

2.2.9 Project Design Features

The Operator will secure all required permits and approvals from the BLM, State of Utah, and county prior to construction. The Operator will adhere to all applicable federal, state, and county regulations while performing all operations associated with the Proposed Action. Table 2-6 lists the mitigation measures committed to by the Operator and its pipeline construction contractor.

Table 2-6: Project Design Features and Environmental Protection Measures

Project Design Features
General
The Operator will adhere to all applicable federal, state, county, and BLM regulations while performing all operations associated with the Proposed Action.
The Operator will adhere to all Conditions of Approval applied to the approved ROW.

Project Design Features
The Operator will utilize an independent 3rd-party monitor during construction operations to ensure compliance with the Operator-committed measures and the terms and conditions of the approved ROW grant as they pertain to construction operations.
The Operator will submit a detailed plan of construction to the BLM prior to the initiation of construction.
Construction operations will be conducted in consideration of the *Surface Operating Standards for Oil and Gas Exploration and Development, 4th Edition* (Gold Book) (USDI and USDA, 2007).
Off-road (cross-country) construction operations, including vehicle movement and travel, will be conducted within the approved temporary construction corridor.
The Operator will provide shape files of the final cross-country route to the BLM after the precise location of the pipeline route has been determined. The final cross-country route will be located within a 200-foot wide corridor inventoried for the presence of cultural resources.
The Operator will prohibit staff and contractors from illegal collection or destruction of cultural or paleontological resources.
Although trees will be generally avoided, the Operator will take the following measures to reduce fuel loads and prevent possible fires: While performing construction operations, if any standing live or dead trees were to be damaged, cut down, or knocked over by grading or construction equipment, the Operator will take actions to mitigate the fuel loads from resultant slash. In areas where reclamation of the site would be expected and slash would be utilized to help reclaim the site, the Operator may temporary stockpile slash until termination of this activity. In areas where reclamation is not planned in the foreseeable future, such as at the booster station and gas plant, slash will be disposed. Disposal actions include chipping materials on site with dispersal along the road or pad edge. Disposal of materials will be conducted with the following stipulations: a. The BLM would pre-approve the disposal location. b. Piled vegetation will not be within fifteen feet of standing live trees.
The Operator will utilize existing BLM designated routes for access to the pipeline route where available.
Air Quality
The Operator will instruct its employees and contractors not to exceed speed limits or 20 miles per hour on any unpaved road during construction or normal daily activities to discourage the generation of fugitive dust.
During construction operations, the Operator will perform fugitive dust mitigation with the application of water, as needed.
Cultural Resources
The Operator has conducted a Class III cultural resource survey on lands affected by surface-disturbing activities. Where possible, the Operator will avoid sites determined to be eligible to the National Register of Historic, Places and will consult with the AO to determine a course of action to mitigate adverse effects.
The Operator will enter into a Memorandum of Agreement with the BLM with respect to details of mitigation measures to be taken for cultural resource sites that cannot be avoided. Mitigation may include data recovery operations.
The Operator will cooperate with the BLM to develop and install a sign near the Blue Hills Road and Dubinky Well intersection, or other location determined suitable by the BLM, explaining to the public the location of the Congressionally designated Old Spanish Trail.
Livestock Grazing and Range Improvements
Prior to project initiation, the Operator will contact the Authorized Officer for direction pertaining to temporary cutting and rebuilding a pasture fence or dismantling a range improvement facility.
The Operator will not inhibit livestock movement.
A trench may be temporarily filled in some areas to facilitate safe crossing by livestock or wildlife while pipeline construction in the vicinity of the trench is ongoing.

Project Design Features
Range study sites will be avoided where possible.
Noise
A previously approved processing/booster station along ROW UTU-67385 in Section 27, T25S-R19E will be moved to Section 6, T25S-R19E, to prevent noise impacts from compressor use to campers at improved campgrounds.
Paleontological Resources
The Operator has conducted a paleontological inventory on State of Utah and BLM lands affected by surface-disturbing activities. The results of the inventory have been submitted to the BLM.
A paleontology monitor would monitor all surface disturbing activities that occur within a Potential Fossil Yield Classification (PFYC) of 5, including the Morrison Formation. Monitoring in areas of PFYC 5 would be performed during ongoing operations, and in some cases extended periods of work may be required, although efforts would be made to complete any fossil recovery with minimal work stoppage. The Mancos Shale would be spot-checked in areas where any trenching or boring is to be done. Spot-check monitoring would be conducted when the Mancos is exposed to view or before pipe is placed and the trench backfilled. Monitoring would be required for any surface-laid pipe within PFYC 5 areas where there would be blading or grading of the surface more than 12 inches wide AND/OR greater than 1 meter deep. A monitor would spot check for any surface-laid pipe within PFYC 4 areas where there would be blading or grading of the surface more than 12 inches wide AND/OR greater than 1 meter deep. Areas of PFYC 3 are recommended for spot checks; although this maybe waved in areas that are covered in moderate to deep eolian sediments (3% of the proposed pipeline route is in a PFYC 3 area, with no PFYC 4 currently impacted). These include the Mancos Shale, Navajo Sandstone and the Kayenta Formation. Spot-checking is conducted when the fossil-bearing bedrock is exposed to view or prior to placing spoil material back into the excavation, such as when a pipeline trenching operation is complete but before pipe is placed and the trench backfilled.
Should paleontological resources be discovered during construction of the proposed pipeline and associated facilities, all work would stop and the Moab BLM Field Office immediately contacted.
Recreation, Safety, and Access
If pipeline damage were to occur from external sources and repair/replacement of the portion of a pipeline were necessary, detailed line break and emergency procedures would be followed. Standard emergency procedures include notification protocols, response procedures for fires, explosions, facility damage, adverse weather conditions, civil disorders, and vandalism.
Firearms will not be allowed at the construction sites, and the Operator’s drug, alcohol, and firearms policies will be rigorously enforced.
During construction operations, public access would be maintained on Dubinky Well Road by utilizing just one lane at any particular time so that one lane would remain open, or vehicle traffic would be temporarily routed to detour along the temporary construction ROW. Appropriate controls would be in place during construction within a roadbed or adjacent shoulders of the road to warn the public and control traffic. Traffic cones and “construction zone” signs would be used to warn oncoming traffic of construction operations. Sufficient space would be allowed for passage of a single vehicle. Flagmen would be placed at either end of the work area if visibility is less than 100 yards.
The pipeline would be buried below unpaved Class B and Class D road and designated trail crossings (including motorcycle trail in Section 31, T23S-R19E).
Construction activities would occur generally during daylight hours. Pipeline integrity testing may be performed at night.
Soils, Floodplains, and Water Resources
The Operator will utilize best management practices for control of nonpoint sources of water pollution to prevent soil erosion, sedimentation, and damage to floodplains of drainages that transport ephemeral water.

Project Design Features
The Operator will comply with the timing limitations specified for fragile soils in the BLM 2008 RMP (no surface disturbing activities from December 1 to May 31), which allows for an exception under specific circumstances.
The Operator will conduct pre-construction briefings during which the field crew would be educated to identify and avoid soil crusts where possible.
The Operator will follow guidance presented in the BLM publication *Hydraulic Considerations for Pipelines Crossing Stream Channels* (2007).
Existing drainage structures along the pipeline route will be maintained. The natural flow characteristics of ephemeral drainages crossed by the pipeline will be maintained.
Vegetation
The Operator will perform reclamation operations in conformance with the principles, goals, and procedures contained in the Operator's reclamation plan, which is in development. The Operator will utilize a seed mix specified by the BLM.
The surface would not be bladed or cleared of vegetation where the pipeline would be installed aboveground adjacent to roads unless necessary to enable the safe use of installation equipment.
Trees would be avoided where possible.
Reclaimed areas along the pipeline route receiving incidental disturbance during pipeline maintenance activities will be reseeded as soon as practical.
The Operator will power-wash construction equipment prior to entry into the project area.
The Operator will monitor growth of invasive species resulting from surface disturbance caused by project activities and will control weeds by the application of commercial herbicides in accordance with its approved Pesticide Use Proposal.
The Operator will monitor reclamation progress semi-annually and provide the BLM with an annual report detailing reclamation status.
Visual Resources
The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM. The fence surrounding the booster station would also be painted a dark neutral color and lath installed along the entire fence line in a color compatible with the natural surroundings to discourage a view of the facilities. If visible from Blue Hills Road, the stainless steel flare stack and distillation column would be painted an earth tone color.
Lighting at the booster station and gas processing plant would be kept to the minimum needed for safe operations. All lighting would be downcast. The booster station would not require night lighting unless needed during maintenance. The light at the gate of the booster station would be motion activated.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
The Operator would consult with the BLM to determine sign height necessary for safety and visibility in the Big Flat area.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.
Wildlife

Project Design Features
The Operator will avoid construction operations in migration corridors during times of bighorn migration. Pipeline construction operations are allowed in migration corridors from June 16 through October 14 and from December 16 through March 31.
The Operator has conducted wildlife surveys for kit fox, prairie dogs, and raptors (including burrowing owls) during the summer of 2013. These surveys identified one active raptor nest and delineated areas of moderate to higher potential for burrowing owl habitat. As a result, the Operator will adhere to the following procedures: 1. If pipeline construction activities occur from February 1 through August 31, an approved biological contractor will determine the status of the one nest active in 2013. If active, spatial and seasonal buffers will be applied until the nest is fledged. 2. A raptor and kit fox survey will be conducted 1 week ahead of construction activities as construction proceeds along the ROW until May 15. After May 15 surveys are still required but are no longer required directly in advance of construction and may proceed across the remainder of the pipeline route. Surveys for raptors and kit fox will be conducted as follows: a. Within the construction corridor for the ROW along Dubinky Road and SH 313: • Active raptor nests • Active burrowing owl nests • Active natal kit fox dens b. Within the construction corridor for the ROW that is not adjacent to Dubinky Road and SH 313: • Active raptor nests within 0.5 mile • Active burrowing owl nests within 0.25 mile • Active kit fox dens within 200 meters 3. Monitor known active raptor nests or kit fox natal dens that may be impacted by construction activities to determine success. 4. Report to the BLM biologist weekly and upon the determination of a new active raptor nest or kit fox den. 5. Spatial and seasonal buffers pertaining to active raptor nests and natal kit fox dens may apply as determined by the Moab BLM. 6. Construction activities that may result in direct loss of active raptors nests and natal kit fox dens will not occur until post fledging (7-21 days depending on species) and/or den inactivity has been documented. 7. If construction of the gas plant commences after March 1, breeding season raptor surveys will be conducted prior to construction.

2.3 Alternative B – No Action

Under the No Action Alternative, the proposed amendment to ROW UTU-67385 would not be granted. The proposed changes to the ROW route would not be approved. Construction of a12-inch natural gas pipeline would not take place. Exploration for and production of the Operator's leased minerals would likely continue, consistent with its valid existing rights; therefore, under Alternative B oil and gas operations would continue as they currently are conducted.

2.4 Alternative C – Burying the Pipeline along the Entire Length of the Proposed Route

Alternative C was developed to address the following concerns identified during scoping:

- An aboveground pipeline would result in adverse visual impacts.
- An aboveground pipeline would interfere with recreational use of the area.

Under this alternative, the 12-inch natural gas pipeline would be buried to follow the route as proposed in Alternative A. The locations of the staging areas, the booster station, and the gas processing plant would remain the same as Alternative A. The booster station would be located in the northeast quarter of Section 6, T25S-R19E. The gas plant would be constructed in Sections 20 and 29, T23S-R19E, northeast of Blue Hills Road. Regulatory authorities listed in Table 1-2 would remain the same. The project design features listed in Table 2-6 would remain the same.

This alternative differs from Alternative A according to the area needed for construction operations and time required for construction. Because the pipeline would be buried for the entire length of the route, the temporary use areas needed for the construction corridor would be increased from Alternative A to accommodate the equipment needed for trenching operations. The construction corridor for a buried pipeline would increase to 100-125 feet in areas of exposed or near-surface bedrock to provide a safe work zone. Alternative C assumes that 50 percent of the new route, approximately 12 miles or 63,256 feet, would travel over near-surface or exposed bedrock, requiring a temporary construction corridor of 125 feet. The remainder of the pipeline route would require a construction width of 75 feet. Alternative C also assumes that both state and federal surface would be equally affected by the need for the greater construction width.

Long-term disturbance for Alternative C corresponds to the area that would not be reclaimed after pipeline construction, including the booster location, gas processing plant location, and the area that would be used by seven pipeline tie-in risers. The two bladed Class D roads that would be used to access two staging areas were conservatively assumed to be long-term disturbance in addition to the upgraded Class D road that would be used to access the gas processing plant. Residual disturbance from pipeline installation along the pipeline route was assumed to be negligible after initial reclamation operations reestablish desirable vegetation because functional use of the pipeline route would be restored. A summary of the surface disturbance for Alternative C is provided in Table 2-7.

Table 2-7: Alternative C - Surface Disturbance Summary

Facility/Surface Use Area	Construction Disturbance (acres)	Reclamation (acres)	Long-term Disturbance (acres)
Pipeline Construction Corridor	290.4	290.4	0[1]
Boring Areas (2)	1.9	1.9	0
Staging Areas	7.5	7.5	0
Class D Road Blading (temporary access to 2 staging areas)	1.0	0	1.0
Class D Road Upgrade (Blue Hills Road to gas processing plant)	2.4	0	2.4
Booster Station	3.0	0	3.0
Gas Processing Plant	10.0	0	10.0
Total	316.2	299.8	16.4

[1] Pipeline tie-in risers within ROW cover <0.01 acre.

Surface disturbance on state-owned lands would result from the pipeline construction corridor only. The gas processing plant, booster station, staging areas, Class D road blading would take place on federal surface. Of the 316.2 acres of initial surface disturbance, 296.0 acres would take place on federal lands. The surface disturbance by surface ownership is provided in Table 2-8.

Table 2-8: Alternative C – Surface Disturbance by Surface Ownership (acres)

Surface Owner	Pipeline Construction Disturbance	Other Construction Disturbance	Total Construction Disturbance	Reclamation	Long-term Disturbance
Federal	270.2	25.8	296.0	279.6	16.4
State of Utah	20.2	0	20.2	20.2	0
Total	290.4	25.8	316.2	299.8	16.4

The time required to construct a buried pipeline along the proposed route was estimated to be 200 days (WBI, 2013).

2.5 Alternatives Considered, but Eliminated from Further Analysis

2.5.1 Natural Gas Injection

In response to concerns expressed by the public during scoping about effects to visual resources, recreation, soils, vegetation, and wildlife habitat, the BLM evaluated the possibility of reinjecting produced natural gas for reservoir enhancement. Reservoir enhancement may increase production if the reservoir pressure is low enough and formation permeability and porosity is adequate to accept injected gas. Reservoir enhancement through gas reinjection requires a suitable candidate well for reinjection, a constant volume of gas to maintain a functional reservoir enhancement, and a minimum rate of delivery for injection equipment to function properly.

A candidate well determined to be uneconomic because of declining oil production volumes would require testing to determine whether it could accept injected natural gas under pressures within the fracture propagation gradient. Testing operations using the temporary pipelines would provide information regarding well bore integrity, injection rates, and, possibly, reservoir storage capacity**.** The Operator would need to install temporary pipelines from a source well to the possible injection well. The results of the test may determine whether a particular well is suitable for injection; however, a test would not provide a definitive quantification of reservoir capacity and would not confirm that a sufficient sustainable volume of gas would be produced from the connected wells to operate the system. Initial natural gas production volumes have typically declined after a few years, and some wells produce no gas. A sustainable supply of natural gas necessary for functional equipment operation cannot be assured.

If testing were to yield positive results, permanent pipelines would be installed. Depending on the location of the injection well, a pipeline system 8 to 12 miles long would be needed to connect the existing wells to an injection well. A central battery, including a compressor, dehydrator, and a filter, would need to be constructed at the injection well. Compression may also be needed at each well that would produce natural gas into the delivery system. Without available electricity, the compression equipment would operate on natural gas; however, compressors cannot function on an irregular supply of gas. To avoid outages resulting from an inconsistent gas supply, the injection compressor would need to be designed for a limited range of injection pressures within the fracture propagation gradient. Maintaining the needed subsurface pressures would be difficult with a limited capacity compressor dependent upon an inconsistent gas supply.

Oil and gas are being produced as federal and State of Utah minerals. Before such a system could operate, legal/regulatory issues would need resolution because mixed ownership of minerals.

For the following reasons, the BLM decided to eliminate this alternative from further analysis:

- Candidates for injection wells are limited and may not be suitable;
- Gas production rates from the existing wells have been uncertain;
- Ability to maintain consistent injection pressures within the fracture gradient is uncertain;
- Two pipeline construction time frames may result, one for temporary pipelines and one for permanent pipelines;
- If the capacity of the reservoir is met, produced natural gas would need to be flared;
- Acquiring regulatory approval to operate a test system, resolving the issues of mixed mineral ownership, securing approval for and constructing a permanent system would likely require years to accomplish.
- Compressor emissions at each producing well pad and at the injection site would result in air quality impacts;

- Ambient noise levels would increase as a result of compressor noise;
- Surface disturbance and the resulting impacts to vegetation, soils, and wildlife habitat would be qualitatively the same as that of the Proposed Action; and
- The BLM's purpose and need would not be met.

2.5.2 Natural Gas Injection for Storage and Future Use

The BLM evaluated whether natural gas could be reinjected into another formation in an existing well for storage and future use. The pipeline infrastructure needed to deliver the gas to the injection well would result in impacts similar to the impacts described in Section 2.5.1, except that the need for a temporary testing pipeline may not be necessary.

Locally only one other formation has characteristics suitable to receive and store gas. A drill stem test was performed on an existing well that yielded a fluid sample that consisted of water, oil, and natural gas. An analysis determined that the gas consisted of carbon dioxide (CO_2) and nitrogen (N_2). Gas samples taken from wells in the Big Flat area consisted of greater than 70 percent N_2 and 2 to 3 percent CO_2 (Morgan, 1994). Diluting natural gas with inert gases would effectively preclude use of the natural gas as fuel in the future. Therefore, this alternative would not meet the purpose and need for the Proposed Action and was not analyzed further.

2.5.3 Natural Gas Incineration at the Well Pad

In response to concerns expressed by the public during scoping about effects to visual resources, impaired recreational use of the Special Recreation Management Area (SRMA), and impacts to soils, vegetation, and wildlife habitat, the BLM evaluated the possibility of using incinerators to dispose of the natural gas. Using an incinerator at each well pad would avoid the impacts to soils, vegetation, wildlife habitat, and recreational use of the area that would otherwise result from pipeline installation. Observable flares, which are commonly seen at night by nearby observers as well as from viewers at distant viewpoints, would be eliminated.

An incinerator consists of a stainless steel stack, carbon steel body, piping, valves, regulators, tubing and burners. The approximate height of an installed incinerator would be 24 feet. Guy wires would be installed to protect each unit's stack from excessive wind loads. An incinerator would be installed with equipment to ensure safe operation when field personnel would not be present at the site. Safety equipment typically includes: an adjustable back pressure regulator installed on a natural gas line to relieve unwanted pressure due to temporary system upsets and to ensure that the natural gas is combusted and not vented; an emergency shut-down device to stop operation in the event of an emergency; a flame arrester to prevent its propagation; and flame failure ignition systems that provide alarm capabilities and continuous relight features. Incinerator combustion efficiency is 99.9 percent, and its use would result in no smoke, no odor, and no visible flame during normal operations. Incineration byproducts consist of carbon dioxide and water.

Installing 24-foot tall steel incinerators at each well pad would result in impacts to visual resources that would not be consistent with the Visual Resource Management (VRM) II management objective adjacent to the SH 313 Scenic Byway and the Big Flat area. The objective of VRM II management includes retention of the existing character of the landscape. The level of change to the characteristic landscape should be low. Steel incinerators cannot be camouflaged with paint and would stand taller than any pinyon-juniper trees that may be present in the vicinity of the well pad. Although the installation of the incinerators would prevent impacts to other resources, it would result in changes to the viewshed that are inconsistent with VRM II management.

The BLM concluded despite avoiding the surface disturbance that would result from pipeline construction, the viewshed would be unacceptably altered by the installation of incinerators. In addition, incinerating produced natural gas would not conserve the resource. Therefore, this alternative would not meet the purpose and need for the action and was not analyzed further.

2.5.4 Utilizing the Existing ROW Route

2.5.4.1 Burying the Pipeline within the Existing ROW Route

In response to concerns expressed by the public during scoping about effects to public safety, visual resources, impaired recreational use of the SRMA, and impacts to soils, vegetation, and wildlife habitat, the BLM evaluated the possibility of constructing the natural gas pipeline along the existing ROW route. The locations of the staging areas and the gas processing plant northeast of Blue Hills Road were assumed to be the same as in Alternatives A and C. Regulatory authorities listed in Table 1-2 would remain the same. The project design features listed in Table 2-6 would remain with the exception of the commitment to maintaining through access on the Dubinky Well Road and SH 313 during pipeline construction.

Burying the pipeline within the existing ROW route differs from Alternative A because the existing ROW route would be longer, would have a greater construction area, would result in greater surface disturbance, and would require a longer construction period. Due to the buried nature of this alternative, it is similar to Alternative C except for the length of the route and the proximity to the scenic corridor for SH 313 and 3 developed BLM campgrounds.

Half of the existing ROW route would consist of 50 percent near-surface or exposed bedrock, requiring a construction corridor of 125 feet, and the remaining 50 percent of the route would require a construction corridor of 75 feet. The 26.9 mile length of the pipeline route, approximately 2.9 miles longer than the route in Alternatives A or C, would require two booster stations to compensate for the greater overall length. ROW UTU-67385 allows for the installation of one booster station in Section 27, T 25 S, R 19 E, and another station in Section 36, T 24 S, R 18 E. An estimated 225 days would be needed to construct an underground pipeline for the entire length of the route along ROW UTU-67385.

Table 2-9 summarizes the amount of surface disturbance that would result from implementation of utilizing the existing ROW route. This table also displays a comparison of surface disturbance from this alternative to Alternatives A and C. The amount of surface disturbance that would result from this alternative is 38.8 acres greater than that for Alternative C. Alternative A would require 120 days for construction and Alternative C would require 200 days. Construction along the existing ROW route would require 25 days more than what is estimated for Alternative C.

Table 2-9: Utilizing the Existing ROW Route (buried) - Surface Disturbance Summary

Facility/Surface Use Area	**Construction Disturbance (acres)**	**Reclamation (acres)**	**Long-term Disturbance (acres)**
Pipeline Construction Corridor	325.6	325.6	0
Road Boring Areas (2)	1.9	1.9	0
Staging Areas	7.5	7.5	0
Class D Road Blading (temporary access to 2 staging areas)	1.0	0	1.0
Class D Road Upgrade (Blue Hills Road to gas processing plant)	2.4	0	2.4
Two Booster Stations	6.0	0	6.0
Gas Processing Plant	10.0	0	10.0
Total – Utilizing Existing ROW	**354.4**	**335.0**	**19.4**
Comparison to Alternative A - Additional Acres	167.6	164.6	3.0
Comparison to Alternative C - Additional Acres	38.8	35.2	3.0

A quantitative comparison of utilizing the existing ROW route to Alternatives A and C suggests that this alternative may not differ greatly from Alternative C. The BLM then performed a qualitative analysis of the distinguishing characteristics between this alternative and Alternative C to further evaluate possible distinctions.

The route of the existing ROW travels parallel and immediately adjacent to SH 313 between the ISKY Road and the Dubinky Well Road within the highway ROW (See Map 1). The route of Alternatives A and C departs from the SH 313 near the ISKY intersection to travel farther away from the highway before traveling along designated and existing routes to intersect with Spring Canyon Bottom Road (See Map 2). The route of the existing ROW travels close to large bedrock exposures near Horsethief Campground and the SH 313-Dubinky Well Road intersection. As a result, utilizing the existing ROW route would prevent public access because of blasting along SH 313 and the Dubinky Well Road in these locations. Temporary road closures may result because the existing ROW is located in areas that would be avoided by Alternative C.

Cowboy Camp and Lone Mesa Campgrounds would likely be temporarily closed while construction operations take place near these sites as a result of utilizing the existing ROW route. Temporary impacts from construction operations to these campgrounds would occur over a longer period of time than would occur under Alternatives A and C. Access to Cowboy Camp Campground would need to be re-routed after construction is complete because the access road would be removed from blasting through the bedrock adjacent to SH 313. The camp site nearest to the highway would be lost due to blasting. Lone Mesa Campground would be similarly affected from construction along the existing ROW route, which follows the Dubinky Well Road on the east side. The mesa upon which the campground sits is situated very near the Dubinky Well Road. Blasting and grading would likely remove part of the mesa. The Bartlett Flat dispersed camping sites would be closed. Impacts to the dispersed camping sites at Bartlett Flat under this alternative would be identical to the impacts to these camping sites under Alternatives A and C.

The additional booster station required by utilizing the existing ROW route would be located in Section 27, T25S, R19E, would be constructed adjacent to the SH 313 Scenic Byway adjacent to a producing well. The installation of additional facilities at this well pad would create an additional noticeable visual interruption of the observable natural landscape from the highway and would contribute to a possible overall perception of industrialization within the scenic corridor. Noise from the day and night operation of the compressors at this location would likely be audible to campers at Horsethief and, possibly, Cowboy Camp Campgrounds. The noise may be perceived by some campers as sufficiently annoying as to cause them to use other campgrounds. Noise impacts from the second booster station in Section 36, T24S, R 18 E may possibly be heard at dispersed camp sites only, depending on proximity to the station.

The topography along SH 313 Scenic Byway between the Dubinky Well Road and the Knoll would be graded and stripped of vegetation to provide a smooth working surface along this segment of SH 313. Soils would be temporarily stockpiled and restored during reclamation, but greater amounts of biological soil crusts (up to 38.8 acres) would be destroyed under this alternative. The vegetation present along this segment of SH 313 consists of pinyon-juniper trees interspersed with grassland meadows. Pinyon junipers would be replaced by grasses and later shrubs along the smoothed surface. If bedrock needed to be ripped or blasted, the ground surface would be scarred with obvious cut-and-fills. The pipeline route would appear unnatural and not consistent with the VRM II objective for a long period of time.

The BLM concluded that impacts to the affected campgrounds and to visual, vegetation, and soil resources along the SH 313 Scenic Byway would be disproportionately increased from the impacts that would result from Alternative C. For these reasons, the BLM decided the route analyzed as Alternative C was preferable to the existing ROW route and full analysis of utilizing the existing ROW route was eliminated from further consideration.

2.5.4.2 Surface Laying the Pipeline within the Existing ROW Route

As referred to in Section 1.2, the BLM considered utilizing the existing ROW route. A buried route within the existing ROW route was considered in Section 2.5.4.1. This section clarifies why the BLM did not consider a surface laid pipeline along the existing ROW route.

The existing ROW route follows along State Highway 313, a Utah Scenic Byway, crossing the entrances to 3 developed BLM campgrounds (Cowboy Camp, Horsethief, and Lone Mesa). This route would have placed the pipeline outside the disturbed area of Highway 313, but still within sight of Highway 313. Constructing a pipeline outside the disturbed area of Highway 313 would result in new disturbance to soils, vegetation and wildlife habitat, while being clearly in the line of sight from Highway 313. Also, the existing ROW route would disturb more soils, vegetation and wildlife habitat than the proposed route, because it is about 3 miles longer. In comparison, Alternatives A and C generally utilize previous linear disturbances such as designated routes,-non-designated routes, and old seismograph lines whereas utilizing the existing ROW route would create new surface disturbances adjacent to Highway 313.

Using the existing ROW route would have deleterious impacts to the visual resources along Utah Highway 313, a heavily travelled State Scenic Byway. The surface impacts associated with constructing a surface pipeline adjacent to Highway 313 would create a visual scar clearly visible to the visitors travelling along this Scenic Byway. In addition, the visual resource impacts from using the existing ROW route are not in conformance with the visual objectives of the 2008 RMP nor with the management of a Scenic Byway. The existing ROW route would impact the visual resources enjoyed by about 659,920 people (2011 and 2012 data) while travelling that road to Utah's premier State Park (Dead Horse Point) as well as to Canyonlands National Park. By choosing to move the pipeline route to the west of the highway (Alternatives A and C) along existing linear disturbances, the visual resources along Highway 313 would be protected.

Surface laying the pipeline within the exiting ROW route was eliminated because of unacceptable impacts to visual resources and unnecessary impacts to BLM developed campgrounds. Furthermore, utilizing this route would result in greater impacts to soils, vegetation, and wildlife habitat than the route for Alternatives A and C.

2.5.5 Burying the Pipeline beneath Unpaved Dubinky Well Road

In response to concerns expressed by the public during scoping about effects to public safety, visual resources, impaired recreational use of the SRMA, and impacts to soils, vegetation, and wildlife habitat, the BLM considered the possibility of constructing a buried pipeline along the existing ROW route until reaching Dubinky Well Road, then installing it parallel to the existing ROW route along Dubinky Well Road but beneath the road surface. Dubinky Well Road would be temporarily closed in areas where construction is taking place. The Dubinky Well road surface would be reclaimed after pipeline installation; i.e., the running surface would be restored to existing conditions consistent with its status as a Class B road.

To investigate the feasibility of burying the pipeline beneath the surface of Dubinky Well Road, the BLM conducted a site visit in October 2012 that included staff from the State of Utah Department of Transportation and Grand County Road Department. At that time the state and county agencies agreed to defer to the BLM as the surface owner for the road; however, Grand County, in particular expressed concern that installing a pipeline beneath the road surface would possibly result in maintenance problems over time, could also present safety concerns if maintenance operations required excavation, and would result in periodic road closures that would prevent public access for temporary but undetermined lengths of time. For these reasons, the BLM decided not to fully analyze this alternative.

2.6 Summary Comparison of Alternatives

Table 2-10 displays a quantitative comparison of the differing amounts of surface disturbance that would result from each of the alternatives. Surface disturbance that would result from constructing the pipeline would be greater under Alternative C than under Alternative A because of the greater construction width that would be needed to install the pipeline below the ground. The proposed pipeline would not be installed under Alternative B.

Table 2-11 summarizes qualitative differences among the alternatives. Qualitative differences arise from the quantitative differences shown in Table 2-10 and different construction time frames. Constructing a buried pipeline (Alternative C) would require approximately 200 days whereas installing the pipeline mostly on the surface (Alternative A) would require approximately 120 days. Qualitative and quantitative details of the impacts to environmental resources under each alternative are discussed in Chapter 4.

Table 2-10: Comparison of Disturbance among the Alternatives (acres)

Facility	Alternative A Proposed Action			Alternative B No Action			Alternative C		
	Short-term disturbance	Reclamation	Long-term disturbance	Short-term disturbance	Reclamation	Long-term disturbance	Short-term disturbance	Reclamation	Long-term disturbance
Pipeline (includes road boring areas, staging areas	170.4	170.4	0	0	0	0	299.8	299.8	0
Roads (upgrade)	3.4	0	3.4	0	0	0	3.4	0	3.4
Booster Station and Gas Processing Plant	13.0	0	13.0	0	0	0	13.0	0	13.0
Total	186.8	170.4	16.4	0	0	0	316.2	299.8	16.4

Table 2-11: Summary Comparison of the Alternatives

Resource	Alternative A	Alternative B	Alternative C
Air Quality	Emissions of pollutants and GHGs would be reduced by the delivery of natural gas to market via a pipeline rather than destruction with flares. Temporary PM emissions would result from construction. Long-term emissions would result from the operation of the booster station and gas processing plant.	Natural gas would be combusted at each well site with flares.	Emissions of pollutants and GHGs would be reduced by the delivery of natural gas to market via a pipeline rather than destruction with flares. Temporary PM emissions would result from construction for a longer time than Alternative A because construction would require more time to bury the pipeline along the entire length. Long-term emissions would result from the operation of the booster station and gas processing plant.

Resource	Alternative A	Alternative B	Alternative C
Cultural Resources and Native American Religious Concerns	Impacts to eligible cultural resource sites would be mitigated with implementation of a plan for data recovery.	No impacts to cultural resources.	Impacts to eligible cultural resource sites would be mitigated with implementation of a plan for data recovery.
Floodplains	Floodplains would be crossed by a spanned or buried pipeline.	No impacts to floodplains.	Floodplains would be crossed by a buried pipeline.
Recreation	Pipeline would be constructed aboveground near Cowboy Camp and Horsethief Campgrounds. Bartlett Flat undeveloped sites would be closed.	Bartlett Flat undeveloped camp sites would remain open.	Pipeline would be constructed belowground near Cowboy Camp and Horsethief Campgrounds, requiring more time than under Alternative A. Bartlett Flat undeveloped sites would be closed.
Socioeconomics	Payments would be made to the federal, state, and local governments according of the volume of natural gas produced and transported out of the project area. Revenues would be distributed to state and local agencies. Temporary revenues would accrue to local businesses during construction operations. Grand County would receive property taxes based on the centrally assessed pipeline infrastructure. Payments and revenues for Alternatives A and C would be equivalent.	No payments would be made to the federal, state, and local governments, and no distributions would be allocated to state and local agencies. Temporary revenues would not accrue to local businesses during construction operations.	Payments would be made to the federal, state, and local governments according of the volume of natural gas produced and transported out of the project area. Revenues would be distributed to state and local agencies. Grand County would receive property taxes based on the centrally assessed pipeline infrastructure. Temporary revenues would accrue to local businesses during construction operations. Payments and revenues for Alternatives A and C would be equivalent.
Soils	Temporary impacts to soils would occur. Excavation to place the pipeline belowground would be limited to Big Flat, near Blue Hills Road, and at road and trail crossings.	No impacts to soils.	Temporary impacts to soils would occur. The construction corridor would be wider than under Alternative A, and a greater amount of soils would be disturbed. Excavation would occur along the entire pipeline route.
Vegetation	Construction operations would result in the removal of desert shrubs and grasses where the pipeline would be buried.	No impacts to vegetation.	Construction operations would result in the removal of grasses, trees, and desert shrubs using a wider construction corridor than Alternative A for the entire length of the pipeline route.

Visual Resources	Pipeline would be visible on the surface in some areas but would not be seen along the Scenic Byway. Cut-and-fills would not be necessary since the pipeline would be installed primarily on the surface. A flare at the gas processing plant or at well locations may temporarily be visible during upset conditions or maintenance operations.	No impacts to visual resources. Flares at well locations would remain in operation and would be visible from nearby campgrounds and also at a distance.	Although the pipeline itself would not be visible, the trench scars from pipeline construction would result in long-term visual impacts. A flare at the gas processing plant or at well locations may temporarily be visible during upset conditions or maintenance operations.
Wildlife	Temporary impacts to all species of wildlife would result from construction operations. Habitat loss would be minimized by installing the pipeline primarily aboveground.	No impacts to wildlife.	Temporary impacts to all species of wildlife would result from construction operations. Habitat loss would be greater than Alternative A because of the need to blade, grade, and trench.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

Chapter 3 describes the aspects of the human environment that may be affected by the construction and operation of the proposed pipeline, booster station, and gas plant or by the alternatives to the Proposed Action. Resources and resource values analyzed in this EA were identified as issues during the scoping process. The Council on Environmental Quality regulations discuss "human environment" (40 CFR 1508.14) as broadly relating to biological, physical, social, and economic elements of the environment.

Resources potentially affected by the alternatives include the following: air quality; cultural resources; floodplains; Native American religious concerns; recreation; soils; socioeconomics; vegetation; visual resources; and wildlife, including migratory birds and BLM sensitive wildlife species.

The project area, as used in this EA, refers to the construction corridor along the pipeline route and the site-specific locations of the booster station and gas processing plant that would be affected by the Proposed Action and its alternatives.

3.2 General Setting

The project area is located in the east-central part of the Colorado Plateau physiographic province, in a transitional zone between the Inner Canyonlands physiographic region of the greater Colorado Plateau and the Green River Desert.

Although the ecology of the region is dominated by the Colorado and Green Rivers and their tributary canyons, the project area is situated on a high plateau and is dramatically isolated from these rivers by cliffs that extend to the rivers approximately 2,000 feet below. Tributary canyons display bottoms with elevations ranging from tens of feet lower in their upper reaches to several hundreds of feet lower as they approach the rivers. Ephemeral drainages along the pipeline route trend generally westward toward the Green River. Most of the project area is covered by shallow deposits of colluvium and residuum. The pipeline route crosses low-gradient, expansive, generally treeless grasslands known as Big Flat and Bartlett Flat, alternating with rolling topography populated with pinyon-juniper trees and/or desert shrub vegetation. The topography along the pipeline route is characterized by gently rolling low gradient hills with slopes typically ranging between 2 to 4 percent. The elevations of the pipeline route range from approximately 4,570 feet above sea level in the north near the gas processing plant location to 6,000 feet in the south near the CCU 19-1 well location. From its southern terminus near DHPSP, the pipeline route travels northward through Big Flat. Outcrops near Big Flat consist of Jurassic Entrada and Navajo sandstone bedrock. The Knoll, a prominent bedrock exposure of Navajo Sandstone, is located to the north of the pipeline route in Big Flat. After leaving Big Flat, the pipeline route travels through rolling terrain consisting of sand dunes and slick rock exposures that generally descend to Bartlett Flat. The Entrada Formation is visible as large mesas and outcrops along Dubinky Well Road. North of Bartlett Flat, the pipeline route continues over the Morrison Formation-formed Blue Hills to reach the location of the proposed gas processing plant on the Mancos Shale- surface of treeless Klondike Flat. Big Flat and Bartlett Flat are bordered on their perimeters with pinyon-juniper woodlands that characterize the vegetation near canyon rims.

The primary land use in the project area consists of intense but seasonal recreational use, including scenic driving, camping, mountain and road biking, off-highway vehicle (OHV) use, and hiking; however, the area has also been historically used for grazing and hydrocarbon production. The pipeline route passes near Dubinky Well and Windmill, which was constructed in 1937 to support ranching operations in the vicinity. The Long Canyon field, adjacent to the project area, was discovered in 1962 (Huffman, 1996). Since the discovery well, oil has been produced from wells drilled to the Cane Creek Shale of the Paradox Formation at depths of 7,000 feet or more below the surface (Chidsey, 2007). Potash prospecting permits have been applied for near the pipeline route.

3.3 Resources Brought Forward for Analysis

3.3.1 Air Quality

Climate. Air quality of any particular area is controlled primarily by regional climate, regional and local topography, and the magnitude and distribution of pollutant emissions within the area. The climate of the project area is characteristic of a semi-arid continental steppe environment, exhibiting low relative humidity, high evaporation potential, cold winters, and hot summers. Most precipitation falls as rain in late summer thunderstorms. Grand County is experiencing an extreme drought according to the National Drought Mitigation Center (NDMC, 2013).

Table 3-1: Canyonlands Airport Climate Data

Climate Component	Typical Value
Temperature	Average maximum: 70.3°F Average minimum: 39.6 °F
Precipitation	Average annual rainfall: 8.8”
Wind	Average wind speed: 5.9 mph, from the west; during July and August, from the southeast

Source: NWS, 2013

Air Quality. The Clean Air Act of 1970 in Utah is administered by the Utah Division of Air Quality (UDAQ) under the authority of the Utah Department of Environmental Quality. The State of Utah adopted the National Ambient Air Quality Standards (NAAQS) as the state standards, which set the absolute upper limits for criteria air pollutant concentrations. The purpose of these standards is to allow an adequate margin of safety for the protection of public health and welfare from adverse effects resulting from pollutants in the ambient air. Criteria pollutants include particulate matter of 10 or 2.5 microns (µm) in aerodynamic diameter or less (PM_{10} or $PM_{2.5}$), nitrogen dioxide, sulfur dioxide (SO_2), carbon monoxide (CO), and ozone. Ambient air quality in a given location is characterized by comparing the concentration of criteria pollutants in the atmosphere to the NAAQS. Volatile organic compounds (VOCs) are not regulated as criteria pollutants; however, as precursors to ozone, they are regulated.

Emissions of criteria pollutants and 189 specific hazardous air pollutants (HAPs) are regulated with permits. HAPs commonly emitted from oil and gas wells include benzene, toluene, ethylbenzene, and xylenes (BTEX). Permits apply to emissions sources that are being constructed or operating above a specified threshold. Petroleum and natural gas systems that emit above a specified threshold of aggregated greenhouse gas (GHG) emissions from all sources are required to submit annual reports to the U.S. Environmental Protection Agency (EPA). The reporting requirement for GHGs is intended track emissions from large sources and suppliers. Emissions of these gases are reported as carbon dioxide-equivalent (CO_{2e}) emissions.

Areas where criteria pollutants are measured below the NAAQS are called "attainment" areas. Prevention of Significant Deterioration (PSD) regulations apply limits on emissions of pollutants from new major stationary sources in attainment areas. All areas in Utah that meet the NAAQS are designated as either Class I or Class II areas. National parks (NP) are categorized as PSD Class I areas, where only a small increase in pollution levels would be allowed. Class II areas are other areas where some additional incremental pollution growth could occur. The nearest Class I areas to the project area are Arches NP (approximately eight miles to the east) and ISKY (approximately 2.5 miles to the south). Grand County is a PSD Class II area (UDAQ, 2013). The State of Utah does not operate air quality monitoring stations in Grand County (UDAQ, 2012).

Emissions in Grand County originate from on and off-road mobile sources, biogenic (living) sources, mineral processing facilities, and oil and gas facilities (Table 3-2). The 2008 State of Utah summary of emissions by sources in Grand County contains the most recent data available. Emissions data were quantified as tons of pollutant emitted per year (TPY). Approximately 71 percent of nitrogen oxides (NO_x) and 46 percent of PM_{10} in the county originated from on-road mobile sources (UDAQ, 2010). Area sources include *non-road mobile* and stationary sources too small or too numerous to be treated as individual point sources. Windborne dust, or PM_{10}, deposition in the western U.S. has been linked to the expansion of livestock grazing and vegetative destruction in the early 20th century, which created increased amounts of exposed soils. Although dust deposition rates started decreasing around the same time as the passage of the Taylor Grazing Act in 1934 (Neff et al., 2008), fugitive dust generation from grazing has persisted into the 21st century.

Table 3-2: 2008 Grand County Summary of Emissions by Source (TPY)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	Sulfur Oxides (SO_x)	VOC
Area Source	775.33	38.68	1,565.78	368.77	1.86	447.53
Non-road Mobile	3,252.74	446.91	45.96	42.24	29.11	1,001.03
On-road Mobile	7,336.19	2,661.94	1,497.78	221.51	3.73	557.85
Point Source	551.31	564.38	9.58	5.86	94.44	106.74
Biogenics	6,596.06	0	0	0	0	34,972.82
Wildfire	1,303.95	37.12	157.77	142.00	0	222.74
Total	19,815.58	3,749.03	3,276.87	780.37	129.14	37,308.71

Source: UDAQ, 2010

Air Quality Related Values (AQRVs) are resources applied to all PSD Class I and sensitive Class II areas that may be affected by changes in air quality. The AQRVs of Canyonlands and Arches NPs include visibility, dark night skies, vegetation, wildlife, and soils. Visibility is the most sensitive AQRV in the parks. Visibility is impaired by haze caused by tiny particles that scatter and absorb light. Sulfates, crustal materials, organic carbon, elemental carbon, and nitrates, in order of decreasing contributions, comprise particles that result in the formation of haze in the western U.S. (USFS, 2013). Sulfates and crustal materials are responsible for over 50 percent of the causes of visibility impairment. Sulfate particles are formed from sulfur dioxide gas released from coal-burning power plants and other industrial sources. Crustal materials are windborne dust particles from dirt roads and other open spaces. The EPA's Regional Haze regulations required states to establish goals for each Class I air quality area to improve visibility on the haziest days and ensure no degradation occurs on the clearest days. While an AQRV reflects a land management agency's policy and is not a legally enforceable standard, federal regulations such as the EPA's Regional Haze rule ensures the protection of some AQRVs.

Some aspects of air quality are monitored for Canyonlands and Arches NPs (Table 3-3). Long-term visibility monitoring in Canyonlands NP determined that on the clearest and haziest days, this park exhibited a statistically significant improving trend (National Park Service [NPS], 2010a). During the 20 percent clearest days at Canyonlands NP, or when visibility is very good, atmospheric sulfates were identified as the largest contributor to impaired visibility; however, during the 20 percent haziest days, or when visibility is impaired, coarse particulate matter is the largest contributor to haze (Perkins, 2010). Increasing ozone concentrations also correspond to decreasing visibility (Aneja et al., 2004). Monitored ozone concentrations in Canyonlands NP were assessed as "moderate," but trend data are not available. Between 1993 and 2008, ozone levels in Canyonlands NP have generally remained under, but close to, the standard. In 2012, one ozone exceedance was measured in May and one in June. The 4th highest maximum 8-hour measurement to-date in 2012 was 72 parts per billion (NPS, 2012). Visibility at Arches NP was assessed as moderate, showing no trend. Ozone levels are not monitored at Arches NP. The National Park Service Air Resources Division expects air quality in both parks to improve as regulations that reduce tailpipe emissions from motor vehicles and pollution from electric-generating facilities take full effect over the next few years (NPS, 2010). As reported in its 2011 State Implementation Plan, Utah determined that the 20 percent worst visibility days at the Class I areas were dominated by wildfires that temporarily overwhelmed all other emissions sources in the region. International dust storms also contribute to visibility impairment on the 20 percent worst visibility days. The state predicted that visibility will improve on the best days at Canyonlands and Arches NPs; moreover, state visibility impairment projections showed decreasing deciviews through year 2060, indicating greater visibility (UDAQ, 2012a).

Soils and vegetation in the parks may be sensitive to nutrient enrichment from deposition of atmospheric nitrates and sulfates, which contribute to soil and water acidification. Fertilizer use, motor vehicles, and agricultural activities produce ammonia, which contribute to nitrogen deposition. Ammonia can be emitted from light duty vehicles, depending on fuel types and operational condition. Ammonium results primarily from crop and livestock production (NPS, 2006a). Increased nitrogen loading levels from deposition of ammonium has been observed at Canyonlands NP (NPS, 2010a); however, surface waters and soils in Canyonlands and Arches NPs, with the exception of potholes, are generally well-buffered and are not likely to be acidified by atmospheric deposition (NPS, 2006).

Table 3-3: Air Quality and AQRV Trends in Nearby National Parks

National Park	Visibility	Nitrogen Deposition	Sulfur Deposition	Ozone
Arches NP	Moderate condition, no trend.	No data.	No data.	No data.
Canyonlands NP	Moderate condition, no trend.	Good; no trend.	Good; no trend.	Moderate condition, no trend.

Source: NPS, 2010a

Tropospheric ozone, CO_2, methane, nitrous oxide, and naturally occurring water vapor are common GHGs. GHGs are relatively homogenous throughout the atmosphere, migrating around the globe via wind transport and convective mixing**.** GHGs concentrations in the atmosphere have varied widely during the earth's history and have likely resulted in variations in climatic conditions over time. Rising world temperatures are believed to be caused by additional heat being trapped by GHGs in the atmosphere, which trap upward-directed terrestrial radiation and may produce changes in precipitation patterns, storm severity, and sea levels from melting snow and ice. Industrialization and burning of fossil fuels have caused the concentration of CO_2 to increase within the last 250 years and are believed to have contributed to more immediate climate changes. Emissions of CO_2 represented 81 percent of total U.S. anthropogenic GHG emissions in 2008 (EIA, 2012). Total U.S. GHG emissions decreased by 1.6 percent from 2010 to 2011. The decrease likely resulted from reduced emissions from electricity generation, improvements in fuel efficiency in vehicles with reductions in miles traveled, and year-to-year changes in the prevailing weather (EPA, 2013). GHG emissions in 2011 were 6.9 percent below

2005 levels. The national CO_2 projection for 2013 generally falls below emissions for 2012 and remains more than 5 percent below the 2005 CO_2 level throughout a forecast horizon that extends to 2040. This projection is based upon a reduced economic growth outlook, increased use of natural gas, lower consumption of conventional fuels, and tighter regulatory emissions standards (EIA, 2012a).

3.3.2 Cultural Resources and Native American Religious Concerns

3.3.2.1 Cultural Resources

Human habitation in southeastern Utah began approximately 10,000 B.C. when the first inhabitants of the area may have hunted mammoth and other now-extinct animals along the bottomlands of the Colorado and Green rivers. The hunter-gathers supplanted foraging with agriculture sometime between A.D. 1 and 700. After this time, people became increasingly dependent upon crops. The Big Flat/Bartlett Flat area was utilized by the Fremont and Anasazi, pottery makers who constructed pit houses and masonry surface rooms for habitation, until approximately A.D. 1300 when they abandoned southeastern Utah, possibly because of prolonged drought. The project area is within the approximate northern known extent of the Anasazi culture, overlapping the southern extent of the Fremont culture. As the Fremont and Anasazi were abandoning the area, the hunter-gatherer ancestors of the Ute and Southern Paiute moved in and lived in small brush structures. Navajos were present in the area by A.D. 1400, living in hogans. Native Americans lived a pedestrian lifestyle until they acquired horses following Euro-American contact.

The Old Spanish Trail generally followed routes made by Ute and Spanish traders, who traveled through the Moab area in the late 1600s. The Old Spanish Trail was successfully opened in 1829 linking Santa Fe and Los Angeles. It was used by explorers, trappers, prospectors, immigrants, and military expeditions. This trail was designated a National Historic Trail by Congress in 2002. The purpose of designating a National Historic Trail is the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment (NPS, 2009). To qualify for designation as a National Historic Trail, a trail must meet all of the following criteria:

- It must be a trail or route established by historic use and must be historically significant as a result of that use. The route need not currently exist as a discernible trail to qualify.
- It must be of national significance with respect to any of several broad facets of American history, such as trade and commerce, exploration, migration and settlement, or military campaigns.
- It must have significant potential for public recreational use or historical interest based on historic interpretation and appreciation.

Several branches of the known route of the Old Spanish Trail are located near the proposed gas processing plant. The location of the trail is approximate at this location since there is no in-period evidence of the trail. The Congressionally-designated segment of the trail generally follows Blue Hills Road and an overhead power line. This segment would be crossed by the pipeline, which would be buried and out of view in this area.

After 1848, other more wagon-friendly routes were opened. Early Euroamericans were trappers, traders, prospectors, ranchers, and herders who began to utilize the area in 1855. Mormon settlers entered the Moab Canyon area and Spanish Valley at that time but did not settle the area until the 1870s due to Ute hostility. Mineral prospectors settled in the area surrounding Moab between the 1880s and 1920s. In the 1930s, early uranium and vanadium exploratory mines were developed. The mining industry grew in the 1950s when the demand for these mineral resources was high. Tourism began to supplement the economy of Grand County with the creation of Arches National Monument in 1929 and DHPSP in 1959.

Before SH 313 was constructed, Dubinky Well Road, also referred to as the Old Dead Horse Road, was the only vehicle access road to DHPSP and ISKY. Dubinky Well Road is a route that may represent a historic road that evolved through necessity or tradition. As such, it may be eligible for designation as a historic road on the NRHP.

State Historic Preservation Office (SHPO) files were searched to identify the locations of previously identified archaeological sites occurring in or near the project area. Previous cultural resource inventories in the vicinity of the survey area identified prehistoric and historic cultural remains including prehistoric lithic scatters, quarries, historic trash scatters, and highway signs, among others (CRA, 2013; CRA, 2012).

Five Class III (pedestrian) cultural resource inventories for the pipeline route, staging areas, access routes, booster site, and gas processing plant source lines were performed at various times during 2008, 2009, 2012, and 2013 (CRA, 2013; CRA, 2012; Montgomery 2009; Montgomery 2008; Montgomery 2008a). A BLM archaeologist reviewed the documentation of the inventories for technical adequacy and compliance with BLM standards and determined them to be adequate. The area of potential effect (APE) varied according to the nature of the proposed disturbance. The pipeline route was inventoried as a linear survey with widths of 100 feet, 200 feet, and an expanded 200-foot width. Access roads were inventoried with a 100-foot wide linear APE. Staging areas, areas needed for boring beneath a road, the booster site, and the gas processing plant site were inventoried as block surveys. The APEs for each of these areas varied according to the spatial extent of the proposed disturbance. The inventory area for the gas processing plant included 40 acres centered on the 10-acre APE. The inventory area for the booster station included 10 acres centered on the 3-acre APE.

The Class III inventories identified prehistoric lithic scatters, campsites, and quarries in addition to four historic sites, including the Old Spanish Trail, Dubinky Well Road, and the Dubinky Spring site. Nine new sites and five previously identified sites were recorded and evaluated for inclusion in the NRHP. Twenty-one previously identified sites were also revisited and condition assessments were performed. Thirteen sites, including the Dubinky Well Road, were recommended eligible for inclusion on the NRHP. Avoidance was recommended for 12 new and previously identified sites that are eligible for inclusion in the NRHP and are within the APE of the pipeline. The Dubinky Well Road was not recommended for avoidance because modern disturbances are associated with this bladed and resurfaced road. The vast majority of the Dubinky Well Road no longer retains integrity of location, design, setting, materials, workmanship, feeling, or association and thereby does not contribute to the overall eligibility of this road for inclusion in the NRHP. Avoidance was recommended for the 12 sites that are eligible for inclusion in the NRHP and are within the APE of the pipeline (CRA, 2013).

3.3.2.2 Native American Religious Concerns

Some southeastern Utah topographic features, habitats of vegetation and wildlife that have had historic cultural uses, water features, and/or archaeological resources are considered sacred sites to Native American tribes who consider this area their ancestral homeland. Past consultations with these Indian tribes and ethnographic studies have determined that members from several of the Pueblo tribes, the Ute tribes, and the Navajo Nation still use the landscapes and resources on public lands in southeast Utah for their traditional ceremonies and life ways. These sites are rooted in Tribal history and important in maintaining the continuing cultural identities of those communities.

The BLM has issued policy and standards for consultation to ensure that Tribal issues are given adequate consideration during decision-making (BLM, 2004; BLM, 2004a). This guidance was emphasized by the Department of the Interior, which issued a recent policy statement to demonstrate a meaningful commitment to government-to-government consultation and create effective collaboration with Indian tribes (DOI, 2011). Procedural guidance was provided to field offices to facilitate compliance with agency obligations concerning Tribal consultation in 2012 (BLM, 2012a). This guidance is intended for use in the coordination of related obligations under NEPA, Section 106 of the National Historic Preservation Act (NHPA), and Tribal consultation. The most recent procedural guidance was used to perform Native American consultation on March 7, 2013, to support development of this EA.

3.3.3 Floodplains

Executive Order 11988 (1977) defines floodplains as “lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.”

The proposed pipeline route is located on an elevated upland area between the Colorado and Green Rivers. All drainages in the project area are ephemeral in nature, with water only flowing in response to precipitation or snowmelt events. Because the proposed pipeline route essentially follows the boundary of the headwaters of two watersheds, most of the drainages the pipeline would cross are small and not deeply incised.

Although average annual precipitation totals in the project area are relatively low (See Table 3-1), late summer or fall storms can produce large amounts of precipitation in a short period of time. Runoff from these storms produces flash floods several times a year, causing erosion and scouring of the channel and stream banks. Surface disturbance of floodplains can decrease bank stability, increase erosion, create channel scour, and decrease floodplain functionality on-site and down-drainage.

Several pipeline segments would be located adjacent to dry washes, or cross irregular topography with small drainages. Most washes in the project area range in size from 2 feet deep by 4 feet wide to 4 feet deep by 10 feet wide. There are 5 washes that are 4 to 5 feet deep with floodplains 40 feet wide. There are two washes with flooplains 50 to 100 feet wide, including Dubinky Wash in Section 36, T21S-R18E and Tenmile Wash in Section 25, T23S-R19E.

3.3.4 Recreation

The project area is located within the central portion of the 300,650-acre Labyrinth Rims/Gemini Bridges Special Recreation Management Area (SRMA), which includes most of the lands between the Labyrinth Canyon of the Green River to the west, U.S. Highway 191 to the east, the Colorado River and ISKY to the south, and Blue Hills Road to the north. The BLM's management goals for the SRMA include providing quality camping, hiking, and scenic driving experiences. Recreational activities in the SRMA include hiking, mountain and road biking, equestrian use, and backcountry driving with all types of motorized vehicles. The pipeline route is shown in relation to the SRMA in Map 3, Appendix C.

Some locations within the SRMA are more heavily used for recreational activities than others. Easily accessible areas are accessed by maintained roads. The more heavily used roads in the SRMA within the project area include SH 313, Dubinky Well Road, Spring Canyon Bottom Road, Mineral Bottom Road, Mineral Point Road, and the Blue Hills Road. The pipeline route follows SH 313 and Dubinky Well Road for much of its 24-mile length and other designated and non-designated routes where available. Vehicle use in the SRMA is limited to designated routes, unless otherwise authorized by the BLM. The BLM is in the process of marking designated routes with signs to direct appropriate use of the SRMA and discourage off-route travel.

The SRMA contains several recreation focus areas, but only the SH 313 Scenic Byway is located near the pipeline route. SH 313, also known as the Dead Horse Point Mesa Scenic Byway, provides the primary vehicle access route to DHPSP, ISKY, and Labyrinth Canyon. As a result, SH 313 receives heavy use as an in-and-out drive for at least nine months of the year. The scenic driving corridor extends 0.5 mile from either side of the centerline of SH 313 and is protected from development (See Section 3.3.8). Traffic volume on SH 313 is highest in spring and fall. In 2011, 565 vehicles accessed ISKY and 370 vehicles accessed DHPSP on an average daily basis (UDOT, 2012). Approximately 24 percent of those vehicles were classified as "trucks," which includes recreational vehicles (RV) (UDOT, 2012a). Traffic count data are not available for other roads in the SRMA. During 2012, 318,515 persons visited ISKY (NPS, 2013). DHPSP attracted 200,620 visitors during 2012, an increase of nearly 10 percent from 2011 (UDNR, 2013).

The SRMA is used by at least 35 permitted outfitters for commercial and organized group endeavors, including local photo tours, ballooning tours, boating tour operators and shuttle companies, four-wheel drive (4WD) tours, bicycling tours, adventure and endurance racers (foot, bike, and equestrian travel), hikers, and rock climbers, many of which use SH 313 for access. Five climbing companies and seven shuttle operators utilize SH 313 to provide services to recreational users. Approximately 20 BLM permittees provide mountain bike tours along designated routes in the SRMA. Every motorized tour operator in Moab utilizes at least one of the designated routes that leave SH 313. Three ATV rental companies and two dirt bike companies are permitted to utilize the routes in the SRMA. SH 313 provides access to the designated Tibbetts Arch hiking trail. Backcountry hikers use SH 313 for access to remote canyon bottoms. The Moab Skinny Tire Festival, an annual road bike event that typically occurs in March, uses SH 313 as a route to DHPSP. The Moab Half Marathon has used SH 313 as its route in the past.

Designated routes in the SRMA are heavily used by commercial entities, visitors to the Moab area, and local residents as well as. The designated routes are used by 4WD and OHV enthusiasts, horseback riders, hikers, and hunters for general access to areas that are not as heavily used as the SH 313 corridor. Tenmile Wash, approximately four miles west of the northern portion of the pipeline route, contains designated 4WD/ATV trails. White Wash, approximately 8.5 miles northwest of the northern portion of the pipeline route is open to unrestricted OHV travel. Blue Hills Road provides access to the White Wash OHV area and also provides the most direct route to recreational areas within Tenmile Wash. Blue Hills Road would be used as the primary access to the gas processing plant from U.S. Highway 191.

Three BLM developed campgrounds are located within the SH 313 scenic driving corridor, two of which, Horsethief and Cowboy Camp, are located near the pipeline route. Lone Mesa Campground has been proposed for use as a staging area during the off-season. Dispersed camping is allowed along the pipeline route outside of the scenic driving corridor to the west side of SH 313.

To protect the viewsheds of the developed campgrounds, no surface-disturbing activities are allowed within 0.5 mile of developed recreation sites. An exception can be granted if a BLM viewshed analysis determines that VRM II objectives remain uncompromised (See Section 3.3.8). Horsethief Campground is a developed campground with 56 camp sites located approximately 0.5 mile west of SH 313 on the Mineral Point Road and 0.25 mile west of the pipeline route. Horsethief Campground sees the most use in March through June, generally peaking around the Memorial Day holiday, with another period of high use during September and October. Use at Horsethief Campground drops off during the hottest months of summer, July and August, and even more during the coldest winter months, November through February. Cowboy Camp campground contains seven tent camp sites and is located west of SH 313 north of its intersection with the ISKY road. The pipeline route passes approximately 0.3 mile to the west of Cowboy Camp campground. Cowboy Camp campground is used most heavily in April through June and September and October. It is closed during cold winter months. Lone Mesa Campground contains five developed group sites northeast of the intersection of Dubinky Well Road with SH 313, approximately 1.25 miles east of the pipeline route. It is frequently used by OHV enthusiasts who utilize designated routes throughout the SRMA. Lone Mesa Campground experiences the most use during the spring and fall months and lower use in July and August and November through February. Campers usually stay at least two nights in each of these campgrounds.

Dubinky Well Road, which would be paralleled by much of the pipeline route, connects to other Class B and Class D roads to provide access throughout the SRMA. Camping is controlled in the Bartlett Wash/Dubinky area, with camping restricted to designated, undeveloped campsites. One such area of high seasonal use by RV campers with ATVs is on Bartlett Flat adjacent to Dubinky Well Road and the pipeline route, approximately 1.4 miles southeast of the proposed booster station. The three designated dispersed sites are located on the east side of the Dubinky Well Road and just south of the Bartlett Road. These sites are particularly popular with campers using motorhomes because the road is accessible to these types of vehicles. These sites are immediately adjacent to the pipeline route. Dispersed camping is allowed west of Dubinky Well Road outside of the Bartlett Wash/Dubinky area.

The Easter Jeep Safari, a BLM-permitted activity that takes place in the 10 days prior to Easter every year, utilizes 11 routes within the SRMA. Of these routes, the Hey Joe, 3D, Wipeout Hill, Hell Roaring Rim, and Secret Spire routes utilize Dubinky Well Road and Spring Canyon Bottom Road for access. These routes either intersect or run parallel to a portion of the pipeline route.

The Moab Canyons Endurance Ride is an equestrian event typically held late October in the SRMA, with staging operations typically taking place for one day before and after the ride. This equestrian event offers 50 and 25-mile rides within the SRMA. Some of the rides parallel or cross Dubinky Well Road or other designated routes that would be used as the pipeline route (See Map 4, Appendix C). The base camp for the endurance ride is located along Spring Canyon Bottom Road in Bartlett Flat approximately three miles west of where the pipeline route crosses this road.

Ambient noise levels in most areas in the SRMA are characteristic of a quiet undeveloped rural area. Ambient noise levels are greater near SH 313 as a result of intermittent traffic noise generated by vehicles passing at high speeds, particularly during the day. Sound levels at Cowboy Camp or Horsethief Campgrounds vary with the types of activities, vehicles, and number of people in the camps. Sound levels at developed recreation areas, campgrounds, and more heavily used informal use areas have been estimated to range from 50 to 65 decibels (dBA)[1] as an average day-night level. A quiet nighttime sound level of 35 dBA is typical of undeveloped rural areas (BOR, 2008).

3.3.5 Socioeconomic Resources

This section discusses the socioeconomic resources that are most likely to change as a result of implementation of the Proposed Action and its alternatives. These resources include fiscal impacts to State of Utah, local governments, and four special service districts in addition to employment and labor income in Grand County, Utah. With respect to Grand County, the population, land ownership and jurisdiction, housing availability, educational services, social services, and environmental justice are unlikely to change as a result of installation and operation of the pipeline and associated infrastructure. They are not discussed further in this section. Economic benefits were estimated only for Grand County because of the speculative nature of estimating impacts outside the county; however, construction and operation of the proposed pipeline would also result in benefits outside the county,

3.3.5.1 Employment and Income

In 2012, approximately 67 percent of the 9,328 residents of Grand County were employed in the private sector, 20 percent in government, and 13 percent self-employed (Census Bureau, 2012). The largest amount of employment occurred in the "accommodation and food services" sector. "Mining, including fossil fuels" ranked eleventh in terms of the number of persons employed in Grand County. The mining industry lost 10.1 percent of its jobs from 2011 to 2012 in comparison to the leisure/hospitality industry, which gained 13.9 percent. In April 2013, Grand County exhibited an 8.3 percent rate of unemployment, which has generally declined over the last three years (UDWS, 2013).

Per-capita personal income in Grand County was $22,135 in 2011 with a median household income of $42,004 (Census Bureau, 2012). Mining ranked third in terms of average annual

[1] Quantification of sound levels are measured in A-weighted decibels (dBA), which measures sound as perceived by human hearing.

earnings, after persons employed in the utilities industry and persons who worked for the government (BLM, 2012). Approximately 13.3 percent of county residents live below the poverty level (Census Bureau, 2012). Oil and gas operations supported 136 paid employees in 2009, both in direct production activities and associated services. Persons employed in mining, quarrying, and oil and gas production earned the third highest average annual wage in the county, at approximately $47,800 (BLM, 2012).

3.3.5.2 Economic Benefit from Oil and Gas Resources

In addition to direct and indirect employment opportunities, minerals operations result in fiscal benefits to the State of Utah and direct and indirect benefits to local governments. In February 2013, Grand County contained 569 active oil and gas wells (UDOGM, 2013).[2] Fiscal benefits derived from wells on federal lands take the form of mineral lease payments, severance taxes, property taxes, and conservation fees. Lease monies and severance taxes are levied by the state, and property taxes levied by Grand County after being centrally-assessed by the State of Utah. State and local governments also collect taxes on corporate and employee income as well as sales taxes from spending on goods and services in the local economy.

Mineral Lease Payments. The State of Utah receives portions of federal oil and gas lease and royalty payments from the Department of the Interior's Office of Natural Resources Revenue (ONRR). Annual lease rental payments, $1.50 per acre for the first 5 years and $2.00 per acre each subsequent year, would also continue to contribute to state and local revenues as a proportion of the payments are disbursed to state and local governments. Royalty revenue to the federal government equals 12.5 percent of production revenue.

Approximately 50 percent of the payments received by ONRR are remitted to the State of Utah. In fiscal year (FY) 2011, Utah received 160.1 million from the federal government in total mineral royalty payments (GOPB, 2011). The state distributes mineral lease payments to counties, usually proportionate to production within a particular county based on actual leasing and production activities. Utah's total mineral lease payments to counties were $47,786,803 in FY 2011, comprising approximately 25 percent of all royalties paid on federal leases. In FY 2012, Grand County received $1,050,000 from the State of Utah from mineral lease and bonus monies (MSN, 2012). The counties are then legally required to distribute these monies to quasi-governmental entities known as Special Service Districts. The state also distributes payments to the Permanent Community Impact Board (PCIB). In 2011, Utah distributed $85.5 million to the PCIB (GOPB, 2011). The PCIB, in turn distributes funds to county and local governmental entities for a wide variety of projects. These monies can be in the form of outright grants and/or low interest loans. The PCIB funds projects statewide on a competitive basis, and not necessarily to each county proportionate to its relative share of minerals production.

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[2] "Active" includes all wells, regardless of ownership, not plugged and abandoned. Not all active wells are necessarily in production at any given point in time.

Taxes. Oil and gas production operations pay three types of taxes that benefit state and local governments: severance taxes, conservation fees, and ad valorem (property) taxes. Severance tax and conservation fees are levied by the state, and property taxes by the counties following central assessment by the Utah State Tax Commission. Employees of oil and gas companies, as well as their suppliers, indirectly contribute to state and local tax revenues through income and sales taxes on goods and services purchased in the local economy. In addition to state levies on production, there would be revenues remitted to state and local governments from pipeline construction activities.

In 2012 the severance tax rate for oil and gas production on Utah lands was 3 percent of the value up to and including the first $13 per barrel for oil, $1.50 per MCF of natural gas, plus an additional 5 percent of the value above these prices. In 2012, a total of $65,540,973 in severance taxes was collected by the state from oil and gas production operations from approximately 10,823 producing wells (USTC, 2013; UDOGM, 2013a). The estimated contribution per well is approximately $6,056. There is no direct correspondence between a particular county's natural resource production and the amount of severance tax revenues returned to that county. Mineral severance tax revenues are remitted directly to the state's general fund.

The State of Utah levies a conservation fee of 0.2 per cent of the value of oil and gas produced at the wellhead. Collections from this fee totaled $6,432,953 in FY 2012 (USTC, 2012). Assuming equal production per well, an average of $594 was generated per producing oil and gas well.

Ad valorem taxes are based on oil and gas production, assessed property values, and current tax rates. In 2012, the Operator paid $79,830 in property tax on assets with an assessed value of $8,444,028. For 2013, the property taxes will be $223,321 on an assessed value of $23,621,814 (Grand County, 2013).

3.3.6 Soils

3.3.6.1 Soil Types and Characteristics

Soils in the project area consist of residuum, colluvium, and aeolian materials derived from the sandstones of the Navajo, Kayenta, Entrada Formations, and the shales and sandstones of the Morrison and Mancos Formations. Deeper soils are found in the Bartlett Flat and Big Flat areas, and the Dubinky Well-Blue Hills Road intersection. Soil units present in the project area are listed in Table 3-4 and displayed on Map 5 (Appendix C). The relative presence of each soil unit in acreages does not correspond to lengths along the pipeline route because of varying construction corridors.

Table 3-4: Soil Units in the Project Area

Soil Unit	Soil Unit Number	Pipeline Length (feet)	Pipeline Length (miles)	% of the Pipeline Route
Rizno-Rock outcrop complex	52	32,937	6.2	26%
Begay-Sazi complex	4	31,414	6.0	25%
Windwhistle-Begay complex	78	11,519	2.2	9%
Begay-Rizno complex	6	10,478	2.0	8%
Rock Outcrop-Arches-Mido complex	54	8,281	1.6	7%
Rizno-Begay complex	51	7,635	1.5	6%
Rock Outcrop-Moenkopie association	55	6,520	1.2	5%
Toddler-Ravola-Glenton families association [1]	75	5,180	1.0	4%
Factory-Pastern fine sandy loams	15	4,928	0.9	4%
Mido loamy fine sand	33	4,639	0.9	4%
Chipeta complex [1]	11	2,841	0.5	2%
Valleycity-Neiber-Rock outcrop complex	76	139	<0.1	<1%
Total	-	126,511	24.0	100%

[1] BLM sensitive soil.

Ten of the 12 soil units that are present in the project area are comprised of sands and sandy loams that include varying amounts of rock fragments, the exceptions being the Toddler-Ravola-Glenton families association and the Chipeta complex. The sandy soils drain readily and are described as droughty because the lack water and nutrient holding capacities. Although sandy soils display moderate tendencies to be eroded by wind, the pipeline route currently does not exhibit sand dunes or wind-caused blowouts.

The Toddler-Ravola-Glenton families association and Chipeta complex soils differ from the sandstone-derived soils because they contain varying proportions of clays and salt, which result in physical and chemical properties that differ from the soils previously discussed. The salts originate from the natural weathering of minerals or from fossil salt deposits left from the ancient sea bed that formed the Mancos Formation, which is present below the northern portion of the project area. Salts accumulate in the soil of arid climates as groundwater seepage evaporates, leaving minerals behind. Saline soils accumulate soluble salts in the root zone, which may inhibit seed germination and retard plant growth. The use of chemical amendments, soil conditioners, or fertilizers does not aide reclamation of these soils. These two soil units have been identified as "sensitive soils (BLM, 2008)" because they exhibit characteristics that make them extremely susceptible to impacts or may be more difficult to restore or reclaim after disturbance. The characteristics include high wind or water erosion hazard, moderate to high salinity, low nutrient levels, high runoff rates, or steep slopes. Sensitive soils need special management to protect resources at risk. To minimize opportunities for compaction, rutting, and topsoil loss on both sensitive saline soil units, the BLM has imposed a timing restriction from surface-disturbing activities on these soils that extends from December 1 to May 31, annually (BLM, 2008).

The Rizno-Rock outcrop complex is found on edges of cuestas and structural benches. In the project area, it is found along north-south segment of SH 313. This complex consists of approximately 50 percent Rizno fine sandy loam and 25 percent Rock outcrop. Rizno soils are very shallow and well-drained loams that are typically found adjacent to rock outcrops or on ridges. Rizno soils exhibit medium runoff potential and moderately rapid permeability. Rock outcrops occur as slickrock, ledges, and monoliths (National Resource Conservation Service [NRCS], 1989).

The Begay-Sazi complex is found on undulating parks on broad cuestas and structural benches. In the project area, it is found in Big Flat and Bartlett Flat. It consists of 65 percent Begay fine sandy loams and 20 percent Sazi fine sandy loams. Begay soils are deep well-drained sandy loams that exhibit low-to-medium runoff potential and moderately rapid permeability. Sazi soils are moderately deep and well drained. Its permeability is moderately rapid. Suitability for rangeland seeding for this soil unit is fair (NRCS, 1989).

The Windwhistle-Begay complex is found on cuestas. In the project area, it is found in Big Flat. It contains 40 percent Windwhistle fine sandy loam and 40 percent Begay fine sandy loam. Windwhistle soils are also moderately to very deep and well-drained. Runoff is slow and permeability is moderately rapid. Suitability for rangeland seeding for this soil unit is good (NRCS, 1989).

Begay-Rizno complex soils are found on structural benches. In the project area, it is found near SH 313 and north of Dubinky Well. The unit contains 60 percent Begay fine sandy loam and 20 percent Rizno fine sandy loam. Suitability for rangeland seeding for this soil unit is fair. The Rizno-Begay is found on structural benches and cuestas and is found in the same area. This complex contains 50 percent Rizno fine sandy loam and 25 percent Begay fine sandy loam. Runoff is slow to medium and permeability is moderately rapid for both soil units (NRCS, 1989).

The Rock outcrop-Arches-Mido complex is found on cuestas and structural benches and in areas around monoliths. In the project area, it is found on hills between SH 313 and Spring Canyon Bottom Road as the route approaches Bartlett Flat. It contains 35 percent Rock outcrop, 35 percent Arches loamy fine sand, and 20 percent Mido loamy fine sand. Arches soils are shallow and well drained, while Mido soils are deep and excessively drained. Runoff for both soils is slow to medium, but permeability is rapid. Rock outcrop occurs as barren exposures of sandstone in ledges, monoliths, and slickrock (NRCS, 1989).

The Rock outcrop-Moenkopie association is found on toe slopes of mesas, cuestas, and structural benches. In the project area, it is found on the northeast slope of Blue Hills. It contains 60 percent Rock outcrop, and 25 percent Moenkopie fine sandy loam. Moenkopie soils are very shallow and well-drained. Runoff from Moenkopie soils is rated medium and permeability is moderately rapid. Rock outcrops occur as slickrock and ledges (NRCS, 1989).

The Toddler-Ravola-Glenton families association is found on floodplains, drainageways, and valley flats. In the project area, it is found on the valley floor along Dubinky Well Road as it approaches Blue Hills Road. The association is formed of silt loams and sandy clay to fine sandy loams containing 25 percent Toddler soils, 25 percent Ravola soils, and 20 percent Glenton soils. The parent material consists of alluvium derived from shale and sandstone. The Toddler and Ravola soils are calcareous loams less than 35 percent clay and more than 5 percent finely divided calcium carbonate. This soil unit is very deep, well-drained, and moderately to strongly saline. It has been designated by the BLM as a sensitive soil due to the moderate salinity content. Runoff from this unit is slow-to-moderate and permeability is moderately slow to moderately rapid (NRCS, 1989).

Factory-Pastern fine sandy loams are found on pediments and structural benches. In the project area, it is found north of the booster station. This unit is formed of 40 percent Factory fine sandy loams, 20 percent Pastern fine sandy loam, and various other shallow-to-deep loamy soils. Runoff is slow-to-medium and permeability is moderately rapid. A hardpan layer is found between 7 to 40 inches below the surface (NRCS, 1989).

Mido loamy fine sands are found on cuestas and broad structural benches on the leeward side of ridges and in depressions. In the project area, it is found near Spring Canyon Bottom Road. Runoff is slow, and permeability is rapid. Up to 10 percent of the surface is characterized by hummocks that can be up to two feet high (NRCS, 1989).

The Chipeta complex is a fragile clay loam that is found on pediments and hills. In the project area, it is found near the gas processing plant location. It has been designated by the BLM as a saline sensitive soil. This soil unit consists of very shallow and shallow, well-drained permeable soils formed from residuum and alluvium, derived from the calcareous, gypsiferous Mancos Shale (NRCS, 1989). Chipeta soils are moderately sticky and plastic with a very low water capacity. They exhibit a rapid runoff capacity. This soil unit has been designated by the BLM as a sensitive soil due to the moderate salinity content.

The Valleycity-Neiber-Rock outcrop complex is found on structural benches and ridges. In the project area, very slight occurrences are present in southern portion of project area. This unit is 40 percent Valleycity very stony fine sandy loam, 20 percent Neiber silt loam, and 15 percent rock outcrop. Its permeability is moderate. Exhibiting a medium runoff capacity, its water erosion potential is slight (NRCS, 1989).

Soil characteristics of the soil units and their location in the project area are summarized in Table 3-5. Certain physical and chemical characteristics have direct bearing on the ability of a soil to support reclamation after disturbance. Specific factors that contribute to site degradation or limited reclamation success include:

- Depth to bedrock or hardpan;
- Susceptibility to water erosion, as represented by the K factor, and slope;
- Wind erodibility group (WEG);
- Available water capacity;
- Sodium absorption ratio;
- Salinity; and
- Alkalinity.

Depth to bedrock or hardpan influences plant rooting depth. Soils with shallow bedrock are defined as those where bedrock is located within 15 inches or less of the soil surface. Soils with soil depth to bedrock or hardpan of less than 10" are considered to have a high susceptibility to site degradation (BLM RMP page 4-282).

Susceptibility to water erosion for a soil unit is evaluated according to particle sizes, amount of organic matter, soil structure, permeability, and amount of rock fragments, and slope range. Soils in the project area have K values ranging from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by rainfall. Values of K for these soils tend to be greater than 0.4. Slopes vary along the length of the pipeline route, but slopes greater than 10 percent encourage precipitation runoff. Soils with K values greater than 0.37 and a slope greater than 10% are considered to have a high susceptibility to site degradation (BLM RMP page 4-282).

WEGs are assigned to a soil unit according to the texture of the surface layer, the size and durability of surface clods, rock fragments, and organic matter. Soil moisture and frozen soil layers also influence wind erosion. WEG group 1 soils are the most susceptible to wind erosion and group 8 are the least susceptible. Soils with WEG rating of 1 or 2 are considered to have a high susceptibility to site degradation (BLM RMP page 4-282.

Available water capacity refers to the quantity of water that a soil is capable of storing for use by plants. It is measured in inches of water per inch of soil. The lower the value, the less water is available to plants. Values ranging from 0.05 to 0.10 are considered moderate. Salinity is the measure of soluble salts in a soil. Values ranging from 8 to 16 mmhos/cm are considered to have a moderate risk of site degradation. Alkalinity, as measured in pH, has bearing upon fertility and stabilization. Values ranging from 7.8 to 8.9 are considered to have a moderate risk of site degradation, with values over 9.0 considered to have a high risk of site degradation. Both saline and alkaline soils can stunt plant growth. A saline soil contains soluble salts in amounts that could impair the growth of plants. It is generally associated with soils in the alluvial valley areas.

The ability to reclaim a soil also depends upon the amount of organic matter it contains, the amount of rock fragments, and adequate precipitation. All of the project area soils exhibit low amounts of organic matter, which increases the available water capacity where present. Sandy soils contain varying amounts of rock fragments and bedrock. The project area has been experiencing a drought (See Section 3.3.1 air-climate).

The BLM sensitive soils, the Toddler-Ravola-Glenton families association and Chipeta complex, are the only two soils in the project area that are moderately saline. The Toddler-Ravola-Glenton families association soils are moderately to highly alkaline.

Shallow depth to bedrock and presence of rock fragments may influence reclamation on most sandy soils. Some sandy soils may be present in areas of slopes greater than 10 percent (See Table 3-5).

Table 3-5: Soil Characteristics

Soil Unit (Soil Unit Number)	Percent of Rock Outcrop/ Fragments	Depth to Bedrock (inches)	Slope Range %	Water Erosion Factor K [2]	WEG [2]	Available Water Capacity (inch/inch)	Salinity (mmhos/cm)	Alkalinity (pH)
Rizno-Rock outcrop complex (52)	Up to 25% rock outcrop. Up to 35% rock fragments within Rizno soils.	4-20"	2-10%	0.32	3	0.08-0.12	<2	7.4-8.4
Begay-Sazi (4)	5% rock outcrop. Up to 15% rock fragments where Begay dominates.	20-60"	2-10%	0.43	3	0.09-0.14	<2	7.9-8.4
Windwhistle-Begay complex (78)	5% rock outcrop. Up to 15% rock fragments where Begay dominates.	20-40"	2-10%	0.49	3	0.14-0.16	<2	7.4-8.4
Begay-Rizno (6)	5% rock outcrop. Up to 15% rock fragments where Begay dominates.	0-60"	2-10%	0.43	3	0.09-0.14	<2	7.9-8.4
Rock outcrop-Arches-Mido complex (54)	Up to 35% rock outcrop.	0-20"	2-20%	0.28	2	0.08-0.10	<2	7.4-8.4
Rizno-Begay complex (51)	Up to 35% rock fragments.	5-60"	2-10%	0.32	3	0.08-0.12	<2	7.4-8.4
Rock Outcrop-Moenkopie association (55)	Averages <35% rock fragments, but individual horizons can range from 35% to 65%.	5-20"	3-20%	0.24	3	0.11-0.13	<4	7.9-8.4

Soil Unit (Soil Unit Number)	Percent of Rock Outcrop/ Fragments	Depth to Bedrock (inches)	Slope Range %	Water Erosion Factor K [2]	WEG [2]	Available Water Capacity (inch/inch)	Salinity (mmhos/cm)	Alkalinity (pH)
Toddler-Ravola-Glenton families association [4] (75)	0-5% rock fragments.	2-60”	0-3%	0.32	4L [3]	0.10-0.18	2-8	7.9-9.0
Factory-Pastern fine sandy loams (15)	5% rock outcrop below benches.	7-40”	2-10%	0.28	3	0.10-0.12	<2	7.4-8.4
Mido loamy fine sand (33)	5% rock outcrop.	To 60”	2-20%	0.37	2	0.08-0.10	<2	7.9-9.0
Chipeta complex [4] (11)	Shale fragments at depth.	17”	1-10%	0.43	6	0.09-0.11	8-16	7.4-8.4
Valleycity-Neiber-Rock outcrop complex (76)	15% rock outcrop, with 60% of the surface covered with rock fragments.	7-40”	2-25%	0.05	8	0.07-0.09	<2	7.4-8.4

Source: NRCS, 1989. [1] General location is specified. [2] Determination based upon surface layer of soil component only. [3] “4L”: Very susceptible to wind erosion. See description in text. [4] BLM sensitive soil.

3.3.6.2 Biological Soil Crusts

Biological soil crusts (BSCs) are highly specialized communities of cyanobacteria (algae), mosses, lichens, microfungi, and other bacteria that create a surface crust of soil particles bound together by organic materials. They are also known as biotic, cryptogamic, microbiotic, cryptobiotic, and/or microphytic crusts. BSCs develop sequentially as algae crusts, algae-lichen crusts, lichen crusts, lichen-moss crusts, and moss crusts. BSCs can completely cover plant interspaces in dryland conditions in certain soils where undisturbed and can constitute 70 percent or more of the living ground cover. BSCs are typically found on barren soil near shallow and surfacing bedrock in arid and semi-arid regions where vegetative cover is generally sparse. They are not present on bedrock exposures or talus slopes, cliff faces, or areas where rock fragments dominate. They are not visibly present on grasslands where deeper soils are found.

BSCs swell when wet, migrating out of their sheaths. After each migration new sheath material is exuded, thus extending sheath length. Repeated swelling leaves a complex network of empty sheath material that maintains soil structure after the organisms have dehydrated and decreased in size (USGS, 2006). Where undisturbed crusts are nearby, they act as an inoculum to increase the rate of recovery to disturbed areas (USGS, 2006). Cyanobacterial forms are often characterized by a noticeable increase in soil surface roughness, often referred to as pinnacles or pedicles. Although pinnacles are an obvious indicator of the presence of BSCs, the crusts may be present but not immediately evident by observation. The visible evidence of BSCs in the project area varies widely as a result of differing soil characteristics and surface use and was, therefore, not quantified.

BSCs promote nitrogen fixation, nutrient contributions to plants, soil stability, soil-plant-water relations, infiltration, seedling germination, and plant growth (Belnap and Eldrige, 2001). BSCs can be the dominant source of nitrogen for desert ecosystems. BSCs bind soil particles together, increasing the size of soil aggregates, and, consequently, soil aeration and porosity. Their roughened surface slows precipitation runoff, retards evaporation, increases moisture retention in soils, and generally aides in establishing and maintaining plant cover. In areas where precipitation and soil fertility are low, native plants often rely on intact BSCs to provide increased water and nutrient delivery. Their presence provides resistance to invasion of exotic annual grasses (Peterson, 2012).

BSCs are poorly adapted to compressional disturbances that result from domestic livestock grazing, recreational activities and construction activities. They do not form where foot travel or vehicle use discourages growth. Vulnerability of BSCs to disturbance varies according to soil moisture and texture. Crusts on sandy soils are more susceptible to disturbance when wet than when dry. Recovery rates are dependent on disturbance type, severity, and extent; vascular plant community structure; adjoining substrate condition; inoculation material availability; and climate during and after disturbance. Low annual precipitation and high annual temperatures slow recovery. BSCs generally exhibit slower recovery rates on coarse-textured sandy soils. Studies of scalped plots indicated that cyanobacterial recovery occurred within 14 to 34 years. Although visual recovery on the Colorado Plateau can be complete in as little as 1 to 5 years, full recovery of mosses and lichens could require up to 50 years (Belnap and Eldridge, 2001).

3.3.7 Vegetation

Plants in the communities found in the project area are typical of those found in shrub-steppe habitats. Vegetation communities that the pipeline route would cross consist of desert shrublands, sagebrush and perennial grasslands, pinyon-juniper woodlands, and barren areas. The communities are distributed along the pipeline route according to soil type and topography. In general, sagebrush and grasses are found in Bartlett Flat and Big Flat. Pinyon-juniper woodlands are found on the hill slopes between the two flats. Desert shrublands comprise the remainder of the route. Lands described as barren are bedrock exposures that do not contain sufficient soil materials to support the growth of vegetation. Although barren areas could support a plant in fractures, plant growth is not characteristic. On the ground, the vegetation communities are often intermingled, especially at transition areas. Vegetation communities in the project area and their occurrence along the pipeline route are listed in Table 3-6 and displayed on Map 6.

Table 3-6: Vegetation Communities in the Project Area

Vegetation Community	Pipeline Length (feet)	Pipeline Length (miles)
Desert Shrubland	53,387	10.1
Sagebrush and Perennial Grassland	32,578	6.2
Pinyon-Juniper	24,999	4.7
Barren	15,547	3.0
Total Pipeline	126,511	24.0

3.3.7.1 Desert Shrubland

Desert shrubs are woody plants that tolerate low soil moisture and high soil salt concentrations. Desert shrublands display a sparse mix of low-growth evergreen or deciduous shrubs, forbs, and warm season short and medium perennial grasses. They are typically found at elevations ranging from 4,000 to 5,400 feet. Plants in this community typically have small leaves, frequently have spines or thorns, and are adapted to tolerate extreme drought. Desert shrubs develop shallow but extensive root systems to procure rainwater and snowmelt. The ground between shrubs is typically bare of vegetation except after rains when annuals may appear on the desert floor. Although trees are usually absent from this community, taller vegetation may exist in sloping areas where salt is leached from the soils. Typical shrub species include shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), blackbrush (*Coleogyne ramosissima*), fourwing saltbush (*Atriplex canescens*), Nuttall's saltbush (*Atriplex nuttallii*), mat saltbush (*Atriplex corrugata*), Mormon tea (*Ephedra viridus)*, spiny hopsage (*Grayia spinosa*), horsebrush (*Tetradymia canescens*), and rabbitbrush (*Ericameria nauseosa).* Blackbrush is commonly seen in this community in the project area, and their ability to reproduce is similar to other dryland and desert species. Seeds of blackbrush are long-lived and remain dormant for approximately five years before germination, requiring up to 10 years to become established. Blackbrush will form a short-term seedbank during drought conditions, but most, if not all, seeds will germinate when moisture is adequate. Successful establishment from seeds depends on the availability of moisture during the spring and early summer (Pendleton, 2012).

3.3.7.2 Sagebrush and Perennial Grasslands

Sagebrush and perennial grasslands consist of big sagebrush interspersed with perennial and annual plains grasses. The sagebrush and perennial grassland community generally occurs below 6,000 feet. Grasses typically intergrade upslope with the pinyon-juniper community as elevations rise. Big sagebrush *(Artemisa tridentata)* are rounded, drought tolerant, native shrubs with short branched, woody trunks that grow approximately two feet tall. Sagebrush plants reproduce by seed dispersal, approximately 90 percent of which is dispersed within 30 feet of the parent shrub and by sprouts. Seeds germinate in the spring and require at least five years for plants to be established and able to reproduce (Tirmenstein, 1999). Sagebrush increase rapidly when soil is disturbed in its natural habitat (NRCS, 2002). The potential for sagebrush production is limited by the seasonal precipitation patterns typical of the Colorado Plateau, but, where established, sagebrush can live to over 50 years (Fairchild et al., 2005). They are present in the project area as late-successional sagebrush shrubs that are 30 to 40 years old. Principal shrub species associated with sagebrush include fourwing saltbush, winterfat *(Krascheninnikovia lanata),* and bitterbrush (*Purshia tridentata*).

Semi-arid perennial grasslands are characterized by grasses occurring in scattered bunches with other herbaceous vegetation and occasional woody species Dominant grass species depend on the soil, with sandy sites typically supporting species such as Indian ricegrass *(Achnatherum hymenoides),* sand dropseed (*Sporobolus cryptandrus*), needle-and-thread *(Hesperostipa comata),* western wheatgrass (*Elymus smithii*), Sandberg bluegrass (*Poa secunda*), and squirreltail (*Elymus elymoides*). Grasses readily sprout from underground root structures if they remain intact after disturbance. Indian ricegrass and sand dropseed are considered excellent plants for erosion control on semi-desert sites. They are prolific seed producers and germinate readily in the spring. Indian ricegrass is a drought-tolerant bunchgrass that favors growth on sandy, stony, gravelly, and shallow soils. In combination with needle-and-thread grass, Indian ricegrass is naturally an early invader onto disturbed sandy sites and is one of the first grasses to establish on cut-and-fill slopes. Indian ricegrass is desirable for reclamation because it is drought-tolerant and displays fair-to-good seedling vigor. Its fibrous root system stabilizes disturbed sandy soils. It has been seeded in areas with as low as 6 inches of rainfall and reproduced (NRCS, 2006). Sand dropseed is an invader of sandy soils, especially over-grazed and blown-out areas. Seedlings are persistent and drought resistant. Sand dropseed can establish itself in areas previously under water stress and has shown quick recovery (Simonin, 2000). Sand dropseed's rooting system helps stabilize sand hills and dunes, providing excellent wind erosion control (USU, 2013).

3.3.7.3 Pinyon-Juniper Woodlands

Colorado pinyon pine *(Pinus edulis)* and Utah juniper *(Juniperus osteosperma)* woodlands are widespread on the Colorado Plateau between 4,700 up to 7,000 feet in elevation. Pinyon trees are typically found in higher elevations than junipers, which are better adapted to drought conditions and more stressful environments. Drought discourages pinyon tree growth; however, both trees are generally heat and drought-resistant. Both trees grow slowly and seldom exceed a height of 30 feet (Weisberg, 2009; Grahame and Sisk, 2002). Where temperatures are high and precipitation is low, pinyon-juniper woodlands are associated with desert vegetation (Yeager, 1939). Pinyon-juniper woodlands generally lack vegetative diversity and are associated with Rizno soils. Mature stands are typically characterized by few understory species. Shrubs are typically scattered between the trees. Forbs and grasses are usually dominated by annuals. The understory typically consists of 20 percent grasses, 15 percent forbs, and 65 percent shrubs. Pinyon-juniper woodlands provide nesting and foraging habitat for a variety of birds, mammals, reptiles, and invertebrates and are used as seasonal habitat by large mammals for cover.

Pinyon trees rarely adjust to physical changes or abuse; however, junipers are fairly hardy and can withstand removal of a large part of a root system. Neither pinyon nor juniper trees re-establish themselves through root sprouts (Yeager, 1939). Seeds are typically eaten by rodents and consequently, regeneration is slow (Moench, 2006). Pinyon seedlings often require a "nurse" plant to survive, while juniper seedlings survive in open spaces almost as well as under the canopy of shrubs or trees. Surveys of mature pinyon-juniper stands taken over periods of up to 38 years reveal little change in the species composition over time (RMRS, 1999).

3.3.8 Visual Resources

The BLM manages visual resources according to its VRM Classification System. Visual resource management is a system for minimizing visual impacts of surface-disturbing activities and maintaining scenic values for the future. The BLM's responsibility for managing public lands includes ensuring that scenic values are considered before allowing uses that may have negative visual impacts. State lands are not classified by the VRM system.

The Moab RMP classifies areas within the project area as VRM II, VRM III, or VRM IV. The objectives of the VRM classes present in the project area are:

- Class II: To retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the landscape. Approximately 8.3 miles of the pipeline route are managed as VRM II.

- Class III: To partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Management activities may attract the attention of the casual observer, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. Approximately 10.9 miles of the pipeline route are managed as VRM III.
- Class IV: To provide for activities that require major modification of the landscape. The level of change to the landscape can be high. Management activities may dominate the view and be the major focus of attention. Changes should be minimized through location and design by repeating form, line, color, and texture. Approximately 3.1 miles of the pipeline route are managed as VRM IV.

Lands managed to protect their visual resources are located along SH 313, in the vicinity of developed recreation sites, and in the Big Flat area (See Map 7, Appendix C). As the pipeline route departs SH 313 northward, it travels through VRM III lands on Bartlett Flat. The route crosses VRM IV lands as it crosses the Blue Hills. The gas processing plant would be located on VRM III lands (See Map 7).

SH 313 provides access to DHPSP and ISKY. It was designated by the state as the Dead Horse Point Mesa Scenic Byway in 2002 and designated by the BLM as a scenic driving corridor in 2008 (BLM, 2008). On federal lands, surface-disturbing activities within 0.5 mile of a scenic driving corridor must meet VRM II class objectives to protect the visual resources along the corridor. An exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the driving corridor. Designation of a state scenic byway is based on a road's scenic, cultural, historic, archaeological, recreational, and/or natural qualities (UAC Title 72, Chapter 4 Designation of State Highways Act, Section 301 Definitions). The intrinsic qualities that resulted in the designation of SH 313 as a scenic byway must remain the primary use of the property, or scenic byway designation can be removed from a part of or the entire route. In 2008, Grand County issued the Grand County Scenic Byways Corridor Management Plan to protect the long-term integrity and visual quality of the designated roadway and address local needs and user services (Grand County, 2008). It outlines strategies for conserving and enhancing the byway's intrinsic qualities, as well as plans for the corridor's marketing, visitor management, and economic development. The plan describes the vistas along SH 313 as long views that consist of "a vast park-like plain that alternates between grassland and low pinyon-juniper forests. Sentinel buttes dot the land far and near. Jeep trails branch off in many places…" Observers in vehicles along SH 313 are able to observe panoramic views of the uplands above the canyons of the Green and Colorado Rivers, views of Lone Mesa and nearby buttes, the La Sal Mountains, and distant features of the Maze and San Rafael Swell. Spring and fall recreational visitation is high along SH 313 (See Section 3.3.4). Oil field facilities are also visible along both sides of SH 313 south of Dubinky Well Road, including Big Flat. Production facilities have been painted to blend in with the surrounding vegetation and placed in consideration of surrounding vegetation and terrain to aid in their concealment.

While the existing oil field facilities do not compromise the VRM II classification because of measures taken to minimize their appearance, produced natural gas is flared in a flare pit on each productive well pad. Where well pads are located near SH 313, the flares are visible during the day. At night, the flares are visible from more distant locations, including from Arches NP and the Sand Flats Special Recreation Management Area, located east of Moab and approximately 20 miles away. Visible flares compromise the appearance of otherwise dark rural night skies.

Horsethief and Cowboy Camp Campgrounds are developed recreation sites located near the pipeline route. To protect the viewshed from these facilities, no surface-disturbing activities are allowed within 0.5 mile of developed recreation sites. An exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the recreation site (BLM, 2008). Both Horsethief and Cowboy Camp Campgrounds lie within 0.5 mile of the pipeline route.

Observable landforms in the project area consist of broad rolling sand-covered hills vegetated by sagebrush, bunchgrasses, and pinyon/juniper trees, weathered rock outcrops, mesas, and buttes. The dominant colors of the landscape in the project area are the orange-brown soils, white and red-orange bedrock outcrops, yellow-green and green desert grasses, gray-green sagebrush, and darker green pinyon/juniper trees. The visual texture is perceived as smooth where observing the sandy soil, bedrock exposures, and grassy flats, diffusely grading into a mottled texture where shrubs and trees are present. Canyons are not visible from the pipeline route. Visible linear features along the pipeline route include the paved SH 313, unpaved Dubinky Well, Spring Canyon Bottom, and Blue Hills Roads, and many 2-track dirt roads. A large high-voltage power line is present parallel to Blue Hills Road in the vicinity of the proposed gas processing plant. The pipeline route crosses beneath the power line.

3.3.9 Wildlife

3.3.9.1 Fish and Wildlife, excluding USFWS Designated Species

The project area provides habitats for wildlife that occupy the area on a year-round and/or seasonal basis. Wildlife habitats primarily correspond to the dominant vegetative communities described in Section 3.3.7. Wildlife species that use these communities include big game species, coyote, desert cottontail rabbits, migratory birds, and various species of lizards, snakes, and rodents. Existing habitat fragmentation in and near the project area includes the paved SH 313, Class B gravel roads, a network of Class D designated routes used in the past for mineral exploration activities and now used for recreational travel, campgrounds, and well pads. The distribution of wildlife near the project area is limited by the amount of available water, which commonly collects in potholes. Open water habitats that display a multi-story canopy that would support diversity and population density of wildlife species are not found in the project area.

Desert bighorn sheep (*Ovis canadensis nelson*). The pipeline route is located within desert bighorn sheep range, portions of which include bighorn migration corridors (See Map 8). The pipeline routes does not intersect rutting and lambing habitat.

Known as the Potash herd, these bighorn sheep are part of the Canyonlands National Park (ISKY) herd. The Potash bighorn sheep herd is a viable native population. Most other desert bighorn herds in Utah either have been reintroduced into historical ranges that they had once occupied or do not support numbers large enough to be considered viable populations. The Potash herd consists of approximately 230 healthy, disease-free individuals in 2008 (UDWR, 2008). These bighorns offer a potentially unique genetics fitness that has allowed this herd to survive disease and recover from large die-offs that occurred several decades ago. The Canyonlands and Potash herds are source herds for reestablishing bighorn populations in Utah and throughout the west. A limited number of hunting permits are issued for these bighorns annually. The herd is also used non-consumptively by those who enjoy watching and photographing wildlife in the Moab area and is an attraction to national and international tourists.

Desert bighorn sheep are active primarily during the day, with peak activity periods occurring during the early morning and late evening hours (Fitzgerald et al., 1994). They prefer open rocky areas and steep rough terrain with poor cover and good visibility to facilitate flight from predators. Although considered suitable habitat, bighorn sheep are not typically found on the flatter open terrain because of poor cover and increased distance from escape terrain. Habitat patch size is relevant to long-term sheep survivorship (Schoenecker and Krausman, 2002). Escape terrain (slopes ranging from 27º to 85º) habitat within 300 meters (984 feet) of escape terrain, or areas less than 1,000 meters (3,280 feet) wide bounded by two or more sides by escape terrain provide important elements of habitat patch size for the support of 125 or more bighorn sheep (Sweanor et al., 1995).

Bighorn sheep display distinct patterns of behavior according to their sex. The rams tend to migrate back from their summer range approximately two weeks prior to the breeding season. Canyons are used year-round by the lambs and ewes. Typical bighorn behaviors of grazing and scanning for predators are altered by unpredictable human activity and can result in energetic stress. Because of their larger size, adult male sheep are less responsive to the presence of potential predators and less likely to flee than ewes out in the open. Ewes are typically more responsive to human activity.

The BLM in cooperation with the UDWR have utilized Global Positioning System (GPS) collar data to track individuals of the Potash herd. Data were acquired over one two-year interval to help delineate consistently used sheep habitat for the development of the protective measures to rutting and lambing and migration routes included in the Approved RMP. The 2008 data are in the process of being updated as additional individuals were collared over two additional two-year intervals. In many areas expanded habitat is in the process of delineation and several areas are being removed as collar data and on the ground monitoring indicates minimal use. Within migration corridors, pipeline construction would be allowed from June 16 through October 14 and from December 16 through March 31 to provide protection to migrating desert bighorn sheep (BLM, 2008).

Pronghorn antelope *(Antilocapra americana).* Approximately two miles of the most northern portion of the pipeline route is contained within year-long pronghorn antelope habitat, including potential fawning in some areas. The fawning period, May 1 through June 15, is a sensitive time for pregnant does and very young fawns, and these animals are very susceptible to predation and are easily fatigued.

Pronghorn occur primarily in desert, grassland, and sagebrush habitats characterized by large expanses of open, low rolling or flat terrain that facilitates flight from predators. They are not likely to be present in canyons. Habitat is typically found between elevations of 4,000 to 6,000 feet. Pronghorn in this area are often found in small groups and usually most active during the day. Pronghorn primarily consume shrubs, and an abundance of free water sources is important to long-term pronghorn population viability. They prefer areas that average 12 to 15 inches of precipitation per year (Fitzgerald et al., 1994). Because of the general lack of available surface water, the project area does not constitute preferred pronghorn habitat although there are small groups that do reside in the project area.

Pronghorn in the project area are managed by the UDWR as the La Sal, South Cisco subunit and the UDWR estimated approximately 125 animals in the area with a 10-year upward population trend (2008). Pronghorn in the Cisco Desert were introduced in Colorado near the Utah border in 1968, 1983, and 1988. The pronghorn have expanded their range and are sometimes seen near Green River, Utah, and south of Interstate 70 (BLM, 2008a). The UDWR has designated a limited-entry buck pronghorn hunting season in the La Sal, South Cisco subunit from September 14 through September 22, 2013 (UDWR, 2013).

3.3.9.2 Migratory Birds and Raptors

Migratory birds. Migratory birds in the project area are also associated with the vegetation communities present. The nesting season for migratory birds is generally May 1 through July 31.

The Migratory Bird Treaty Act, as amended, was promulgated for the protection of migratory birds, including raptors. Some birds are also protected by the Endangered Species Act, the Bald and Golden Eagle Protection Act, and/or are included in the State of Utah or BLM Sensitive Species Lists. To further purposes of these protective acts, Memorandum of Understanding WO-

230-2010-04, *To Promote the Conservation of Migratory Birds*, was issued in 2010 by the BLM and the U.S. Fish and Wildlife Service (USFWS). BLM direction includes identifying species listed in the USFWS Birds of Conservation Concern (BCC) that are likely to be present in the area of a proposed action. The USFWS has issued guidelines for the protection of raptors that include species-specific timing limitations and spatial offsets to active nests (Romin and Muck, 2002). These guidelines have been incorporated into the Moab RMP Appendix R: Best Management Practices for Raptors and their Associate Habitats in Utah. In addition, the Utah Partners in Flight (PIF) working group completed a statewide avian conservation strategy identifying "priority species" for conservation due to declining abundance or distribution, or vulnerability to various local and/or range-wide risk factors. As part of the BLM's obligation to ensure protection to migratory birds, it must identify species listed in BCC and the PIF bird conservation plans that are likely to be present in the area of a proposed project and utilize best available population or habitat association data in the assessment of impacts to these species.

The Utah PIF Priority Species List (Parrish et al., 2002), the BCC list for Region 16 (Colorado Plateau) (USFWS, 2008), and the Utah Conservation Data Center database were used to identify potential habitat for priority species that could utilize habitats within the project area. These birds are listed in Table 3-7. A complete list is included in Appendix F. BLM sensitive bird species are discussed in Section 3.3.9.3.

Table 3-7: BCC Region 16 and Utah PIF High Priority Species That May Occur in Project Area

Species	BCC	PIF	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
Black-throated grey warbler	-	X	Pinyon-juniper	Mountain shrub	Migrant
Brewer's sparrow	-	X	Shrubsteppe	High desert scrub	Migrant
Burrowing owl	X	-	High desert scrub	Grassland	Migrant
Ferruginous hawk	X	X	Pinyon-juniper	Shrubsteppe	Grassland
Golden eagle	X	-	Cliff	High desert scrub	High desert scrub
Gray vireo	X	X	Pinyon-juniper	Northern oak	Migrant
Juniper titmouse	X	-	Pinyon-juniper	Pinyon-juniper	Pinyon-juniper
Long-billed curlew	X	X	Grassland	Agriculture	Migrant
Peregrine Falcon	X		Cliff	Riparian	Riparian
Pinyon jay	X	-	Pinyon-juniper	Ponderosa pine	Pinyon-juniper
Prairie falcon	X	-	Cliff	High desert scrub	Agriculture
Sage sparrow	-	X	Shrub-steppe	High desert scrub	Low desert scrub
Virginia's warbler	-	X	Northern oak	Pinyon-juniper	Migrant

Source: USFWS, 2008; Parrish et al., 2002

Raptors. Habitats within the project area have the potential to support breeding, nesting, and foraging raptors, golden eagle and wintering bald eagles. Raptor nest sites are typically located on promontory points such as cliff faces and rock outcrops in areas with slopes of 30 percent or greater, but they may also nest in pinyons, juniper, or deciduous trees. Raptors typically use the same nest site year after year. Raptor young tend to disperse to areas near the traditional nest sites. The project area also offers suitable wintering and migration habitats for several raptor species. The nesting season for most raptors in the project area extends from March 1 through August 31. A raptor inventory was performed during the summer of 2013 to determine areas of potential high use. One active nest was identified within the entire project area.

Raptor species with the potential to occur in the vicinity of the project area are identified in Table 3-8 with a description of their nesting and foraging habitats. Currently the Natural Heritage Database, the UDWR raptor database, and Moab BLM records indicate one raptor nest within 0.5 mile of the pipeline corridor. A burrowing owl nest located 0.4 mile from the proposed pipeline construction corridor was identified in 2005, outside of the USFWS-recommended spatial buffer.

Table 3-8: Raptor Species with the Potential to Occur in the Project Area and USFWS Spatial and Seasonal Buffers

Common Name	Scientific Name	General Habitat and Potential to Occur in Project Area	Spatial Buffer [1] (miles)	Seasonal Buffer [1]
Sharp-shinned Hawk	*Accipiter striatus*	Low potential to nest in pinyon-juniper woodlands. Low potential to forage in desert shrub and pinyon-juniper woodlands.	0.5	3/15-8/31
Cooper's Hawk	*Accipiter cooperii*	Low potential to nest in pinyon-juniper woodlands. Moderate potential to forage in pinyon-juniper woodlands.	0.5	3/15-8/31
Golden Eagle	*Aquila chrysaetos*	Commonly nests on cliff ledges and rock outcrops. Moderate potential to forage in desert shrub and pinyon-juniper woodlands.	0.5	1/1-8/31
Bald Eagle	*Haliaeetus leucocephalus*	Winter habitat typically includes areas of open water, adequate food sources, and sufficient diurnal perches and night roosts. Low. No potential for nesting and low potential for roosting.	0.5	1/1/-8/31
Burrowing Owl	*Athene cunicularia*	Low potential to nest in the project area due to lack of prairie dog colonies in the area. Commonly utilizes prairie dog burrows for nesting.	0.25	3/1-8/31
Long-eared Owl	*Asio otus*	Low potential to nest in pinyon-juniper woodlands. Moderate potential to forage in desert shrub and pinyon-juniper woodlands.	0.25	2/1-8/15
Great-horned Owl	*Bubo virginianus*	Nests on cliff ledges, pinyon-juniper, or nests of other species. Moderate potential to forage in desert shrub and pinyon-juniper woodlands.	0.25	12/1-9/31
Ferruginous Hawk	*Buteo regalis*	Commonly nests on ground, in pinyon-juniper woodlands, and on rock outcrops. Low potential to forage in desert shrub and pinyon-juniper woodlands.	0.5	3/1-8/1
Red-tailed Hawk	*Buteo jamaicensis*	Moderate potential to nest on cliffs and low potential to nest in pinyon-juniper woodlands. High potential to forage in desert shrub and pinyon-juniper woodlands.	0.5	3/15-8/15
Swainson's Hawk	*Buteo swainsoni*	Not likely to nest in the project area. Low potential to forage in desert shrub and pinyon-juniper woodlands.	0.5	3/1-8/31

Common Name	Scientific Name	General Habitat and Potential to Occur in Project Area	Spatial Buffer [1] (miles)	Seasonal Buffer [1]
Northern Harrier	*Circus cyaneus*	Moderate potential to forage and nest in sagebrush/grassland vegetative community and desert scrublands. Low potential to nest in pinyon-juniper woodlands. Utilizes open habitats such as marshes, fields, and grasslands.	0.5	4/1-8/15
Peregrine Falcon	*Falco peregrinus*	High potential to nest on cliffs and ledges. Nest sites in southern Utah are associated with pinyon-juniper and deciduous riparian woodlands.	1.0	2/1-8/31
Prairie Falcon	*Falco mexicanus*	High potential to nest on cliffs and ledges. Moderate potential to forage in desert shrub, moderate in pinyon-juniper woodland.	0.25	4/1-8/31
American Kestrel	*Falco sparverius*	Moderate potential to nest on cliffs, and ledges. Moderate potential to forage from cliffs and ledges and low potential in desert shrub and pinyon-juniper woodland.	0	4/1-8/15

Source: Romin and Muck, 2002, Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances.

3.3.9.3 Utah BLM Sensitive Species

The Utah BLM recognizes Utah State sensitive species as BLM sensitive species under the Bureau's 6840 Manual. Species on the Utah Sensitive Species List are those species for which there is credible scientific evidence to substantiate a threat to continued population viability. The following species are State of Utah and BLM sensitive species that may be present in and near the project area. An inventory for kit fox dens, sensitive raptors, and prairie dog colonies, as an indicator of potential for burrowing owls, was performed during the summer of 2013.

Burrowing owl *(Athene cunicularia)*. Burrowing owls are summer residents on much of Utah's plains and are casual winter residents in southern Utah. This species is associated with dry, open habitat that has short vegetation (Johnsgard, 2002), which is found on Bartlett Flat. They are often active in daylight and can be bold and approachable (Lewis, 2005). Burrowing owls eat small mammals such as moles and mice during late spring and early summer. Later they switch to insects, especially grasshoppers and beetles. Burrowing owls are also known to eat birds, amphibians and reptiles. Burrowing owls often nest in ground burrows of prairie dogs and ground squirrels (UDWR, 2011). Adults usually return to the same burrow or a nearby burrow in the area, known as a nesting territory, each year. One or more "satellite" burrows can usually be found near the nest burrow or in the territory. The nesting season for burrowing owls extends from March 1 to August 31.

Ferruginous hawk (*Buteo regalis*). Ferruginous hawks inhabit open desert and prairie landscapes throughout Utah. These hawks are the largest and heaviest of North American hawk species and are considered as essentially non-migratory. Productivity in ferruginous hawks is directly correlated with the available prey base, which largely corresponds to the availability of jack rabbits and ground squirrels for food. Breeding ferruginous hawks rely on grassland or shrubsteppe terrain and, in many parts of Utah, nest on the ecotone between these habitats and pinyon-juniper woodlands. This species builds the largest nest structure of any North American bird, larger than the nests constructed by ospreys and even bald and golden eagles. Ferruginous hawks prefer to use trees where they are available; however, in treeless terrain this species nests on the ground or, if possible, on a cliff ledge. Typically, they nest the upper edge of a low escarpment. More than one nest is frequently present in a territory. In Utah, the number of nests in a known territory averages between two and three, but as many as 15 nests have been found in a territory. Ferruginous hawks are highly sensitive to human intrusion during breeding, which may result in nest abandonment and reproductive failure (CCSS, no date; UDWR, 2011).

Kit fox (*Vulpes macrotis)*. The kit fox is native to much of the western United States and northern Mexico. Although the species is not abundant in Utah, it occurs in the western, east-central, and southeastern areas of the state. The kit fox most often occurs in open prairie, plains, and desert habitats. Kit fox populations occupy habitats that provide favorable combinations of low predator numbers, sufficient prey, and silty clay soils suitable for denning (UDWR, 2011). Areas of low relief but higher than the surrounding terrain are preferred. The kit fox uses year-round dens, which provide protection from predators, aid in thermoregulation, and reduce water loss. Dens may have multiple entrances. Tunnels and chambers may extend as far as 50 inches or deeper below the ground surface. A fox family may move from one den to another during the reproductive period. Although most dens in a territory remain largely unused, up to 39 dens may be distributed across a fox's territory. The kit fox pupping season extends from March 1 to July 31. Juveniles disperse after birth. No surface disturbances are allowed within 200 meters of a kit fox den to provide protection to habitat.

White-tailed prairie dog (*Cynomys leucurus*). White-tailed prairie dogs inhabit semidesert grasslands and open shrublands in relatively large sparsely populated complexes. They construct burrow systems in deep, well-drained soils to provide opportunities for escape from predators with a few entrances to each system of interconnected burrows (Lupis et al., 2007). Their diet consists of grasses, stems, seeds, roots and bulbs. White-tailed prairie dogs usually hibernate during the winter. Breeding occurs in late March to early April. Pups are born between April 1 and June 15 (UDWR, 2011). In the northeastern Cisco Desert surface disturbing activities or permanent aboveground facilities are allowed within 660 feet of prairie dog colonies identified in 117,480 acres of known white-tailed prairie dog habitat (BLM, 2008). The proposed action is not located in this area where stipulated measures are applicable. The proposed pipeline is located in an area may offer the potential for colonization but currently only one colony has been mapped in the vicinity and is near at the most northern end of the pipeline, approximately 0.5 mile to the east. Preliminary modeling developed by the UDWR indicates suitable habitat may exist along the northernmost 1.5 miles of the pipeline route.

4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

Chapter 4 addresses direct, indirect, and cumulative impacts of the Proposed Action, the No Action alternative, and Alternative C for each affected resource. Mitigation measures are actions that could be applied to reduce or avoid adverse impacts. Temporary impacts would last less than the one-year construction frame. Short-term impacts would last from 1 to 5 years. Long-term impacts are considered to be those whose effects would last more than five years. A small impact means that the environmental effects are not detectable, or are so minor that they will neither destabilize, nor noticeably alter, any important attribute of the resource. A moderate impact means that the environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource. A large impact means that the environmental effects are clearly noticeable, and are sufficient to destabilize important attributes of the resource.

The impact analyses presented in this chapter incorporate the Operator's environmental commitments described in Chapter 2 (Section 2.2.9) and refer to specific commitments, as appropriate, to substantiate related impact findings. For the analysis, BLM staff used existing data, science, current methodologies, professional judgments, and projected actions and levels of use.

4.2 General Analysis Assumptions

- Alternatives A and C would take place according to the estimated time frame.
- All Applicant-committed design features and environmental protection measures (Table 2-6) would be implemented during project operations.
- Reclamation would take place after construction operations and would be successful within 10 years.
- The pipeline route would be reclaimed, resulting in no long-term disturbance.

The analysis of cumulative impacts was based on the following assumptions:

- Disturbance from oil and gas wells was estimated according to active wells only. Plugged and abandoned wells have been reclaimed and display some measure of vegetation growth, which was not quantified.
- Oil and gas activity and resulting disturbance were based upon the assumptions used in the RFDS; i.e., 15 acres of disturbance would result per well pad.
- All future wells would be productive.

The assumption that construction of a well pad, access road, and pipeline would result in 15 acres of disturbance, consistent with the 2005 RFDS, is likely conservative; i.e., it may provide an over-estimate of future surface disturbance. The RFDS assumed that one well would be drilled on one pad. Although consistency with the RFDS assumptions for estimating surface disturbance provides a proven basis for estimating impacts to resources from future oil and gas activity, use of new technologies may invalidate the RFDS assumptions in some cases, particularly if more than one well would be drilled from a single well pad.

4.3 Direct and Indirect Impacts

4.3.1 Alternative A – Proposed Action

4.3.1.1 Air Quality

Implementation of Alternative A would result in temporary short-term emissions while the pipeline would be constructed and long-term emissions from compressors and other equipment needed to operate the pipeline. Air quality impacts depend on the amount, duration, location, and characteristics of emissions. An emissions inventory (EI) was prepared using AP-42 methodology to estimate temporary emissions generated by construction operations and long-term emissions generated from the operation of equipment needed to support pipeline operations at the booster station and the gas processing plant. Pollutants that would be emitted in negligible quantities were not quantified (See Table 4-1).

Table 4-1: Alternative A - Pipeline Construction and Operation Emissions (TPY)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SOx	VOCs	HAPs	CO_2e emissions (tonnes/year)
Pipeline Construction	-	-	49.78	5.97	-	-	-	-
Pipeline Facilities Operation	80.9	35.1	-	-	-	13.7	6.8 [1]	22,234

Source: Golder, 2013. [1] HAPs emitted from compressors consist primarily of CH_2O.

Construction emissions would be generated from excavation, disturbing the soil surface from vehicle and equipment use off of paved surfaces, and vehicle and equipment exhaust emissions. Construction emissions are dominated by the generation of particulate matter, which would result from earth-moving operations along the length of the pipeline route and at the location of the booster station and gas processing plant. The ground surface would be bladed and graded where a trench would be excavated and where support and processing facilities would be installed. Burying the pipeline would require a 50 to 75-foot construction corridor for the 5.4 miles. The booster station and gas processing plant would be constructed on 13 acres of prepared ground. PM emissions would be temporarily generated during the 120-day construction time and would be transient as construction takes place along the length of the route. Pipeline construction would take place during daylight hours, when moderate winds would tend to disperse fugitive dust, diminishing possible tendencies toward aggregation in a specific area.

Although the prevailing wind direction from west to east would carry fugitive dust in the direction of Arches NP, the 8-mile distance to the park reduces the possibility that PM would be discernible at the park. A visibility model performed in 2010 for construction, drilling, and production operations of an oil and gas well located two miles from Canyonlands NP predicted that those operations would have no significant effect on visibility as viewed from Arches or Canyonlands NPs (BLM, 2011) further substantiating the conclusion that Alternative A would not affect visibility at the two national parks. Visibility trends developed by the National Park Service for Arches and Canyonlands NPs suggest that visibility is likely to be more affected from sulfates and coarse particulates generated by wildfires than by fugitive dust originating from temporary construction activities (Perkins, 2010). When construction would take place over 45 days in Big Flat, fugitive dust could possibly be observed in the northern portion of DHPSP, which is not a Class I area but is downwind from the prevailing westerly winds. The campground at the state park and the view area are south of the southern terminus of the pipeline route, and the camping experience and views should not be affected by temporary PM emissions. Utah Administrative Code (UAC) R307-205-5(2)(b) identifies dust abatement measures for construction, demolition, clearing or excavation of land areas greater than one-quarter acre in size. Application of these fugitive dust control measures as well as commitments made by the Operator would minimize emissions of particulate matter. The Operator committed to: (1) utilizing water to suppress fugitive dust during construction operations; (2) using existing designated routes for access to the extent possible to minimize surface disturbance and unnecessary clearing of the ground surface; (3) instructing construction personnel to maintain speed limits on unpaved roads to discourage fugitive dust generation; and (4) initiating reclamation of the of the pipeline route as soon as practicable after pipeline installation.

Atmospheric dust transported over great distances to mountainous areas can darken glacial surfaces and snow packs, decrease surface reflectivity, increase solar radiation absorption, and quicken snow melt when generated on a large scale; however, the Proposed Action would not generate PM in a quantity sufficient to affect regional or global climate in this manner.

PM emissions that would be generated while the pipeline is in operations would result largely from vehicle traffic, which is dependent on the miles driven per trip. Given the domination of PM by construction traffic, this decline has not been quantified.

Emissions would be generated for the life of the pipeline by the use of generators, compressors, and other processing equipment at the booster station and at the gas processing plant. These emissions consist primarily of CO and NO_x, and would be generated as long as the pipeline is in service. A productive well has been estimated to remain active approximately 30 years. In cooperation with the State of Utah, the BLM has implemented interim NO_x control measures for compressor engines (BLM, 2008). Emissions of NO_x could contribute to ammonium nitrate formation. Since ammonium nitrate is caused primarily from primarily from crop and livestock production, operation of compressors and other equipment are not expected to alter the current trend of ammonium nitrate levels determined to be “good” in Canyonlands NP or result in adverse effects to sensitive and/or exotic plants that may be present in the national park.

Formaldehyde (CH_2O) is a HAP that would be generated by compressor operation. Emissions, including CH_2O, from equipment at the booster station and gas processing plant would be evaluated by the UDAQ and subject to applicable permit requirements to ensure compliance with state regulatory authorities.

Increasing concentrations of GHG emissions in the atmosphere are likely to affect regional or global climate. The proposed project would contribute 22,234 tonnes of CO_{2e}, which is below the reporting threshold of 25,000 tonnes/year. As precursors to ozone formation, VOCs and NO_x emissions could contribute to the formation of tropospheric ozone. Ozone was not quantified in the EI as it would not be a directly emitted pollutant. Procedures for projecting how a climate system would respond within a narrow range of input parameters confined to a specific locale during a specific time frame are currently undetermined. Meteorological monitoring systems are being used to provide surface and upper air data, such as cloud cover characteristics, aerosols composition, and water effects; however, modeling protocols designed to assess impacts of a specific project to a region or world-wide, have not been developed. GHG emissions generated by the Proposed Action cannot be related to impacts to regional or global climate because climate and air quality feedback forcing mechanisms are still not well understood. The mechanisms affecting climate are on a much larger scale than the Proposed Action. Thus, the spatial and temporal change of climatic conditions attributable to the Proposed Action is not possible to assess.

4.3.1.2 Cultural Resources and Native American Religious Concerns

Cultural resources. The Class III cultural resource inventory identified 12 cultural resources sites that are recommended to be eligible to the NHRP and are within the area of potential effect (APE) for Alternative A. Although avoidance of these sites was recommended, these sites cannot be avoided by the proposed pipeline construction operations and would be subjected to adverse impacts as a result of inspection or maintenance operations over the life of the pipeline, 40 years or longer. Because avoidance is not possible, the contract archaeologist recommended and the BLM concurred that the eligible sites be subject to further investigation. Under Section 106 of the NHPA, if the proposed action would have an impact on a historic property, the BLM is required to undertake a review of the proposed action and consult with the Tribal Historic Preservation Officers and/or SHPO to determine its effects on the integrity of the historic property prior to approving the action. The purpose of Section 106 is to ensure that whatever action is finally determined will have recognized any historic resources and taken into account the full range of options to preserve those historic resources. Listing or eligibility for listing in the NRHP for a cultural resource does not exempt it from being impacted, and documentation of a cultural resource for future study prior to its alteration may be the result of the result of the Section 106 review.

The BLM initiated consultation with interested parties with a meeting on June 20, 2013. The goal of the meeting was to identify those wishing to become consulting and concurring parties and find consensus regarding appropriate mitigation measures to offset or minimize adverse effects to cultural resources. As a result of this meeting, a Data Recovery Plan was finalized and agreed upon by concurring parties. Concurring parties, including the BLM, the Operator, SHPO, and State of Utah School and Institutional Trust Lands Administration, became signatories to a Memorandum of Agreement (MOA) to accept the procedures specified in the Data Recovery Plan. The agreed-upon procedures described appropriate mitigation measures to offset or minimize adverse effects to cultural resources prior to construction of the proposed pipeline. Documentation of the meetings and agreement can be obtained at the Moab BLM FO.

The pipeline would cross the Congressionally-designated Old Spanish Trail near the intersection of Blue Hills Road with Dubinky Well Road. High-voltage overhead power lines and Blue Hills Road are parallel and adjacent to the trail segment, which is not discernible. This segment lacks historic integrity because of historic alterations. Therefore, the segment of the Old Spanish Trail that would be crossed by the pipeline route does not contribute to the historic significance of the trail as a whole. Installation of the buried pipeline may temporarily add to discernible features of the landscape. After the pipeline would be installed belowground, bare ground corresponding to the 75-foot construction corridor width and perpendicular to the direction of the trail would be visually apparent until reclamation operations reestablish desert shrub vegetation, requiring approximately five years. Occasional maintenance work may need to be performed on the pipeline, during which times maintenance equipment may be temporarily visible; however, maintenance work is anticipated to be infrequent and would not take place along the route of the trail segment. The Operator has committed to cooperating with the BLM to develop and install a sign near the Blue Hills Road and Dubinky Well intersection or other suitable location, to identify to the public the location of the Congressionally-designated Old Spanish Trail and explain its importance. The BLM would monitor the Old Spanish Trail in accordance with the *Old Spanish Trail Comprehensive Management Plan,* which is currently in development.

Most threats to historic roads fall within four categories: realignment, replacement, demolition and regional or outside pressures. Implementation of Alternative A would not result in the realignment, replacement, or demolition of Dubinky Well Road. Regional threats address the broader concerns that would alter the use of the road, such as from new development or shifts in tourism that may suddenly increase the traffic volume and consequently alter driver behavior, speed and safety. Installation of the pipeline would require temporary use of Dubinky Well Road; however, it would not result in physical changes to the road. It would remain as the primary north-south Class B road connecting Blue Hills Road to SH 313. Recreational use of this road would remain the primary use of this road. Occasional maintenance work may need to be performed on the pipeline using the road for access and, possibly, temporary work areas; however, infrequent maintenance work on the pipeline adjacent to Dubinky Well Road would not result in new use patterns for the road.

Indirect impacts from the use of non-designated routes and cross-country construction would not encourage public access and possible vandalism of cultural resource sites resulting from increased access in the SRMA because gates or signs would be installed to prevent or discourage such unauthorized access.

Native American Religious Concerns. Consultation with Indian Tribes has been performed because surface disturbance and/or surface use have the potential to impact historic archaeological sites and/or features of importance to modern Native American tribes (See Section 5.2). The route that would be used for pipeline installation and operation would intersect 12 eligible archaeological sites. A MOA that documents concurrence with procedures contained in a Data Recovery Plan to mitigate adverse effects to the 12 impacted eligible sites has been agreed to by consulting parties.

The BLM sent certified letters during the week of March 7, 2013, to those tribes who historically used this region and/or continue to use the area. The Hopi Tribe responded to the request for consultation. The Hopi Tribal Historic Preservation Officer concurred with the determination of adverse effect to historic properties and requested copies of the Cultural Survey Report, Data Recovery Plan, and final report. No additional comments were received; therefore, additional formal consultation continued with the Hopi.

4.3.1.3 Floodplains

This alternative involves 5.4 miles of buried pipeline, which would be buried 6 feet under all washes and floodplains. The pipeline would be buried on average 4 feet deep in the uplands sections, and would increase depths adjacent to the washes until the full 6 feet deep is reached under the active channel. This gradual change in depth would generally extend half the width of the wash on either side of the wash. The proposed pipeline would be located adjacent to several smaller and moderate size stable washes. Disturbed stream banks would be stabilized with erosion control materials including rocks, erosion control blankets, rip rap or other stabilizing materials as needed. These design features should protect the pipe from exposure and possible damage and accommodate 30 years of natural erosion, down-cutting, and widening of the washes.

Under Alternative A, the northern section of the pipeline would be buried. As a result, the pipeline would be buried 6 feet deep under the floodplain areas of Ten Mile Wash and the water bars and ditches that drain floodwaters from the road in the Ten Mile Wash area. Burying the pipeline 6 feet deep in the Ten Mile Wash area will ensure protection of the pipeline from future erosion and road maintenance work.

This alternative involves 18.6 miles of surface laid pipeline, which would cross many small washes which could be spanned without addition supports as the pipe strength is adequate to span the length and not sag over time (WBI, 2013a). On the wider washes, including Dubinky Wash, additional supports or stanchions may be necessary where determined by an engineering evaluation and would be secured with concrete to provide a stable base. The proposed pipeline would span washes from highest bank to highest bank to remain above the highest possible flood flows at each crossing.

Routine inspection of the pipeline route would identify and unexpected floodplain or erosional concerns. Subsequent maintenance, repairs and stabilization work would be performed in compliance with the terms and conditions of the ROW and coordinated with BLM staff.

4.3.1.4 Recreation

Construction of the pipeline would result in the temporary loss of 186.8 acres in the 300,650-acre SRMA to recreational use. SRMA users would be deprived of the use of 16.4 acres from the long-term operation of the booster station and gas processing plant. Impacts to visual resources are discussed in Section 4.3.1.4.

The magnitude of temporary impacts from pipeline construction to recreational users would vary according to the time of year, time of day, and the distance of the construction operations to high recreational use areas. Construction when recreational use is high would result in greater impacts than construction during the off-seasons. Potential impacts to recreational users from construction activities would be greatest from March through June and September through early November. Recreational use of the SRMA is not as great when the ambient temperatures are extremely hot or cold. Construction times described as “temporary” in this section were not quantified because construction time corresponds to ease of construction in any particular area. Ease of construction depends on many factors, including abundance and types of vegetation, presence of near-surface bedrock, hydrologic features, and proximity to vehicle/equipment access, among others. Quantification of construction time at a particular area would be speculative and was, therefore, not estimated beyond the 120 days required for total construction operations.

Not all 186.8 acres would be in use at the same time for pipeline construction. Construction operations would be transient and temporary in any particular location as construction operations move along the pipeline route over approximately 120 days. Mobile recreational visitors, such as hikers, OHV users, bicyclists, equestrians, and sight-seers, would typically be temporarily present in any particular location along the pipeline route. Construction operations would not be likely to prevent use of the SRMA by any of these recreational users. The 300,650-acre SRMA would provide abundant opportunities for hiking, horse-back riding, and/or off-highway travel in parts of the SRMA not affected by temporary pipeline construction operations. Recreational drivers, hikers, and equestrian users would likely move away from construction activity to utilize other areas of the SRMA.

Impacts to recreation would include increased traffic along SH 313, Dubinky Well Road, and Blue Hills Road. Because 24 percent of the vehicles on SH 313 consist of trucks or RVs, the use of the highway by project support vehicles would not result in a noticeable increase in truck traffic except for the times when equipment delivery actually occurred. Truck traffic would increase to and from a staging area when delivering equipment and pipe to a nearby work area. The use of staging areas would diminish the amount of daily project traffic on the entire length of SH 313. As construction operations move to the portion of the pipeline route along Dubinky Well Road, truck traffic supporting pipeline construction on SH 313 would decrease, and impacts would not be experienced by recreationalists traveling to DHPSP and/or ISKY. Workers would likely continue to use SH 313 for access to Dubinky Well Road except for when construction would take place near Blue Hills Road.

During construction operations, the Operator has committed to maintaining through access along SH 313, Dubinky Well Road, Blue Hills Road, and other Class B roads and would take measures to ensure that recreational vehicle travel would not be impeded by pipeline construction equipment or operations on those roads. Construction operations along the Big Flat area of SH 313 would be conducted entirely off the running surface of the road, such that no temporary re-routes would be needed. Bicyclists who participate in the annual March Moab Skinny Tire Festival would not be prevented from utilizing SH 313 as its route. Visitors who use Class B roads may be re-routed to a single lane or to a short detour within the construction corridor.

The use of Lone Mesa Campground as a staging area would not be likely to result in impacts to campers in late winter 2013 and early winter 2014 because of low camper use; however, using Lone Mesa Campground in the spring would result in conflicts with recreational campers during the time of traditional high use. Utilizing alternate adjacent areas proposed for staging would eliminate potential conflicts with campers at this campground.

Some equestrian riders and OHV and 4WD vehicles use Class D designated routes. Project use of approximately 19 miles of designated routes may result in temporary delays to the recreational users on Class D routes during pipeline construction. The SRMA contains abundant Class D designated routes, several of which may provide access to a common destination. Recreational users would be able to utilize other designated routes and avoid pipeline construction operations. Temporary unavailability of portions of the affected Class D routes during construction is not anticipated to discourage future use of these routes. An open trench where the pipeline would cross a designated route presents a possibility for accidents with animals. The Operator would leave a trench open only if a particular day's work remained unfinished. The Operator would delineate an open trench with flagging or fencing so that notification would be given to all nearby recreational users of the SRMA.

Designated routes would be used by the Moab Endurance Ride in October. Pipeline construction is scheduled to take place in late 2013 and early 2014, which would eliminate impacts to the Moab Endurance Ride.

Pipeline construction in the spring could possibly occur while Jeep Safari is taking place in the two weeks before Easter. In the SRMA, the Jeep Safari routes include the more difficult Class D routes; however, some routes or participants may use Class B roads for access to these routes. Although access would not be impeded on the Class B roads, vehicle travel by Safari participants may be re-routed around an area of active construction. Where trenching under Class D roads, delays may result if a Safari route would utilize a particular Class D route when it is scheduled for trenching. Communication and coordination between the Operator and the Jeep Safari organizer would ensure that Jeep Safari routes would remain available.

The creation of unauthorized travel by the public would be possible if recreational users were to follow vehicle tracks left by construction equipment or pipeline inspection/maintenance vehicles on undesignated routes or cross-country segments of the pipeline route. Although the Operator would reclaim the temporary construction corridor as soon as practical after the pipeline is installed, which would promote the regrowth of vegetation, public users could follow non-designated routes. Without providing notice to the public, successful reclamation would be hindered and possibly rendered ineffective and new unauthorized public routes could be created. Installing signs, gates, or some other method of identifying an unauthorized route as a "restoration area" would discourage public travel.

Construction noise and operation of compressors or other gas processing equipment have the potential to affect recreational users of the SRMA, particularly campers. Unattenuated sound levels generated by construction operations audible at the nearest campgrounds are shown in Table 4-2. Actual impacts from noise to recreational users of the SRMA would vary according to the time of year, time of day, distance between the noise source and the recreational user, wind direction, intervening terrain features, and vegetation. Noise impacts would be not as likely to impact recreational users during the winter and summer months when recreational activity is lower than the peak visitation months in the spring and autumn. Construction operations would take place during daytime hours, preventing noise impacts to campers at night. For those campers actually in Horsethief or Cowboy Camp during the day, nearby construction operations would be audible. A level of 55 dBA outdoors was identified as preventing activity interference or annoyance and is considered a level that will permit spoken conversation, sleeping, and recreation (EPA, 2013a). Campers who are unable to utilize dispersed camping sites within the SRMA would be able to select an alternate camp site at a greater distance from construction operations. Campers who need to utilize developed camping areas may choose to find alternate options, such as the campgrounds at DHPSP or ISKY. As the nearby alternate developed campgrounds have limited capacity, campers may need to temporarily utilize private camp areas in the Moab area. Construction operations near a particular camping area would be transient and temporary, affecting a particular campground for several days during one camping season. Construction noise would not result in long-term effects to campers or impair future use of a campground.

Table 4-2: Estimated Construction and Compressor Sound Levels

Noise Source	Receptor Location	Distance from Source to Receptor (feet)	Estimated Sound Level (dBA) [1]	Comments
Construction Operations (temporary)	Cowboy Camp Campground Horsethief Campground	1,320	79.6	Annoying. Interferes with conversation.
	Bartlett Flat camping sites	300	92.5	Very annoying. Hearing damage with 8-hour exposure. Shouted conversation.

[1] Adapted from BOR, 2008.

Safety to recreational visitors would be maintained throughout construction operations as well as pipeline operation. Measures that would be taken to ensure public safety during construction operations would need to be applied for approximately 120 days. Construction and operation of the low-pressure pipeline is not expected to present safety hazards to public users of the SRMA or endanger their health or wellbeing. The design, materials, construction, operation, maintenance, and termination practices of the pipeline would meet or exceed safe and proven engineering practices, industry standards, and would comply with all applicable requirements. The pipeline would be designed and constructed to meet and exceed federal and industry standards that would be applied to a similar transmission pipeline. Details explaining construction procedures and how safety would be addressed are included in Appendix D.

The designated dispersed sites adjacent to the pipeline route on the east side of the Dubinky Well Road are within 390 feet of the pipeline route, the standard evacuation distance given in Appendix D. Camping within this area is limited to designated sites, and the three sites at Bartlett Flat would be permanently closed prior to construction of the pipeline to maintain public safety. The reduction in dispersed campsites would inconvenience those people who enjoy using these campsites; however, other dispersed camping locations and/or the fee campgrounds located along SH 313 would be available to those campers who would be displaced by the elimination of these designated sites. The nearest camp site to the pipeline route in Cowboy Camp Campground is 530 feet. The nearest camp site to the pipeline route in Horsethief Campground is 975 feet. Neither of the developed campgrounds would be located within the standard evacuation distance.

Long term impacts to recreationists include the presence of a pipeline in areas used by those persons seeking a backcountry experience. While the front-country users along SH 313 would not be aware of the presence of a pipeline, the appearance of a pipeline would be an intrusion for those recreationists using routes along the Dubinky Well road, as well as the roads paralleling the proposed pipeline route to the west of SH 313. The pipeline would detract from the backcountry experience sought by some recreationists.

4.3.1.5 Socioeconomic Resources

4.3.1.5.1 Employment, Labor Income, and Output

The IMPLAN (**IM**pact Analysis for **PLAN**ning) model, a regional economic model, was used to provide a mathematical accounting of the flow of money, goods, and services through a region's economy. The model provides estimates of how a specific economic activity translates into jobs and income for a region. In this case, the region was considered to be Grand County.

After supplying the IMPLAN model with input regarding project costs, the results generated from the model estimate effects to employment, labor income, and output. The Operator estimates that of the total project cost of $40,391,450, approximately $2,365,000 (5.8%) would be spent in Grand County on local labor and materials (WBI, 2013b). Most project spending would be non-local, given the highly specialized nature of the project. There would be benefits from the non-local spending, but these would accrue outside Grand County.

Results of the IMPLAN model are summarized in Table 4-3. The results of the model include quantification of direct, indirect, and induced effects of the Proposed Action to Grand County. Direct effects consist of permanent jobs, wages, benefits, and other Operator-borne costs. Indirect effects consist of inter-industry transactions involving businesses that would provide support to the Operator, such as the steel pipe, pipe racks, pipe fittings, and drilling fluids manufacturers and suppliers. Induced effects measure the effects of the changes in household income. Total output represents the value of the direct output, in terms of the Operator's costs, plus indirect and induced effects. Indirect and induced effects are often referred to as multiplier effects; i.e., additional jobs created by secondary purchases of goods and services (indirect effects) and additional jobs resulting from spending new household income in the local economy (induced effects).

Table 4-3: IMPLAN Results - Alternative A

Effect	Employment	Labor Income	Output
Direct Effect	21.5	$846,976	$2,474,726
Indirect Effect	3.7	$174,314	$406,924
Induced Effect	3.4	$109,316	$363,342
Total Effect	28.6	$1,130,607	$3,244,991

In reviewing the data in Table 4-3, it is necessary to note that the employment effect (number of jobs) represents only those jobs that would be created within Grand County. The total number of employees needed to construct and operate the pipeline would be higher than the number reported by IMPLAN. As discussed in Section 3.3.5, however, much of the employment effect would occur outside Grand County (e.g., pipe manufacturing). IMPLAN bases estimates on the existing economic structure of the region under consideration, in this case Grand County. Construction operations would likely be supplemented by a local company, contributing to company profits and stability of employee income. Local spending may benefit as a result. Employment opportunities would be provide an increased measure of job security over the 120 days of construction operations. Workers not living in Grand County but working on-site would stay in local hotels and patronize local businesses while in town. Revenues to local businesses would result from temporary lodging and food expenses for the construction crew, thus making contributions to the sustainability of the local economy over 120 days.

Almost all the estimated local expenditures are in IMPLAN sector 36, “construction of other new nonresidential structures,” with a much smaller amount applicable to the accommodations and restaurant sectors to accommodate non-local labor during the project. Table 4-4 summarizes the IMPLAN results in the context of the top ten affected industrial sectors.

Table 4-4: Top Ten Sectors for Employment – Alternative A

Industry Sector	Employment	Labor Income	Output
Construction of other new nonresidential structures	21.2	$857,789	$2,560,700
Architectural, engineering, and related services	1.5	$97,773	$190,492
Food services and drinking places	0.8	$20,222	$54,564
Automotive repair and maintenance, except car washes	0.4	$11,993	$23,133
Real estate establishments	0.3	$4,298	$44,186
Offices of physicians, dentists, and other health practitioners	0.3	$11,767	$25,452
Retail Stores - Food and beverage	0.2	$9,086	$16,599
Retail Stores - Motor vehicle and parts	0.2	$8,835	$12,037
Retail Stores - General merchandise	0.2	$4,833	$8,873
Monetary authorities and depository credit intermediation activities	0.2	$9,201	$40,367

Most of the local employment created by Alternative A would be in construction-related activities. Most of this employment would end or be greatly reduced upon completion of the project. As can be seen in Table 4-4, and given the very large size of the food and lodging sectors in Grand County, the marginal benefits of Alternative A would be small.

Local oil and gas employees have typically been employed on a long-term basis because of the specialized knowledge and skills required to perform production and maintenance duties for existing wells in the area. Benefits from operating the pipeline and associated facilities would promote job stability for the individuals performing those duties. Increased job stability would support at least existing levels of local spending by local residents, who would support project operations for the estimated life of the project, approximately 30 years.

4.3.1.5.2 Fiscal Benefits to State and Local Governments

Construction of the proposed natural gas pipeline would allow the Operator to market production of natural gas from its wells. Federal, state and county governments would receive additional fiscal benefits from the sale of natural gas beyond the benefits currently received from mineral lease payments on federal wells, state-levied taxes on state wells, and property taxes on natural resource properties accruing to Grand County.

Mineral lease payments. As discussed in Section 3.3.5.2, the federal government collects a variety of payments from minerals activities on federal lands. In the Operator's case, these payments consist primarily of a 12.5 percent royalty on the market value of oil and gas production. Table 4-5 displays the estimated mineral lease payments that would result from the Operator's natural gas production[3]. The table data is based on the Operator-provided estimates of current and near-term production. To the extent that production is higher or lower, or that market prices rise or fall, the projected impact could be higher or lower than the table suggests. In addition to the payments shown in Table 4-5, Grand County would also benefit from PCIB grants and loans.

Table 4-5: Estimated Annual Mineral Lease Payments from the Operator's Natural Gas Production

Source	Annual Production [1] (MCF)	EIA 2013 Spot Price [2]	12.5% Royalty	State Share	County Share
Existing Wells	1,095,000	$4.14	$566,663	$283,331	$141,666

[1] Operator estimate. [2] EIA, 2013.

[3] This assumes all production is from federal wells. One of the Operator's current wells is on state land. To the extent that natural gas production totals includes the state well, the mineral lease payments impact would be less. The state, however, would receive revenues directly from wells situated on state lands. For purposes of the present analysis, given varying levels of well-by-well production, it is not possible to precisely separate out these effects. Given that all but one of the Operator's currently producing wells are federal, most of the economic benefit would be in the form of federal royalties.

Property taxes. As discussed in Section 3.3.5.2, property taxes on natural resource properties, including oil and gas infrastructure, are centrally-assessed by the state but collected by Grand County. Under Alternative A, the County would continue to receive property taxes on current infrastructure. These taxes totaled $79,830 in 2012 and will be $223,321 in 2013 (Grand County 2013). As property depreciates, the assessed value declines. As new property is added, assessed value rises. Without knowing neither the final cost of the proposed pipeline, nor at what value the state would assess it, the exact value of property taxes the county can expect to initially receive from the proposed pipeline is not known. Based on other projects, the Operator estimated that the first year property taxes on the new infrastructure would be approximately one percent of the project's total cost, ranging from $350,000 to $400,000 (WBI, 2013b).

State-levied taxes. The State of Utah levies a variety of taxes on all oil and gas production, regardless of land ownership. These taxes go directly to the state and are generally spent as the state sees fit, without any necessary regard to the county of production. Since the current analysis is limited to Grand County, it is speculative as to how much, if any, of these state levies would eventually be distributed back to Grand County.

Expenditures by the Grand County special service districts resulting from receipt of mineral lease payments can positively affect employment, labor income, and output. These effects cannot be measured, however, with precision because allocation of these funds to a district is at the county's discretion. Districts then make spending decisions at the district level. Given that the four districts represent different economic sectors with different trade flow patterns, the effects from the districts' expenditures cannot be estimated without knowing how these monies would be spent.

4.3.1.6 Soils

4.3.1.6.1 Impacts to Soils.

Pipeline construction would result in direct impacts to 186.8 acres of soils from construction operations, including 30.2 acres on sensitive soils. Approximately 11.9 acres would be disturbed on Toddler-Ravola-Glenton families association soils and 18.3 acres would be disturbed on Chipeta complex soils (See Table 4-6). Long-term effects would result on 16.4 acres of soils. Impacts to soils would result from the removal of protective cover from vegetation, rocks and biological soil crusts, mixing of soil horizons as a result of excavation/blading/grading, and compaction beneath the construction area and life-of-project facilities. Construction operations can reduce soil productivity by altering soil mineral particles, water content, organic matter, soil organisms, and nutrients as well as encouraging erosion. Topsoil would be disturbed along the length of the pipeline route where blading would be needed to install the pipeline on the surface. Topsoil would be temporarily removed and stockpiled nearby where the grading would prepare the surface for those segments where the pipeline would be buried. Reclamation operations would redistribute topsoil along the pipeline route. Revegetation would take up to five years or longer depending on precipitation and climate conditions. Approximately 16.4 acres of soils would not be revegetated until after the life of the project (approximately 30 years or longer) due to location of compressors and other facilities.

Table 4-6: Effects to Soils - Alternative A

Soil Unit	Pipeline Construction (acres)	Facilities (acres)	Construction Total (acres)	% of Total	Reclamation (acres)	Long-term Disturbance (acres)
Rizno-Rock outcrop complex	37.8	2.7	40.5	22%	40.5	0
Begay-Sazi complex	40.6	1.7	42.3	24%	42.3	0
Windwhistle-Begay complex	19.8	0	19.8	10%	19.8	0
Begay-Rizno complex	12.0	3.0	15.0	8%	12.0	3.0
Rock Outcrop-Arches-Mido complex	9.5	0	9.5	5%	9.5	0
Rizno-Begay complex	8.8	0	8.8	5%	8.8	0
Rock Outcrop-Moenkopie association	7.5	1.5	9.0	5%	9.0	0
Toddler-Ravola-Glenton families association [1]	8.9	3.0	11.9	6%	11.9	0
Factory-Pastern fine sandy loams	5.7	0.5	6.2	3%	6.2	0
Mido loamy fine sand	5.3	0	5.3	3%	5.3	0
Chipeta complex [1]	4.9	13.4	18.3	9%	4.9	13.4
Valleycity-Neiber-Rock outcrop complex	0.2	0	0.2	<1%	0.2	0
Total	161.0	25.8	186.8	100%	170.4	16.4

[1] BLM sensitive soil.

Minimizing soil disturbance is the best way to prevent a reduction in soil productivity. The Operator would minimize soil disturbance by:

- Constructing the pipeline adjacent to and within the ROWs of SH 313 and Dubinky Well Road and adjacent to designated routes for approximately 19 miles;
- Constructing the pipeline adjacent to three miles of non-designated routes;
- Constructing the pipeline aboveground for approximately 18.6 miles, or 77.5 percent of the total length, eliminating the need to trench and grade soils along these segments of the route; and
- Conducting reclamation operations that would redistribute the topsoil, reseed disturbed areas, and restore its viable use.
- Avoiding construction activities from December 1 to May 31 as required in the Moab RMP to minimize damage of saline soils.

Construction personnel and machinery would be present along the pipeline route for an estimated 120 days, during which time topsoil would be compacted along the entire route. Dry sandy soils, corresponding to 85 percent of the project area, do not form aggregates. In dry conditions, as is characteristic of the project area, the soil-bearing strength increases. The tendency to moderately compact would be reduced in dry conditions (Wolkowski and Lowery, 2008). Sandy soils with low organic matter can be compacted if their soil water content is at or above its water capacity. In general, more damage results to a moist soil under compaction than a dry one, particularly in clay soils.

Most of the long-term disturbance, 13.4 of the 16.4 acres, would take place on saline Chipeta complex soils. Chipeta complex soils are highly susceptible to compaction and erosion. Shallow Chipeta soil depths in a segment of the route where the pipeline would be buried suggest that shale bedrock layers would need to be excavated to be able to install the pipeline to a depth of four feet or more.

Disturbing unconsolidated soil materials can make project area soils susceptible to wind and water erosion. Project area soils would be susceptible to wind and water erosion where plant cover and/or biological soil crust cover would be removed. Soil and BSC removal would occur for 5.4 miles in total where the pipeline would be buried under Alternative A, affecting approximately 48 acres in total. Chipeta complex soils are present where the pipeline would be buried near Blue Hills Road. These soils are not are not susceptible to wind erosion. Toddler-Ravola-Glenton families association soils, where the pipeline would also be buried, are moderately susceptible to wind erosion. In Big Flat, Begay-Sazi and Windwhistle-Begay complex soils are susceptible to wind erosion. Wind erosion can strip the surface horizon of soil and nutrients necessary for seed germination and plant recruitment. Although approximately 90 percent of project area soils display a moderate tendency to particle dispersion from wind, the presence of bedrock and rock fragments diminishes their overall tendency toward excessive wind dispersion where undisturbed. Mido fine loamy sands are found near the intersection of the pipeline route with Spring Canyon Bottom Road, where the pipeline would be buried to pass beneath the road. These deep soils are more susceptible to wind erosion than other soils in the project area; however, the fill would be compacted as part of construction and driven over by the public on the road surface, further compacting the surface above the trench and alleviating the potential for wind erosion.

Water erosion can form gullies and contribute to sedimentation (See Sections 4.3.1.3 and 4.3.3.3). Soil loss through water erosion corresponds to slope length and gradient, runoff velocity, infiltration through the soil, and vegetative cover. Where soils are comprised of coarse particles such as rock fragments, gravels, or coarse sand, water erosion would be discouraged by moderate-to-rapid permeability. Project area slopes are generally less than 10 percent, which discourages erosion by water. The Toddler-Ravola-Glenton families association and Chipeta complex soils are susceptible to moderate erosion and subject to sheet flow (See Section 3.3.3). Toddler-Ravola-Glenton families association soils are susceptible to gully erosion and channeling in areas where runoff is concentrated. Constructing a buried pipeline in snow cover or under wet conditions would result in direct adverse, moderate, localized, and long-term impacts to these soils. Adherence to the BLM timing limitation during wet conditions would alleviate impacts to these sensitive soils.

Alternative A would minimize impacts to soil stability by: conforming to Gold Book standards and the BLM's *Hydraulic Considerations for Pipelines Crossing Stream Channels*; by following procedures in the Operator's Reclamation Plan (See Appendix H); retaining as much of the existing protective tree and shrub cover as possible; and constructing the pipeline on the ground surface with minimal disturbance to surface soils. The establishment of effective vegetation cover is anticpated to require at least one year for grasses and 5 to 10 years for shrubs, if sufficient precipitation facilitates seed germination. The monitoring that would be conducted by the Operator during the life of the project would ensure that the soils along the pipeline route and facility locations are stable. The Operator has committed to utilizing best management practices for the control of nonpoint sources of water pollution to prevent soil erosion, sedimentation, and damage to floodplains of drainages that transport ephemeral water. Incorporation of site-specific erosion and sediment control measures would minimize soil loss.

4.3.1.6.2 Biological Soil Crusts

Construction operations would disturb 186.8 acres along the pipeline route under Alternative A. Not all of the disturbed area would be covered with BSCs. BSCs are not present on bedrock, in areas where rock fragments predominate, in grassy areas with deep soils, such as on Big Flat or Bartlett Flat or in areas heavily used by cattle, such as near Staging Area #3. Barren areas comprise 21.1 acres of the pipeline route and facilities (See Section 4.3.1.7). The pipeline would be installed cross-country along two miles of its route. BSCs would be crushed within the 50-foot cross-country construction corridor. The use of 22 miles of designated and non-designated routes where construction equipment could operate would reduce impacts to soil crusts because they are not present along the running surface of designated routes. Early successional forms would likely be present along non-designated routes, which were closed in late 2008. Despite the use of the running surface of the routes, BSCs would be crushed where the surface adjacent to the routes would possibly be bladed. Where BSCs are present adjacent to construction areas, they may be buried by wind-blown sand. Assuming that all areas along the pipeline route, except for barren and grassland areas, are covered with BCSs, an estimated 116.7 acres could contain BCSs under Alternative A (derived from Table 4-7).

Although adjacent undisturbed areas of cryptogamic soil would likely inoculate nearby disturbed areas, full recovery of the crusts along the pipeline route may require up to 35 years or longer in areas that would not be used beyond the initial construction operations.

4.3.1.7 Vegetation, excluding USFWS-Designated Species

Vegetation would be temporarily removed where the pipeline would be buried and crushed where the pipeline would be laid on the surface. Approximately 186.8 acres of the surface would be affected by construction operations. Actual impacts to vegetation would be less than 186.8 acres because 11 percent of the surface over which the pipeline would be constructed is barren of vegetation. The effects to vegetation under Alternative A are provided in Table 4-7.

Table 4-7: Effects to Vegetation - Alternative A

Vegetation Community	Pipeline Construction (acres)	Facilities (acres)	Construction Total (acres)	%	Reclamation (acres)	Long-term Disturbance (acres)
Desert Shrubland	66.2	21.9	88.1	48%	74.7	13.4
Sagebrush and Perennial Grassland	48.1	0.9	49.0	26%	49.0	0
Pinyon-Juniper	28.6	0	28.6	15%	28.6	0
Barren	18.1	3.0	21.1	11%	18.1	3.0
Total Pipeline and Facilities	161.0	25.8	186.8	100%	170.4	16.4

The pipeline would be installed aboveground for 18.6 miles of the 24-mile route, or approximately 78 percent of its total length. Impacts to plants of all vegetation communities would be minimized by the Operator's use of adjacent roads and routes where available along 22 miles of the pipeline route. The pipeline would travel cross-country for approximately two miles, affecting pinyon-juniper woodlands south of Cowboy Camp Campground and grasslands on Bartlett Flat.

For the surface installation, the Operator committed to retain as much of the existing vegetation as possible within the pipeline construction corridor.

- The surface would not be bladed prior to installation unless necessary to provide safe equipment access;
- Trees would be avoided where possible; and
- Reclaimed areas along the pipeline route receiving incidental disturbance during pipeline maintenance activities would be reseeded as soon as practical.

Shrubs may be crushed by off-road travel of construction equipment. Because the ground surface would not, in general, be bladed where the pipeline would be installed aboveground, the root structure of the shrubs along the construction corridor would remain intact. Crushed non-woody portions of the shrubs would recover sooner than their woody parts. Preservation of the roots of shrubs would accelerate their regrowth. Regeneration of crushed shrubs would require less than five years because the tap roots would be undisturbed. Decaying crushed plants may contribute small amounts of organic material to nutrient-lacking soils. Effects of construction equipment passage on grasslands would be temporary due to the typically rapid recovery of grass or forb species. Forty-nine acres of grasses would likely recover in the year following seeding; however, more time may be required if the drought persists. The establishment of vegetation sufficiently effective to provide ground cover and soil stability is anticpated to require one year for grasses if sufficient precipitation facilitates seed germination.

Avoiding trees within 28.6 acres of pinyon-juniper woodland would diminish effects to these long-lived trees. An estimated 849 trees may be located within the construction corridor for Alternative A. Because trees would be avoided where possible (See Section 2.2.9), not all the trees within the construction corridor would be removed for the implementation of Alternative A. Where trees could not be avoided, pinyon or juniper trees would require decades to regrow and would likely be replaced by grasses and shrubs. Removal of unavoidable pinyons and junipers would not jeopardize the viability of this vegetation community, which is well-established in its preferred habitat (See Map 6, Appendix C).

Construction of the buried segments of the pipeline would remove ground cover where blading and/or grading would take place in Big Flat and near Blue Hills Road. Of the 49 acres of grassland that would be affected, approximately 32 acres of grasses would be removed in Big Flat; however, this disturbance would remain within the 100-foot SH 313 ROW. Seeding with grasses would likely restore ground cover during the next growing season. Of the 88.1 acres of desert shrubland that would be affected, approximately 14.7 acres of shrubs would be bladed and graded to construct the buried pipeline adjacent to Dubinky Well Road. Construction in this area would take place in the 50-foot road Dubinky Well Road ROW, minimizing impacts to shrubs along this sparsely populated segment of the pipeline route. Three staging areas and possibly their access roads may require grading, affecting an additional 10.9 acres of desert shrubs. Desert shrubs require approximately five years to germinate from seed and another five years to mature. Trenching below the surface at other road/route crossings would likely remove vegetation at either side of the crossing.

Changes in surface water flow regimes that could affect the vitality of natural vegetation downstream from the pipeline route are not expected to occur since the Operator has committed to crossing drainages in a way that minimizes erosion, conducting inspections and performing maintenance where needed, and initiating reclamation operations as soon as practical to facilitate reestablishment of vegetation (See Section 4.3.1.3). Compaction of the backfill over and adjacent to 5.4 miles of buried pipeline would prevent subsidence and channeling, which could otherwise hinder regrowth of plant cover. Regular inspection of the pipeline route along the buried segments would identify areas where maintenance would be needed and performed.

Seeding would be performed to establish an acceptable restoration of vegetative cover along the entire pipeline route. The current drought conditions and prevalence of droughty soils along the pipeline route would hinder reclamation efforts, however. To compensate, fast-growing native species would be used on sandy soils. Under dry conditions, some compaction of the soil surface is beneficial in facilitating successful reclamation. Slightly compacted soil can speed up the rate of seed germination because it promotes good contact between the seed and soil. In addition, moderate compaction may reduce water loss from the soil due to evaporation and prevent the soil around the growing seed from drying out. Although pipeline construction equipment would use adjacent roads where available, equipment operating off-road may moderately compact the ground surface, thereby facilitating successful reclamation on sandy soils (See Section 4.3.1.6).

Construction of the gas processing plant and booster station would affect desert shrub vegetation and a barren area. Ten acres of desert shrub vegetation would be removed where the gas processing plant would be constructed for the life of the project, which corresponds to the lives of the wells it would serve, 30 years or longer. Where perennial plants are removed for the long term, runoff increases and water infiltration diminishes. Drainage, other than surface runoff, is essential for reclaiming saline soils since water must move through the soil to leach salts below the plant root zone. Tilling and application of clean water to reduce soils salinity levels would promote reestablishment of plants in these areas above the pipeline route near Blue Hills Road and at the plant location during final reclamation operations. The booster station would be constructed on three acres of barren ground but remove some desert shrub plants that opportunistically have grown in rock fractures.

Implementation of the Operator’s Reclamation Plan would reestablish vegetation where construction could not avoid removing or crushing plants (See Appendix H). Grasses would regrow quicker (1+ year) than shrubs (5-10 years). Trees would be avoided, but where removed, they may not regrow during the life of the project. During the life of the pipeline, reclaimed areas receiving incidental disturbance during maintenance activities would be reseeded as soon as practical, minimizing adverse effects to vegetation.

4.3.1.8 Visual Resources

Implementation of Alternative A would result in temporary and long-term impacts to visual resources from the construction and operation of the Dead Horse Lateral pipeline and its supporting infrastructure. The evaluation of impacts to visual resources incorporates the Operator’s mitigation measures, including:

- The Operator will paint all permanent above ground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM. The fence surrounding the booster station would also be painted a dark neutral color and lath installed the entire fence line in a color compatible with the natural surroundings to discourage a view of the facilities. If visible from Blue Hills Road the stainless steel flare stack and distillation column would be painted an earth tone color;
- Lighting at the booster station and gas processing plant will be kept to the minimum needed for safe operations. All lighting will be downcast. The booster station will not require night lighting unless needed during maintenance. The light at the gate of the booster station will be motion activated;
- Aligning the pipeline route with designated and non-designated routes where available to prevent the creation of additional visible linear features inconsistent with the natural landscape;

- Utilizing steel pipe that would rust on the surface over time where installed aboveground, generally conforming to the dominant soil color of the project area;
- Retaining as much of the natural vegetation and rock features as possible to preserve the observable characteristics of the existing landscape and using spoil materials to camouflage the pipeline from view;
- Burying the pipeline in Big Flat and near Mineral Point and Mineral Bottom Roads to prevent a view of the pipeline from these roads;
- Applying water to locally reduce fugitive dust during dry conditions; and
- Initiating reclamation as soon as possible and performing monitoring to ensure reestablishment of natural vegetation.

Temporary impacts to visual resources would result from the appearance of pipe, construction equipment, and workers along SH 313 and Dubinky Well Road. Exhaust and fugitive dust generated by construction equipment may be visible to observers in the vicinity; however, application of water and slow vehicle speeds would reduce dust clouds. Temporary impacts to visual resources from construction operations would be more likely to be visible to observers during the spring and fall months when visitation to DHPSP and ISKY would be greater than in other times of the year. Outside of the Scenic Byway corridor, construction equipment may also be observed by hikers and OHV drivers utilizing other designated routes. Construction operations would change in location along the length of the pipeline route, would take place for approximately 120 days in total in various locations, and would not result in long-term impacts that would impair existing visual resource management categories.

Other temporary impacts to visual resources would result from the creation of bare ground where vegetation would be removed and soil would be disturbed for trenching. Bare ground would be most noticeable in the VRM Class II Big Flat area where the ground surface is relatively flat and devoid of trees. Pipeline construction within the ROW for SH 313 in Big Flat would create a widened linear feature parallel to the highway. In the VRM II area, the pipeline would also be buried beneath the Mineral Point and Mineral Bottom Roads and approximately 100 feet to either side of these roads. During the spring and fall, these roads are heavily used by recreationists. After the reestablishment of grasses in these areas, the route of the buried pipeline would not attract the attention of the casual observer because the reclaimed pipeline route would intersect these roads perpendicularly; i.e., the reclaimed route would not be forwardly placed in the eye of a casual observer, especially those traveling in vehicles. The Big Flat area is populated with grasses, which would regrow the next season after reclamation. Near Mineral Point and Mineral Bottom Roads, shrubs would require from 5 to 10 years to reestablish themselves; however trees would be avoided, and grasses would regrow in the short term. Long-term impacts to lands managed as VRM II would not occur from installation of the buried segments of the pipeline because the character of the existing landscape would be restored.

Long-term impacts to visual resources would result from the appearance of the 12.75-inch aboveground pipeline installed parallel and adjacent to existing roads, particularly within the 0.5-mile Scenic Byway corridor, and within 0.5 mile of the two developed campgrounds, Horsethief and Cowboy Camp. The BLM performed a viewshed analysis (Appendix G) to assess impacts to VRM II lands. The BLM visited the proposed pipeline route on June 7, 2013, and used the basic design elements of "form, line, color, and texture" to characterize the landscape in the vicinity the pipeline route in four locations. Four key observation points (KOP) were chosen in consideration of their proximity to the pipeline route and ability to be viewed by a casual observer. The viewshed analysis was conducted using a simulated section of pipe painted in two colors, one color on each side, to approximate the appearance of new and rusted steel pipe. A contrast rating was determined for each KOP in consideration of the Operator-committed mitigation measures, site-specific topographic features, and vegetative screening. The resultant Visual Contrast Rating Worksheets are included in Appendix G of this EA.

Two locations along SH 313 may provide views of the pipeline and/or pipeline route. Two KOPs were chosen to assess possible views to an observer in a moving vehicle along SH 313. Although the pipe itself would not be visible, vegetation crushed from construction equipment would likely be visible from the scenic corridor where the pipeline route ascends a hill or where the pipeline route is near the highway. This impact could be mitigated by positioning the pipeline construction equipment on one side of the pipeline route away from SH 313 in these areas to diminish or prevent a view of crushed vegetation from observers on the highway (See Appendix G, KOPs 1 and 4). Additionally, this would also preserve the vegetation that would screen the pipeline from the road. As a result of successful reclamation, grasses would regrow the next growing season and shrubs would regrow more quickly than from seed since the root structures would remain intact (See Section 3.3.7). Long-term impacts to lands managed as VRM II would not occur from installation of the surface segments of the pipeline along SH 313 because the character of the existing landscape would be restored after reclamation.

Two KOPs were chosen to assess possible views to an observer at campsites at Horsethief and Cowboy Camp Campgrounds. The BLM chose KOPs that would be nearest to the pipeline route. The simulated pipeline could not be seen from Horsethief Campground. The simulated pipeline could be seen at a few locations in Cowboy Campground where the pipeline route emerges from the trees and would afford a campground observer an unobstructed view. One camp site in particular has the most direct view of the pipeline route, which is below the higher elevation of the campground and adjacent to a 2-track road. Because of its downward aspect, position adjacent to a road, and rusted color, which would blend with the soil color, the pipeline would not attract the view of a casual observer. The pipeline may be in view in other locations at other campsites in Cowboy Campground but would not be noticeable to the casual observer because of its distance, its position parallel and adjacent to a road, vegetation breaking the form, and the dominating features of the larger viewshed. The BLM observers concluded that the pipeline would not be visible from the majority of the campsites at the Cowboy Campground.

Three additional KOPs were chosen in Big Flat to assess impacts to observers traveling on SH 313 where 3-foot pipeline risers would be installed. The BLM determined that none of the risers would be observable as a silhouette against the skyline. The risers would be viewed in all directions by predominantly by observers in vehicles traveling at highway speeds against a backdrop of natural vegetation and soil. By being painted to match the vegetation and/or soil in the area, the BLM observers concluded that impacts to lands managed as VRM II would not occur from installation of the risers in Big Flat.

The results of the viewshed analysis support the BLM determination that no impairment of the visual resources from the developed recreation sites would result from the installation of the proposed pipeline. Installing the pipeline within the 0.5-mile scenic corridor and adjacent to two developed campgrounds would not attract the attention of the casual observer. The pipeline would essentially be invisible to potential observers on SH 313.

A pig launcher would be installed at the Kane Springs Federal 19-1 well pad; however, at a height of six feet, it would not be visible from SH 313 because of the approximate 0.5 mile distance to the highway. If a 3-foot tie-in riser would be installed adjacent to SH 313 in Big Flat, it would be painted in a flat non-reflective color to blend in with the visual environment and would not attract the attention of a casual observer.

Staging areas were chosen to utilize previously disturbed flat areas; however, some staging areas may be bladed, removing existing vegetation. In particular, staging areas #3 and #5 (See Table 2-3) may need grading to provide a level surface. Staging area #3, the cattle use area, has been used in the past as a livestock watering area. This area is primarily bare ground sparsely vegetated with knapweed. As a result, visual contrasts in line, color, and/or texture that may result from the removal of vegetation at staging area #3 would be minimal. The growth of desirable grasses as a result of reclamation operations would result in beneficial visual impacts. Staging area #3 would be located in a VRM III management area, and the moderate changes to visual resources there would be temporary. Staging area #5 would be located in a VRM IV management area in the Blue Hills at the site of a former well pad adjacent to Dubinky Well Road. Some reclamation may have been performed at this site because plants are present; however, the topography was not restored to blend in with its surroundings. Use of the former well pad as a staging area would not dominate the view or be a major focus of attention. Changes to visual resources there would remain until the site is revegetated with desert shrubs in approximately 10 years. Because the surface of the Blue Hills area exhibits bedrock exposures and rock fragments, placing rocks or fragments on the reclaimed staging area would alleviate the appearance of the flat surface that was used as a well pad; however, this level of effort would not be required to maintain consistency with the objectives of VRM IV management.

The aboveground pipeline would be constructed in VRM III and VRM IV areas along Dubinky Well Road. The pipeline would be very visible along this road to observers driving the road, particularly where the road crosses the grasslands of Bartlett Flat. The three designated undeveloped Bartlett Flat camping sites would be closed (See Section 4.3.1.6), eliminating visual impacts to campers in this area. The pipeline would be likely to attract attention to the observers in this VRM III area; however, expansive panoramic views in all directions would distract observers from the presence of a nearby 12.75-inch pipeline such that it would not dominate the view of the casual observer. Installation of the pipeline would result in a linear form parallel and adjacent to the existing linear form exhibited by Dubinky Well Road; thus, the change introduced by the installation of an aboveground pipeline would repeat an element characteristic of the existing landscape.

The A-frame support structures that would be used to support the pipeline as it crosses Dubinky Wash would be constructed adjacent to the road in a VRM III area. The height of the A-frames would be determined in consideration of bank heights and width of the wash crossing. These supports are typically 10 feet high (See Appendix I, Figure 6); however, the actual height may vary and be lower or higher than 10 feet. The suspended pipeline would result in a linear feature parallel but vertically displaced from the road surface. The A-frame supports would be constructed from pipe that would rust and thereby would provide consistency with the color of the soil surface. This coloration would offset the contrast in form of the structure in the view as seen along the Dubinky Well Road. The A-frame supports and suspended pipeline would briefly attract the attention of a casual observer travelling along the Dubinky Well Road at the wash crossing but because the viewing window would be brief, the suspended pipeline and support structure would not dominate the view.

The booster station, including a 20-foot tank and two pig launchers would be constructed adjacent to Dubinky Well Road in a VRM III area on a topographic rise. Their elevated positions would attract the attention of the casual observer, who is typically driving down the road. This location of the booster station is not heavily used by hikers, but it would be viewed by equestrians who use an adjacent trail for the annual Moab Endurance Ride (See Map 4). Constructing a 6-foot fence to surround the booster station would block a view of the bare ground surface, the pig launchers, and the base of the 20-foot tank, and 12-foot compressor enclosures. Painting the booster station a flat color to blend in with the surrounding environment would reduce any color contrast that would otherwise attract the attention of an observer. The chain link fence would be painted a color that would be complementary to the surrounding natural environment and the addition of similarly colored lath on the fence would promote consistency with the blocky form and rough texture of the nearby terrain, which consists of broken fragments of Morrison Formation outcrop on sandy soils and sparse desert vegetation. The presence of the booster station would not dominate the view of the casual observer, particularly an observer in motion.

The gas processing plant, including another pig launcher, would also be constructed in a VRM III area at least 2,934 feet from Blue Hills Road. An intervening ridge, which is approximately 50 feet high, would prevent a direct view of most of the gas processing plant and other infrastructure from a potential observer driving on Blue Hills Road; however, the tops of the 50-foot flare stack and 71-foot distillation column may be visible from the road. If so, the Operator would paint the stack and column an earth tone color so that the stainless steel finish would not attract the attention of a casual observer. Sixty-foot towers supporting high voltage electric power lines are positioned between the proposed plant site and the Blue Hills Road. The appearance of the power line support structures would be more noticeable to an observer than the tops of two vertical, narrow-diameter cylinders (12 and 24 inches), which may not be noticed after being painted by observers in moving vehicles at a distance of over 0.5 miles. If an upset condition or other temporary inability to transport natural gas to or from the processing plant were to occur, natural gas being flared from the flare stack would be visible to observers, particularly at night. The appearance of a flame would attract the attention of an observer; however, use of the flare at the processing plant would be atypical and temporary until proper operation of the system could be restored. Most recreation use of the Blue Hills Road takes place during daylight hours. There are no developed campgrounds that use the Blue Hills Road for access. Campers using dispersed sites near the processing plant would be able to see a flare at night when the flare would need to be temporarily used.

The aboveground pipeline would be constructed in a VRM IV area along Dubinky Well Road as this road crosses the Blue Hills. Although VRM IV management objectives would allow a major modification of the landscape, installing the pipeline in this area would not dominate the view because the views are still expansive in this area. The Blue Hills are characterized by an abundance of rock outcrops and rock fragments and are populated with pinyon/juniper trees and shrubs. Placement of the pipeline with attention given to utilizing the existing vegetation and rocks to hide a view of the pipeline, as committed to by the Operator, would prevent the pipeline from becoming a major focus of attention in the VRM IV area. Changes to the visible landscape would be minimized by placement of the pipeline adjacent and parallel to Dubinky Well Road, repeating the line of the road and color of sandy soils.

After the pipeline is in operation, the need to continuously flare natural gas at the well locations would be eliminated. Automatic flares would be operated at the wells if the booster station were to be temporarily shut down, or they may possibly be needed during maintenance operations. Use of flares at a well pad would be temporary until normal operations could be resumed. At such times, flares would be visible to observers along State Highway 313 and at more distant locations, including campgrounds. With the installation and usual operation of the pipeline, dark night skies would be restored to observers travelling State Highway 313 and at campgrounds. Flares would not be visible from Arches National Park, the Sand Flats Special Recreation Management Area, or other more distant locations. Beneficial impacts to visual resources would result from Alternative A by restoring dark rural night skies uncompromised by flares. Therefore, construction and operation of the pipeline under Alternative A would be consistent with VRM II, III, and IV designations and their management objectives.

4.3.1.9 Wildlife

4.3.1.9.1 Fish and Wildlife, excluding USFWS Designated Species

Potential impacts to terrestrial wildlife species would include loss of habitat, habitat fragmentation, the potential for degradation of adjacent habitats, and displacement of local individuals. Impacts to habitat would consist of a short-term unavailability of 186.8 acres and long-term loss of 16.4 acres. The amount of available forage and cover would be reduced for individuals that utilize habitats along the pipeline route.

Indirect impacts to wildlife may result from weed invasion. Weed invasion can reduce the amount of available habitat and compromise its overall quality. The Operator has committed to monitoring and controlling the growth and establishment of weeds. The Operator's Reclamation Plan (See Appendix H) provides details of the procedures that would be followed to prevent the introduction and spread of invasive and noxious species. Monitoring and controlling weed infestations would result in small adverse impacts to wildlife habitat from invasive species.

Installation of the pipeline belowground or aboveground adjacent to a designated Class D route, Dubinky Well Road, or SH 313 would minimize the overall effects of habitat fragmentation with its placement adjacent to an existing constructed linear feature. Installation of the pipeline would add to habitat fragmentation where the pipeline would be installed aboveground and cross-country. Of the 24-mile pipeline route, approximately five miles of pipeline would travel cross-country or adjacent to an undesignated route.

Wildlife may suffer temporary displacement as a result of construction noise, increased traffic, and increased human presence. Unusual or loud noises generally startle and stress most wildlife species, causing them to leave the area. Increased vehicle traffic may result in direct mortality in occupied habitat; however, recreational vehicle travel and OHV use are common in the project area such that individuals are generally accustomed to traffic.

The effects of long-term noise on wildlife depend upon noise intensity and frequency, in addition to the sensitivity of the species or individual. Animals rely on hearing to avoid predators, obtain food, and communicate. Compressor noise at the booster station or gas processing plant may displace wildlife from the vicinity of the noise source to other locations within similar habitat. Noise that is somewhat regular in its pitch and intensity over a long period of time may allow some individuals to become used to it, stay in the area, and show no signs of adverse effect. Wildlife individuals that suffer stress from compressor noise or similar equipment noise would be likely to breed and raise their young at a distance from the noise source. The widespread extent of similar wildlife habitats in the vicinity of the project area would diminish the magnitude of adverse impacts to wildlife from habitat loss.

Desert bighorn sheep. Extensive GPS collar data over three two-year studies collected from 2003 through 2011 provides insights how the bighorn use their habitats in this area and the differences in where ewes and rams are throughout the year.

The data indicate high year-round use by both ewes and rams in Mineral Canyon, Spring Canyon, the Needles area, upper Tenmile Canyon, Long Canyon, Sevenmile Canyon and the Dead Horse Point area, all of which are in the vicinity of the proposed pipeline. Collar data indicate high ram use with minimal ewe use in Hell Roaring Canyon, though visual and aerial observations have confirmed this canyon also is used by a small band of ewes and lambs year-round. This data also indicates that the animals that use these areas typically are well over 300 meters from the proposed pipeline.

Because the pipeline route is at least one mile from the upper reaches of these canyons, it does not approach steep-sided canyon walls that that are used by sheep as escape terrain; therefore, habitat patch size would not be reduced, and the viability of the population would not be compromised. Ewes would be less affected by construction operations than rams since the ewes remain closer to escape terrain near and within the canyons.

High ram use has been consistently documented along 3.3 miles of the proposed pipeline route adjacent to the Dubinky Road between the Needles northward to the Blue Hills. This area has been identified in the 2008 RMP as a migration corridor. The data indicate that rams move through this area as they travel between the heads of Tenmile and Spring Canyons, Tenmile Wash, Brinks Spring and the Bartlett and Tusher areas. Though the highest use would be expected during the rutting season, the data indicate they move through this area on a year-round basis, although they do not remain for extended periods of time. Construction activities during migration periods may alter historical ram movements during the rutting period when rams are accessing their rutting grounds, although there may be some level of habituation to vehicle and recreational use along the Dubinky Road.

By avoiding construction operations in migration corridors during times of bighorn migration, effects to migrating sheep would be diminished. Pipeline construction operations would be allowed in migration areas from June 16 through October 14 and from December 16 through March 31. Activities outside of these time frames would cause individual rams to avoid this area and may impede passage to other areas, but would not impede rams reaching their rutting areas during the critical rutting season.

Another migration area was identified in the 2008 RMP between the heads of Hell Roaring Canyon, Sevenmile Canyon, and the South Fork of Sevenmile Canyon. The pipeline route crosses this migration corridor for 0.4 mile adjacent to SH 313. GPS data indicate rams may move between these canyons, but their use of this area is minimal and inconsistent; therefore, this area may not be appropriate for a “no surface occupancy” stipulation.

Pronghorn antelope. Although a portion of the project area contains some elements of pronghorn habitat, it does not support large populations of pronghorn due to the sparse vegetation, general lack of available forage and water, and unfavorable canyon topography. Pronghorn that reside in the project area may be temporarily displaced. Minimal pronghorn use is expected to occur near Dubinky Road because of high recreational use and moderate traffic speed along this road. Pronghorn that utilize habitat near this road would be accustomed to consistent human activities and vehicular use; therefore, minimal additional disturbance from pipeline construction activities would be expected in this area. Due to the low use levels of project area habitats by this species and the availability of more favorable habitats in nearby areas, impacts to pronghorn species would be small.

Construction just prior to fawning could cause the does to avoid using this area; however, other nearby areas would be suitable for fawning and would likely be utilized. If does have already taken up residence near the pipeline route and construction activities were to begin just prior or during fawning, the construction activities may elevate stress. The fawning period, May 1 through June 15, is a sensitive time for pregnant does and very young fawns, and these animals are very susceptible to predation and are easily fatigued. The greater a fawn’s rate of growth, the greater the chance of fawn survival. The quicker the fawn is able to be mobile, the better the chances of survival from predation. Fawn mortality could result from excess stress, fatigue, and predation if construction operations were to be initiated during fawning; however, because there is minimal pronghorn use in this area and human activities and vehicle use are common, minimal additional disturbance from pipeline construction activities is expected.

Construction outside of the fawning period would cause individuals to avoid this area. Fawns would be older, larger, and more mobile. Construction outside of the fawning period would have little impact on antelope.

4.3.1.9.2 Migratory Birds and Raptors

Migratory birds. Potential direct impacts to migratory birds would correspond primarily to the long-term loss of trees along the pipeline route. Approximately 6.2 miles, consisting of 28.6 acres, would be located in pinyon-juniper woodlands. The Operator committed to avoid removing trees within the pipeline construction area where the pipeline would travel cross-country. The surface would not be bladed or cleared of vegetation where the pipeline would be installed aboveground adjacent to roads unless necessary to enable the safe use of installation equipment. Following construction operations, woodland habitats would again be available to migratory birds; therefore, no long-term or permanent direct impacts to migratory bird habitat are expected as a result of pipeline installation.

Construction activities occurring outside of the nesting/fledging period would have negligible effects to migratory birds because they would be likely to temporarily move to undisturbed areas in the vicinity where forage and cover is abundant.

The booster station and gas processing plant would be located outside of the pinyon-juniper woodland community; therefore, no trees would be lost to from their construction. Following construction operations, 16.4 acres of low potential migratory bird habitats would not be available to migratory birds. Compressor noise at the booster station or gas processing plant may displace migratory birds from the vicinity to other locations within similar habitat. Individuals that suffer stress from compressor noise or similar equipment noise would be likely to breed and raise their young at a distance from the noise source. The widespread extent of similar habitats in the vicinity of the project area would diminish the magnitude of adverse impacts to migratory birds from habitat loss.

Raptors. As with migratory birds, construction activities occurring outside of the nesting/fledging period would have negligible effects to raptors because they would be likely to temporarily move to undisturbed areas in the vicinity where forage and cover is abundant (Romin and Muck, 2002). A raptor inventory was performed during the summer of 2013 to provide a baseline that would be used to determine areas of moderate to higher potential if construction occurs during the 2014 raptor nesting season.

Many raptors display fidelity to nesting sites and will return to the same nest site or nesting territory year after year. Sensitivity of adult and young birds to disturbance varies during the nesting cycle, with courtship, nest construction, incubation, and early brooding considered higher risk periods. During these times, adults are easily prone to temporarily or permanently abandon nests in response to increased noise disturbance or increased activity levels, leaving the eggs and/or young susceptible to the effects of inclement weather, solar radiation, and predation. Temporary flushing of adults from nests due to noise during these periods can result in mortality of the young birds, which continue to be dependent on parental care (Romin and Muck, 2002).

Raptor nesting is not expected to occur within 0.5 mile of the Dubinky Road and SH 313 because of high recreational use and moderate-to-high-speed traffic along these roads throughout the nesting season. Nesting raptors detected within this 0.5 mile of these roads and the construction corridor would be subjected to minimal additional disturbance from pipeline construction activities. Aboveground pipeline installation is estimated to require approximately 0.25 mile per day; therefore, individual nesting raptor territories within 0.5 mile of construction activity would incur no more than two days of short-term, transient disturbance that may be greater than baseline activity, as evidenced by road traffic, within an active territory. Pipeline burial along the above mentioned roads will occur at approximately 0.1 mile per day, therefore individual nesting raptor territories within 0.5 mile of construction activity would incur no more than five days of short-term, transient disturbance that may be greater than baseline activity within an active territory. The short-term increase in disturbance while constructing either buried and aboveground segments of the proposed pipeline is not expected to cause a nest to be permanently abandoned by the nesting raptors that occupy the ROW adjacent to the Dubinky Road and SH 313 as long as the actual nest is not destroyed by construction activities.

Applicant-committed measures (Table 2-6) to monitor and avoid direct destruction to active nests until nestlings have fledged would ensure active nests occupied by adults with eggs, nestlings, or fledglings would not be destroyed; therefore, no nesting mortality is expected. Adults and/or recent fledglings not dependent on the nest would be able to reside in suitable habitats in nearby areas. Future use of the nest territory would not be impacted as typically the nest itself would be available for use the following year. In the event that a nest was destroyed after the nesting season, the habitat within the territory and any other satellite nests or suitable nest sites would not be impacted by construction of the pipeline.

Where the proposed pipeline is not located within 0.5 mile of main roads, nesting raptors may be more prone to abandon nests in response to increased noise or increased human activity levels as a result of construction activities. The Operator would conduct an inventory for active raptor nests one week ahead of construction activities as construction proceeds along the ROW if construction operations were to be conducted during the nesting season. Construction activities would adhere to the appropriate spatial and seasonal offsets to active nests in areas where the proposed pipeline is not located within 0.5 mile of main roads, including the one nest identified in 2013; therefore, no impacts to nesting raptors would be expected

The presence of the pipeline, as a permanent facility, is not expected to alter or reduce prey availably or create long-term, permanent disturbance that would make the habitat unsuitable for future occupancy by a nesting raptor pair.

Some other types of permanent facilities, such as buildings, active oil or gas wells, booster station and other facilities that create continual long-term disturbance, can alter prey base or habitat suitability within an active nest territory. Permanent abandonment of established nest sites can result if construction of the booster station and gas processing plant removed a nest or its operation interfered with nesting activity. Construction and/or operation of the booster station and gas processing plant may result in the removal or abandonment of a nest. Implementation of the spatial and seasonal offsets to an active raptor nest would prevent direct impacts to actively nesting raptors but may render the habitat unsuitable for future occupancy by a nesting raptor pair in future years.

4.3.1.9.3 Utah BLM Sensitive Animal Species

An inventory for kit fox dens, sensitive raptors, and prairie dog colonies, as an indicator of potential for burrowing owls, was performed during the summer of 2013 to provide a baseline that would be used to determine areas of moderate to higher potential if construction occurs during the 2014 nesting or pupping season.

Burrowing owl. A nesting raptor survey, including burrowing owls, would be conducted if project activities were to be performed during the nesting period. Applicant-committed design features would preclude the potential for active nesting burrows to be destroyed while fledglings are utilizing the nest burrows; therefore, no mortality is expected.

As discussed in Section 4.3.1.9.2, minimal burrowing owl nesting is expected near the Dubinky Road and SH 313, and additional disturbance from pipeline construction activities would result in minimal effects as long as the actual nest is not destroyed by construction activities. The short-term increase in disturbance while constructing both buried and aboveground segments of the proposed pipeline is not expected to cause a nest site to be permanently abandoned.

Where the proposed pipeline is not located near SH 313 and Dubinky Well Road, adverse impacts to burrowing owls would be mitigated with the implementation of spatial restrictions to active nests during the nesting/fledging season in areas not adjacent to roads.

Suitable habitat for the burrowing owl consists of the perennial grasslands, which is present on approximately 38.8 acres in the Bartlett Flat and Big Flat areas. The pipeline would be constructed on the surface in Bartlett Flat, precluding impacts to burrows from excavation; however, near-surface burrows may be crushed by the movement of pipeline construction equipment across six acres where the route travels cross-country in this area. Burrows could be destroyed were the pipeline would be installed underground in the Big Flat area; however, the approximate 32.8 acres that would be affected in Big Flat would be located adjacent to SH 313. Nest locations would be unlikely in close proximity to a well-used highway.

Adults usually return each year to the same burrow or a nearby area, known as a nesting territory. One or more satellite burrows can usually be found near the nest burrow or in the territory; therefore, although the current active burrow site may be destroyed outside of the nesting season, nearby burrows and satellite burrows or unused rodent burrows within the same territory could be utilized the following year, ensuring the territory is still viable. Breeding activities in years subsequent to installation of the pipeline are not expected to change.

Ferruginous hawk. Impacts to ferruginous hawks would be identical to those impacts discussed in Section 4.3.1.9.2.

Kit fox. The kit fox is a highly mobile species that frequently moves from den to den. If construction activities were to occur after March 1, which is the beginning of pupping season, kit fox in the vicinity of the project area would likely to flee from human presence to nearby suitable habitat. Applicant-committed den surveys prior to pipeline construction and the imposition of a 200-meter spatial offset to an occupied natal kit fox den would provide protection to this species.

The Bartlett Flat and Big Flat areas, which constitute preferred habitat for the kit fox, offer adequately large areas of habitat for relocation for displaced kit foxes and their young if activities were to occur outside of the pupping season, March 1 to July 31.

Preferred habitat is present on approximately 38.8 acres in the Bartlett Flat and Big Flat areas. The pipeline would be constructed on the surface in Bartlett Flat, precluding impacts to tunnels or dens from excavation; however, near-surface tunnels may be crushed by the movement of pipeline construction equipment across six acres where the route travels cross-country in this area. Potential impacts to the kit fox include temporary displacement and loss of habitat where the pipeline would be buried, which includes approximately 32.8 acres of grassland in Big Flat Tunnels could be destroyed were the pipeline would be installed underground in the Big Flat area; however, the approximate 32.8 acres that would be affected in Big Flat would be located adjacent to SH 313, which divides kit fox habitat and prevents tunnel construction. Preferable denning locations may be found away from the highway and away from the pipeline route, making it unlikely that installation of the pipeline would affect existing kit fox dens or alter the suitability of the pipeline route for future use.

White-tailed prairie dog. Any impact to prairie dogs from this project would be to individual prairie dogs as the relatively narrow corridor of disturbance would not likely effect an entire prairie dog town or populations in the southwestern Cisco Desert. The narrow footprint of development and adequate habitat adjacent to the pipeline ROW would allow for any displaced animals to occupy nearby habitat.

From early April through mid-June, prairie dogs give birth to 2 to 3 pups, and prairie dogs would be less likely to move from the construction activities to find new homes. There is the potential that animals in their burrows would suffer direct mortality during construction operations directly above the burrow. Mortality is expected to be minimal, especially if outside of their birthing period. If conditions were favorable, current reproduction rates would adequately support recruitment. Construction impacts would be narrow (linear construction), temporary and short in duration (3 to 4 months).

Potentially suitable habitat for the white-tailed prairie dog along the pipeline route consists of the perennial grasslands and relatively deep soils on approximately 38.8 acres in the Bartlett Flat and Big Flat areas of the southwest Cisco Desert. The pipeline would be constructed on the surface in Bartlett Flat, precluding impacts to burrows from excavation; however, near-surface burrows may be crushed by the movement of pipeline construction equipment across six acres where the route travels cross-country in this area. Burrows could be destroyed were the pipeline would be installed underground in the Big Flat area; however, the approximate 32.8 acres that would be affected in Big Flat would be located adjacent to SH 313, which effectively presents an obstacle to burrow construction; however, construction activities could temporarily alter prairie dog habitat. Where the pipeline route crosses Big Flat and Bartlett Flat, sufficient suitable habitat is present for the relocation for displaced prairie dogs.

4.3.1.10 Mitigation Measures

Recreation:

1. After the pipeline is in service and reclamation operations are complete (e.g., ripping, scarifying, spreading of topsoil, reseeding), roads along the pipeline route that are not open to the public (not included in the BLM Travel Plan) should be signed, gated, or otherwise blocked to prevent public access. The Operator should consult with the AO prior to their installation to confirm the type of road management feature and specific details of gates, signs, or other methods. Installing a sign, gate, or other road management feature would prevent public use of non-designated routes and also prevent the creation of new roads not in the BLM Travel Plan where the pipeline would be installed cross-country.
2. If pipeline construction were to be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during the two weeks prior to Easter when the Jeep Safari would take place, the Operator would contact the AO in advance to coordinate with Jeep Safari organizers to avoid potential conflicts. The objective of such communication would be to maintain unimpeded access along Jeep Safari routes without delays to participants that might otherwise result from pipeline construction.
3. If pipeline construction would be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during mid-to-late October when the Moab Endurance Ride would take place, the Operator would contact the AO in advance to coordinate with ride organizers to avoid potential conflicts. The objective of such communication would be to maintain unimpeded access along Endurance Ride routes without delays to participants that might otherwise result from pipeline construction.
4. Signs warning the public of pipeline construction activity should be located at the closest road/designated route intersections (on either side) of the next day's planned construction activities or where staging areas may be temporarily located. Advance public notification would help to ensure vehicle traffic safety along roadways where construction activity would be taking place.
5. Lone Mesa Campground would not be available as a staging area after March 15 in order to minimize impacts to the camping public.

Visual Resources:

6. As discussed and agreed to during a field visit, position the construction equipment on the side of the pipeline opposite SH 313 in two areas specified by the BLM to diminish or prevent a view of crushed vegetation from observers on the highway, and to preserve vegetation that would screen the pipeline from the road to meet VRM II objectives.

7. If maintenance operations hinder the growth of plants that are products of reclamation operations, initiate remedial reclamation operations immediately after such work is complete to ensure the restoration of rehabilitated wildlife habitat and prevent long term impacts to VRM objectives and soil stability.
8. Where the pipeline is constructed adjacent to an existing route, utilize the existing route for vehicle access for inspections and maintenance. Using a designated or non-designated route for inspection purposes would utilize existing surface disturbance and prevent unnecessary and unintended adverse effects to physical resources in the SRMA.
9. Install signs, gates, or other means of preventing public use of non-designated roads or cross-county routes that would be used for pipeline construction, inspection, and maintenance to prevent the creation of new linear features that may detract from VRM objectives.
10. During reclamation operations at staging area #5, place nearby rocks and rock fragments on the pad to allow it to blend in with the natural surroundings. Staging area #5 is located in a VRM IV area, where management activities may dominate the view and be the major focus of attention. Changes, however, should be minimized through location and design by repeating form, line, color, and texture. Replacing rocks on this well pad would provide consistency with the adjacent form, line, and color of adjacent undisturbed surroundings.
11. In those areas where the pipeline can be seen from the Cowboy Camp Campground, downed juniper from the area will be placed around the pipe to break up the linear aspect and provide some camouflage of the surface-laid pipe from the campsites. Doing so would ensure consistency with the VRM II objective which allow management activities to be seen but diminishing the likelihood of attracting the attention of a casual observer.

4.3.1.11 Residual Impacts

Residual impacts are those impacts that remain after the application of mitigation measures. Residual impacts represent the degree of environmental change.

The disturbance to soils, vegetation, and wildlife habitat resulting from construction equipment travel cross-country would remain until vegetation regrows, either because the root structure was not compromised or as a result of reseeding. Implementation of Alternative A would result in small long-term residual impacts to vegetation where desert shrubs would be removed where the pipeline would be buried near Blue Hills Road; however, regrowth of shrubs from seed is expected to occur within 10 years.

Despite prior clearance surveys, surface-disturbing activities have the potential to damage or destroy cultural or paleontological resources. Although unlikely, cross-country vehicle travel may expose previously undiscovered resources and leave them vulnerable to illegal collection from pedestrians or environmental damage.

Bighorn sheep may experience temporary stress from the presence of humans and operation of equipment migration corridors.

4.3.1.12 Monitoring and/or Compliance

During construction operations, the BLM would periodically monitor the project construction to ensure that the disturbance conforms to what was approved by the ROW. After project construction operations are completed, the survey area would be inspected by the BLM to determine that all debris has been removed from the construction area.

The Operator has committed to provide funding for an independent 3rd-party BLM compliance monitor. The monitor would be present on-site while construction is taking place to ensure compliance with all conditions of approval and stipulations of the ROW grant. Pre-work meetings would be held daily to review these requirements. The monitor would be required to contact the BLM staff routinely to provide updates as to compliance status. If the construction does not conform to the requirements, the monitor would have the authority to stop construction until the matter at issue is resolved.

In addition, the Operator has committed to employing biological, cultural, and paleontological monitors who would perform their duties in conformance with direction received from the BLM.

4.3.2 Alternative B – No Action

4.3.2.1 Air Quality

Since the pipeline would not be installed, construction and emissions that would result from the operation of the pipeline would not be generated from the implementation of Alternative B. Air quality under this alternative would remain under existing influences.

4.3.2.2 Cultural Resources and Native American Religious Concerns

Possible impacts to cultural resources would not occur as a result of implementing this alternative. Adverse effects to cultural resources that could not be avoided by pipeline construction operations would not occur.

4.3.2.3 Floodplains

Under the No Action alternative, impacts to floodplains would not result from construction and operation of the pipeline and associated facilities.

4.3.2.4 Recreation

Implementation of the No Action alternative would result in no impacts to recreational resources from the construction and operation of the pipeline. Recreational activities would remain co-existent with other activities in the SRMA, such as the operation of oil and gas wells, some of which are located near high recreational use areas of SH 313 and Horsethief and Cowboy Camp Campgrounds. Natural gas flares at active well pads would continue to be seen by recreational users of the SRMA, especially at night (See Section 3.3.8).

4.3.2.5 Socioeconomic Resources

Under Alternative B, a pipeline to transport natural gas from the Operator's wells would not be constructed. The lack of a pipeline would prevent the capture and transport of natural gas to the market and would also preclude the collection of royalties. Based on the Operator's projections of the likely initial flow of natural gas through the proposed pipeline, it is possible to estimate the fiscal loss to the state and Grand County, should the natural gas resource not be produced.

The Operator estimated an initial annual volume of 3,000 MCF of natural gas would be transported through the proposed pipeline. This gas is currently flared on-site, with no economic benefit to governments from mineral royalties and/or severance taxes on production. This absence of economic benefit from natural gas production would continue under the No Action alternative. Conceptually, however, this "lost" production represents a foregone economic benefit of approximately $566,663 in mineral lease payments to the federal government, with related "lost" benefits to the state and to Grand County. Additionally, the absence of a pipeline represents foregone property taxes to the County. These fiscal impacts are discussed in Section 4.3.1.5.2.

4.3.2.6 Soils

Soils and BSCs would remain in their current conditions. Soils and BSCs would not be disturbed by constructing and operating the proposed pipeline, booster station, and gas processing plant.

4.3.2.7 Vegetation

Vegetation and the existing plant communities would not be disturbed by constructing and operating the proposed pipeline, booster station, and gas processing plant. No short-term effects would result to the sagebrush and perennial grassland or the desert shrub communities. No pinyon or juniper trees would be removed along the pipeline route.

4.3.2.8 Visual Resources

Implementation of the No Action alternative would result in no impacts to visual resources from the construction and operation of the pipeline, booster station, and gas processing plant. The landscape and visual character of the project area would remain under existing influences. Although flares are more difficult to perceive in daylight, flares would continue to produce flames visible at night to observers traveling on the Scenic Byway and throughout the area. Flares would continue to be visible from Arches National Park, Sand Flats Special Recreation Management Area, and other distant locations where lines of sight are present. Dark skies, typical of undeveloped rural areas, would remain compromised in the vicinity of the flares.

4.3.2.9 Wildlife

Under the No Action alternative, possible impacts to migrating bighorn sheep would not occur. Wildlife habitat that would have been temporarily affected by pipeline construction would remain completely intact and available for use by wildlife.

4.3.2.10 Mitigation Measures

No mitigation measures would be needed for the implementation of the No Action alternative.

4.3.2.11 Residual Impacts

Because residual impacts are those impacts that remain after the mitigation measures have taken effect, because no mitigation would be applied to the No Action alternative, and because the Proposed Action would not be implemented, no residual impacts would result from the implementation of Alternative B.

4.3.2.12 Monitoring and/or Compliance

Monitoring would not be needed because no action would be implemented.

4.3.3 Alternative C – Burying the Pipeline along the Entire Length of the Proposed Route

4.3.3.1 Air Quality

The impacts to air quality that would result from the implementation of Alternative C would be qualitatively identical to the impacts described in Section 4.3.1.1, including the impacts from GHGs. Implementation of Alternative C would result in temporary short-term emissions while the pipeline would be constructed and long-term emissions from compressors and other equipment needed to operate the pipeline. An EI was prepared to estimate emissions generated by construction operations and emissions generated from the operation of equipment needed to support pipeline operations (See Table 4-8).

Table 4-8: Alternative C-Pipeline Construction and Operation Emissions (TPY)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SOx	VOCs	HAPs	CO_2e emissions (tonnes/year)
Pipeline Construction	-	-	50.33	6.18	-	-	-	-
Pipeline Facilities Operation	80.9	35.1	-	-	-	13.7	6.8 [1]	22,234

Source: Golder, 2013. [1] HAPs emitted from compressors consist primarily of CH_2O.

Construction emissions consist primarily of particulate matter, which would be generated by earth-moving equipment along the entire length of the 24-mile long pipeline route. Construction emissions resulting from the burying the pipeline would be generated for an estimated 200 days. Blading and grading the ground surface would take place within the 75 to 125-foot construction corridor. PM emissions would also result from excavating the trench, and could include blasting bedrock in places. Although the prevailing wind direction from west to east would carry fugitive dust in the direction of Arches NP, the 8-mile distance to the park reduces the possibility that PM would be discernible at the park or distinguished from other sources of impairment to visibility. Impacts to DHPSP are expected to be identical to those described in Section 4.3.1.1 because the pipeline is planned to be buried in the Big Flat area under both Alternatives C and A.

Emissions from the facilities that support operation of the pipeline would be generated for the life the pipeline, corresponding to the lives of the wells it would serve, approximately 30 years for a productive well. Emissions from equipment at the booster station and gas processing plant would be evaluated by the UDAQ and subject to applicable permit requirements to ensure compliance with state regulatory authorities.

4.3.3.2 Cultural Resources and Native American Religious Concerns

4.3.3.2.1 Cultural Resources

The impacts to cultural resources under Alternative C, including the Old Spanish Trail, would be qualitatively identical to the impacts described in Section 4.3.1.2. The APE, however, would be larger because additional width would be needed to construct a buried pipeline for the entire 24-mile length. Increasing the APE increases the likelihood that cultural resources currently not identified would be inventoried, and adverse impacts to cultural resources may result if the widened pipeline construction corridor could not avoid a site. In addition, installation of the pipeline underground would result in opportunities for cultural resources currently buried and not previously identified to be inadvertently harmed during construction operations. As described in Section 4.3.1.2, consultation would be initiated and performed according to Section 106 of the NHPA to ensure that whatever action is finally determined will have recognized any historic resources and taken into account the full range of options to preserve those historic resources. Concurrence would be reached during consultation regarding appropriate mitigation measures to offset or minimize adverse effects to cultural resources. Concurring parties would consult on a Data Recovery Plan and MOA. Concurring parties identified as signatories would enter into a MOA that would address the eligible sites affected by construction of the buried pipeline.

Implementation of Alternative C would not result in the realignment, replacement, or demolition of Dubinky Well Road; however, grading the surface adjacent to the road and removing vegetation within a construction corridor that could range from 75 to 125 feet could alter the perception of the road such that it may appear to be reconstructed and/or realigned. The visual aspects currently perceived by observers traveling along Dubinky Well Road would likely be lost because the historical reference to its former uses would be difficult to discern. Constructing a buried pipeline along Dubinky Well Road may result in temporary road closures if the terrain and additional equipment needed for trenching would not allow through traffic. After the pipeline is constructed, however, road use for recreational purposes would be reestablished.

4.3.3.2.2 Native American Religious Concerns

The impacts to cultural resources under Alternative C would be qualitatively identical to the impacts described in Section 4.3.1.2. The APE, however, would be larger because additional width would be needed to construct a buried pipeline for the entire 24-mile length. Increasing the APE increases the likelihood that cultural resources currently not identified would be inventoried, and adverse impacts to cultural resources may result if the widened pipeline construction corridor could not avoid a site. In addition, installation of the pipeline underground would result in opportunities for cultural resources currently buried and not previously identified to be inadvertently harmed during construction operations. As described in Section 4.3.1.2, Tribal consultation would be initiated and performed in consideration of the results of an increased corridor width for the APE.

4.3.3.3 Floodplains

Under Alternative C, the pipeline would be buried under all wash crossings or drainages. Impacts to floodplains under Alternative C would be qualitatively similar to those described for buried pipelines in Section 4.3.1.3. Many of the smaller washes in the northern section of the pipeline route are in bedrock, which would involve blasting bedrock to bury the pipeline. This would likely locally change the existing hydrologic regime. Compromised channel stability increases the likelihood of scouring, erosion, and subsequent sediment load during flood events.

If the backfill materials are more permeable than the surrounding materials, flood waters may preferentially infiltrate the trench, causing subsidence and channeling along the route of the trench. Implementing construction and compaction procedures appropriate for the soils, slopes, and possible exposure to water flow would minimize compaction and subsidence.

Burying a pipeline below all drainages and washes, especially by installing the pipeline within an open trench, would alter existing hydrologic features to a greater degree than spanning channels or boring beneath a channel. Sedimentation resulting from open trench construction operations may impair floodplain functionality down-drainage by unnaturally altering stream bank and streambed stability, thereby triggering changes in the channel profile both along the drainage and from bank to bank. Down-drainage water quality could be compromised with increased sedimentation.

The Operator would employ the principles contained in the BLM's *Hydraulic Considerations for Pipelines Crossing Stream Channels* and the Gold Book to alleviate impacts to floodplains by facilitating stable placement of the pipeline beneath a drainage or wash. Site-specific construction procedures would be developed to minimize effects to existing hydrological features. Retention and recreation of the existing hydrology and utilization of construction procedures appropriate for a particular wash would lessen the likelihood of damage to the buried pipeline from floodwaters.

4.3.3.4 Recreation

Impacts to recreational activities under Alternative C would be qualitatively identical to the impacts described in Section 4.3.1.4. Construction of the pipeline would result in the temporary use of 316.2 acres in the SRMA that would otherwise be available for recreational use. The SRMA would be deprived of the use of 16.4 acres from the long-term operation of the booster station and gas processing plant after the pipeline route reclamation. Construction times described as “temporary” in this section were not quantified because construction time corresponds to ease of construction in any particular area. Ease of construction depends on many factors, including abundance and types of vegetation, presence of near-surface bedrock, hydrologic features, and proximity to vehicle/equipment access, among others. Quantification of construction time at a particular area would be speculative and was, therefore, not estimated beyond the 200 days required for total construction operations. Because pipeline construction operations would require approximately 6.5 months, visitors who visit the SRMA in the spring and the fall may encounter pipeline construction operations during both seasons.

Designated routes would be used by the Moab Endurance Ride in October. Pipeline construction operations that extend into October 2014 may present conflicts with the use of designated routes used by the ride participants. Communication and coordination between the Operator and the Moab Endurance Ride organizer would prevent such conflicts.

Impacts with respect to access for recreational visitors along SH 313 are described in Section 4.3.1.4. The need to use a re-route or short detour around construction operations on Class B roads would occur for a longer period of time in any particular area because of the need to blade and grade the adjacent surface and excavate a trench. Temporary delays on Class D may be longer than those needed for a surface-laid pipeline. Times needed to construct the pipeline in proximity to a specific area were not quantified because construction time corresponds to ease of construction in any particular area. Ease of construction depends on many factors, including abundance and types of vegetation, presence of near-surface bedrock, hydrologic features, and proximity to vehicle/equipment access, among others. Quantification of construction time at a particular area would be speculative.

Impacts from construction noise to campers at the Horsethief and Cowboy Camp Campgrounds would result from the estimated noise levels shown in Table 4-2. Construction noise would be audible and possibly annoying to campers at Horsethief and Cowboy Camp Campgrounds during the time required installing the buried pipeline in proximity to the campgrounds.

Safety to recreational visitors would be maintained throughout construction operations as well as pipeline operation. Measures that would be taken to ensure public safety during construction operations would need to be applied for approximately 200 days. Construction and operation of the low-pressure pipeline is not expected to present safety hazards to public users of the SRMA or endanger their health or wellbeing because the design, materials, construction, operation, maintenance, and termination practices of the pipeline would meet or exceed safe and proven engineering practices and industry standards, and would comply with all applicable requirements. The pipeline would be designed and constructed to meet and exceed federal and industry standards that would be applied to a similar transmission pipeline. Details explaining construction procedures and how safety would be addressed are included in Appendix D.

The designated dispersed sites adjacent to the pipeline route on the east side of the Dubinky Well Road are within 390 feet of the pipeline route, the standard evacuation distance given in Appendix D. Camping within this area is limited to designated sites, and the three sites at Bartlett Flat would be permanently closed prior to construction of the pipeline to maintain public safety. The reduction in dispersed campsites would inconvenience those people who enjoy using these campsites; however, other dispersed camping locations and/or the fee campgrounds located along SH 313 would be available to those campers who would be displaced by the elimination of these designated sites. The nearest camp site to the pipeline route in Cowboy Camp Campground is 530 feet. The nearest camp site to the pipeline route in Horsethief Campground is 975 feet. Neither of the developed campgrounds would be located within the standard evacuation distance.

Long term impacts to recreationists include the presence of an unnatural scar made by the buried pipeline in areas used by those seeking a backcountry experience. While the front-country users along SH 313 would not be aware of the presence of a pipeline, the buried pipeline's footprint would be an intrusion for those recreationists using routes along the Dubinky Well road, as well as the roads paralleling the proposed pipeline route to the west of SH 313. The buried pipeline scar would detract from the backcountry experience sought by some recreationists.

4.3.3.5 Socioeconomic Resources

Impacts from the implementation of Alternative C would be qualitatively identical to those described for Alternative A in Section 4.3.1.5. Quantitative changes would result from increased costs for food and lodging for non-local workers, as the project will take approximately 200 days to complete. As can be seen in Table 4-4, and given the very large size of the food and lodging sectors in Grand County, the marginal benefits over Alternative A would be small.

4.3.3.6 Soils

Pipeline construction under Alternative C would result in direct impacts to 316.2 acres of soils, including 34.8 acres on sensitive soils. Approximately 14.9 acres would be disturbed on Toddler- Ravola-Glenton families association soils and 19.9 acres would be disturbed on Chipeta complex soils (See Table 4-9). Long-term effects to soils would be experienced on 16.4 acres. Effects to soils along the entire pipeline route would be qualitatively similar to the impacts described in Section 4.3.1.6 for buried segments of the pipeline. Protective vegetative cover would be removed, soil horizons would be mixed, and the ground surface would be compacted beneath the construction work area and life-of-project facilities. Impacts would result from the removal of protective vegetative cover, mixing of soil horizons as a result of excavation/blading/grading, and compaction beneath the construction area and life-of-project facilities. Construction operations can reduce soil productivity by altering soil mineral particles, water content, organic matter, soil organisms, and nutrients as well as encouraging erosion. Topsoil would be disturbed along the length of the pipeline route where grading would take place to prepare a level surface for trenching operations. Reclamation operations would redistribute soils along the pipeline route; however, 16.4 acres would be used for the life of the project, approximately 30 years or longer, where the booster station and gas processing plant would be constructed and in operation.

Table 4-9: Effects to Soils - Alternative C

Soil Unit	Pipeline Construction (acres)	Facilities (acres)	Construction Total (acres)	%	Reclamation (acres)	Long-term Disturbance (acres)
Rizno-Rock outcrop complex	75.6	2.7	78.3	25%	78.3	0
Begay-Sazi complex	72.1	1.7	73.8	24%	73.8	0
Windwhistle-Begay complex	26.4	0	26.4	8%	26.4	0
Begay-Rizno complex	24.1	3.0	27.1	9%	24.1	3.0
Rock Outcrop-Arches-Mido complex	19.0	0	19.0	6%	19.0	0
Rizno-Begay complex	17.5	0	17.5	5%	17.5	0
Rock Outcrop-Moenkopie association	15.0	1.5	16.5	5%	16.5	0
Toddler-Ravola-Glenton families association [1]	11.9	3.0	14.9	5%	14.9	0
Factory-Pastern fine sandy loams	11.3	0.5	11.8	4%	11.8	0
Mido loamy fine sand	10.7	0	10.7	3%	10.7	0
Chipeta complex [1]	6.5	13.4	19.9	6%	6.5	13.4
Valleycity-Neiber-Rock outcrop complex	0.3	0	0.3	<1%	0.3	0
Total	290.4	25.8	316.2	100%	299.8	16.4

[1] BLM sensitive soil.

Personnel and construction machinery would be present along the pipeline route for an estimated 200 days, during which time topsoil would be removed and compacted along the entire 24-mile route length. Although dry sandy soils resist compaction, it is likely that some precipitation could be experienced by the project area over the construction time frame. If so, wet sandy soils that may otherwise tend not to be compacted would experience reduced porosity and accelerated runoff. Ripping the soil surface, a measure that is included in the Operator's proposed action, would alleviate compaction induced by extended pipeline construction operations.

Soil loss due to wind erosion would correspond to the amount of exposed unconsolidated soil materials that would result from construction operations and from the susceptibility of approximately 97 percent of project area soils to wind erosion. Only the Chipeta complex and Valleycity-Neiber-Rock outcrop complex soils have a low risk for wind erosion. With the exception of the Valleycity-Neiber-Rock outcrop complex soils, approximately 99 percent of project area soils are moderately susceptible to water erosion. The creation of cut-and-fill slopes needed to place the pipeline below ground could exacerbate the soil loss from both wind and water erosion. The establishment of effective vegetation cover is anticpated to require at least one year for grasses and 5 to 10 years for shrubs, if sufficient precipation facilitates seed germination. Impacts to the Toddler–Ravola-Glenton families association and Chipeta complex sensitive soils would be alleviated by the application of the BLM timing limitation during wet conditions.

Impacts to Biological Soil Crusts. The analysis of impacts to BSCs under Alternative C is qualitatively identical to impacts that would result from Alternative A. Construction operations would disturb 316.2 acres along the pipeline route under Alternative C. Not all the surface facilitates the growth of BSCs. BSCs are not present on bedrock, in areas where rock fragments predominate, in grassy areas with deep soils, such as on Big Flat or Bartlett Flat or in areas heavily by cattle, such as near Staging Area #3. Barren areas comprise 35.7 acres of the pipeline route (See Section 4.3.3.8). The pipeline would be installed cross-country along two miles of its route. BSCs would be entirely removed from the construction corridor, ranging from 75 to 125 feet wide, during construction of the cross-country segment of the pipeline. The use of 22 miles of designated and non-designated routes where construction equipment could operate would reduce impacts to soil crusts because they are not present along the running surface of designated routes. Early successional forms would likely be present along non-designated routes, which were closed in late 2008. Despite the use of the running surface of the routes, BSCs would be removed where the surface adjacent to the routes would be cut and filled, graded, and trenched. Where BSCs are present adjacent to construction areas, they may be buried by wind-blown sands. Assuming that all areas along the pipeline route except for barren and grassland areas are covered with BSCs, an estimated 201.8 acres could contain BSCs under Alternative C (derived from Table 4-10).

Although adjacent undisturbed areas of cryptogamic soil would likely inoculate nearby disturbed areas, full recovery of the crusts along the pipeline route may require up to 35 years in areas that would not be used in the future for inspection and maintenance actions.

4.3.3.7 Vegetation

Vegetation would be removed over 316.2 acres where the pipeline would be buried for 24 miles along the pipeline route. Although impacts to plants of all vegetation communities would be minimized by the Operator’s use of adjacent roads and routes where available, the construction corridor would be widened, graded, and/or bladed to provide safe working conditions for trenching operations. Impacts to vegetation would be qualitatively identical to those impacts described in Section 4.3.1.7 for the buried pipeline segments; however, impacts to vegetation at the booster station and the gas processing plant would remain qualitatively and quantifiably the same as described in that section. The estimates for disturbance to the different vegetation communities under Alternative C were based on the assumption that 50 percent of the pipeline route would require a 125-foot construction corridor and 50 percent would require a 75-foot construction corridor. A summary of the effects to vegetation under Alternative C is provided in Table 4-10.

Table 4-10: Effects to Vegetation - Alternative C

Vegetation Community	Pipeline Construction (acres)	Facilities (acres)	Construction Total (acres)	%	Reclamation (acres)	Long-term Disturbance (acres)
Desert Shrubland	122.5	21.9	144.4	46%	131.0	13.4
Sagebrush and Perennial Grassland	74.8	0.9	75.7	24%	75.7	0
Pinyon-Juniper	57.4	0	57.4	18%	57.4	0
Barren	35.7	3.0	38.7	12%	35.7	3.0
Total Pipeline and Facilities	290.4	25.8	316.2	100%	299.8	16.4

Actual impacts to vegetation would be less than 316.2 acres because 38.7 acres of the surface over which the pipeline would be constructed is barren of vegetation. Approximately 131 acres of desert shrubland would require approximately 10 years to grow from seed. Reclamation operations would reestablish grasses on 75.7 acres within a year. The pinyon and juniper trees would be removed over approximately 57.4 acres since they could not be avoided because of blading, grading, and trenching that would be needed to place the pipeline underground. An estimated 1,705 trees may be located within the construction corridor for Alternative C. Where formerly present, trees would be replaced by shrubs in 10 years and grasses the next growing season. Loss of these trees would not be expected to compromise the vitality of the community, especially at the interface with other communities.

Cut-and-fill areas would be necessary to provide a level working surface where the route travels over hills and other uneven terrain and to facilitate retention of topsoil along the entire 24 miles of the pipeline route. Plants would be removed and natural topographic features altered. Compaction of the backfill over 24 miles of buried pipeline would prevent subsidence and channeling, which could otherwise hinder regrowth of plant cover. Changes in surface water flow regimes that could affect the vitality of natural vegetation downstream would also be likely to compromise the stability of the surface of the route. The Operator has committed to conducting inspections and performing maintenance where needed to prevent erosion resulting from pipeline construction (See Section 4.3.1.3).

Implementation of the Operator's Reclamation Plan would reestablish vegetation but the existing communities may be altered by the increased presence of grasses and replacement of trees with shrubs (See Appendix H). Grasses would regrow quicker (one year) than shrubs (10 years). Trees would be removed and would not regrow during the life of the project. During the life of the pipeline, reclaimed areas receiving incidental disturbance during maintenance activities would be reseeded as soon as practical, minimizing adverse effects to vegetation.

4.3.3.8 Visual Resources

Implementation of Alternative C would result in temporary and long-term impacts to visual resources from burying a pipeline along the entire 24-mile length of the route. During construction, vegetation would be removed and soil would be disturbed for trenching, staging locations, storage facilities, and possibly localized rock blasting. If blasting is needed, rock may be scattered in the vicinity of the trench. Exhaust and fugitive dust would be generated by construction equipment and trenching (See Section 4.3.3.1). Application of water, as committed to by the Operator, would locally reduce the appearance of fugitive dust in the air during construction operations. Visual contrasts in line, color, and/or texture would be created during construction due to the removal of vegetation, disturbance of the soil, and smoothing of terrain. Burying the pipeline would create a linear feature of bare smoothed ground ranging from 75 to 125 feet wide for a distance of 24 miles. Cut-and-fill areas would be necessary to provide a level working surface where the pipeline route would travel over hills and other uneven terrain. Creating a level working surface would alter natural topographic features and attract attention to the pipeline route by removing the natural form. The appearance of slope breaks could be mitigated with the reestablishment of natural vegetation (See Section 4.3.3.7). Impacts to visual resources in the VRM II-designated Big Flat area from burying the pipeline would be identical to those described in Section 4.3.1.1. Effects to the grasslands in Big Flat and Bartlett Flat (VRM III) would be temporary until the grasses regrow the year following successful reclamation operations (See Section 3.3.7).

Constructing a buried pipeline would result in observable effects to VRM II visual resources where the pipeline would be installed in some locations within 0.5 mile of the SH 313 Scenic Byway. Observers along SH 313 would be more likely to see the effects of vegetation removal where the pipeline route travels uphill in front of a viewer. SH 313 outside of Big Flat is located in shrublands or pinyon-juniper woodlands. Observers would be able to see a wide linear feature where trees and shrubs would be removed outside the highway ROW. After successful reclamation, the pipeline route would be reclaimed initially by grasses, which would present a contrast in texture and color to nearby shrubs and trees but the contrast would not be entirely inconsistent with existing observable features of the landscape, which includes scattered areas of grasses and shrubs interspersed with pinyon and juniper trees. Panoramic views in all directions would help to facilitate consistency with VRM II objectives. When the ground surface is relatively flat or very gently sloping, the reclaimed pipeline construction corridor would be masked by the presence of shrubs and/or trees between SH 313 and pipeline route.

Constructing a buried pipeline would result in observable effects to VRM II visual resources where the pipeline would be installed within 0.5 mile of Cowboy Camp Campground, which is surrounded by pinyon-juniper trees mixed with areas of shrubs and grasses. Removing slow-growing trees and shrubs along the pipeline ROW would effectively increase the perceived width of the designated or non-designated routes that it would follow. A widened linear feature would be visible to the campers looking west and north of Cowboy Camp Campground. Where the pipeline route would follow the routes along base of the knoll upon which the campground is located, observers would need to look downward to view the pipeline route. The linear feature nearest the campground would be less likely to attract the attention of a casual observer because a view would be interrupted by the presence of intervening trees and shrubs. A view of the cleared pipeline route would be more apparent to campers on the north side of Cowboy Camp Campground where route travels north moving away from the campground. The pipeline route, however, would be seen as parallel to SH 313, which creates another linear feature. Views from Cowboy Camp Campground currently exhibit contrasts in color and texture resulting from the appearance of the existing routes and the juxtaposition of wooded areas to shrublands and grasslands with few trees (See Appendix G, KOP 3). Although visible, the pipeline route would not be likely to attract attention after it is revegetated with grasses. VRM II objectives would continue to be met after successful revegetation to minimize visual quality changes by blending colors and texture with adjacent natural areas. Panoramic views in all directions would help to facilitate consistency with VRM II objectives in this location. Observers in Horsethief Campground may be able to see the pipeline south in the distance as it travels south from the vicinity of the campground up a slight hill. The increasing elevation of the pipeline route relative to the campground would facilitate a view of the pipeline route. Intervening trees would likely interrupt the view of a linear feature, however, and VRM II objectives would be met at Horsethief Campground.

Although the width of the maintenance corridor for Dubinky Well Road is 50 feet from each side of the centerline, grasses, trees, and shrubs grow up to the running surface of the road. The pipeline construction corridor width would exceed the width of the maintenance corridor of the road. Burying the pipeline adjacent to Dubinky Well Road would remove approximately 104 acres of desert shrub and pinyon-juniper vegetation, the vegetation communities present where the route crosses the Blue Hills, and 30 acres of grassland. Grading the ground surface adjacent to the road and removing vegetation within a construction corridor that could range from 75 to 125 feet would alter the perception of the road such that it may appear to be reconstructed and/or realigned. The visual aspects currently perceived by observers traveling along Dubinky Well Road would likely be lost because the historical reference to its former uses would be difficult to discern (See Section 4.3.3.2). Successful revegetation would minimize visual quality changes by blending colors and texture with adjacent natural areas in VRM III and IV areas along this road. This blending would minimize potential distraction of observers in vehicles on the road caused by pipeline installation belowground. Areas dominated by shrubs may take approximately five years to become reestablished and diminish the visual effects of burying the pipeline (See Section 3.3.7). Areas where rock outcrops would be removed for cut-and-fill would also affect the visual character of the land. A contrast in form would result from changes to the terrain, and a contrast in color would result where newly exposed rock would be located near weathered rock. The changes in color and texture where bedrock would be removed and then replaced would be easily perceived by campers at the undeveloped Bartlett Flat camping sites. Although the contrast created by pipeline clearing and construction activities may attract the attention of a viewer, the effects to visual resources from constructing a buried pipeline would be moderate but consistent with VRM III and IV management objectives.

After the pipeline is in operation, the need to continuously flare natural gas at the well locations would be eliminated. Automatic flares would be operated at the wells if the booster compressor station were to be temporarily shut down, or they may possibly be needed during maintenance operations. Use of flares at a well pad would be temporary until normal operations could be resumed. At such times, flares would be visible to observers along State Highway 313 and at more distant locations, including campgrounds. During normal operations, flares would not be visible from Arches National Park, the Sand Flats Recreation Management Area or other more distant locations. Beneficial impacts to visual resources would result from Alternative C by restoring dark rural night skies uncompromised by flares.

Impacts from visible aboveground structures, such as the booster station, the gas processing plant, pig launchers, and tie-in risers would be identical to the impacts described in Section 4.3.1.8 with the exception of the A-frame pipeline suspension supports at Dubinky Wash. Thus, construction and operation of the pipeline under Alternative C would be consistent with both VRM Class III and IV designations and their management objectives.

4.3.3.9 Wildlife

The impacts from the implementation of Alternative C to wildlife, including bighorn sheep and pronghorn antelope, migratory birds and raptors, and Utah BLM sensitive animal species would be qualitatively the same and quantitatively similar to the effects described in Section 4.3.1.9. The differences specific to Alternative C are described in the following sections.

4.3.3.9.1 Fish and Wildlife, excluding USFWS Designated Species

Potential impacts to terrestrial wildlife species would include loss of habitat, habitat fragmentation, the potential for degradation of adjacent habitats, and displacement of local individuals. Impacts to habitat would consist of a short-term unavailability of 316.2 acres and long-term loss of 16.4 acres. The amount of available forage and cover would be reduced for individuals that utilize habitats along the pipeline route.

Wildlife may suffer temporary displacement for approximately 200 days as a result of construction noise, increased traffic, and increased human presence. Unusual or loud noises generally startle and stress most wildlife species, causing them to leave the area. Increased vehicle traffic may result in direct mortality in occupied habitat; however, recreational vehicle travel and OHV use are common in the project area such that individuals are generally accustomed to traffic. Construction operations would be transient along the 24-mile length of the pipeline route, and impacts to individuals of a species would be temporary at any particular location along the route.

Bighorn sheep. Construction of a buried pipeline within identified migration corridors would increase the amount of time, men, and equipment that would need to operate within the corridors. The difference in time needed would depend on site-specific conditions that have bearing upon construction times, such as near-surface geology and climate related to the time of year. Constructing a trench, especially in rocky areas, would increase the noise and length of time human activity would be present in an area typically used by rams. The northern migration corridor between the Needles and Blue Hills, parts of which are characterized by near-surface bedrock, would experience human presence and construction operations longer than the southern migration corridor between Sevenmile Canyon and Hell Roaring Canyon.

By avoiding construction operations in migration corridors during times of bighorn migration, effects to migrating sheep would be diminished. Pipeline construction operations would be allowed in migration areas from June 16 through October 14 and from December 16 through March 31. Activities outside of these time frames would cause individual rams to avoid this area and may impede passage to other areas, but would not impede rams reaching their rutting areas during the critical rutting season.

Pronghorn antelope. Construction of a buried pipeline within pronghorn habitat would increase the amount of time men and equipment would need to operate within the affected habitat. Impacts to pronghorn are anticipated to be small since few individuals are known to frequent areas south of I-70. A portion of the pipeline route is contained within year-long pronghorn antelope habitat, including potential fawning in some areas. The fawning period, May 1 through June 15, is a sensitive time for pregnant does and very young fawns, and these animals are very susceptible to predation and are easily fatigued. Construction outside of the fawning period would have little impact on antelope and their fawns as fawns would be larger and more mobile.

4.3.3.9.2 Migratory Birds and Raptors

Migratory birds. Construction of a buried pipeline would result in the loss of pinyon and juniper trees within the construction corridor along the 6.2 miles of the pipeline route where this vegetation community occurs. Approximately 57.4 acres of trees may be lost, primarily along the southern portion of the pipeline route.

Migratory birds and raptors would be temporarily displaced for approximately 200 days as a result of construction noise, increased traffic, and increased human presence to the buried pipeline.

Raptors. As with migratory birds, raptors would also be temporarily displaced for approximately 200 days as a result of construction noise, increased traffic, and increased human presence to the buried pipeline. Applicant-committed measures would ensure active nests would be not be destroyed, therefore no nesting mortality is expected.

Many raptors display fidelity to nesting sites. Minimal raptor nesting is expected within 0.5 mile of the Dubinky Road and SH 313 because of high recreational use and moderate-to-high-speed traffic along these roads throughout the nesting season.

Pipeline burial along SH 313 and Dubinky Well Roads would occur at approximately 0.1 mile per day, therefore individual nesting raptor territories within 0.5 mile of construction activity would incur approximately five days of short-term, transient disturbance within an active territory that may be greater than typical vehicle traffic along these roads. This short-term increase in disturbance is not expected to cause permanently abandon nests.

As discussed in 4.3.1.9.2, where the proposed pipeline is not located with 0.5 mile of main roads nesting raptors may be more prone to abandon nests in response to increased noise disturbance or increased activity levels. The Operator would conduct an inventory for active raptor nests if construction operations were to be conducted during the nesting season and construction activities would adhere to the appropriate spatial and seasonal offsets. Spatial and seasonal offsets would be implemented to active nests in areas where the proposed pipeline is not located within 0.5 mile of a main road; therefore, no impacts to nesting raptors would be expected.

4.3.3.9.3 Utah BLM Sensitive Animal Species

Burrowing owl. Suitable habitat for the burrowing owl consists of the perennial grasslands, which is present on approximately 38.8 acres in the Bartlett Flat and Big Flat areas. The pipeline would be constructed buried in both locations, and near-surface burrows there may be crushed by the movement of pipeline construction equipment. As discussed in Section 4.3.1.9.2, nest locations would be unlikely in close proximity to SH 313 or Dubinky Well Road in the grassland area; however, the pipeline would be buried where the route travels cross–country within Bartlett Flat between Spring Canyon Bottom Road and Dubinky Well Road.

Applicant-committed measures, including spatial and temporal offsets, would preclude the potential for active nesting burrows to be destroyed while fledglings are utilizing the nest burrows; therefore, no mortality is expected during construction operations.

Adults usually return each year to the same nesting territory. If a current active burrow site may be destroyed, nearby burrows and satellite burrows could be utilized the following year, ensuring the territory is still viable. Because burrowing owls often return to the territory to nest every year, a crushed or destroyed burrow would result in an owl finding an alternate nearby suitable nest location, most likely within the same territory.

Ferruginous hawk. Impacts to ferruginous hawks would be identical the impacts described in Section 4.3.3.9.2.

Kit fox. Preferred habitat is present on approximately 38.8 acres in the Bartlett Flat and Big Flat areas. The pipeline would be buried in both locations; therefore, there would be a greater potential for individual displacement due to the additional acres of surface disturbance related to pipeline burial.

Applicant-committed den surveys prior to pipeline construction and the imposition of a 200-meter spatial offset to a natal kit fox den would provide protection to this species. The Bartlett Flat and Big Flat areas, which constitute preferred habitat for the kit fox, offer adequately large areas of habitat for relocation for displaced kit foxes and their young if activities were to occur outside of the pupping season, March 1 to July 31. Impacts to tunnels or dens may result from excavation. Near-surface tunnels may be crushed by the movement of pipeline construction equipment. Potential impacts to the kit fox include temporary displacement and loss of habitat where the pipeline would be buried.

White-tailed prairie dog. Impacts to white-tailed prairie dogs in the southwestern portion of the Cisco Desert would be the similar as what is discussed in 4.3.1.9.3. There would be a greater potential for individual displacement if prairie dog occupancy was to occur due to the additional acres of surface disturbance related to pipeline burial.

Potentially suitable habitat for the white-tailed prairie dog along the pipeline route consists of the perennial grasslands and relatively deep soils on approximately 38.8 acres in the Bartlett Flat and Big Flat areas. The pipeline would be in both locations. Near-surface burrows may be crushed by the movement of pipeline construction equipment in these areas, particularly where the route travels cross-country. Where pipeline construction would take place adjacent to SH 313, the highway effectively presents an obstacle to burrow construction; however, construction activities could temporarily alter prairie dog habitat. Where the pipeline route crosses Big Flat and Bartlett Flat, sufficient suitable habitat is present for the relocation for displaced prairie dogs.

4.3.3.10 Mitigation Measures

Recreation:

1. After the pipeline is in service and reclamation operations are complete (e.g., ripping, scarifying, spreading of topsoil, reseeding), roads along the pipeline route that are not open to the public (not included in the BLM Travel Plan) should be signed, gated, or otherwise blocked to prevent public access. The Operator should consult with the AO prior to their installation to confirm the type of road management feature and specific details of gates, signs, or other methods. Installing a sign, gate, or other road management feature would prevent public use of nondesignated routes and also prevent the creation of new public roads not in the BLM Travel Plan where the pipeline would be installed cross-country.
2. If pipeline construction were to be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during the two weeks prior to Easter when the Jeep Safari would take place, the Operator would contact the AO in advance to coordinate with Jeep Safari

organizers to avoid potential conflicts. The objective of such communication would be to maintain unimpeded access along Jeep Safari routes.

3. If pipeline construction would be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during mid-to-late October when the Moab Endurance Ride would take place, the Operator would contact the AO in advance to coordinate with ride organizers to avoid potential conflicts. The objective of such communication would be to maintain unimpeded access along Endurance Ride routes without delays that might otherwise result from pipeline construction along the ride routes.
4. Signs warning the public of pipeline construction activity should be located at the closest road/designated route intersections (on either side) of the next day's planned construction activities or where staging areas may be temporarily located. Advance public notification would help to ensure vehicle traffic safety along roadways where construction activity would be taking place.
5. Lone Mesa Campground would not be available as a staging area after March 15 in order to minimize impacts to the camping public.

Visual Resources:

6. If maintenance operations hinder the growth of plants that are products of reclamation operations, initiate remedial reclamation operations immediately after such work is complete to ensure the restoration of rehabilitated wildlife habitat and prevent long-term impacts to VRM management objectives and soil stability.
7. Where the pipeline is constructed adjacent to an existing route, utilize the existing route for vehicle access for inspections and maintenance. Using a designated or nondesignated route for inspection purposes would utilize existing surface disturbance and prevent unnecessary and unintended adverse effects to physical resources in the SRMA.
8. Install signs, gates, or other means of preventing public use of non-designated roads or cross-county routes that would be used for pipeline construction, inspection, and maintenance to prevent the creation of new linear features that may detract from VRM management objectives.
9. During reclamation operations, place nearby rocks and rock fragments on those portions of the pipeline route used for construction but not needed for maintenance to facilitate blending the construction corridor in with the natural surroundings. Doing so would minimize changes to form, color, and texture to provide consistency of appearance with adjacent undisturbed surroundings in all VRM management areas.

4.3.13.11 Residual Impacts

The disturbance to soils, vegetation, and wildlife habitat resulting from construction equipment travel, blading, grading, and trenching would remain until vegetation regrows. Implementation of Alternative C would result in small long-term residual impacts to vegetation where desert shrubs and pinyon and juniper trees would be removed where the pipeline would be buried.

Desert shrubs would regrow from seed within 10 years, but trees would be removed for the life of the project or longer.

Despite prior clearance surveys, surface-disturbing activities have the potential to damage or destroy cultural or paleontological resources. Although unlikely, cross-country vehicle travel may expose previously undiscovered resources and leave them vulnerable to illegal collection from pedestrians or environmental damage.

Bighorn sheep may experience temporary stress from the presence of humans and operation of equipment migration corridors.

Residual impacts to visual resources include the presence of an unnatural scar made by the buried pipeline, especially in areas where the pipeline crosses bedrock.

4.3.3.12 Monitoring and/or Compliance

During construction operations, the BLM would periodically monitor the project construction to ensure that the disturbance conforms to what was approved by the ROW. After project construction operations are completed, the survey area would be inspected by the BLM to determine that all debris has been removed from the construction area.

The Operator has committed to provide funding for an independent 3rd-party BLM compliance monitor. The monitor would be present on-site while construction is taking place to ensure compliance with all conditions of approval and stipulations of the ROW grant. Pre-work meetings would be held daily to review these requirements. The monitor would be required to contact the BLM staff routinely to provide updates as to compliance status. If the construction does not conform to the requirements, the monitor would have the authority to stop construction until the matter at issue is resolved.

In addition, the Operator has committed to employing biological, cultural, and paleontological monitors who would perform their duties in conformance with direction received from the BLM.

4.4 Cumulative Impacts

4.4.1 Air Quality

4.4.1.1 Cumulative Impact Area

The cumulative impacts analysis area (CIA) for air quality is the airshed corresponding to the Big Flat RFDS area north of the Colorado River westward to Arches NP because: (1) topographic features would direct prevailing winds eastward along the high plateau elevations toward Arches NP, which is the nearest Class I area downwind from Alternatives A and C; (2) it contains the pipeline route; (3) this area contains the Operator's current and projected future wells, all of which would likely be connected to the proposed pipeline and would thereby result in direct effects to air quality; and (4) ISKY and DHPSP are included in this area. The time frame for the cumulative impact analysis for air quality is at least 30 years, which corresponds to the estimated life of a productive well.

4.4.1.2 Past and Present Actions

Past and present actions in the CIA that contribute long-term emissions to the atmosphere within the CIA primarily consist of oil and gas development operations. The single mine currently in operation in the CIA is the Intrepid Potash mine located east of DHPSP adjacent to the Colorado River. This facility is not included in a list of high-emission point sources in Grand County (UDAQ, 2010a), and its emissions were not quantified for this analysis. Emissions from past and present recreational actions were not quantified since construction emissions for recreational facilities were temporary and none are ongoing. Emissions generated by mobile sources, such as cars, ATVs, and OHVs, are regulated by state and county authorities and were also not quantified for this analysis.

As of April 2013, 16 oil and gas wells were active in the Big Flat area, but just 9 wells were producing at that time. Emissions from past and present actions conservatively includes all active (not plugged and abandoned) wells where drilling has been initiated. Emissions from the 16 wells include current emissions data for the 9 producing wells and estimates for the remaining 7 active wells that are not currently producing. Estimates were obtained as average values from the producing wells.

Past and present emissions vary according to alternative. Alternatives A and C would transport the produced natural gas from existing wells via pipeline to commercial markets. Emissions from the existing wells under Alternative B would include emissions from the combustion of natural gas flared to the atmosphere. The emissions from the past and present wells are displayed as they correspond to each alternative in Table 4-11. This table represents HAPs as a total of all HAP emissions, primarily consisting of BTEX.

Table 4-11: Past and Present Oil and Gas Emissions (TPY)

Source - 16 Active Oil and Gas Wells	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2 [1]	VOCs	HAPs	CO_2e emissions (tonnes/year)
Alternatives A and C – Pipeline (no flaring)	18.6	14.7	0.6	0.6	0	161.6	23.5	14,420
Alternative B – No Action (no pipeline)	337.4	73.3	0.6	0.6	0	679.5	41.0	142,065

Source: Fidelity, 2013; Golder, 2013. [1] SO_2 emissions are much less than 0.1 TPY and are negligible.

4.4.1.3 Reasonably Foreseeable Actions

Reasonably foreseeable actions that would generate emissions from within the CIA consist of oil and gas actions, potash actions, and recreation-based actions. Emissions for temporary short-term sources were not quantified because they would likely not be contemporaneous sources; the rate of development for oil and gas actions is projected to be low within the CIA (BLM, 2005); and, therefore, emissions from temporary short-term sources would not be likely to substantially contribute to a change in the attainment status for the CIA or to an impairment of an AQRV. Temporary sources include exploratory drilling for potash, oil and gas drilling, and recreational facility construction. Up to eight dispersed camp sites and two designated campgrounds may be designated within the CIA in the future; however, they would not be developed campgrounds so the level of construction would be minimal. Oil and gas exploration is reasonably foreseeable and is discussed in the following paragraphs. Eight exploratory core holes for potash are reasonably foreseeable at this time. Current operating practices include the use of Tier II drilling rig with NO_x controls and fugitive dust control measures, minimizing the generation of the pollutants of concern that would result from exploration activities. Potash production operations are not reasonably foreseeable at this time because formal proposals for potash development do not exist and authorizations with respect to potash development have not been issued.

Reasonably foreseeable actions that would generate emissions that potentially could substantially contribute to a change in air quality consist of oil and gas production activities. The projection of reasonably foreseeable oil and gas actions in the CIA was based on an estimate of three wells drilled annually in Big Flat, or 21 additional oil and gas wells in the seven years remaining until 2020 (BLM, 2005).

Long-term annual oil and gas well production emissions were estimated as average values derived from the currently producing wells. Each projected well was conservatively assumed to be productive. Estimated emissions from the future wells vary by alternative (See Table 4-12). Natural gas that would be produced from future wells in Big Flat would be transported from the CIA via the pipeline considered in Alternatives A and C. Operation of the pipeline itself would not create emissions; however, the supporting infrastructure of the booster station and gas processing plant would produce emissions. Under Alternative B, natural gas from reasonably foreseeable wells would be flared and would produce emissions resulting from combustion.

Table 4-12: Reasonably Foreseeable Production Emissions (TPY)

Source – 21 Active Gas Wells	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOCs	HAPs	CO_2e emissions (tonnes/year)
Alternatives A and C – 21 Oil and Gas Wells, Pipeline (no flaring)	24.4	19.3	0.8	0.8	0	212.1	30.9 [1]	18,921
Pipeline Facilities Operation	80.9	35.1	-	-	-	13.7	6.8 [2]	22,234
Total Emissions - Alternatives A and C	105.3	54.4	0.8	0.8	0	225.8	37.7	41,155
Alternative B – 21 Oil and Gas Wells, No Action (no pipeline)	442.9	96.2	0.8	0.8	0	891.9	53.8 [1]	186,459

Source: Golder, 2013. [1] HAPs emitted from wells consist primarily of BTEX; [2] HAPs emitted from compressors consist primarily of CH_2O.

4.4.1.4 Cumulative Impact Analysis

4.4.1.4.1 Alternatives A and C

Cumulative emissions under Alternative A would result from ongoing and projected emissions from the long-term operation of oil and gas production equipment associated with 37 wells and the proposed pipeline and its supporting facilities. Cumulative emissions from Alternative C would result from the same sources in identical quantities. To facilitate the analysis of impacts from each alternative, emissions from Alternatives A and C are shown in Table 4-13.

Table 4-13: Cumulative Production Emissions (TPY) - Alternatives A and C -

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOCs	HAPs	CO_2e emissions (tonnes/year)
37 Oil and Gas Wells	43.0	34.0	1.4	1.4	0	373.7	54.4 [1]	33,341
Pipeline Facilities Operation	80.9	35.1	-	-	-	13.7	6.8 [2]	22,234
Total Emissions	123.9	69.1	1.4	1.4	0	387.4	61.2	55,575

Source: Golder, 2013. [1] HAPs emitted from wells consist primarily of BTEX; [2] HAPs emitted from compressors consist primarily of CH_2O.

CO, NOx, and VOC emissions from well production operations include all onsite combustion equipment and storage tank fugitive emissions. Each well site would typically be equipped with a pump-driver engine, heaters, and tanks. CO and NOx emissions would result from generator and compressor operation at the booster station and the gas processing plant.

Under Alternatives A and C, the pipeline would control 100 percent of the VOCs generated by produced natural gas. VOC emissions would still be generated, however, by onsite fuel-burning equipment. Negligible VOC losses would result from pipeline system valves, and fittings.

PM emissions would result primarily from vehicle traffic to the well locations, which is dependent on the number of wells serviced and miles driven per trip. It is likely that the number of service trips per well would decline as oil production declines over time. Given the PM would be generated primarily by well site traffic, PM resulting from service personnel at the booster station and gas processing plant was not quantified.

Negligible quantities of SO_2 would be emitted such that sulfate formation in the atmosphere, which is a source of visibility impairment, would be negligible.

Operation of the pipeline facilities would add GHGs to the atmosphere. Procedures for projecting how a climate system would respond within a narrow range of input parameters confined to a specific locale from a single source are currently undetermined (IPCC, 2013). The physical aspects of the climate system and climate change related to changes in GHGs are still being assessed. Global scale climate models, climate projections, air quality feedback forcing mechanisms, and the causes and attribution of climate change are among the topics being studied. Economic sectors, such as energy, transport, buildings, industry, agriculture, forestry, and waste management are being studied with respect to options for mitigating climate change through limiting or preventing GHG emissions and enhancing activities that remove them from the atmosphere. The formation of ozone from precursors emitted from a single project of this scale cannot be related to impacts to regional or global climate because the emissions that would result from Alternative A or C are relatively very small. Increasing concentrations of GHGs in the atmosphere affect climate and the proposed pipeline facilities would contribute to GHG concentrations in the atmosphere

4.4.1.4.2 Alternative B

Direct effects to air quality would occur under this alternative because an accumulation of impacts would occur. If a pipeline would not be constructed, cumulative long-term effects to air quality under Alternative B would include flaring emissions. Because no pipeline would be constructed, the booster station and gas processing plant would also not be constructed; however, flaring emissions would continue as future wells are drilled. The quantities shown in Table 4-14 are the estimated total emissions under this alternative.

Table 4-14: Cumulative Production Emissions (TPY) - Alternative B

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOCs	HAPs	CO_2e emissions (tonnes/year)
Total Emissions - 37 Oil and Gas Wells – No Action (no pipeline)	780.3	169.5	1.4	1.4	0	1,571.4	94.8	328,524

Source: Golder, 2013

Emissions under Alternative B would include flaring emissions from the existing and future wells. Produced natural gas in excess of the amount used to operate well pad equipment would be flared. The principal products of combustion are CO_2 (a GHG) and water. Residual emissions and byproducts would continue to be released to the atmosphere. Residual emissions from flaring consist primarily of NO_x, CO and VOCs, and their volumes are heavily influenced by the amount of natural gas that would be flared. NO_x, CO, VOCs, and HAPs from flaring would decline according to the decreasing rate of gas production as wells age. PM emissions would result primarily from vehicle traffic to the well locations. The volume of GHG emissions generated under this alternative would reflect the amount of natural gas that would be flared.

4.4.1.4.3 Comparison of Cumulative Impacts – Air Quality

To illustrate the similarities and distinctions among the three alternatives, a comparison of cumulative emissions that would result from past, current and reasonably foreseeable wells is summarized in this section. Construction of a pipeline would result in large decreases of emissions that would otherwise be generated and released at well sites. The values displayed in Table 4-15 illustrate the differences between flaring natural gas at the well head compared to transporting it to market via a pipeline.

Table 4-15: Comparison of Cumulative Production Emissions from Wells Only (TPY)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOCs	HAPs	CO_2e emissions (tonnes/year)
Alternatives A and C- Cumulative Well Emissions	43.0	34.0	1.4	1.4	0	373.7	54.4 [1]	33,341
Alternative B - Cumulative Well Emissions	780.3	169.5	1.4	1.4	0	1,571.4	94.8	328,524
Increase in Well Emissions that would result from Alternative B	737.3	135.5	0	0	0	1,197.7	40.4	292,183
% Decrease in Well Emissions that would result from Alternatives A or C	94.5%	79.9%	-	-	-	76.2%	42.7%	89.9%

Source: Golder, 2013

Therefore, cumulative impacts under Alternatives A and C must be evaluated in consideration of reduced emissions that would be generated by the wells in addition to the emissions that would be generated by the pipeline support facilities.

A comparison of total cumulative emissions is shown in Table 4-16, which includes emissions generated by the equipment at the booster station and gas processing plant under Alternatives A and C.

Table 4-16: Comparison of Total Cumulative Production Emissions (TPY)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOCs	HAPs	CO_2e emissions (tonnes/year)
Alternatives A and C- Cumulative Emissions including Support Facilities	123.9	69.1	1.4	1.4	0	387.4	61.2	55,575
Alternative B - Cumulative Emissions, Wells Only	780.3	169.5	1.4	1.4	0	1,571.4	94.8	328,524
Increase in Total Emissions that would result from Alternative B	656.4	100.4	0	0	0	1,184.0	33.6	272,949
% Decrease in Total Emissions that would result from Alternatives A or C	84.7%	60.3%	-	-	-	754.%	35.5%	84.5%

Source: Golder, 2013

Despite the contribution of emissions from the operation of the equipment at the booster station and the gas processing plant, cumulative emissions from Alternatives A and C are much lower than emissions resulting from the continued use of flares. Construction of the pipeline under Alternatives A and C would result in 100 percent VOC control from the produced natural gas in excess of what would be used to operate onsite fuel-burning equipment. Alternatives A and C would also result in the lower NO_x and CO emissions than Alternative B because combustion of excess produced natural gas via flaring under Alternative B generates NO_x and CO emissions.

Implementation of the No Action alternative would generate an additional 656.5 TPY CO, 100.3 TPY NO_x, 1,183.9 TPY VOCs, and 33.7 TPY HAPs as compared to Alternatives A and C. GHGs, in the form of CO_2e, would increase 272,950 TPY under Alternative B.

4.4.2 Cultural Resources and Native American Religious Concerns

4.4.2.1 Cumulative Impact Area

The CIA for cultural resources and Native American religious concerns consists of the project area, including the construction corridor and areas used for construction of the booster station and gas processing plant, because impacts to cultural resources and Native American religious concerns in the project area would not add to impacts to cultural resources and Native American religious concerns elsewhere.

4.4.2.2 Past and Present Actions

Past recreation-related actions in the project area consist of the three designated but undeveloped camp sites in Bartlett Flat. These camp sites occupy approximately 0.5 acre each or 1.5 acres in total and were assumed to overlap the pipeline construction corridor. Past and current actions have resulted in 1.5 acres of surface disturbance within the project area.

4.4.2.3 Reasonably Foreseeable Action Scenario

Under Alternative A, installation and operation of the pipeline would result in the disturbance of 186.8 acres, including the 1.5 acres that would otherwise have been used by designated but undeveloped camp sites at Bartlett Flat. The Bartlett Flat camp sites would be closed.

Under Alternative C, installation and operation of the pipeline would result in the disturbance of 316.2 acres, including the 1.5 acres that would otherwise have been used by designated but undeveloped camp sites at Bartlett Flat. The Bartlett Flat camp sites would be closed.

4.4.2.4 Cumulative Impact Analysis

4.4.2.4.1 Alternative A

Cumulative disturbance to the CIA from pipeline disturbance and recreation actions would result in an estimated 186.8 acres of surface disturbance. Cumulative impacts to floodplains are qualitatively identical to the impacts described in Section 4.3.1.2.

4.4.3.4.2 Alternative B

No direct or indirect impacts would occur under this alternative from the construction and operation of a pipeline, so an accumulation of impacts would not occur.

4.4.3.4.3 Alternative C

Cumulative disturbance to the CIA from pipeline disturbance and recreation actions would result in an estimated 316.2 acres of surface disturbance. Impacts to cultural resources under Alternative C would be qualitatively identical to those in Section 4.3.3.2.

4.4.3 Floodplains

4.4.3.1 Cumulative Impact Area

The CIA for floodplains consists of the project area, including the construction corridor and areas used for construction of the booster station and gas processing plant, because impacts to floodplains within the project area would not contribute to impacts to floodplains elsewhere.

4.4.3.2 Past and Present Actions

Past recreation-related actions in the project area consist of the three designated but undeveloped camp sites in Bartlett Flat. These camp sites occupy approximately 0.5 acre each or 1.5 acres in total and were assumed to overlap the pipeline construction corridor. Past and current actions have resulted in 1.5 acres of surface disturbance within the project area.

4.4.3.3 Reasonably Foreseeable Action Scenario

Under Alternative A, installation and operation of the pipeline would result in the disturbance of 186.8 acres, including the 1.5 acres that would otherwise have been used by designated but undeveloped camp sites at Bartlett Flat. The Bartlett Flat camp sites would be closed.

Under Alternative C, installation and operation of the pipeline would result in the disturbance of 316.2 acres, including the 1.5 acres that would otherwise have been used by designated but undeveloped camp sites at Bartlett Flat. The Bartlett Flat camp sites would be closed.

4.4.3.4 Cumulative Impact Analysis

4.4.3.4.1 Alternative A

Cumulative disturbance to the CIA from pipeline disturbance and recreation actions would result in an estimated 186.8 acres of surface disturbance. Cumulative impacts to floodplains are qualitatively identical to the impacts described in Section 4.3.1.3.

4.4.3.4.2 Alternative B

No direct or indirect impacts would occur under this alternative from the construction and operation of a pipeline, so an accumulation of impacts would not occur.

4.4.3.4.3 Alternative C

Cumulative disturbance to the CIA from pipeline disturbance and recreation actions would result in an estimated 316.2 acres of surface disturbance. Impacts to cultural resources under Alternative C would be qualitatively identical to those in Section 4.3.3.3.

4.4.4 Recreation

4.4.4.1 Cumulative Impact Area

The CIA for recreation is the 300,650-acre Labyrinth Rims/Gemini Bridges SRMA. The CIA is appropriate for recreation because the SRMA largely coincides with the vegetation, soils, and wildlife habitat that would be affected by the Proposed Action and alternatives. The CIA includes areas where impacts to recreation have occurred in the past, the project area, and where reasonably foreseeable actions affecting recreation may occur in the future. The time frame for the cumulative impact analysis for recreation is approximately 30 years, which includes the approximate life of the pipeline, corresponding to the term of the proposed ROW amendment and approximate life of a producing well.

4.4.4.2 Past and Present Actions

Past and present actions in the CIA primarily consist of recreation actions and oil and gas actions. Past and current recreation actions in the Labyrinth Rims-Gemini Bridges SRMA include the development of Horsethief (20 acres), Lone Mesa (25 acres), and Cowboy Camp (10 acres) Campgrounds. Three undeveloped camp sites have been designated east of Dubinky Well Road in Bartlett Flat (1.5 acres total). Other incidental recreational actions include designation of the White Wash open OHV area, special interpretative trails, and the Mineral Bottom boat take-out for river rafters, which were not quantified. Surface disturbance resulting from uranium mining operations has historically been small (BLM, 2005); therefore, past and present surface disturbance from uranium mining operations was not quantified.

Past and current oil and gas surface disturbance in the SRMA has resulted from active oil and gas locations in the Big Flat and Salt Wash RFDS areas, which approximately overlap the SRMA. In July 2013, these areas contained 24 well pads (UDOGM, 2013b). Each pad was estimated to disturb approximately 15 acres. Estimated disturbance from past and present oil and gas exploration and development and recreation actions in the SRMA has affected an estimated 416.5 acres and is displayed in Table 4-17.

Table 4-17: Past and Present Surface Disturbance in the Labyrinth Rims/Gemini Bridges SRMA

Type of Activity	Surface Disturbance (acres)
O&G Locations (25 well pads)	360.0
Recreation Actions (Horsethief, Lone Mesa, Cowboy Camp, campgrounds and Bartlett camp sites)	56.5
Total	416.5

4.4.4.3 Reasonably Foreseeable Action Scenario

Reasonably foreseeable actions include oil and gas exploration and development, recreation actions, and exploration for potash. Planned recreational facilities include campgrounds at Courthouse Rock (15 acres), White Wash Sand Dunes (15 acres), and eight dispersed camp sites (approximately 0.5 acre each). The 1.5 acres of undeveloped sites at Bartlett Flat would be closed. Future parking areas may also be designated but have yet to be identified.

Although potash prospects may occur in the CIA near Ten Mile Wash, development of the potash resource, if present, is not reasonably foreseeable at this time. Reasonably foreseeable potash exploration activities include eight core holes (15 acres each). Surface disturbance that would result from future potash exploration would be temporary since reclamation operations would be initiated after the cores are removed; therefore, the estimated 120 acres that may be used for potash exploration was not considered long-term disturbance. No plans have been presented to the BLM concerning mining activities related to other minerals; therefore, future surface disturbance from mining operations was not quantified.

Future oil and gas drilling activity in the CIA was estimated according to the RFDS projections, with an average of three wells drilled in the Big Flat area and one well drilled in the Salt Wash area. Each well was assumed to be drilled on a distinct 15-acre well pad. The RFDS was written in 2005 to project future oil and gas activity for a period of 15 years. In the seven years remaining, an estimated 28 wells may be drilled in the Big Flat and the Salt Wash areas.

Reasonably foreseeable disturbance projections for Alternatives A and C are displayed in Table 4-18. Under Alternatives A and C, an estimated 468.9 acres would be disturbed in the CIA.

Table 4-18: Reasonably Foreseeable Surface Disturbance in the Labyrinth Rims/Gemini Bridges SRMA - Alternatives A and C

Type of Activity	Surface Disturbance (acres)
O&G Locations (28 well pads)	420.0
Dead Horse Lateral Pipeline – Alternatives A and C	16.4
Recreation Actions (Courthouse Rock, White Wash Sand Dunes campgrounds and dispersed camp sites)	32.5
Total	468.9

4.4.4.4 Cumulative Impact Analysis

Past, current, and reasonably foreseeable actions may result in the disturbance to 885.4 acres, corresponding to 0.3 percent of the CIA (See Table 4-19).

Table 4-19: Cumulative Surface Disturbance in the Labyrinth Rims/Gemini Bridges SRMA - Alternatives A and C

Type of Activity	Surface Disturbance (acres)
O&G Exploration and Development (52 well pads)	780.0
Dead Horse Lateral Pipeline – Alternatives A and C	16.4
Recreation Actions (Courthouse Rock, White Wash Sand Dunes campgrounds and dispersed camp sites)	89.0
Total	885.4

4.4.4.4.1 Alternative A

Recreational use of the CIA would be likely to continue and increase in the future. Historic, current, and future developments have reduced, and will likely continue to reduce, the amount of natural undisturbed areas that would have otherwise been available for recreational use. The Proposed Action would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total.

In 2007, the a study conducted for the BLM determined that the main activities for visitors in the Moab area consisted of viewing nature and/or wildlife (96.9%), hiking/walking/backpacking (53.3%), relaxing (42.4%), and scenic driving (36.3%). In Grand County, where half of all residents say they participate in camping, hiking, wildlife viewing, and other activities on public lands, opportunities for recreation and attractive public lands are reasons why people live and conduct business here (BLM, 2008a). Because the construction methods proposed under Alternative A would allow retention of most trees and facilitate the reestablishment of shrub vegetation, the features of the existing landscape along the pipeline route would not be sufficiently altered to detract from the attractiveness of the CIA nor interfere with the primary activities of recreational users.

The impacts of minerals development on the CIA would result primarily from oil and gas development. The magnitude of cumulative impacts to recreation would be strongly influenced by the placement of oil and gas facilities and potash exploration activities in relation to areas of high recreational use. Impacts to recreation would result from people avoiding areas of industrial operations and its infrastructure where their presence is noticeable, which could affect the quality of the recreational experience for some recreational users. By designating a SRMA that contained active oil and gas leases and allowing for the exploration for potash resources, the BLM assumed that the management of recreation resources and activities under the RMP would allow the Moab FO to 1) protect, manage, and improve recreation resources, and 2) continue to manage the Moab Planning Area for a broad range of recreational opportunities that meet recreational user expectations and avoid recreation resource degradation (BLM, 2008a). Mineral lease stipulations issued prior to 2008 do not contain protection measures for recreational resources; however, mineral leases issued since the adoption of the 2008 RMP may include measures designed to protect the recreational experience. Oil and gas activities have yet to substantially modify the natural landscape through surface disturbance, installation of facilities, degradation of air quality, or visibility impairment, all of which may affect the quality of a recreational experience. The quality of the recreational experience may be enhanced by the restoration of dark night skies by the elimination of flares, some of which are located at well pads near the Scenic Byway.

Opportunities for sight-seeing, OHV travel, camping, and backcountry activities within including biking, equestrian riding, hiking, and boating within the CIA would essentially remain unaltered. Access to designated routes would not be affected.

4.4.4.4.2 Alternative B

No direct or indirect impacts would occur under this alternative, so an accumulation of impacts to recreation would not occur.

4.4.4.4.3 Alternative C

Recreational use of the CIA would be likely to continue and increase in the future. Historic, current, and future developments have reduced, and will likely continue to reduce, the amount of natural undisturbed areas that would have otherwise been available for recreational use. Alternative C would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total.

Cumulative effects to recreation would be qualitatively similar to the impacts described for Alternative A. Because the construction methods proposed under Alternative C would require removal of trees and shrubs along the pipeline route, the features of the existing landscape along the pipeline route would be altered by the relatively quick growth of grasses where trees and shrubs one live. The change in vegetation species may alter the recreational experience for some users of the CIA but would not be likely to detract from the value of the recreational experience, as indicated by the primary activities in the 2007 visitor use study (BLM, 2008a).

4.4.5 Socioeconomic Resources

4.4.5.1 Cumulative Impact Area

The cumulative impacts analysis area for socioeconomic resources includes fiscal impacts to the State of Utah and Grand County from the production and delivery to markets of natural gas from the Operator’s wells. The assumptions used for the analysis of impacts in Section 4.3.1.5 were carried forward in this section; e.g., speculative quantifications were not considered for analysis. The time frame for the analysis of cumulative impacts is 30 years, corresponding to the estimated life of a productive well.

4.4.5.2 Past and Present Actions

Past and present actions in the CIA affecting socioeconomics and fiscal impacts in the CIA consist of oil and gas production operations, specifically as it relates to natural gas. Fiscal benefits from past and present natural gas production have been lost because natural gas has been flared rather than delivered to market. Past and present fiscal benefits resulting from natural gas that has been produced from the Operator's 16 wells do not exist (See Section 4.4.1.2), corresponding to Alternative B. Under Alternatives A and C, the 16 existing wells would be connected to the pipeline. Thus, past and current fiscal impacts from Alternative B differ from Alternatives A and C in consideration of the transport of natural gas to market.

As of April 2013, 16 oil and gas wells were active in the Big Flat area, but just 9 wells were producing at that time. Fiscal impacts from past and present actions conservatively includes all active (not plugged and abandoned) wells where drilling has been initiated. Revenues from the 16 wells were derived from current production data for the 9 producing wells and estimates for the remaining 7 active wells that are not currently producing. Estimates were obtained as average values from the producing wells. Table 4-20 presents estimates of mineral lease payments from past and present actions by alternative.

Table 4-20: Past and Present Annual Natural Gas Mineral Lease Payments from Natural Gas Production

Natural Gas – 16 Wells	Annual Production [1] (MCF)	EIA 2013 Spot Price [2]	12.5% Royalty	State Share	County Share
Alternatives A and C – Pipeline	1,946,667	$4.14	$1,007,401	$503,699	$251,851
Alternative B – No Action (no pipeline)	0	NA	0	0	0

[1] Operator estimate. [2] EIA, 2013.

4.4.5.3 Reasonably Foreseeable Action Scenario

Reasonable foreseeable fiscal revenues were based on an estimated natural gas production from 21 future wells (See Section 4.4.1.3). Revenues were quantified based on mineral lease payments resulting from the Operator's producing wells. Employment opportunities to local persons in support of construction operations would be provided on a temporary and were not quantified. Revenues to local businesses would result from temporary lodging and food expenses for the construction crew were not quantified for the cumulative analysis. Reasonably foreseeable fiscal impacts from Alternative B differ from Alternatives A and because natural gas would not be transported to market under Alternative B (See Table 4-21).

Table 4-21: Reasonably Foreseeable Annual Mineral Lease Payments from Natural Gas Production

Natural Gas – 21 wells	Annual Production (MCF) [1]	EIA 2013 Spot Price [2]	12.5% Federal Royalty	State Share	County Share
Alternatives A and C	2,555,000	$4.14	$1,322,213	$661,105	$330,554
Alternative B – No Action	0	NA	0	0	0

[1] Operator estimate. [2] EIA, 2013.

4.4.5.4 Cumulative Impact Analysis

4.4.5.4.1 Alternatives A and C

Payments made under Alternative A would result from ongoing and projected natural gas production volumes from the 30-year operation of 37 wells and the proposed pipeline. Cumulative payments from Alternative C would correspond to identical production volumes. To facilitate the analysis of impacts from each alternative, emissions from Alternatives A and C are shown in Table 4-22.

Table 4-22: Cumulative Mineral Lease Payments from Natural Gas Production - Alternatives A and C

Natural Gas – 37 wells	Length of Time (Years)	Annual Production (MCF) [1]	EIA 2013 Spot Price [2]	12.5% Federal Royalty	State Share	County Share
Alternatives A and C	1 year	4,501,667	$4.14	$2,329613	$1,164,804	$582,404
Alternatives A and C	30 years	135,050,000	$4.14	$69,888,390	$34,944,133	$17,472,128

[1] Operator estimate. [2] EIA, 2013.

The estimates presented in Table 4-22 do not incorporate production declines over time. The estimates assume all wells drilled would successfully produce natural gas in quantities estimated by the Operator. The 30-year estimate is presented in terms of April 2013 commodity prices, which would not necessarily have a bearing on projections made 30 years in the future.

The Grand County planning process recognizes that mineral development is consistent with maintaining a stable year-round economic base (See Section 1.6). The addition of the payments estimated in Table 4-22 would help to maintain a stable local economy for as long as natural gas is produced from the connected wells, the anticipated the life of the pipeline, approximately 30 years.

4.4.5.4.2 Alternative B

As shown in Tables 4-19 and 4-20, no direct or indirect impacts would occur under this alternative, so an accumulation of impacts to socioeconomic resources would not occur.

4.4.6 Soils

4.4.6.1 Cumulative Impact Area

The CIA for soils is the 300,650-acre Labyrinth Rims/Gemini Bridges SRMA. The CIA is appropriate for soils because the SRMA largely coincides with the vegetation and wildlife habitat that would be affected by the Proposed Action and alternatives. The CIA includes areas where impacts to soils have occurred in the past, the project area, and where reasonably foreseeable actions affecting soils may occur in the future. The time frame for the cumulative impact analysis for recreation is approximately 30 years, which includes the approximate life of the pipeline, corresponding to the term of the proposed ROW amendment and approximate life of a producing well.

4.4.6.2 Past and Present Actions

Past and present actions in the CIA primarily consist of recreation actions and oil and gas actions. These actions are described and quantified in Section 4.4.4.2. Estimated disturbance from past and present oil and gas exploration and development and recreation actions in the SRMA has affected an estimated 431.5 acres (See Table 4-17).

4.4.6.3 Reasonably Foreseeable Action Scenario

Reasonably foreseeable actions include oil and gas exploration and development, recreation actions, and exploration for potash. These actions are described and quantified in Section 4.4.4.3. Under Alternatives A and C, the estimated disturbance for reasonably foreseeable actions in the CIA is 468.9 acres (See Table 4-18).

4.4.6.4 Cumulative Impact Analysis

Past, current, and reasonably foreseeable actions may result in the disturbance to 900.4 acres, corresponding to 0.3 percent of the CIA (See Table 4-19).

4.4.6.4.1 Alternative A

Cumulative disturbance to soils would result from 900.4 acres of surface disturbance, comprising 0.3 percent of the CIA. The Proposed Action would contribute 16.4 acres of disturbance to soils after reclamation of the pipeline route. Reclamation of the pipeline route would include redistribution of topsoil after approximately 120 days after construction would be finished.

Cumulative impacts to soils resources would include soil loss through increased runoff and airborne transport, changes in soil texture, loss of topsoil productivity, compaction, and slope instability resulting from disturbance. The effects of stockpiling, mixing of soil horizons, redistribution, and mechanical treatments of soils generally correspond to site-specific conditions characterized by soil textures, organic matter content, degree of aggregation, salinity, and bulk density (Schwinning et al., 2008). Blending of soil horizons due to construction and compaction resulting from repeated use of the same surface by persons and vehicles would generally diminish soil permeability and may diminish soil productivity. In general, soils in the CIA exhibit low water capacities, very small concentrations of organic matter, and varying amounts of rock fragments and/or bedrock outcrops. These characteristics would diminish adverse effects to soil chemistry and texture except in grasslands where sandy soils are generally deeper. Sensitive soils in the CIA would be protected by the application of the BLM timing limitation that restricts construction and operation of heavy equipment along roads where these soils are more likely to be wet.

Where construction operations take place, the potential for erosion and soil loss would be exacerbated by the removal of the stabilizing influence provided by established soil crusts. Where BSCs are removed, soils would suffer losses to aeration, porosity, and fertility. Disruption of cryptobiotic soil surfaces can result in decreased water availability to vascular plants through decreased water infiltration and with possible decreased precipitation. Reduction of biological soil crust cover from compressional forces exerted by foot trampling or vehicle use would result in soil loss where these activities occur.

Leaks or spills of fuels, condensate, and/or produced water could occur as equipment and machinery use increases, adversely affecting soil productivity where such releases occur. For oil and gas development, impacts to soils from accidental releases would be contained by following procedures specified in a required Spill Prevention, Control and Countermeasure Plan. Restricting vehicle travel to designated routes would limit accidental impacts to soils from such releases.

Cumulative impacts to soils and their properties would be mitigated by planning site-specific reclamation measures and implementing reclamation techniques designed to maintain soil viability. Implementation of best management practices and adherence to Gold Book procedures on federal lands, including constructing all-weather roads and utilizing the minimum amount of surface necessary for construction and long-term operations would minimize cumulative impacts to soils.

4.4.6.4.2 Alternative B

No direct or indirect impacts would occur under this alternative, so an accumulation of impacts would not occur.

4.4.6.4.3 Alternative C

Cumulative disturbance to soils would result from 900.4 acres of surface disturbance, comprising 0.3 percent of the CIA. The Proposed Action would contribute 16.4 acres of disturbance to soils after reclamation of the pipeline route. Reclamation of the pipeline route would include redistribution of topsoil after the approximate 200 days of construction operations. Cumulative effects to soils would be qualitatively similar to the impacts described for Alternative A.

4.4.7 Vegetation

4.4.7.1 Cumulative Impact Area

The CIA for vegetation is the 300,650-acre Labyrinth Rims/Gemini Bridges SRMA. The CIA is appropriate for vegetation because the SRMA largely coincides with the soils and wildlife habitat that would be affected by the Proposed Action and alternatives. The CIA includes areas where impacts to vegetation have occurred in the past, the project area, and where reasonably foreseeable actions affecting vegetation may occur in the future. The time frame for the cumulative impact analysis for recreation is approximately 30 years, which includes the approximate life of the pipeline, corresponding to the term of the proposed ROW amendment and approximate life of a producing well.

4.4.7.2 Past and Present Actions

Past and present actions in the CIA primarily consist of recreation actions and oil and gas actions. These actions are described and quantified in Section 4.4.4.2. Estimated disturbance from past and present oil and gas exploration and development and recreation actions in the SRMA has affected an estimated 416.5 acres (See Table 4-17).

4.4.7.3 Reasonably Foreseeable Action Scenario

Reasonably foreseeable actions include oil and gas exploration and development, recreation actions, and exploration for potash. These actions are described and quantified in Section 4.4.4.3. Under Alternatives A and C, the estimated disturbance for reasonably foreseeable actions in the CIA is 468.9 acres (See Table 4-18).

4.4.7.4 Cumulative Impact Analysis

Past, current, and reasonably foreseeable actions may result in the disturbance to 885.4 acres, corresponding to 0.3 percent of the CIA (See Table 4-19).

4.4.7.4.1 Alternative A

Alternative A would require the temporary use of 186.8 acres. The Proposed Action would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total. Alternative A would not remove pinyons and junipers if at all possible since a cleared corridor was widened where the pipeline route would travel cross-country so that trees could be avoided. Because the root structure of shrubs along the pipeline route would remain intact as a result of installing the pipeline on the surface, shrubs would reestablish themselves within five years. Where the pipeline would be buried in Big Flat, grasses would regrow the following spring, given sufficient precipitation. Installation of the pipeline would result in very small changes to the character and extent of the existing vegetation communities.

Cumulative impacts to vegetation would be mitigated by the implementation of reclamation techniques designed to reestablish desired vegetation as soon as possible. Oil and gas and potash operators are required to reclaim the disturbed surface not needed for long-term production operations. Most operators develop reclamation plans that are suited for area soils and include native or other desirable vegetation in the BLM-approved seed mixes. The BLM would initiate reclamation activities to facilitate vegetation regrowth in areas where it would construct recreational facilities. Soils in the CIA are droughty, but most soils are suitable for rangeland seeding (NRCS, 1989). As long as the drought persists, vegetation recovery would occur slowly.

The Proposed Action is not likely to contribute to the introduction of noxious and invasive species because construction vehicles would be washed prior to entering the project area. Weeds are typically found near designated routes in a high-use recreation area and in areas of livestock use; therefore, the transport of weed seeds is more likely to occur from public use of designated routes or livestock moving through the area. Oil and gas and potash operators are responsible for weed control on areas they disturb. The BLM is responsible for weed control in and around designated recreational facilities and areas of high recreational use. The operators and BLM would use herbicides where warranted to control or eradicate weeds.

4.4.7.4.2 Alternative B

No direct or indirect impacts would occur under this alternative, so an accumulation of impacts would not occur.

4.4.7.4.3 Alternative C

Alternative C would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total. Cumulative effects to vegetation would be qualitatively similar to the impacts described for Alternative A. The discrepancy between Alternative A and C would arise from the difference in construction procedures. Because the construction methods proposed under Alternative C would require removal of trees and shrubs along the pipeline route to install the pipeline underground, the constituency of the existing vegetation communities would be altered from existing conditions. Desert shrublands dominate the CIA, and shrubs would be reestablished in 5 to 10 years. Pinyon and juniper trees would be lost; however, the vitality and abundance of this vegetation community would not be noticeability affected within the 300,650-acre CIA.

4.4.8 Visual Resources

4.4.8.1 Cumulative Impact Area

The cumulative impacts analysis area for visual resources consists of the 0.5-mile Scenic Byway adjacent to SH 313 that contains the pipeline route. Approximately 8.2 miles (34.5%) of the pipeline route lie within this corridor. Cumulative effects to visual resources would be seen predominantly by observers driving the Scenic Byway where an observer would expect to observe natural scenery. The time frame for the analysis is 30 years.

4.4.8.2 Past and Present Actions

Impacts to visual resources from past and current surface disturbance the CIA consists of three developed campgrounds (See Section 4.4.4.2 for acreages) and seven well pads, one of which is located on state lands and not subject to RMP stipulations. Past and present actions in the CIA are shown in Table 4-23.

Table 4-23: Past and Present Surface Disturbance in the Scenic Byway

Type of Activity	Surface Disturbance (acres)
O&G Locations (7 well pads)	105.0
Recreation Actions (Horsethief, Lone Mesa, Cowboy Camp, campgrounds and 6 designated camp sites in Bride Canyon)	55.0
Total	160.0

Two campgrounds, Cowboy Camp and Lone Mesa, are essentially unnoticeable because of their placement in relation to SH 313 and are obscured by adjacent topography. While the Horsethief Campground itself is not noticeable, the white tops of recreational vehicles result in a strong contrast in color with the surrounding pinyon-juniper vegetation to an observer traveling from south to north on SH 313.

The well facilities, however, are noticeable because of their proximity to SH 313 and the lack of intervening topographic features and vegetation between the tanks and pump jack and an observer on SH 313. Flares at the existing well sites are visible from the Scenic Byway.

4.4.8.3 Reasonably Foreseeable Action Scenario

Reasonably foreseeable recreation actions that may occur within the CIA include the actions considered by Alternatives A and C. No other oil and gas actions or recreation actions are foreseen within the CIA. Successful reclamation would effectively result in no disturbance from either Alternative A or C. Therefore, reasonably foreseeable disturbance within the CIA is zero. Alternatives A and C would eliminate the need for flares at nearby well pads.

4.4.8.4 Cumulative Impact Analysis

4.4.8.4.1 Alternative A

Cumulative disturbance within the CIA consists of past and current disturbance corresponding to existing campgrounds and well pads. Alternative A would require the temporary use of 60.7 acres in the CIA. No facilities would be constructed within the CIA. Measures would be taken to mitigate visual impacts that would render the pipeline and construction route essentially not visible to a casual observer (See Section 4.3.1.8). After reclamation reestablishes vegetation along the route, which would take at least one season for grasses and approximately five years for shrubs (See Sections 3.3.7 and 4.3.1.7), Alternative A would not contribute to cumulative disturbance to visual resources. Alternative A would, however, eliminate flares from well pads visible to observers on the Scenic Byway.

Existing oil and gas leases include areas within 0.5 mile of the Scenic Byway. Future oil and gas actions on existing leases would be subject to lease stipulations or conditions of approval to ensure consistency with VRM II objectives. RMP stipulations would be applied to new leases to protect visual resources with a "no surface occupancy" restriction on development within the corridor. Oil and gas activities have yet to substantially modify the natural landscape through surface disturbance, installation of facilities, degradation of air quality, or visibility impairment, all of which may affect the quality of a recreational experience. The quality of visual resources may be enhanced by the restoration of dark night skies by the elimination of flares, some of which are located at well pads near the Scenic Byway.

4.4.8.4.2 Alternative B

Direct effects to visual resources would occur under this alternative because an accumulation of impacts would occur. Because no pipeline would be constructed, cumulative long-term effects to visual resources under Alternative B would include the presence of visible flares from existing well pads located within the CIA.

4.4.8.4.3 Alternative C

Cumulative disturbance within the CIA consists of past and current disturbance corresponding to existing campgrounds and well pads. Alternative C would require the temporary use of 100.1 acres in the CIA. No facilities would be constructed within the CIA.

Measures would be taken to mitigate visual impacts that would minimize observable effects of a wider construction route to a casual observer (See Section 4.3.3.8). After reclamation reestablishes vegetation along the route, which would take at least one season for grasses and approximately five years for shrubs (See Sections 3.3.7 and 4.3.1.7), Alternative C would contribute an altered appearance of some parts of the CIA. Outside of Big Flat, observers would be able to see a wide linear feature where trees and shrubs would be removed outside the highway ROW. After successful reclamation, the pipeline route would be reclaimed initially by grasses, which would present a contrast in texture and color to nearby shrubs and trees but the contrast would not be entirely inconsistent with existing observable features of the landscape, which includes scattered areas of grasses and shrubs interspersed with pinyon and juniper trees. Panoramic views in all directions would help to facilitate consistency with VRM II objectives. Alternative C would eliminate flares from well pads visible to observers on the Scenic Byway, restoring dark night skies.

4.4.9 Wildlife

4.4.9.1 Cumulative Impact Area

The CIA for wildlife is the 300,650-acre Labyrinth Rims/Gemini Bridges SRMA. The CIA is appropriate for wildlife because the SRMA largely coincides with the soils and vegetation that also correspond to wildlife habitat. The CIA includes areas where impacts to wildlife and wildlife habitat have occurred in the past, the project area, and where reasonably foreseeable actions affecting wildlife may occur in the future. The time frame for the cumulative impact analysis for wildlife is approximately 30 years, which includes the approximate life of the pipeline, corresponding to the term of the proposed ROW amendment and approximate life of a producing well.

4.4.9.2 Past and Present Actions

Past and present actions in the CIA primarily consist of recreation actions and oil and gas actions. These actions are described and quantified in Section 4.4.4.2. Estimated disturbance from past and present oil and gas exploration and development and recreation actions in the SRMA has affected an estimated 416.5 acres (See Table 4-17).

4.4.9.3 Reasonably Foreseeable Action Scenario

Reasonably foreseeable actions include oil and gas exploration and development, recreation actions, and exploration for potash. These actions are described and quantified in Section 4.4.4.3. Under Alternatives A and C, the estimated disturbance for reasonably foreseeable actions in the CIA is 468.9 (See Table 4-18).

4.4.9.4 Cumulative Impact Analysis

Past, current, and reasonably foreseeable actions may result in the disturbance to 885.4 acres, corresponding to 0.3 percent of the CIA (See Table 4-19).

4.4.9.4.1 Alternative A

Historic, current, and future developments have reduced, and will likely continue to reduce, the amount of habitat that would have otherwise been available for wildlife. The Proposed Action would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total.

Any long-term surface disturbance incrementally diminishes availability of the surface to wildlife, reducing the amount of available cover, foraging opportunities, and breeding areas, and possibly resulting in overall habitat fragmentation. Habitat fragmentation can be indirectly exacerbated by vehicle traffic, noise, weed invasion, and, generally, human presence. The presence of an aboveground pipeline may contribute to habitat fragmentation to some small species, especially where it would be placed cross-country. Its contribution to habitat fragmentation where placed underground or adjacent to an existing road, particularly SH 313 or frequently used Class B roads, would be small

Loss of habitat/forage could result in increased competition between species, between wildlife and grazing livestock, and within individuals of a species for available resources. These types of changes in habitat quality could contribute to additional habitat loss. Habitat loss could be compounded by drought conditions. Avian species, in particular, appear to have acreage thresholds for habitat necessary to support healthy populations. Below this species-specific threshold, a species may still occur, but not as a healthy population, or the species may disappear altogether although habitat requirements, other than size, are seemingly being met. If more than 30 percent of the available habitat is suitable for a species, habitat loss and reduced presence of a species were the primary effects of surface disturbance (Andren, 1994). Since the reduction of available landscape for use as habitat within the CIA would not exceed 30 percent, habitat loss would not result in a highly fragmented landscape where the losses would be accelerated.

Other impacts from oil and gas and/or recreational use/development would include increased displacement of wildlife individuals, increased possibility for collisions between wildlife and vehicles, and potential poaching; however, wildlife species within the CIA do not exhibit deteriorated physical condition and general distress. Loss of 885.4 acres of habitat in the 300,650-acre CIA for the long term would not affect the viability of a species because of the abundance of alternative nearby suitable habitat.

Generally, impacts to wildlife from increased human activities, including construction operations and vehicle traffic, depend upon the sensitivity of resident and migratory species to such activities. Some species of wildlife may be sensitive to a particular type of project activity while other species may not. Some wildlife species may utilize a particular area seasonally, such that off-season activities may not result in impacts. Physical parameters, such as topography, forage, and cover, are able to offset adverse impacts to some species of wildlife.

Desert bighorn sheep may be negatively affected by human-related disturbances, including mineral development, OHV use, mountain biking, river running, and other activities. Desert bighorn may become habituated to vehicles and road traffic; however, they are more sensitive to humans on foot hiking off an established trail. Infrequent, temporary disturbances are not likely to harm bighorn sheep (Papouchis, 2001). When bighorn are continually disturbed they may abandon habitat and water sources resulting in decreased numbers and distribution. Increased recreational activity increases the potential for intentional human harassment. The BLM has been monitoring and regulating these activities to avoid impacts to bighorn sheep.

Depending on the location of future oil and gas development, potential habitat would be lost to special status wildlife species, including raptors, for the long-term. Federal laws, such as the Endangered Species Act, apply to all surfaces in the CIA, regardless of ownership. Other protections exist in the form of BLM stipulations for special status species, USFWS conservation measures, and State of Utah guidelines.

Biological surveys would be required in potential or known habitats of sensitive species prior to implementation of any project. Protective measures, according to the applicable conservation measures, would be taken to avoid protected individuals of these species and their habitat. Oil and gas activity and recreational activity in the area is not likely to result in a loss of viability or otherwise cause a trend to federal listing of those non-listed special status wildlife species.

4.4.9.4.2 Alternative B

No direct or indirect impacts would occur under this alternative, so an accumulation of impacts would not occur.

4.4.9.4.3 Alternative C

Cumulative impacts to wildlife and habitat under Alternative C would be quantitatively identical and qualitatively similar to the impacts described in Section 4.4.9.4.1. The contribution of Alternative C to cumulative impacts to wildlife would be more likely to affect wildlife species that utilize underground burrows or dens (See Section 4.3.3.9); however, the BLM has applied protective measures to protect against the loss of individuals and removal of habitat that may otherwise compromise species viability. Historic, current, and future developments have reduced, and will likely continue to reduce, the amount of habitat that would have otherwise been available for wildlife. The Proposed Action would contribute 16.4 acres after successful reclamation, or approximately 1.8 percent of the cumulative disturbance total. Alternative C would not contribute to habitat fragmentation from installation of the pipeline belowground.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

The issues identification section of Chapter 1 identifies the resources described in Chapter 3 and issues analyzed in detail in Chapter 4. The ID Team Checklist (Appendix A) provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described in Sections 5.2 and 5.3.

5.2 Persons, Groups, and Agencies Consulted

Table 5-1: List of Persons, Agencies, and Organizations Consulted for Purposes of this EA

Name	Purpose and Authorities for Consultation or Coordination	Findings and Conclusions
Utah State Historic Preservation Office (SHPO)	Consultation for undertakings is required by the National Historic Preservation Act (16 USC 470). Section 106 0f the NHPA requires the BLM to account for the effects of its undertakings on historic properties. The procedures in 36 CFR Part 800 define how the BLM meets these statutory responsibilities. The National Register Criteria for Evaluation of Significance and procedures for nominating cultural resources to the National Register of Historic Places are outlined in 36 CFR 60.4.	A Class III cultural resource inventories for the Dead Horse Lateral Pipeline route and associated facilities were conducted in 2008, 2009, 2012, and 2013. Twelve cultural resource sites eligible for the National Register of Historic Places were found in the project area of potential effect. A determination of adverse effects to Historic Properties was recommended for the project. Consistent with the procedures contained in BLM IM 2012-108 and the protocol agreement with the SHPO the process, a Data Recovery Plan was developed and agreed upon, which is in the process of being formally adopted in a Memorandum of Agreement (MOA). The MOA was signed by Consulting Parties and finalized by SHPO on October 4, 2013. No further consideration under Section 106 is required.
Native American consultation	Consultation is required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 470).	Native American consultation was initiated on March 7, 2013, with eight federally-recognized tribes who historically used the BLM Moab Field Office region and/or continue to use the area. No known Native American burials or traditional cultural properties are known to be present in the project area. The Hopi Tribe responded on March 18, 2013, with a request for a copy of the Cultural Survey Report, Data Recovery Plan and final report.
Utah Division of Wildlife Resources	The BLM consults with the UDWR as the agency with expertise on impacts on game species.	The UDWR has mitigation strategies to reduce impacts big game species which have been incorporated as stipulations in the RMP. Data and analysis regarding big game species are incorporated into Chapters 3 and 4.
Utah Department of Transportation (UDOT) and Grand County Road Department	Placement of the proposed pipeline beneath the Dubinky Well road.	The UDOT deferred to the BLM. However, Grand County expressed concern that installing a pipeline beneath the road surface would possibly result in maintenance problems over time, could also present safety concerns if maintenance operations required excavation, and would result in periodic road closures that would prevent public access for temporary but

Name	Purpose and Authorities for Consultation or Coordination	Findings and Conclusions
		undetermined lengths of time.

5.3 Summary of Public Participation

The BLM posted the Proposed Action on the ENBB on January 14, 2013, to notify the public of the proposal. In addition, the BLM published notice of the Proposed Action in the Moab Times-Independent on January 24, 2013, to initiate a scoping period that extended until February 19, 2013. Appendix B provides documentation of the comments received during public scoping and details of the BLM's consideration of the issues that were identified.

The EA was posted on the ENBB on July 26, 2013 to initiate a public comment period. In addition, the BLM released an article in the Moab Times-Independent on August 8, 2013 to inform the public about the availability of the EA and a review and comment period which extended until August 26, 2013. The BLM received 4 comment letters out of which two were from environmental organizations, one was from the State of Utah, and one was from an individual. Several changes to the EA were made as a result of these comments. Changes included minor editorial corrections, supplementary project details, and additional discussion of environmental impacts; none of which resulted in identification of significant new impacts or affected the scope of the analysis. The BLM also made some minor editorial changes based on further internal review of the document. The BLM's responses to public comments, including changes to the EA, are summarized in Appendix J of the EA.

5.4 List of Preparers

Table 5-2: List of Preparers

Name	Title	Responsible for the Following Sections of this EA
BLM Preparers:		
Jan Denney	Team leader. Realty Specialist	Technical coordination and quality control.
Brent Northrup	Nonrenewable Resource Advisor	Technical coordination and quality control.
Marie McGann	Land Law Examiner	Technical coordination and quality control; air quality.
Eric Jones	Petroleum Engineer	Technical coordination and quality control.
Ann Marie Aubrey	Specialist for air quality; floodplains; soils.	Impact analysis for air quality; floodplains; soils; water resources.

Name	Title	Responsible for the Following Sections of this EA
Jordan Davis	Rangeland Management Specialist.	Impact analysis for vegetation.
ReBecca Hunt-Foster	Paleontologist	Impact analysis for paleontology.
Leonard Herr	Specialist for air quality.	Impact analysis for air quality.
Don Montoya	Archaeologist	Impact analysis for cultural resources and Native American religious concerns.
Pam Riddle	Specialist for migratory birds; fish and wildlife, excluding USFWS designated species.	Impact analysis migratory birds; Utah BLM sensitive species; fish and wildlife excluding USFWS-designated species.
Colin Schwartz	Specialist for air quality.	Impact analysis for air quality.
Jeffrey Smith	Recreation Branch Chief	Impact analysis for recreation and visual resources.
Katie Stevens	Outdoor Recreation Planner	Impact analysis for recreation and visual resources.
Bill Stevens	Outdoor Recreation Planner	Impact analysis for socioeconomic resources.
Doug Wight	GIS Specialist	Technical coordination.
Non-BLM Preparers:		
Bonnie Carson, Smiling Lake Consulting	Project Manager, environmental engineer, geophysicist.	Air quality, cultural resources, floodplains, recreation, soils, vegetation, visual resources, and, wildlife.
Scott Carson, Smiling Lake Consulting	Geologist.	Technical coordination and quality control; general setting, socioeconomics.
Nick Hall Grasslands Consulting	Biologist.	Maps, GIS support.
Tim Horgan-Kobelski, Grasslands Consulting	Biologist.	Maps, GIS support.

* The non-BLM preparers have no financial interest in the outcome of the Proposed Action.

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6.2 Acronyms

4WD	Four Wheel Drive
µm	Micron
ANSI	American National Standards Institute
AO	Authorized Officer
APE	Area of Potential Effect
API	American Petroleum Institute
AQRV	Air Quality Related Values
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATV	All-Terrain Vehicle
BCC	Birds of Conservation Concern
BCF	Billion Cubic Feet
BLM	Bureau of Land Management
BSCs	Biological Soil Crusts
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CEQ	Council on Environmental Quality

CFR	Code of Federal Regulations
CH_2O	Formaldehyde
CIA	Cumulative Impact Area
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
dBA	Decibels, A-weighted
DHPSP	Dead Horse Point State Park
DM	Department Manual
DOI	Department of the Interior
EA	Environmental Assessment
EI	Emissions Inventory
EIA	Energy Information Administration
ENBB	Environmental Notification Bulletin Board
EO	Executive Order
EPA	Environmental Protection Agency
FLPMA	Federal Land Policy and Management Act of 1976
FO	Field Office
FY	Fiscal Year
GHG	Greenhouse Gas
GOPB	Utah Governor’s Office of Planning and Budget
GPS	Global Positioning System
HAPs	Hazardous Air Pollutants
HDD	Horizontal Directional Drill
IDT	Interdisciplinary Team
IMPLAN	IMpact Analysis for PLANning
ISKY	Island in the Sky District of Canyonlands National Park
KOP	Key Observation Point
MCF	Thousand Cubic Feet
MLA	Mineral Leasing Act of 1920
MMCF	Million Cubic Feet
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	Nitrogen Oxides
NP	National Park
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places

OHV	Off-Highway Vehicle
ONRR	Office of Natural Resources Revenue
PCIB	Permanent Community Impact Board
PIF	Partners in Flight
P.L.	Public Law
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter, 2.5 microns in diameter or less
PM_{10}	Particulate matter, 10 microns in diameter or less
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PWR	Public Water Reserve
RFDS	Reasonable Foreseeable Development Scenario
RMP	Resource Management Plan
ROW	Right-of-Way
RVs	Recreational Vehicles
SCADA	Supervisory Control And Data Acquisition
SH	State Highway
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
SRMA	Special Recreation Management Area
SUWA	Southern Utah Wilderness Alliance
TPY	Tons per Year
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality
UDOGM	Utah Division of Oil, Gas and Mining
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
U.S.	United States of America
USC	U.S. Code
USTC	Utah State Tax Commission
USFWS	U.S. Fish and Wildlife Service
VOCs	Volatile Organic Compounds
VRM	Visual Resource Management
WGR	Western Gas Resources

United States Department of the Interior
Bureau of Land Management

BLM

DECISION RECORD
DOI-BLM-UT-Y010-2013-067-EA

November 2013

Dead Horse Lateral Right-of-Way Amendment for a Natural Gas Pipeline

UTU-67385

Location: Moab Field Office

Applicant/Address: Fidelity Exploration & Production Company
1700 Lincoln Street, Suite 2800
Denver, CO 80203

Moab Field Office
82 East Dogwood
Moab, Utah 84352
Phone: 435-259-2100
Fax: 435-259-2106

DECISION RECORD
Environmental Assessment
DOI-BLM-UT-Y010-2013-067-EA
Dead Horse Lateral Right-of-Way Amendment (UTU-67385)

DECISION

It is my decision to grant rights-of-way (ROW) for the Dead Horse Lateral Right-of-Way Amendment (UTU-67385) project to Fidelity Exploration and Production Company (Fidelity) as analyzed under the Proposed Action as mitigated in the Environmental Assessment (EA). For administrative purposes, the amendment to the ROW will be serialized as two ROWs and a temporary use permit. The pipeline, booster station, and access road to the gas processing plant are included in one ROW (UTU-67385); the gas processing plant is included in a second ROW (UTU-90108); and the pipeline construction corridor and staging areas (including improved access roads) are included in the temporary use permit (UTU-67385-01). These administrative changes have no effect on the analysis in the EA.

The project consists of the construction of a 12 inch diameter pipeline which is about 24 miles in length; construction of a booster compressor station and a gas processing plant; six temporary staging areas; blading on portions of two designated roads to access two of the staging areas; and upgrading of 2,934 feet of designated road to provide access to the gas processing plant. The pipeline would be installed above ground for a total of 18.6 miles and buried for a total of 5.4 miles. Total surface disturbance would amount to about 186.8 acres on Federal and State land. This Decision approves only the portions of the project located on lands administered by the Bureau of Land Management (BLM). Approximately 120 days would be needed to complete the pipeline project.

This decision is contingent upon Fidelity adhering to all aspects of the Proposed Action which includes the final Plan of Development, Safety Procedures, Reclamation Plan, and environmental commitments (design features). The decision is also contingent upon Fidelity fulfilling the mitigation measures identified in the EA and Fidelity posting the required bond.

In accordance with 43 CFR 2807.10, this decision does not authorize Fidelity to initiate construction of any project facilities or proceed with other ground disturbing activities in connection with the project until the BLM authorizes the ROW Grants for the project and Fidelity receives a written Notice to Proceed from the BLM.

Authority

The authority for this decision is contained in Section 28 of the Mineral Leasing Act of February 25, 1920, as amended (30 U.S.C. 185) and the Federal regulations at 43 CFR 2880.

Compliance and Monitoring

During construction operations, the BLM will periodically monitor the project construction to ensure that the disturbance conforms to what was approved by the ROW. After project construction operations are completed, the survey area would be inspected by the BLM to determine that all debris has been removed from the construction area.

The Operator has committed to provide funding for an independent 3rd-party BLM compliance monitor. The monitor would be present on-site while construction is taking place to ensure compliance with all conditions of approval and stipulations of the ROW grant. Pre-work meetings would be held daily to review these requirements. The monitor would be required to contact the BLM staff routinely to provide updates as to compliance status. If the construction does not conform with the requirements, the monitor would have the authority to stop construction until the matter at issue is resolved.

In addition, the Operator has committed to employing biological, cultural, and paleontological monitors who will perform their duties in conformance with direction received from the BLM.

Terms/Conditions/Stipulations

Potential resource impacts from the Proposed Action are mitigated through applicant committed environmental protection measures (design features) incorporated into the Proposed Action and the mitigation measures identified in the EA. The applicant committed environmental protection measures and the mitigation measures in the EA are included as conditions of approval to this decision and are provided in Attachment A.

Plan Conformance and Consistency

The Proposed Action involves some lands identified as avoidance areas for rights-of-way identified in Appendix A of the RMP (BLM, 2008) to protect important resources. These lands involve the migration corridors for desert bighorn sheep that are identified as No Surface Occupancy (NSO) for oil and gas leasing and other surface-disturbing activities. However, based on the analysis in the EA, the project would avoid construction operations in migration corridors during times of bighorn migration which would result in diminished effects to migrating sheep. Therefore, an exception to the NSO stipulation is granted because construction activities would take place outside of the migration periods.

The Proposed Action involves some lands identified as No Surface Occupancy in the RMP to protect developed recreation sites. Based on analysis in the EA, it was determined that the pipeline could not be seen from Horsethief Campground. In addition, the pipeline would not be visible from the majority of campsites at the Cowboy Campground and where it may be in view it would not be noticeable to the casual observer. Therefore an exception to the stipulation is granted because a viewshed analysis indicates no impairment to the visual resources from the recreation sites.

The Proposed Action involves some lands identified as No Surface Occupancy in the RMP to protect Public Water Reserves (PWRs) and springs. The BLM concluded that there would be no potential impact to the PWRs and associated water resources. The pipeline is surface laid in these areas with minimal surface disturbance. Therefore, an exception to this stipulation is granted.

The Proposed Action is in conformance with all other decisions in the Moab RMP (2008).

Alternatives Considered

The EA considered three alternatives: the Proposed Action, the No Action Alternative, and one additional alternative.

The Proposed Action (Alternative A) involves the construction of a 12 inch diameter pipeline which is about 24 miles in length; construction of a booster compressor station and a gas processing plant; six temporary staging areas; blading on portions of two designated roads to access two of the staging areas; and upgrading of 2,934 feet of designated road to provide access to the gas processing plant. The pipeline would be installed above ground for a total of 18.6 miles and buried for a total of 5.4 miles. Total surface disturbance would amount to about 186.8 acres on Federal and State land. Approximately 120 days would be needed to complete the pipeline.

The No Action alternative (Alternative B) would result in denying the amendment to the pipeline ROW (UTU-67385). None of the impacts that were identified for construction of the pipeline would occur.

The other action alternative (Alternative C) involves entirely burying the pipeline along the same route as that for Alternative A. The locations of the booster station, gas processing plant, staging areas and access roads would remain the same as in Alternative A. This alternative differs from Alternative A with regards to the area needed for construction operations and time required for construction. The total surface disturbance would be 316.2 acres and approximately 200 days would be needed to complete the pipeline.

Four additional alternatives were considered in the EA but were eliminated from further analysis. These alternatives include:

1) Injecting produced natural gas for reservoir enhancement. This alternative was eliminated primarily because there is not a suitable candidate well for injection and because of irregular produced gas volumes.
2) Injecting natural gas for storage and future use. This alternative was eliminated because there is only one other formation that has characteristics suitable to receive and store gas but testing shows that it would dilute the natural gas with inert gases which would effectively preclude use of the natural gas as fuel in the future.
3) Natural gas incineration at the well pads. This alternative was eliminated because the viewshed would be unacceptably altered due to the height and composition of the incinerators.

4) Utilizing the existing ROW route. This alternative was eliminated because it would result in greater impacts to soils, vegetation, recreation use, and visual resources than the Proposed Action.

Rationale for Decision

The Proposed Action (Alternative A) was selected because of the following reasons:

- The pipeline project is in conformance with the management decisions in the Moab RMP, approved October 2008.
- Approval of the ROW amendment would allow Fidelity to construct a natural gas pipeline and associated facilities under the authority of the Mineral Leasing Act and the Federal regulations at 43 CFR 2800.
- Construction of the natural gas pipeline and associated facilities would result in avoiding waste due to flaring and promoting conservation of the natural gas resource. Capturing the natural gas and transporting it to commercial markets via the pipeline also allows it to be utilized as a low cost source of energy to consumers as compared to other sources of energy.
- The pipeline project would result in beneficial impacts to air quality. Emissions of pollutants and Green House Gases are substantially reduced by the delivery of the natural gas to commercial markets via the pipeline.
- The pipeline project would result in socio-economic benefits. Royalty payments based on the volume of gas delivered to commercial markets via the pipeline would generate a substantial amount of revenues for federal, state, and local governments. Temporary revenues would also accrue for local businesses during pipeline construction operations and Grand County would receive property taxes based on the centrally assessed pipeline infrastructure.
- A finding of no significant impact has been approved for the project that concluded that based on the analysis of the environmental impacts as documented in the EA, the pipeline project, with the applicant committed environmental mitigations measures (design features) and the mitigation measures identified in the EA, the selected action would have no significant impacts, thus an environmental impact statement is not required.

The No Action (Alternative B) alternative was not selected because it would not avoid waste of natural gas due to flaring at the well sites and would not promote conservation of the resource. The natural gas would be lost and not available to consumers as a low cost source of energy. A substantial reduction in emissions resulting from the discontinuation of flaring would not occur. In addition, the substantial fiscal benefits of transporting the natural gas to commercial markets would not be realized by federal, state, and local governments.

Alternative C accomplishes the same objectives for avoiding waste and promoting conservation of the natural gas resource as those identified for Alternative A. However, due to the buried nature of this alternative and a wider construction corridor, it would result in greater impacts to soils, vegetation, and wildlife habitat. Although the pipeline itself would not be visible, the trench scars from pipeline construction would result in long-term visual impacts beyond those identified for Alternative A. Therefore, this alternative was not selected.

The Proposed Action was posted on the BLM's Environmental Notification Bulletin Board (ENBB) on January 14, 2013, to notify the public of the proposal. In addition, the BLM published a notice in the *Moab Times-Independent* on January 24, 2013, to inform the public of the proposal and to initiate a public scoping period for identifying issues that extended until February 19, 2013. The BLM received 7 responses during the scoping period which helped to focus detailed analysis in the EA to the resource issues identified in Section 1.7 of the EA and the alternatives identified in Section 2.0 of the EA. Appendix B of the EA provides documentation of the comments received during public scoping and details of the BLM's consideration of the issues that were identified.

The EA was posted on the ENBB on July 26, 2013 to initiate a public comment period. In addition, the BLM released an article in the *Moab Times-Independent* on August 8, 2013 to inform the public about the availability of the EA and a review and comment period which extended until August 26, 2013. The BLM received 4 comment letters; two were from environmental organizations, one was from the State of Utah, and one was from an individual. Comments from the environmental organizations raised concerns about the adequacy of the analysis for recreation, soils, socioeconomics, vegetation, and visual resources. In addition, concerns were raised about inadequate project details, the range of alternatives, and effectiveness of mitigation. Several changes to the EA were made as a result of these comments. Changes included minor editorial corrections, supplementary project details, and additional discussion of environmental impacts; none of these changes resulted in identification of significant new impacts or affected the scope of the analysis. The BLM also made some minor editorial changes based on further internal review of the document. All changes to the text in the EA are highlighted in gray. The BLM's responses to public comments, including changes to the EA, are summarized in Appendix J of the EA.

Protest/Appeal Language

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. If an appeal is taken, your notice of appeal must be filed in the office of the Authorized Officer at 82 East Dogwood, Moab, Utah, 84532 within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error. If you wish to file a petition pursuant to 43 CFR 2881.10 for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time as the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay:

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1) The relative harm to the parties if the stay is granted or denied,
2) The likelihood of the appellant's success on the merits,
3) The likelihood of immediate and irreparable harm to the appellant or resources if the stay is not granted,
4) Whether the public interest favors granting the stay.

Beth Ransel
Beth Ransel
Field Manager
Moab Field Office

11/8/13
Date

Attachment (1)

1. Attachment A, Conditions of Approval

ATTACHMENT A
Conditions of Approval
Dead Horse Lateral Right-of-Way

Conditions of Approval Resulting from Applicant Committed Environmental Protection Measures (Design Features) in the EA

General

1. The Operator will adhere to all applicable federal, state, county, and BLM regulations while performing all operations associated with the Proposed Action.
2. The Operator will adhere to all Conditions of Approval applied to the approved ROWs.
3. The Operator will utilize an independent 3rd-party monitor during construction operations to ensure compliance with the Operator-committed measures and the terms and conditions of the approved ROW grants as they pertain to construction operations.
4. The Operator will submit a detailed plan of construction to the BLM prior to the initiation of construction.
5. Construction operations will be conducted in consideration of the *Surface Operating Standards for Oil and Gas Exploration and Development, 4th Edition* (Gold Book) (USDI and USDA, 2007).
6. Off-road (cross-country) construction operations, including vehicle movement and travel, will be conducted within the approved temporary construction corridor.
7. The Operator will provide shape files of the final cross-country route to the BLM after the precise location of the pipeline route has been determined. The final cross-country route will be located within a 200-foot wide corridor inventoried for the presence of cultural resources.
8. The Operator will prohibit staff and contractors from illegal collection or destruction of cultural or paleontological resources.
9. Although trees will be generally avoided, the Operator will take the following measures to reduce fuel loads and prevent possible fires:

   While performing construction operations, if any standing live or dead trees were to be damaged, cut down, or knocked over by grading or construction equipment, the Operator will take actions to mitigate the fuel loads from resultant slash. In areas where reclamation of the site would be expected and slash would be utilized to help reclaim the site, the Operator may temporary stockpile slash until termination of this activity. In areas where reclamation is not planned in the foreseeable future, such as at the booster station and gas plant, slash will be disposed.

   Disposal actions include chipping materials on site with dispersal along the road or pad edge.

   Disposal of materials will be conducted with the following conditions:

   a. The BLM would pre-approve the disposal location.

b. Piled vegetation will not be within fifteen feet of standing live trees.

10. The Operator will utilize existing BLM designated routes for access to the pipeline route where available.

Air Quality

11. The Operator will instruct its employees and contractors not to exceed speed limits or 20 miles per hour on any unpaved road during construction or normal daily activities to discourage the generation of fugitive dust.
12. During construction operations, the Operator will perform fugitive dust mitigation with the application of water, as needed.

Cultural Resources

13. The Operator has conducted a Class III cultural resource survey on lands affected by surface-disturbing activities. Where possible, the Operator will avoid sites determined to be eligible to the National Register of Historic, Places and will consult with the AO to determine a course of action to mitigate adverse effects.
14. The Operator will enter into a Memorandum of Agreement with the BLM with respect to details of mitigation measures to be taken for cultural resource sites that cannot be avoided. Mitigation may include data recovery operations.
15. The Operator will cooperate with the BLM to develop and install a sign near the Blue Hills Road and Dubinky Well intersection, or other location determined suitable by the BLM, explaining to the public the location of the Congressionally designated Old Spanish Trail.

Livestock Grazing and Range Improvements

16. Prior to project initiation, the Operator will contact the Authorized Officer for direction pertaining to temporary cutting and rebuilding a pasture fence or dismantling a range improvement facility.
17. The Operator will not inhibit livestock movement.
18. A trench may be temporarily filled in some areas to facilitate safe crossing by livestock or wildlife while pipeline construction in the vicinity of the trench is ongoing.
19. Range study sites will be avoided where possible.

Noise

20. A previously approved processing/booster station along ROW UTU-67385 in Section 27, T25S-R19E will be moved to Section 6, T25S-R19E, to prevent noise impacts from compressor use to campers at improved campgrounds.

Paleontological Resources

21. The Operator has conducted a paleontological inventory on State of Utah and BLM lands affected by surface-disturbing activities. The results of the inventory have been submitted to the BLM.
22. A paleontology monitor will monitor all surface disturbing activities that occur within a Potential Fossil Yield Classification (PFYC) of 5, including the Morrison Formation. Monitoring in areas of PFYC 5 will be performed during ongoing operations, and in some cases extended periods of work may be required, although efforts will be made

to complete any fossil recovery with minimal work stoppage. The Mancos Shale will be spot-checked in areas where any trenching or boring is to be done. Spot-check monitoring will be conducted when the Mancos is exposed to view or before pipe is placed and the trench backfilled.

Monitoring will be required for any surface-laid pipe within PFYC 5 areas where there would be blading or grading of the surface more than 12 inches wide AND/OR greater than 1 meter deep. A monitor will spot check for any surface-laid pipe within PFYC 4 areas where there would be blading or grading of the surface more than 12 inches wide AND/OR greater than 1 meter deep.

Areas of PFYC 3 are recommended for spot checks; although this maybe waved in areas that are covered in moderate to deep eolian sediments (3% of the proposed pipeline route is in a PFYC 3 area, with no PFYC 4 currently impacted). These include the Mancos Shale, Navajo Sandstone and the Kayenta Formation. Spot-checking is conducted when the fossil-bearing bedrock is exposed to view or prior to placing spoil material back into the excavation, such as when a pipeline trenching operation is complete but before pipe is placed and the trench backfilled.

23. Should paleontological resources be discovered during construction of the proposed pipeline and associated facilities, all work will stop and the Moab BLM Field Office immediately contacted.

Recreation, Safety, and Access

24. If pipeline damage were to occur from external sources and repair/replacement of the portion of a pipeline were necessary, detailed line break and emergency procedures will be followed. Standard emergency procedures include notification protocols, response procedures for fires, explosions, facility damage, adverse weather conditions, civil disorders, and vandalism.
25. Firearms will not be allowed at the construction sites, and the Operator's drug, alcohol, and firearms policies will be rigorously enforced.
26. During construction operations, public access will be maintained on Dubinky Well Road by utilizing just one lane at any particular time so that one lane will remain open, or vehicle traffic will be temporarily routed to detour along the temporary construction ROW. Appropriate controls will be in place during construction within a roadbed or adjacent shoulders of the road to warn the public and control traffic. Traffic cones and "construction zone" signs will be used to warn oncoming traffic of construction operations. Sufficient space will be allowed for passage of a single vehicle. Flagmen will be placed at either end of the work area if visibility is less than 100 yards.
27. The pipeline will be buried below unpaved Class B and Class D road and designated trail crossings (including motorcycle trail in Section 31, T23S-R19E).
28. Construction activities will occur generally during daylight hours. Pipeline integrity testing may be performed at night.

Soils, Floodplains, and Water Resources

29. The Operator will utilize best management practices for control of nonpoint sources of water pollution to prevent soil erosion, sedimentation, and damage to floodplains of drainages that transport ephemeral water.

30. The Operator will comply with the timing limitations specified for fragile soils in the BLM 2008 RMP (no surface disturbing activities from December 1 to May 31), which allows for an exception under specific circumstances.
31. The Operator will conduct pre-construction briefings during which the field crew will be educated to identify and avoid soil crusts where possible.
32. The Operator will follow guidance presented in the BLM publication *Hydraulic Considerations for Pipelines Crossing Stream Channels* (2007).
33. Existing drainage structures along the pipeline route will be maintained. The natural flow characteristics of ephemeral drainages crossed by the pipeline will be maintained.

Vegetation

34. The Operator will perform reclamation operations in conformance with the principles, goals, and procedures contained in the Operator's reclamation plan, which is in development. The Operator will utilize a seed mix specified by the BLM.
35. The surface would not be bladed or cleared of vegetation where the pipeline would be installed aboveground adjacent to roads unless necessary to enable the safe use of installation equipment.
36. Trees would be avoided where possible.
37. Reclaimed areas along the pipeline route receiving incidental disturbance during pipeline maintenance activities will be reseeded as soon as practical.
38. The Operator will power-wash construction equipment prior to entry into the project area.
39. The Operator will monitor growth of invasive species resulting from surface disturbance caused by project activities and will control weeds by the application of commercial herbicides in accordance with its approved Pesticide Use Proposal.
40. The Operator will monitor reclamation progress semi-annually and provide the BLM with an annual report detailing reclamation status.

Visual Resources

41. The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM. The fence surrounding the booster station will also be painted a dark neutral color and lath installed along the entire fence line in a color compatible with the natural surroundings to discourage a view of the facilities. If visible from Blue Hills Road, the stainless steel flare stack and distillation column will be painted an earth tone color.
42. Lighting at the booster station and gas processing plant will be kept to the minimum needed for safe operations. All lighting will be downcast. The booster station will not require night lighting unless needed during maintenance. The light at the gate of the booster station will be motion activated.
43. The pipeline will be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
44. The Operator will consult with the BLM to determine sign height necessary for safety and visibility in the Big Flat area.
45. Spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor, as much as possible.

46. Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
47. If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock will be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

Wildlife

48. The Operator will avoid construction operations in migration corridors during times of bighorn migration. Pipeline construction operations are allowed in migration corridors from June 16 through October 14 and from December 16 through March 31.
49. The Operator has conducted wildlife surveys for kit fox, prairie dogs, and raptors (including burrowing owls) during the summer of 2013. These surveys identified one active raptor nest and delineated areas of moderate to higher potential for burrowing owl habitat. As a result, the Operator will adhere to the following procedures:

    a) If pipeline construction activities occur from February 1 through August 31, an approved biological contractor will determine the status of the one nest active in 2013. If active, spatial and seasonal buffers will be applied until the nest is fledged.
    b) A raptor and kit fox survey will be conducted 1 week ahead of construction activities as construction proceeds along the ROW until May 15. After May 15 surveys are still required but are no longer required directly in advance of construction and may proceed across the remainder of the pipeline route. Surveys for raptors and kit fox will be conducted as follows:
        i. Within the construction corridor for the ROW along Dubinky Road and SH 313:
            - Active raptor nests
            - Active burrowing owl nests
            - Active natal kit fox dens
        ii. Within the construction corridor for the ROW that is not adjacent to Dubinky Road and SH 313:
            - Active raptor nests within 0.5 mile
            - Active burrowing owl nests within 0.25 mile
            - Active kit fox dens within 200 meters
    c) Monitor known active raptor nests or kit fox natal dens that may be impacted by construction activities to determine success.
    d) Report to the BLM biologist weekly and upon the determination of a new active raptor nest or kit fox den.
    e) Spatial and seasonal buffers pertaining to active raptor nests and natal kit fox dens may apply as determined by the Moab BLM.
    f) Construction activities that may result in direct loss of active raptors nests and natal kit fox dens will not occur until post fledging (7-21 days depending on species) and/or den inactivity has been documented.
    g) If construction of the gas plant commences after March 1, breeding season raptor surveys will be conducted prior to construction.

Conditions of Approval Resulting from Mitigation Measures Identified in the EA

Recreation:

1. After the pipeline is in service and reclamation operations are complete (e.g., ripping, scarifying, spreading of topsoil, reseeding), roads along the pipeline route that are not open to the public (not included in the BLM Travel Plan) will be signed, gated, or otherwise blocked to prevent public access. The Operator will consult with the AO prior to their installation to confirm the type of road management feature and specific details of gates, signs, or other methods.
2. If pipeline construction were to be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during the two weeks prior to Easter when the Jeep Safari would take place, the Operator will contact the AO in advance to coordinate with Jeep Safari organizers to avoid potential conflicts.
3. If pipeline construction would be conducted on Dubinky Well Road and/or Spring Canyon Bottom Road during mid-to-late October when the Moab Endurance Ride would take place, the Operator will contact the AO in advance to coordinate with ride organizers to avoid potential conflicts.
4. Signs warning the public of pipeline construction activity will be located at the closest road/designated route intersections (on either side) of the next day's planned construction activities or where staging areas may be temporarily located.
5. Lone Mesa Campground would not be available as a staging area after March 15.

Visual Resources:

1. Construction equipment will be positioned on the side of the pipeline opposite SH 313 in two areas specified by the BLM to diminish or prevent a view of crushed vegetation from observers on the highway, and to preserve vegetation that would screen the pipeline from the road.
2. If maintenance operations hinder the growth of plants that are products of reclamation operations, the Operator will initiate remedial reclamation operations immediately after such work is complete.
3. Where the pipeline is constructed adjacent to an existing route, the existing route will be utilized for vehicle access for inspections and maintenance.
4. The Operator will install signs, gates, or other means of preventing public use of non-designated roads or cross-county routes that are used for pipeline construction, inspection, and maintenance.
5. During reclamation operations at staging area #5, the Operator will place nearby rocks and rock fragments on the pad to allow it to blend in with the natural surroundings.
6. In those areas where the pipeline can be seen from the Cowboy Camp Campground, downed juniper from the area will be placed around the pipe to break up the linear aspect and provide some camouflage of the surface-laid pipe from the campsites.

United States Department of the Interior
Bureau of Land Management

FINDING OF NO SIGNIFICANT IMPACT
DOI-BLM-UT-Y010-2013-067-EA

November 2013

Dead Horse Lateral Right-of-Way Amendment for a Natural Gas Pipeline

UTU-67385

Location: Moab Field Office

Applicant/Address: Fidelity Exploration & Production Company
1700 Lincoln Street, Suite 2800
Denver, CO 80203

Moab Field Office
82 East Dogwood
Moab, Utah 84352
Phone: 435-259-2100
Fax: 435-259-2106

BLM

FINDING OF NO SIGNIFICANT IMPACT
Environmental Assessment
DOI-BLM-UT-Y010-2013-067-EA
Dead Horse Lateral Right-of-Way Amendment (UTU-67385)

INTRODUCTION

The Bureau of Land Management (BLM), Moab Field Office (MFO) has conducted an environmental analysis (DOI-BLM-UT-Y010-2013-067-EA) (EA) to assess the potential impacts associated with the proposed Dead Horse Lateral Right-of-Way Amendment (UTU-67385) project.

The original ROW was issued on December 2, 1991 and was later assigned to Fidelity Exploration and Production Company (Fidelity) on March 11, 2010. This ROW authorized the construction, operation, maintenance, and termination of an underground pipeline system, about 26.9 miles in length, designed to transport natural gas and oil from the Big Flat area. The Big Flat area is located about 20 miles northwest of Moab, Utah in Grand County. The ROW involved a 6-inch oil line and an 8-inch natural gas line, two booster stations, and a gas processing plant. To date, none of the authorized facilities have been constructed.

Fidelity filed a proposed amendment to ROW UTU-67385 on November 29, 2012 and a revision on April 5, 2013. The amendment involves a larger diameter gas pipeline that would follow as much of the original route as possible. However, due to technical and economic considerations, the oil pipeline would be dropped and the gas pipeline would be primarily above ground with some buried sections.

The Proposed Action consists of the construction of a 12 inch diameter pipeline which is about 24 miles in length; construction of a booster compressor station and a gas processing plant; six temporary staging areas; blading on portions of two designated roads to access two of the staging areas; and upgrading of 2,934 feet of designated road to provide access to the gas processing plant. The pipeline would be installed above ground for a total of 18.6 miles and buried for a total of 5.4 miles. Total surface disturbance would amount to about 186.8 acres on Federal and State land. The BLM action would only authorize the portions of the project located on lands administered by the BLM. Approximately 120 days would be needed to complete the pipeline project. A detailed description of the Proposed Action is provided in section 2.2 of the EA.

The underlying need for the Proposed Action is to maximize recovery of the natural gas produced from Fidelity's wells and provide useful disposition of the natural gas via transport to an existing pipeline system and commercial markets. The need is based upon avoiding waste and promoting conservation of the natural gas resource.

The BLM analyzed a no action alternative and two action alternatives in the EA: the Proposed Action and an alternative for an underground pipeline. The BLM's selected alternative is the Proposed Action.

FINDINGS OF NO SIGNIFICANT IMPACT

Based upon a review of the EA and the supporting documents, I have determined that the project (Proposed Action) is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Moab RMP/FEIS (2008). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The Dead Horse Lateral (DHL) pipeline project involves approximately 186.8 acres of initial surface disturbance; 176.7 acres would take place on Federal surface for the pipeline, booster station gas processing plant, staging areas, and road blading. Long-term disturbance on Federal lands would amount to about 16.4 acres. The project does not in and of itself have international, national, regional, or state wide importance.

The project is located in the Big Flat area where oil and gas operations have been conducted since the 1950s. Oil and gas operations have involved well drilling, access roads, production facilities, and geophysical exploration. Over the past 30 years, 42 wells have been drilled which has resulted in about 16 producing wells and 26 dry holes. A ROW for underground pipelines was issued in 1991 to transport gas and oil (two pipelines in the same trench) about 27 miles from the Big Flat Field to a location near the Canyonlands Field (Moab) airport. The rate of development and the fact that the wells are scattered over a large area has not adversely affected the high amount of recreation use occurring in the area. Recreation use in the area consists of camping, hiking, horseback riding, mountain biking, scenic driving along State Highway 313 to access Dead Horse State Park and Canyonlands National Park, and backcountry driving with all types of off-road vehicles. Therefore, the construction of the DHL pipeline would not contribute appreciably to the cumulative impacts on recreation use in the area.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this proposal.

1. Impacts that may be both beneficial and adverse:

The environmental impacts of the Proposed Action are fully disclosed in the EA. The project would result in short term adverse impacts to air quality, floodplains, recreation, soils, and vegetation. However, the mitigation measures built into the Proposed Action and EA would minimize these impacts. Adverse impacts to one cultural resource site identified as eligible for the National Register of Historic Places (NRHP) cannot be avoided but procedures have been established for minimizing these impacts. There would be short terms impacts to visual resources during construction of the pipeline and some long term impacts due to the presence of the pipeline and associated facilities.

There would be long term beneficial impacts to air quality as a result of the Proposed Action. Adverse impacts to air quality would be reduced by eliminating the flaring of gas from producing wells in the Big Flat area. The socioeconomic impacts from the Proposed Action would also be beneficial. Construction of the pipeline and related facilities would provide some short term economic gains to Grand County in terms of expenditures for labor and materials. Substantial long term economic benefits would be realized by the State and Grand County pertaining to mineral lease payments and property taxes.

2. Degree of effect on public health and safety:

During scoping, concerns were expressed by the public about the safety of installing and operating a 12-inch pipeline on the ground surface. Concerns included pipeline security, neglect, aging, and exposure to harsh weather; e.g., the ROW needs to be safe for use by hunters, recreational vehicles, equestrians, and other recreational users. The BLM addressed these concerns in Appendix D of the EA. The pipeline would be constructed to meet or exceed accepted industry standards and in compliance with all applicable regulatory guidelines (UAC Rule 746-409.Pipeline Safety).

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:

There are no prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas within the Proposed Action.

Class III cultural resource inventories were conducted for the area that could be affected by the Proposed Action. The inventories identified prehistoric lithic scatters, campsites, and quarries in addition to four historic sites, including the Old Spanish Trail, Dubinky Well Road, and the Dubinky Spring site. Nine new sites and five previously identified sites were recorded and evaluated for inclusion in the National Register of Historic Places (NRHP). Thirteen sites were recommended for inclusion on the NRHP. Avoidance was recommended for 12 of these sites and one site, the Dubinky Well Road, was not recommended for avoidance because modern disturbances are associated with this bladed and resurfaced road. Adverse effects to one cultural resource site identified as eligible for the NRHP cannot be avoided but procedures for resolving the adverse effects have been established (refer to significance criteria 8).

The project area is located between Arches and Canyonlands National Parks; however, during the process for preparing the EA, no issues or concerns regarding potential adverse effects to the Parks were identified.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial:

The Proposed Action was posted on the BLM's Environmental Notification Bulletin Board (ENBB) on January 14, 2013, to notify the public of the proposal. In addition, the BLM published a notice in the *Moab Times-Independent* on January 24, 2013, to inform the public of the proposal and to initiate a public scoping period for identifying issues that extended until February 19, 2013. The BLM received 7 responses during the scoping period which helped to focus detailed analysis in the EA to the resource issues identified in Section 1.7 of the EA and the alternatives identified in Section 2.0 of the EA. Appendix B of the EA provides documentation of the comments received during public scoping and details of the BLM's consideration of the issues that were identified.

The EA was posted on the ENBB on July 26, 2013 to initiate a public comment period. In addition, the BLM released an article in the *Moab Times-Independent* on August 8, 2013 to inform the public about the availability of the EA and a review and comment period which extended until August 26, 2013. The BLM received 4 comment letters; two were from environmental organizations, one was from the State of Utah, and one was from an individual. Comments from the environmental organizations raised concerns about the adequacy of the analysis for recreation, soils, socioeconomics, vegetation, and visual resources. In addition, concerns were raised about inadequate project details, the range of alternatives, and effectiveness of mitigation. Several changes to the EA were made as a result of these comments. Changes included minor editorial corrections, supplementary project details, and additional discussion of environmental impacts; none of which resulted in identification of significant new impacts or affected the scope of the analysis. The BLM also made some minor editorial changes based on further internal review of the document. All changes to the text in the EA are highlighted in gray. The BLM's responses to public comments, including changes to the EA, are summarized in Appendix J of the EA.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk:

The Proposed Action is not unique or unusual. There is a long history of oil and gas development and geophysical exploration in this area. The Proposed Action involves an amendment to a ROW (UTU-67385) issued in 1991 which included the construction, operation, maintenance, and termination of a natural gas pipeline, two compressor booster stations, and a gas processing plant in Grand County, Utah. The environmental impacts from the Proposed Action to the human environment are fully analyzed in the EA. There are no predicted effects on the human environment that are considered to be highly uncertain or involve unique or unknown risks.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about future considerations.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:

No individually or cumulatively significant impacts were identified for the Proposed Action. A complete disclosure of the effects for the project is contained in Section 4 of the EA. The minor adverse impacts and beneficial impacts identified for the Proposed Action, in conjunction with any impacts of any past, present, or reasonably foreseeable future actions will have negligible cumulative impacts on the human environment.

8. Degree to which the action may adversely affect district, sites, highways, structures, or objects listed the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:

See significance criteria 3 regarding cultural resources. Adverse effects to one cultural resource site identified as eligible for the NRHP cannot be avoided. In order to comply with Section 106 of the National Historic Preservation Act, a memorandum of agreement was executed between the BLM and the Utah State Historic Preservation Office on October 4, 2013 in order to resolve how the adverse effects would be resolved. The memorandum of agreement was prepared through consultation with certain organizations and individuals that were determined to be qualified as consulting parties under Section 106. The memorandum of agreement includes a Data Recovery Plan and Construction Monitoring Program for the proposed project.

Native American consultation was initiated on March 7, 2013, with eight federally-recognized tribes who historically used the BLM Moab Field Office region and/or continue to use the area. No known Native American burials or traditional cultural properties are known to be present in the project area. The Hopi Tribe responded on March 18, 2013 with a request for a copy of the Cultural Survey Report and Data Recovery Plan. The Hopi did not have any other comments. No other tribes responded.

9. Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.

No suitable or potential habitats for any threatened, endangered, or candidate animal species is present in the project area. Therefore, the Proposed Action would not adversely affect these species or their habitat.

10. Whether the action threatens a violation of federal, state, or local environmental protection law:

The Proposed Action does not violate any known federal, state, local, or tribal law or requirements imposed for the protection of the environment. State, and tribal interests were given the opportunity to participate in the process for preparing the EA. Although several comments were received during the process (including the State of Utah), none of the respondents identified a violation of applicable environmental laws, regulations, or other requirements. Furthermore, the project is consistent with the policies and programs specified in the Grand County General Plan.

Beth Ransel
Field Manager
Moab Field Office

11/8/13
Date

APPENDIX A

Interdisciplinary Team Checklist

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: Fidelity Amendment – Dead Horse Lateral Pipeline & Processing Plant

NEPA Log Number: DOI-BLM-UT-Y010-2011-0067-EA

File/Serial Number: UTU-67385

Project Leader: Jan Denney

DETERMINATION OF STAFF: ***(Choose one of the following abbreviated options for the left column)***

NP = not present in the area impacted by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for relevant impact that need to be analyzed in detail in the EA
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

The following elements are not present in the Moab Field Office and have been removed from the checklist: Farmlands (Prime or Unique), Wild Horses and Burros.

Determi-nation	Resource	Rationale for Determination*	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
PI	Air Quality Greenhouse Gas Emissions	An emissions inventory has been submitted for the project. Comparisons between the current flaring of the produced gas and the proposed pipeline installation and operation demonstrate a significant reduction in emissions. As such, both alternatives A and C would have a positive impact by reducing emissions. Alternative B would have no reduction in emissions but would continue to not impact air quality standards or AQRVs as Grand County is currently in attainment status and meeting state standards according to UDAQ.	AM Aubry	2-6-13
PI	Floodplains	The proposed pipeline route crosses several moderate-size dry washes. The route is designed to reduce impacts and follow 2008 RMP guidance in Appendix O. There are both buried wash crossings and surface laid pipes that will span washes.	AM Aubry	2-6-13
PI	Soils	The main potential impacts to soils include loss of topsoil and biotic soil crusts within disturbance corridor, compaction from equipment leading to lower infiltration rates and higher erosion rates. Dust mitigation is part of the proposal and will minimize accelerated wind erosion during project construction. Sensitive soils potentially affected include moderately saline soils and highly wind erodible soils. There are moderately saline soils at the northern end of the pipeline route, limiting construction during the wet soil season from Dec 1 to May 31. A large percentage of soils in the project area have naturally high wind erosion rates and are susceptible to blowing, especially during a drought. Soil compaction is a short term impact, recovering within 3-5 years. Topsoil conditions, biotic soil crusts and related nutrient cycling, and erosion rates will improve over the long term as vegetation is re-established. Revegetation of disturbed areas will be successful in 3-5 years or longer depending on climate conditions.	AM Aubry	2-6-13

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Water Resources/Quality (drinking/surface/ground)	There are no perennial or intermittent water resources located within or near the proposed project area. Although there are 2 Public Water Reserves (PWRs) along the proposed route (Dubinkey Well and Big Mountain Spring), the proposed pipeline route will avoid as much of these areas as possible, with the pipeline laid on the surface rather than buried. There are no potential impacts to these water sources from this project.	AM Aubry	2-6-13
NP	Wetlands/Riparian Zones	There are no riparian resources present in this proposed project area.	AM Aubry	2-6-13
NP	Areas of Critical Environmental Concern	There are no Areas of Critical Environmental Concern in the proposed project area. See Map 21 of the 2008 Moab RMP.	Katie Stevens	2-7-13
PI	Recreation	The area is heavily utilized by recreationists.	Katie Stevens	2-7-13
NP	Wild and Scenic Rivers	There are no suitable Wild and Scenic Rivers in the proposed project area. See Map 22 of the 2008 Moab RMP.	Katie Stevens	2-7-13
PI	Visual Resources	Visual resources, including lands managed as VRM II, have the potential to be affected by the project.	Katie Stevens	2-7-13
NP	BLM Natural Areas	There are no Natural Areas in the proposed project area. See 2008 Moab RMP maps	Bill Stevens	2-7-13
PI	Socio-Economics	There would likely be a relatively small and unknown (at this point) economic benefit to Grand County. During the construction phase, there will be local expenditures on goods and services, primarily lodging, meals and supplies for the pipeline construction workforce. The workforce itself is not likely to be drawn from the local population. Fiscal benefits will accrue to Grand County from increased mineral lease payments from natural gas production, and from increased property taxes levied on pipeline infrastructure. The exact value of these benefits is unknown at this time.	Bill Stevens	2-7-13
NP	Wilderness/WSA	There are no designated wildernesses or Wilderness Study Areas in the proposed project area. See 2008 Moab RMP maps	Bill Stevens	2-7-13
NP	Areas with Wilderness Characteristics	There are no areas identified by BLM as possessing wilderness characteristics in the proposed project area. See 2008 Moab RMP maps	Bill Stevens	2-7-13
PI	Cultural Resources	Impacts to cultural resources will be adverse effects to sites deemed eligible for inclusion in the National Register of Historic Places (NRHP). The National Historic Preservation Act (NHPA) 36 CFR Part 800 Subpart B Section 106 Process 800.6 requires consultation with the State Historic Preservation Office (SHPO) to resolve the adverse effects. A reasonable and good faith effort to avoid or reduce adverse effects through treatment or other mitigation measures will be undertaken.	Don Montoya	2-14-13
PI	Native American Religious Concerns	There are no Traditional Cultural Properties (TCPs), or sacred sites identified by consulting Native American Tribes to be in the project area. However, Section 106 requires the invitation of consulting parties to participate in the resolution of adverse effects to historic properties.	Don Montoya	2-14-2013
NP	Environmental Justice	There are no EJ populations present in the area.	Bill Stevens	2-7-13
NP	Wastes (hazardous or solid)	The proposed project would not generate hazardous waste. Solid waste would be transferred to a licensed landfill.	Rebecca. Doolittle	2/7/2013
NP	Threatened, Endangered or Candidate Animal Species	There are no suitable or potential habitats for any Threatened, Endangered or Candidate Animal Species in the project area.	Pamela J Riddle	4/15/2013

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Migratory Birds	May impact nesting birds and raptors if activities occur during nesting season.	Pamela J Riddle	4/15/2013
PI	Utah BLM Sensitive Species	Potential habitat for white-tailed prairie dogs, kit fox, burrowing owl & ferruginous hawk	Pamela J Riddle	4/15/2013
PI	Fish and Wildlife Excluding USFW Designated Species	Antelope and bighorn sheep habitat Migrational corridor NSO for bighorn, - seasonal restrictions will protect these areas.	Pamela J Riddle	4/15/2013
NI	Invasive Species/Noxious Weeds	The proposed action would not be likely to facilitate the spread of noxious weeds throughout the project area. The application would monitor for noxious weeds, clean equipment of weed seeds before coming on site, seeding and revegetating the route with weed free seed, continue to monitor the route for noxious weeds, and treat noxious weeds if they become established. These measures combined would eliminate issues regarding Invasive Species/Noxious Weeds.	Jordan Davis	4/2/2013
NP	Threatened, Endangered or Candidate Plant Species	Inventory completed. No known plants found.	David Williams	6/25/2013
NI	Livestock Grazing	The applicant would not disrupt the livestock grazing operation. Any destruction to Range Improvements would be temporary and repaired following the construction of the pipeline.	Jordan Davis	4/2/2013
NI	Rangeland Health Standards	The construction of the pipeline would not impact the health of the rangeland. The disturbance would be temporary and with revegetation and restoring the top soil following trenching would allow for a faster recovery.	Jordan Davis	4/2/2013
PI	Vegetation Excluding USFW Designated Species	There would likely be a temporary destruction/removal of vegetation along the proposed pipeline route and staging areas (the use of existing disturbance would reduce some of the disturbance to the vegetation). The surfacing laying of the pipeline would be less destructive in the long term to the vegetation than a buried pipeline. There is not likely to be long term impacts to the vegetation as the proposed action includes seeding/revegetation following construction of the pipeline.	Jordan Davis	4/2/2013
NI	Woodland / Forestry	The woodlands would not be impacted by the construction of the pipeline. The pipeline would be on an abandoned road through pinion sites around Cowboy Campground and off through toward Bartlett Flat.	Jordan Davis	4/2/2013
NI	Fuels/Fire Management	When the project is overlaid with the Fire Management Units (FMU's) the project falls within FMU 12 (Cisco Desert) and FMU 15 (Dead Horse). Fires within these FMU's are generally small (<1 acre) due to sparse fuel loading in the area. Overall fuels will be minimally impacted because this project is small in scale. No fire/fuels projects are planned in the area.	Joshua Relph	3/6/2013
NI	Geology / Mineral Resources/Energy Production	The pipeline would move gas produced form the oil and gas field to reach the market. Currently, the gas is vented to the atmosphere or flared. No impacts to geology, mineral resources.	Rebecca Doolittle	2/7/2013
NI	Lands/Access	The project would not be in a right-of-way exclusion area and there would not be conflicts with other land use authorizations. It would be buried in areas that are high use filming locations.	Jan Denney	4/15/2013

NI	Paleontology	Surface disturbing activities may cause direct adverse impacts to paleontological resources through damage or destruction of fossils; or loss of valuable scientific information by the disturbance of the stratigraphic context in which fossils are found. Monitors are required for all surface disturbing activities that occur within a Potential Fossil Yield Classification (PFYC) of 5, including the Morrison Formation within the area of proposed action (21% of the proposed pipeline route is in a PFYC 5 area). Areas of PFYC 3 are recommended for spot checks; although this maybe waved in areas that are covered in moderate to deep eolian sediments (3% of the proposed pipeline route is in a PFYC 3 area, with no PFYC 4 currently impacted). These include the Mancos Shale, Navajo Sandstone and the Kayenta Formation. If any paleontological resources are discovered during construction of the proposed pipeline and associated facilities, all work must stop the BLM Moab Field Office should be immediately contacted.	ReBecca Hunt-Foster	7/8/2013

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
Environmental Coordinator	Katie Stevens	11/8/13	
Authorized Officer	Beth Ransel	11/8/13	

APPENDIX B

RESPONSE TO SCOPING COMMENTS

APPENDIX B – RESPONSE TO SCOPING COMMENTS

Source	Scoping Comment Summary	Response
PROJECT DESCRIPTION		
1. Bill Rau	It is necessary to assess the practicality of an alternating above and below-ground pipeline. How will the above-ground portions be positioned, on the ground or with supports? Specific environmental impacts within at least 500 feet should be determined.	The pipeline would be placed on supports where the ground surface is rough or near washes. See Section 2.2.3. If approved, the Operator would be confined to constructing within the approved construction corridor and operating within the approved permanent ROW of 50 feet. Direct impacts were analyzed according to the construction corridors described for each alternative. None of the construction corridors would extend for a width of 500 feet. Indirect impacts may extend to distances greater than 500 feet. For example, a 12-inch aboveground pipeline may be discernible to observers at a distance of 500 feet or more without intervening topography or vegetation. Noise from a compressor may be audible at a distance greater than 500 feet. Impacts were analyzed according to the nature of the resource.
2. Bill Rau	Could a natural gas pipeline be precluded by other emerging technologies in the future?	The comment does not provide details of a specific emerging technology and cannot be addressed in the EA. Without a reference to a specific technology, a response would consist of speculation and conjecture. Alternate technologies that could be used to provide disposition of the produced natural gas were discussed in Sections 2.5.1, 2.5.2, and 2.5.3.
3. Bill Rau	The rationale for considering the amendment from a 6” pipeline to a 12” pipeline must be explicitly justified.	ROW UTU-67385 was approved in 1991 to meet the production requirements of the oil and gas field at that time. The Operator reevaluated the pipeline capacity needed for current and possible future operations for developing its leased minerals and proposed a 12-inch natural gas pipeline. The BLM evaluates proposals according to its regulatory function. The BLM does not develop independent engineering designs for private companies that have the right to operate on federal

Source	Scoping Comment Summary	Response
		lands.
4. Bill Rau	Explain in the EA how existing wells and the proposed pipeline comply with EPA requirements for green completions.	Completion technology concerns procedures used after a well is drilled to enable safe and efficient production from an oil or gas well. Well completion is a generic term used to describe the assembly of downhole tubulars and other required equipment. Well stimulation can be part of completion operations and may consist of injecting acid, water, or gases into the well to open up the formation and allow the petroleum to flow through the formation more easily. Fracturing consists of injecting a fluid into the well, the pressure of which 'cracks' or opens up fractures already present in the formation. In addition to the fluid being injected, 'propping agents' are also used. These propping agents can consist of sand, glass beads, epoxy, or silica sand, and serve to prop open the newly widened fissures in the formation. Although these techniques are commonly used to facilitate production from oil wells, the Operator has not needed to use fracturing technology to produce its Big Flat wells because the natural fractures of the formation are sufficiently large to allow flow. After a new well completion or workover, the well bore and formation must be cleaned of debris. Conventional methods for doing this include producing the well into an open pit or tank to collect sand, cuttings and reservoir fluids for disposal. Typically, the natural gas that is produced is vented or flared. Flaring is a process of burning excess natural gas instead of just releasing it to the environment. Flaring of natural gas actually puts more water into the hydrologic cycle than not burning it because one of the two byproducts of methane is water. Green completions are systems to reduce methane losses. Green completions require companies to capture the gas at the well head immediately after well completion instead of

Source	Scoping Comment Summary	Response
		releasing it into the atmosphere or flaring it. Gas and hydrocarbon liquids are physically separated from other fluids and delivered directly into equipment that holds or transports the hydrocarbons for productive use. There is no venting or flaring. This practice then links upstream activities with mid and downstream efforts.
5. Bill Rau	Explain mitigation plans of the company and those proposed by the BLM used to address impacts. Describe the costs associated with the methods proposed.	The design features incorporated into the Proposed Action by the Operator are listed in Table 2-6. Additional mitigation measures identified by the BLM are described in Sections 4.3.1.10 and 4.3.3.10. The alternatives analyzed in the EA were evaluated independent of costs. These costs include the cost of the proposed pipeline or alternatives to the proposed pipeline as well as the costs of any mitigation measure the BLM determines to be appropriate for it to comply with its regulatory mandates, which relate to the purpose and need for the action (Sections 1.3 and 1.4) and compliance with other statues, relations, or applicable plans (Section 1.6).
6. Bill Rau	The financial responsibilities of the various involved parties must be explained, including details on the types of bonds, whether the bond amount is sufficient to cover partial remediation of any damage to the environment in the event of a spill or leak.	The purpose of an EA is to determine the significance of the environmental effects of an action and to look at alternative means to achieve the BLM's objectives. An explanation of financial responsibilities is beyond the scope of an EA and is not directly relevant to the analysis of environmental effects of an action, as proposed. The comment references damage in the event of an accidental spill, or similar, which can affect the existing condition of the environment. Federal regulation 43 CFR 3104.1 requires that a bond be furnished before any drilling or surface disturbance activities begins. The bond amount will be not less than the minimum amounts described in the regulation in order to ensure compliance, reclamation of the lease area, and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or

Source	Scoping Comment Summary	Response
		cessation of oil and gas operations. The BLM can require an increase in a bond amount any time conditions warrant such an increase.
7. Bill Rau	Information is needed in the EA regarding: the amount of gas now being discharged by existing wells; the amount of gas being flared; the amount of gas to be carried by a 6” or 12” pipeline.	The amount of gas that could have been transported by a 6-inch pipeline designed in 1991 or in a 12-inch pipeline designed in 2013 is not relevant to the current analysis of impacts that would result from the proposed action or its alternatives. An estimate of the amount of gas currently being produced is found in Section 4.3.1.5.2: Fiscal Benefits to State and Local Governments.
8. Bill Rau	The EA should describe: • The number, type, and dimensions of the buildings (temporary and permanent) during and after pipeline construction • Details on the pipe supports for all aspects of the pipeline • Details of specific types of equipment and number of each equipment type used to construct and maintain the pipeline • (in the opinion of the BLM) The anticipated life expectancy of the pipeline and subsequent actions to be taken once the life expectancy is reached.	As described in Section 2.2.4, a building would be constructed to contain the compressors at the booster station and also at the gas processing plant. Plans have yet to be finalized as to the exact types of equipment and numbers that would be needed. The capacity of all the equipment that would be installed at the booster station and the gas processing plant would depend on the results of the assessment of estimated gas production volumes. Pipeline supports will be used as necessary in areas where geographic features prevent long sections of pipe from maintaining contact with the ground. As described in Section 2.2.3, supports would necessarily vary in size according to site-specific features of the ground surface. The support height will only be as tall as necessary to provide adequate structural support. The pipe will be secured to the support so as to prevent the pipe from falling. The supports will be visually inspected annually during line patrol to ensure that they are structurally sound. Pipe support inspection information will be recorded on the line patrol records that will be kept for the life of the pipeline.

Source	Scoping Comment Summary	Response
		If issued, a ROW would be granted for a 30-year term, after which an application for renewal would need to be submitted and approved by the BLM. The life expectancy of the pipeline would correspond to the lives of the wells that depend on the pipeline for gas transport. The life of a typical productive well is estimated to be 30 years but could vary considerably.
SUFFICIENCY OF THE NEPA ANALYSIS		
9. Bill Love	The pipeline needs to go underground for the safety of the pipeline and some people in the area.	Alternative C considers a buried pipeline, described in Section 2.4. Some regulations that apply to pipeline safety are listed in Table 1-2. Safety features are discussed in the description of the Proposed Action in Section 2.2. Additional safety information is provided in Appendix D.
10. Wm. T. Cunningham	This is a common sense solution to retrieve the burnoff of gas off the wells on Big Flat.	The concern is noted.
11. Wm. T. Cunningham	Burying the pipe in the road would be a great way to conceal the pipeline. If not and the plan is to surface lay the pipe, it would be easy to landscape the areas to conceal them a bit.	Burying the pipeline beneath Dubinky Well Road is discussed in Section 2.5.5. Alternative C consists of a buried pipeline, described in Section 2.4.
12. Deb Walter	The BLM must study how exactly much land will be disturbed and to what extent in consideration of amending the route to areas which do not already have roads at this time.	Surface disturbance has been calculated for each alternative. See Sections 2.2, 2.3, and 2.4. The impacts from pipeline construction and operation to areas that do not currently have roads are described in terms of the resources analyzed in this EA; e.g., soil, vegetation, recreation, etc.
13. Deb Walter	The BLM needs to consider all alternatives to this pipeline, including that of producing energy from renewable sources rather than fossil fuels. Consideration of these alternatives with all of the socioeconomic impacts as well as environmental and ecological impacts must be included in the	The EA is not a comparison of energy sources that may be used instead of natural gas. Natural gas is being produced by the existing wells in the Big Flat area and will continue to be produced as long as gas is present in the production area of the reservoir of a particular well. The gas is currently being flared, providing no useful disposition. This EA analyzes alternatives to flaring in order to conserve the natural gas resource.

Source	Scoping Comment Summary	Response
	final EIS.	Alternate technologies that could be used to provide disposition of the produced natural gas were discussed in Sections 2.5.1, 2.5.2, and 2.5.3. Also, see response to comment #2.
14. Sheri Griffith	The BLM must manage for multiple use. There is no reason for one to negatively impact the other, especially when tourism is the major economic income for Southeast Utah. Also there are zones of appropriate use and best practices management. The pipeline can be below ground and still allow gas development. The pipeline should be buried.	See Sections 1.3 and 1.4 concerning BLM's obligation to manage for multiple use. Alternative C considers the installation of a buried pipeline, described in Section 2.4.
15. Sierra Club Southern Utah Wilderness Alliance	The EA must inform the public as to the BLM's purpose and need for the proposed action. The BLM should not narrowly define the proposal in such a way as to make the Proposed Action the only alternative that meets the BLM's purpose and need.	See Sections 1.3 and 1.4. This EA analyzes the effects of the Proposed Action submitted by Fidelity. The BLM does not define a proposal made by the public, a company, or any other entity. Alternatives to a proposal are developed as a result of issues identified during the scoping process. The issues identified during scoping resulted in the consideration of Alternative C, described in Section 2.4. See Section 2.5 for a discussion of the alternatives that the BLM considered but did not fully analyze. If an alternative did not resolve any issues that required analysis beyond the stipulations contained in the BLM's 2008 RMP, full analysis of the proposed alternative was not warranted.
16. Sierra Club Southern Utah Wilderness Alliance	The BLM must consider and fully analyze a range of reasonable alternatives. Reasonable alternatives would fully protect: • The Labyrinth Rim/Gemini Bridges SRMA and recreation Focus Area for scenic driving; • Visual resource management Class II lands;	The Federal Land Policy and Management Act of 1976 defines the BLM's mission as one of multiple use. Resource management planning provides the basis for evaluating and communicating public land uses. Using the principles of multiple use and sustained yield, the BLM seeks to maximize resource values for present and future generations. Decisions in the 2008 Moab RMP are designed to guide and

Source	Scoping Comment Summary	Response
	• Lands with wilderness characteristics, including lands within America's Red Rock Wilderness Act; • Critical and sensitive wildlife habitat for listed and other species; • Air and water quality, soils and soil crusts, native vegetation, cultural resources, and other resources.	control future land or resource management actions. The resources listed by the comment are fully protected by the stipulations and management prescriptions of the RMP and current BLM guidance. The comment does not identify issues that cannot be addressed though the development of appropriate mitigation measures that are consistent with stipulations contained in the 2008 RMP: critical and sensitive wildlife habitat; air and water quality; soils and soil crusts; native vegetation; cultural resources; and other resources, including lands with wilderness characteristics and including lands within America's Red Rock Wilderness Act. An alternative was developed to mitigate impacts from pipeline construction to the SRMA and recreation focus area for scenic driving and VRM II lands. See Section 2.4. Wilderness was considered as an issue in Section 1.8.5, and is also discussed in Appendix E. Impacts to wildlife habitat, air and water quality, soils and soil crusts, vegetation, cultural resources, and other resources identified by the BLM (See Appendix A) were analyzed in consideration of the stipulations contained in the BLM's 2008 RMP. See Chapter 4.
17. Sierra Club Southern Utah Wilderness Alliance	The BLM must disclose its full analyses of all the reasonable alternatives in the EA.	See Section 2.2-2.5 for descriptions of the alternatives analyzed by the BLM. See Chapter 4 for descriptions of the impacts that would or could possibly result from implementation of the alternatives.
18. Sierra Club Southern Utah Wilderness Alliance	The BLM must gather and analyze empirical data, including impacts to the SRMA and Focus Area, wilderness characteristics, visual resources, wildlife habitat, water quality, soils (including erosion and fugitive dust generation), vegetation, air quality, and	Empirical data was acquired and quantitative data were used to evaluate impacts to all physical resources where such data were available. Estimated surface disturbance was used to provide quantitative measurements with which to assess impacts to physical resources. Resource inventories were conducted where necessary to assess possible impacts. For example, a cultural

Source	Scoping Comment Summary	Response
	cultural resources.	resource inventory was conducted to include the pipeline route and all areas that would be used for the purpose of construction and long-term operation of the pipeline. Changes to air quality were estimated according to emissions to the atmosphere under three alternatives. The BLM's experience and observation of the impacts of similar actions were used to complete the analyses of impacts presented in Chapter 4.
19. Bill Rau	Discuss audio impacts.	Impacts from noise to recreational users of the SRMA are evaluated in Sections 4.3.1.4 and 4.3.3.4.
20. Sierra Club	The BLM must analyze the impacts to other users.	Impacts to recreational users of the project area are described in Sections 4.3.1.4, 4.3.3.4, and 4.4.
21. Sierra Club Southern Utah Wilderness Alliance	The EA must analyze indirect effects, including growth-inducing effects and potential changes in patterns of land use that could result from the proposed pipeline, including increased oil and gas exploration.	Indirect effects are analyzed in the EA. A NEPA document is not required to specifically identify effects as direct or indirect (40 CFR 1508.8(b)). Indirect impacts are analyzed in the EA. Sections 4.3.1.5 and 4.4.9.4, among others, explicitly identify indirect impacts. Leases have been issued for the Big Flat and Bartlett Flat areas. These areas are subject to valid existing lease rights. Oil and gas wells may be drilled in the future whether or not a pipeline is constructed. The purpose of the NEPA analysis is to inform the BLM's ultimate decision. The NEPA analysis does not affect the lease rights held by a lessee. Growth-inducing effects are not anticipated. Fiscal benefits to Grand County are discussed in Section 4.3.1.5 and 4.3.3.5. Effects to resources are analyzed in Chapter 4. Reasonably foreseeable actions are discussed as cumulative impacts in Section 4.4.
22. Sierra Club Southern Utah	The EA must include maps that disclose all potential pipeline routes. The EA must also include maps depicting all previously drilled	Maps that display the pipeline route as it relates to various resources are contained in Appendix C. Maps included in the EA were chosen to illustrate the BLM's consideration of the

Source	Scoping Comment Summary	Response
Wilderness Alliance	wells, currently active or capped, potential future wells, and existing leases. These maps should be shown in relation to the SRMA and Focus Area, wilderness characteristics, visual resources, wildlife habitat (Mexican spotted owl, burrowing owl, sage grouse, eagle pronghorn, and desert bighorn sheep), sensitive soils, and riparian area.	alternatives as they pertain to the various resources that were analyzed and substantiate the BLM conclusions regarding the extent of impacts. Previously drilled wells are not part of the proposed action. Wells drilled in the past are considered in the analysis of cumulative impacts in Section 4.4.
23. Sierra Club Southern Utah Wilderness Alliance	The EA must analyze and disclose the effectiveness of any proposed mitigation measures. General statements that the BLM will conduct monitoring are not an appropriate form of mitigation. Monitoring for expected damage does not actually reduce or alleviate any impacts to a level of insignificance.	Damage is not “expected” to result from implementation of an action. Evaluation of possible impacts allows the BLM to develop mitigation measures that would reduce those impacts to a level of insignificance. Suggested mitigation measures derived from the analysis of impacts are described in Sections 4.3.1.10 and 4.3.3.10. The effectiveness of any particular mitigation measure can be determined only after its implementation. If the Proposed Action or an alternative is approved, the Authorized Officer would perform monitoring and compliance evaluations consistent with the actions described in Sections 4.3.1.12 and 4.3.3.12. Compliance evaluations would include an assessment of adherence to the commitments made by the Operator. Remedial actions would be determined and applied, if necessary, as a result of monitoring.
24. Sierra Club Southern Utah Wilderness Alliance	The EA must provide the public with an explanation of: (1) the data used in analyzing the potential effects to the SRMA and Focus Area, wilderness characteristics, visual resources, wildlife habitat (Mexican spotted owl, burrowing owl, sage grouse, eagle pronghorn, and desert bighorn sheep), sensitive soils, and riparian area as well as other users; and (2) the methods used to	Explanations of the data and methodology used to analyze potential effects are contained in each resource section in Chapter 4. Only resources that would be affected from the construction and operation of the proposed pipeline are analyzed in Chapter 4. See Appendix A for explanations of the resources that required analysis in the EA. This EA is being released for a 30-day public comment period.

Source	Scoping Comment Summary	Response
	conduct the analysis. The BLM should provide the public with an opportunity to provide comments and propose corrections or improvements.	
25. Southern Utah Wilderness Alliance	In order to prevent unnecessary and undue degradation to the public lands and resources, the BLM must minimize surface disturbance and impacts to SRMAs, visual resources, soils, wildlife habitat, lands with wilderness characteristics, air and water quality, and cultural resources. Assessing alternative pipeline routes that do not negatively affect these resources is consistent with FLPMA's unnecessary and undue degradation mandate.	The two primary statutes authorizing and directing the BLM to manage federal oil and gas resources and surface resources on public lands are the MLA and FLPMA. The MLA was enacted in 1920 to alleviate the waste of oil and gas resources; i.e., conservation of energy resources was the primary concern of Congress in enacting the MLA. It also grants DOI broad authority to "prescribe necessary and proper rules and regulations and to do any and all things necessary to carry out and accomplish the purposes of" the MLA, which has been interpreted to grant broad authority to DOI to manage the federal onshore oil and gas leasing program and to impose conditions on oil and gas activities found necessary or advisable to protect the environment. FLPMA directs the BLM to manage public lands according to the principles of multiple-use and sustained-yield in a manner that balances the need for commodity uses of federal resources and environmental protection. Specifically, FLPMA authorizes and directs the BLM, "by regulation or otherwise [to] take any action necessary to prevent unnecessary or undue degradation of the lands." In order to implement this mandate, FLPMA requires the BLM to establish resource management plans and to enact rules and regulations to guide management of the public lands and to carry out the purposes of the act. The BLM is obligated to consider the Proposed Action in conformance with its Resource Management Plan. Plan conformance is discussed in Section 1.5. The BLM is not obligated to assess alternative routes that would result in no

Source	Scoping Comment Summary	Response
		impacts to environmental resources.
CUMULATIVE IMPACTS		
26. Bill Love	The EA needs to look at the cumulative effects of the additional infrastructure necessary to operate the pipeline, including but not limited to electrical power facilities, compressor stations, processing plants, generators and all their cumulative effects to air quality in general and air quality in the national parks.	Cumulative effects to air quality are analyzed in Section 4.4.1.
27. Deb Walter	The BLM must assess thoroughly cumulative effects and ecological damage in which one aspect affects all others in the ecological web. Cumulative impacts to air quality, water quality, night skies, quiet, stable soils, animal habitat, scenic beauty, all environmental and ecological systems, and the quality of the outdoor experience that exists there now. The EA needs to analyze the cumulative effects to all wildlife, including bighorn sheep, sage grouse, Mexican spotted owl, antelope, and others.	Cumulative effects to the affected resources are analyzed in Section 4.4
28. Deb Walter	To create such a large pipeline would advance more future oil and gas development in the area as well as mar the existing uses. The BLM must study how much gas would be moved in a 12" pipeline and how much future industrialized development of oil and gas that would allow. The BLM must rethink their present willingness to open this area for industrial development.	The construction and installation of the 12-inch pipeline would not necessarily advance future oil and gas development in the area. The Operator has valid oil and gas leases. The issuance of the leases provides the Operator the right to drill and produce hydrocarbons, if found. The BLM does not have the authority to deny use of the surface to extract the leased mineral resources; however, the leases are subject to stipulations that accompanied the issuance of the leases. Most current leases are subject to standard terms and conditions, meaning that

Source	Scoping Comment Summary	Response
	There is no present need for a 12" pipeline, thus creating the large pipeline would be only to advance future industrial development of extractive industries. The BLM must study the long term effects of such development and the resulting enlargement of the oil, gas, potash, and any other mining presence in the area.	restrictions that are applied to leases issued since 2008, the approval date of the RMP, cannot forcibly be applied to leases that pre-date the RMP. The Operator, however, has chosen to abide by the conditions in the RMP. The BLM is not obligated to verify the size of the proposed pipeline as it may relate to current or future natural gas production volumes. Past production success has been extremely variable. Wells drilled since 2008 have demonstrated greater production success. The size of the pipeline has been gauged to accommodate anticipated natural gas volumes
29. Sherri Griffith	The size of the pipeline should not be amended from a 6" pipe to a 12" pipe. To create such a large pipeline would advance more oil and gas development in the area as well as mar existing land uses.	The Operator has presented a proposal to the BLM that reflects its needs in developing its leases. See response to comment # 21.
30. Deb Walter Sierra Club	Considering the long term cumulative effects of this project and that the uses of the region and new information regarding these uses and the varying resources have changed dramatically in the 20 years since the ROW was first issued, the BLM should go through the process of an EIS instead of an EA.	Section 1.1 describes the decision that will result from the analysis in this EA. If the BLM determines that the preferred alternative would result in significant impacts beyond those already addressed in the BLM Moab RMP, the BLM would prepare an environmental impact statement.
31. Sierra Club Southern Utah Wilderness Alliance	The EA must analyze the cumulative impacts from: other drilling, mining and energy-related projects in the area; off-road vehicle use; seismic exploration; domestic livestock grazing in the area; and other foreseeable actions, uses and impacts to the public lands in the Big Flat area.	Cumulative impacts are analyzed in Section 4.4, and the assumptions upon which the cumulative analysis was based are described in Section 4.1.
32. Sierra Club	Cumulative impacts associated with existing and future projects will likely be extensive	The concern is noted. Cumulative impacts are analyzed in Section 4.4.

Source	Scoping Comment Summary	Response
	resulting in extensive negative changes to this remarkable recreational and visual area.	
33. Bill Rau	Discuss long-term (20-50 years) environmental and socioeconomic impacts. Information is needed in the EA regarding: the known reserves of gas in the Big Flat area; an analysis of how those reserves would fill a pipeline for at least 20 years in an economically sustainable way.	Effects to the analyzed resources, including long-term effects, are discussed in their respective sections in Chapter 4. A determination of the known reserves of gas in the Big Flat area is not relevant to the decision that will be rendered with respect to this project. See response to comment #28.
AIR QUALITY and CLIMATE CHANGE		
34. Deb Walter Sherri Griffith	The BLM must assess thoroughly the creation of more dust and effects on climate change. The area cannot afford to lose air quality.	Impacts to air quality from fugitive dust and effect on climate change are discussed in Sections 4.3.1.1 4, 4.3.2.1, 4.3.3.1, and 4.4.1.
35. Deb Walter	The BLM needs to provide ongoing air monitoring results in the area so that study of air quality can be done and enforcement of strict standards of pollution control.	The regulatory authority for air quality in the State of Utah is the Utah Division of Air Quality. See the response to comment #34.
36. Sierra Club	The analysis must contain a thorough review of alternative methods to eliminate flaring. This would include the feasibility of micro turbines, gas injection, incinerators.	The BLM did not consider using microturbines at the well pads because electric power is not used at the wells. When operating in parallel with the utility grid, a microturbine can reduce utility power consumption by providing supplemental electricity for base-load requirements. Where utility power is not available, a microturbine can operate independently to serve the power demands of the facility. Other relevant but potentially problematic factors are heat generation/dissipation and low efficiencies. Because there is no need for electrical power at the well pads and no electrical distribution system into which a microturbine could connect and export power, microturbines were not analyzed in the EA.
37. Bill Rau	An assessment and explicit justification for accepting or rejecting is needed of the	The BLM examined several alternatives to constructing a pipeline or flaring the natural gas, described in Section 2.5.1,

Source	Scoping Comment Summary	Response
	technical and economic feasibility of alternatives to flaring and a pipeline, including but not limited to: • On and off-site capture or disposal of the natural gas • Enclosed burning at the site • On-site storage and removal by trucks • Return of the gas underground • Storage of gas on-site and use to generate electricity for existing wells • Closing of wells for periods of time for natural dispersal of the gas.	2.5.2, and 2.5.3. Other alternatives that would provide useful disposition for the produced natural gas were analyzed by the BLM in the NEPA document "Big Flat 9-Well Oil and Gas Exploration Project," May 2011, DOI-BLM-UT-Y010-2010-0117-EA, which is available at the Moab BLM FO. These alternatives included using natural gas to generate electricity for the nearby parks and conversion of produced natural gas to liquids or to compressed natural gas. The rationale used by the BLM that these alternatives were not viable remains valid today; therefore, there is no reason to repeat the analysis. Shutting a well in to allow "natural dispersal" of the gas is unworkable if the natural gas is not being produced, regardless of the impacts to air quality and possibly human health and safety that would result from its release.
38. Bill Rau	Describe the nature and chemical makeup of the gas now being flared.	The gas being flared is natural gas. Its chemical constituency is typical of natural gas produced in this area, and it does not contain sulfur dioxide. The chemical constituency of the natural gas was taken into account when the emissions inventory was developed for this EA. Because both action alternatives in this EA analyze the effects of constructing a pipeline, either as proposed or installed underground for its entire length, the effects of flaring the natural gas to the atmosphere would be eliminated. Flaring involves combustion of natural gas, the two primary products of which are carbon dioxide and water.
CULTURAL RESOURCES		
39. Deb Walter	The pipeline will disturb the ground for as yet undiscovered archaeological finds.	The effects of constructing and operating the proposed pipeline or its action alternative to cultural resources are described in Sections 4.3.1.2 and 4.3.3.2.
40. Sierra Club Southern Utah	The BLM must initiate meaningful consultation with the SHPO, relevant and	A Class III cultural resource inventory was conducted to identify cultural resources present in the area of potential effect,

Source	Scoping Comment Summary	Response
Wilderness Alliance	affected Tribes and other interested parties, determine the area of potential effects, and conduct a Class III cultural resource inventory of the area of potential effects of the proposed Big Flat pipeline project prior to issuing a decision, in order to assess the potential effects to cultural resources. The BLM must seek ways to avoid, mitigate, or minimize these effects to cultural resources.	and the results were provided to the BLM. Impacts that would result from the alternatives and a description of the procedures the BLM use to avoid or mitigate adverse effects are described in Sections 4.3.1.2 and 4.3.3.2. Documentation of consultation with the SHPO, relevant and affected tribes and other interested parties is disclosed in Section 5.2.
PALEONTOLOGICAL RESOURCES		
41. Deb Walter	The pipeline will disturb the ground for as yet undiscovered paleontological finds.	See Appendix A with respect to effects to paleontological resources.
RECREATION		
42. Deb Walter	Tourists will not travel to this area if it is marred by industrial operation. That is part of the BLM's job – to provide opportunities for recreation out of doors. If an area is getting so much use by recreational users, millions of people every year, then the BLM must take this into account and protect these uses. The area is surrounded by two large national parks and a state park that are visited by people from all over the world every year. The fact that there are no residents nearby is irrelevant in light of the fact that there are millions of visitors to these areas year round. The area cannot afford to lose recreational opportunities. The area cannot afford to lose attributes of the backcountry experience, including water	The concern is noted. Impacts to recreation are discussed in Sections 4.3.1.4 and 4.3.3.4. Impacts to socioeconomic resources are discussed in Sections 4.3.1.5 and 4.3.3.5. An issue considered that related the Proposed Action to socioeconomics and tourism is discussed in Section 1.8.1. The BLM's job extends to managing public lands according to the principles of multiple-use and sustained-yield in a manner that balances the need for commodity uses of federal resources and environmental protection. See the response to concern #25.

Source	Scoping Comment Summary	Response
	quality, air quality, viewsheds, animal habitats, recreational opportunities, soil stability, and night skies..	
43. Sherri Griffith	Building a 12" pipeline would interfere with the recreational use of our public lands disrupting the scenery and interfering with the outdoor experience.	The concern is noted. Impacts to recreation are discussed in Sections 4.3.1.4 and 4.3.3.4. Impacts to socioeconomic resources are discussed in Sections 4.3.1.5 and 4.3.3.5. An issue considered that related the Proposed Action to socioeconomics and tourism is discussed in Section 1.8.1. Alternative C was developed to address some of these concerns.
44. Deb Walter	This area is a high use area for ORV's, campers, hikers, bikers, photographers, those seeking solitude, equestrians, river runners, rock climbers, and may other recreational users. Building a 12" pipeline above ground would interfere with the recreational use of our public lands. The pipeline will impact the campground areas.	Impacts to recreation are discussed in Sections 4.3.1.4 and 4.3.3.4.
45. Sierra Club	The EA should acknowledge, analyze, and disclose all potential impacts to the SRMA and the Focus Area-Scenic Driving Corridors: Highway 313 and the Island in the Sky Road.	Impacts to recreation are described in Sections 4.3.1.4 and 4.3.3.4. Impacts to visual resources are described in Sections 4.3.1.8 and 4.3.3.8.
46. Sierra Club	The pipeline will cross up to 40 designated motor vehicle routes that will require the above ground pipeline to go underground, which is one reason why underground placement of the entire pipeline should be considered.	Under Alternative A, the pipeline would be buried where the route would cross designated roads and trails. Alternative C was developed to address the concern of burying the pipeline for the entire 24-mile length.
47. Sierra Club	The ROW includes a designated area of critical environmental concern referred to as "Highway 279 Corridor" north of Dead Horse	There are no Areas of Critical Environmental Concern in the proposed project area. See Map 21 of the 2008 Moab RMP for the location of the referenced ACEC and the IDT checklist in

Source	Scoping Comment Summary	Response
	Point.	Appendix A for relevance of ACECs to the project. The ACEC referred to by the commenter does include Long Canyon, but does not include lands along Highway 313 nor in the proposed pipeline corridor.
48. Southern Utah Wilderness Alliance	Public lands should be managed to conform to the objectives and decisions in the Moab Resource Management Plan with respect to: • The Labyrinth Rims/Gemini Bridges SRMA (REC-39). • Scenic Driving Corridors Focus Area (REC-39). • NSO for oil and gas leasing and preclude surface disturbance within 0.5 mile of developed recreation sites (REC-20). • Manage according to VRM classifications (REC-22). • CSU for oil and gas leasing and surface disturbance in VRM II areas to meet management objectives (VRM-5). • Scenic driving corridors managed as VRM II within a specific viewshed not to exceed 0.5 mile from centerline. CSU for surface disturbance within 0.5 mile of scenic driving corridors.	Any action proposed to take place on federal lands managed by the BLM is evaluated for conformance with the 2008 RMP. See Section 1.5. Impacts that would result from the alternatives were analyzed in Chapter 4. Impacts to recreation, including recreational use of the SRMA and developed recreation sites were analyzed in Sections 4.3.1.4 and 4.3.3.4. Impacts to visual resources in relation to VRM classifications were analyzed in Sections 4.3.1.8 and 4.3.3.8 and in Appendix G. Impacts specific to the scenic driving corridor on SH 313 were also addressed in these sections.
SAFETY		
49. Bill Love	Pipeline safety needs to be analyzed in the EA.	The pipeline would be constructed to meet or exceed applicable safety standards (See Section 2.2 and Appendix D). The BLM is not the regulatory authority that provides oversight for pipeline safety. The commenter should ~~be~~ note that other buried pipelines have been constructed in the SRMA in the past

Source	Scoping Comment Summary	Response
		with no adverse effects to public safety. Pipeline safety is considered in Section 1.8.3 of the EA.
50. Bill Love	The area along the ROW is used by Utah hunters. There will be stray bullets fired in the vicinity of the pipeline.	See information related to pipeline safety in the description of the Proposed Action in Section 2.2 and in Appendix D. The commenter should note that the pipeline would be installed in a heavily used SRMA. Stray bullets from hunters in the SRMA may also present safety risks to the public. The BLM analyzed risks to the public from pipeline operation in Section 4.3.1.4 and 4.3.3.4; however, the BLM did not analyze risks to the public that may result from "stray" bullets that may be fired in the vicinity of the pipeline.
51. Bill Love	The area is heavily used by off road riders. The pipeline may be a challenge to jump over or cross.	Motorized and mechanized cross-country travel off a designated route is prohibited by the BLM Travel Management Plan. The pipeline is proposed for burial beneath all designated routes. Vehicles, equestrians, and hikers using the designated routes would not need to jump a pipeline that is buried below the ground .Non-motorized users that are not required to stay on the designated route system (such as hikers and equestrians) would be able to step over the pipeline at other locations.
52. Sherri Griffith	An aboveground pipeline would create a serious safety hazard for driving along these roads as well as for other activities.	See the response to Comment #51. Alternative C was developed to address safety concerns and other possible effects from the construction and operation of an aboveground pipeline.
53. Deb Walter	Building a 12" above ground pipeline would create safety hazards. The BLM must insure safety standards for the pipeline. The danger of spills, terrorism, malfunctioning, leaks, depreciation must be addressed thoroughly.	See information related to pipeline safety in the description of the Proposed Action in Section 2.2 and in Appendix D.
54. Deb Walter	The American Endurance Ride Conference	The BLM considered impacts to the Endurance Ride in its

Source	Scoping Comment Summary	Response
Sherri Griffith	sponsors a yearly permitted 3 Day Moab Endurance Ride through this pipeline area. There are 2 water stops and travel routes directly on the Dubinky Well Section of the pipeline route and on new areas of the amended route. It would present a safety hazard for both horses and riders. This conflict with previous permitted uses needs to be taken into account by the BLM.	analysis of impacts to recreation resources in Sections 4.3.1.4 and 4.3.3.4. The Endurance Ride primarily uses the designated route system. The pipeline would be buried under designated roads The two water stops on the Endurance Ride near the pipeline could continue to be used. The proposed action calls for a pipeline that is 12.75 inches high. The height of the proposed pipeline would not pose a safety hazard for horses or riders.
55. Bill Rau	The long-term security of an above-ground pipeline must be considered, including neglect (e.g., lack of regular monitoring of the integrity of the pipe, fittings, etc), aging, damage due to external causes and/or faulty design, and intense weather conditions.	Alternative C analyzes a buried pipeline, described in Section 2.4.
SOCIOECONOMICS		
56. Deb Walter Southern Utah Wilderness Alliance	The BLM must take the socioeconomic consequences of on the local tourist industry into consideration. The BLM needs to evaluate the economic costs (negative socioeconomic impacts) to Moab on the short term as well as long term effects on all recreational industries that would be impacted by the disturbance and by creating a lack of customers returning for other more diverse recreational pursuits. In 1991 when the ROW was granted, this area did not experience heavy use by tourists. The Moab economy is heavily dependent upon recreation-based businesses.	See Chapter 4 concerning possible impacts to recreational use of the area that may affect the socioeconomic status of the Moab recreation economy. See also a discussion of economics and tourism in Section 1.8.1.
57. Deb Walter	Tourism will increase if the area is protected	The potential impacts of the pipeline construction on tourism

Source	Scoping Comment Summary	Response
	from industrialization. The BLM needs to take this project increase into account and study the economic impacts of each pipeline amendment.	are discussed in Section 1.8.1
58. Sherri Griffith	Tourists will not travel to this area if it is marred by industrial operations.	The effects to recreation, including tourism, are described in Sections 4.3.1.4 and 4.3.3.4. Other relevant sections include Section 1.8.1 and 1.8.4.
59. Sherri Griffith	Horse camping is very popular in the Dubinky area. These riders represent a significant contribution to the Grand County tourist base.	Possible impacts to recreation, tourism, and equestrian use are analyzed in Sections 4.3.1.4 and 4.3.3.4. The pipeline is proposed for the east side of the Dubinky Well road; the majority of horse camping occurs well to the west of the Dubinky Well road.
60. Deb Walter Sherri Griffith	This 12" above ground pipeline would also interfere with the income brought to the area by the film industry. The BLM needs to take these socioeconomic effects into account and not jeopardize the benefits brought by the film industry to Moab. Companies would not be able to film with a pipeline in the camera's view. Southeast Utah also hosts many commercials and other shorts that could be lost.	Visual resources are analyzed in the EA. Impacts to filmmakers were not specifically analyzed because public concerns relate to the appearance of the pipeline in the existing landscape. The appearance of the proposed pipeline is analyzed as impacts to visual resources, described in Sections 4.3.1.8 and 4.3.3.8. See Appendix G for details of the VRM analysis.
61. Bill Rau	Conducting an economic analysis is essential to justify the direct and indirect costs and benefits of building the pipeline as proposed, including a comparison with the costs of alternative ways of dealing with gas collection or disposal.	Impacts to socioeconomic resources are described in Sections 4.3.1.5 and 4.3.3.5. The BLM is not obligated to consider the cost of a proposal or its alternatives except as relevant to the purpose and need.
62. Bill Rau	Provide an economic analysis to demonstrate that the addition of the natural gas that might be carried by the proposed pipeline at current	Impacts to socioeconomic resources are described in Sections 4.3.1.5 and 4.3.3.5. The BLM is not obligated to consider the cost of commodity prices or the availability of viable markets,

Source	Scoping Comment Summary	Response
	and foreseeable future low prices (a.c. 20% decline in prices since the end of 2010) economically justifies construction of the pipeline. Demonstrate that there is a viable market for the additional natural gas.	which are not relevant to the purpose and need.
63. Bill Rau	UAC R649-3-30 provides guidelines for operators to deal with flaring, including exceptions, alternative options, etc. Please demonstrate that the company has taken those exceptions and alternatives into account as a way to address disposal of the natural gas which is now flared. A Request for Agency Action must include "An economic evaluation supporting the operator's determination that conservation of the gas is not economically viable. The valuations should utilize any engineering or geologic data available and should consider total well production" in presenting the profitability and costs for beneficial use of the gas. This requirement justifies the BLM need to analyze available alternatives.	Flaring from the Operator's wells has been the subject of eight hearings with the Utah Division of Oil, Gas and Mining. See Section 1.2. Alternative options to flaring were considered in Section 2.5.
64. Bill Rau	Explain impacts to Grand County tourism. Explain to what extent recreationists and recreational companies will be impacted by visual, dust, noise, land disturbance, and related conditions during and after pipeline construction.	Impacts, including noise impacts, to tourists and other recreational users of the SRMA are described in Sections 4.3.1.4 and 4.3.3.4. Effects to visual resources as they pertain to any observer, including tourists, are described in Sections 4.3.1.8 and 4.3.3.8, and Appendix G. Effects to soils, vegetation, and wildlife and wildlife habitat, all of which would result from surface disturbance and all of which may impact those tourists in Grand County who travel along SH 313, are described in Sections 4.3.1.6, 4.3.3.6, 4.3.1.7, 4.3.3.7, 4.3.3.8, and 4.3.3.9. Impacts from the construction and operational

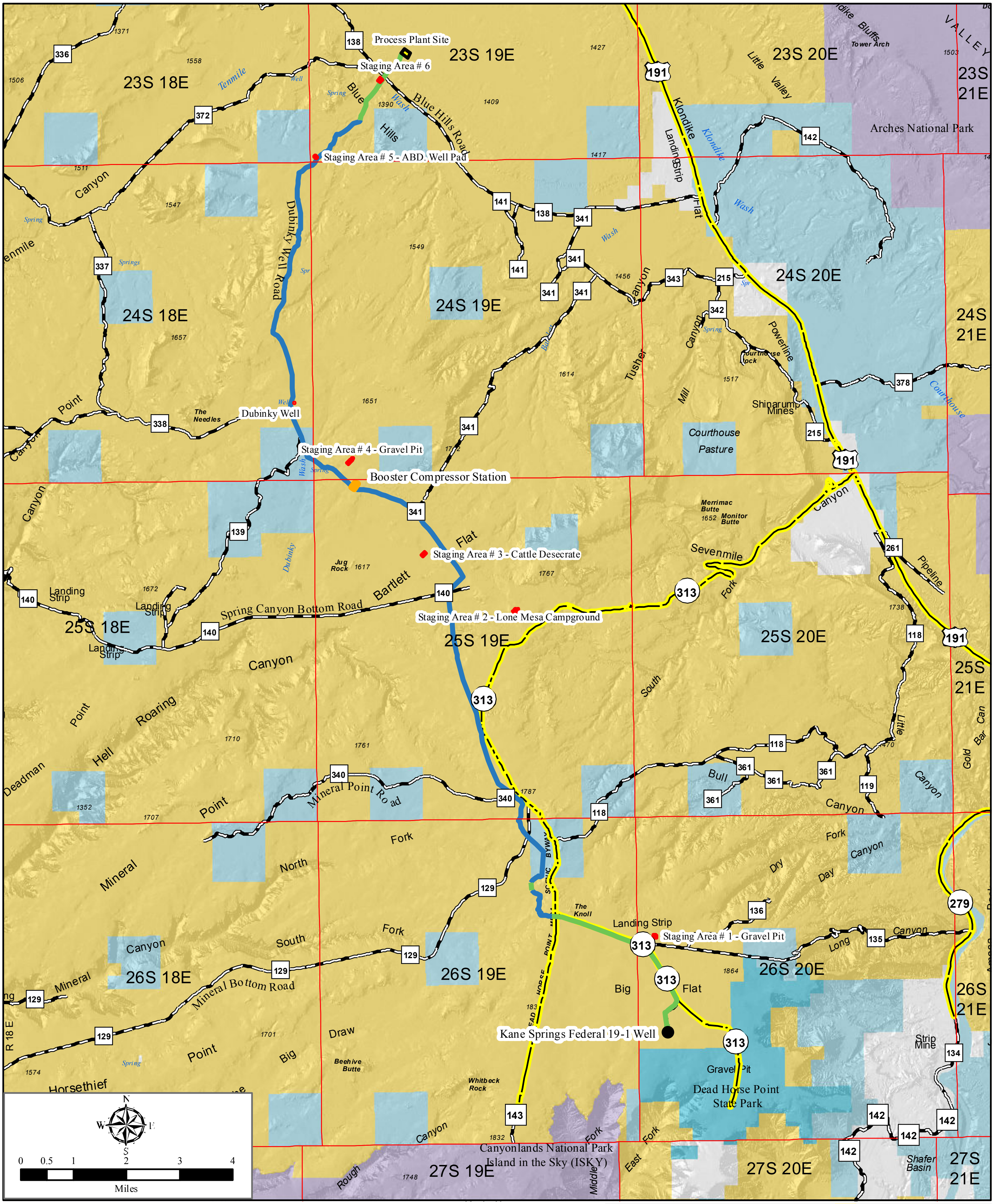
Source	Scoping Comment Summary	Response
		phase of the Proposed Action are described in each of these sections.
65. Bill Rau	Discuss in detail the standard industry ratio of real and expected volume of gas for a 20-year period to be carried by a pipeline to construction costs.	This comment is not relevant to the decision to be made and is out of the scope of this EA.
66. Bill Rau	What will be the extent to which the US, Utah, and/or Grand County taxpayers will be financially responsible for any part of the construction, monitoring and maintenance, removal, and/or remediation of the pipeline (in current US dollars)?	All financial responsibilities described in the comment would be assumed by the proponent.
SOILS		
67. Deb Walter	The BLM must assess thoroughly disturbance to sensitive soils and delicate desert crust. The area cannot afford to lose soil stability.	See Section 4.3.1.6 and 4.3.3.6 for the analyses of impacts to sensitive soils and biological soil crusts.
VEGETATION		
68. Deb Walter	The BLM must assess thoroughly the increase in invasive plants.	See Section 2.2.3, 2.2.6, and 2.2.7 for a description of construction operations and measures that would be taken to prevent the introduction and spread of noxious and/or invasive plants. See Appendix A, Invasive Species/Noxious Weeds.
VISUAL RESOURCES		
69. Deb Walter Sherri Griffith	An above ground pipeline would be a permanent negative visual impact on the land, mar the scenery, and would affect recreational tourists. The area cannot afford to lose viewsheds and/or night skies.	See Sections 4.3.1.8, 4.3.3.8 and Appendix G for the analyses of impacts to visual resources, including viewsheds and night skies.
70. Deb Walter	The pipeline would mar the visual beauty of	See Sections 4.3.1.8, 4.3.3.8 and Appendix G for the analyses

Source	Scoping Comment Summary	Response
	the Moab Endurance Ride.	of impacts to visual resources.
71. Sherri Griffith	The pipeline should not be amended to be above ground. The route should not be amended. Machinery involved in creating the pipeline along existing roads will disturb the adjacent lands whether it is buried or above ground. The original permit is for a buried pipeline. The land of the existing route has already been disturbed and is a designated road. The route should stay the same so that no more land is disturbed. The pipeline should be buried along existing roads.	Alternative C analyzes the effects of a pipeline that would be buried along the entire 24-mile length of the proposed route, described in Section 2.4. The impacts of the disturbance of pipeline construction are discussed throughout Chapter 4. An alternative which would not amend the pipeline route was considered in Section 2.5.4.
72. Sierra Club	The ROW is within a Class II and Class IV visual resource management area.	The comment is noted. Impacts to visual resources are analyzed in Sections 4.3.1.8, 4.3.3.8 and Appendix G.
WATER		
73. Deb Walter	The area cannot afford to lose water quality or harm the watershed.	See Appendix A for the evaluation of effects of constructing and operating the pipeline on water resources.
WILDERNESS CHARACTERISTICS		
74. Southern Utah Wilderness Alliance	The EA must conduct detailed evaluations of the impacts from the Proposed Action and alternatives to wilderness characteristics.	The relationship of the Proposed Action to a citizen-proposed area with wilderness characteristics is evaluated in Section 1.8.5. The proposed route of the pipeline is not within areas found by the BLM to possess wilderness characteristics.
WILDLIFE		
75. Deb Walter Sherri Griffith	The BLM must study how much the disturbance of construction of this project will affect wildlife and wildlife habitat. An above ground pipeline would disrupt wildlife migrations, foraging, and habitats.	The effects of surface disturbance to wildlife habitat are analyzed in Sections 4.3.1.9 and 4.3.3.9.

Source	Scoping Comment Summary	Response
	The area cannot afford to lose animal habitats.	
76. Sierra Club	The pipeline will cross two migration routes of desert bighorn sheep. The staging area will be in potential habitat for Gunnison sage grouse, ferruginous hawks, and burrowing owls. The ROW is within pronghorn antelope habitat.	Restrictions that are in effect to protect bighorn sheep and pronghorn are described in Section 3.3.9.1. Effects to bighorn sheep and antelope are discussed in Sections 4.3.1.9 and 4.3.3.9. Restrictions that are in effect to protect BLM Utah sensitive avian species and raptors are described in Section 3.3.9.1. Effects to these species are discussed in Sections 4.3.1.9 and 4.3.3.9. Sage grouse populations inhabiting the sagebrush regions north of the Colorado River in Utah have been taxonomically classified as the greater sage-grouse, not the Gunnison sage-grouse, which are located in San Juan County in southeastern Utah. There is neither Gunnison nor greater sage grouse habitat within the project area.

APPENDIX C

Maps



Above Ground Section-Dead Horse Cane Creek ROW
Northern Buried Section-Dead Horse Cane Creek ROW
Southern Buried Section-Dead Horse Cane Creek ROW
Staging Areas
Process Plant Site
Booster Compressor Station
State and Federal Highways
B Roads (Maintained)
Bureau of Land Management (BLM)
National Park Service (NPS)
Private
State
State Parks and Recreation

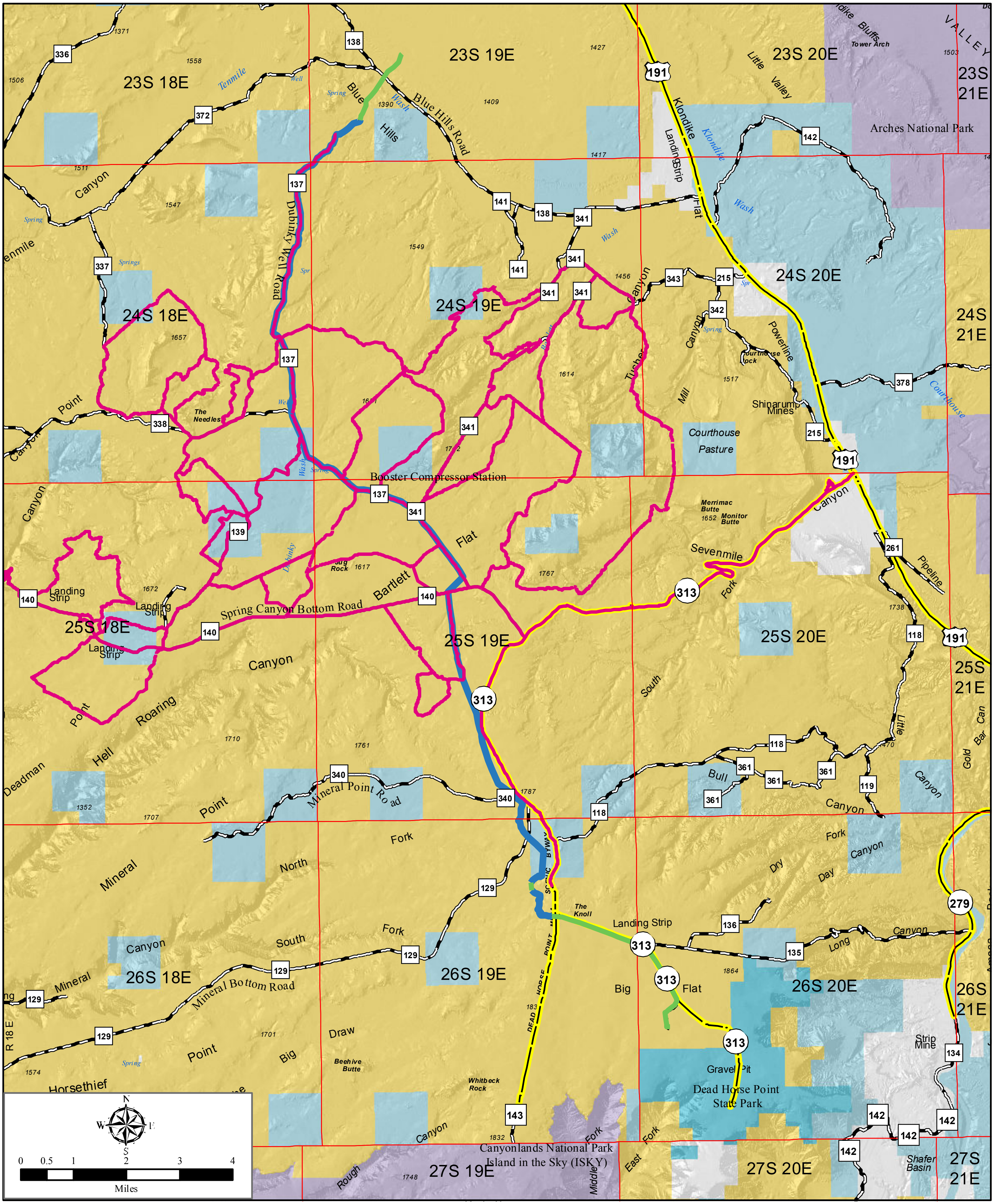
Map 1
Dead Horse Lateral Pipeline
Alternatives A and C

Grand County, Utah

Map 2
Dead Horse Lateral Pipeline
Labrinth Rims / Gemini Bridges SRMA

Grand County, Utah

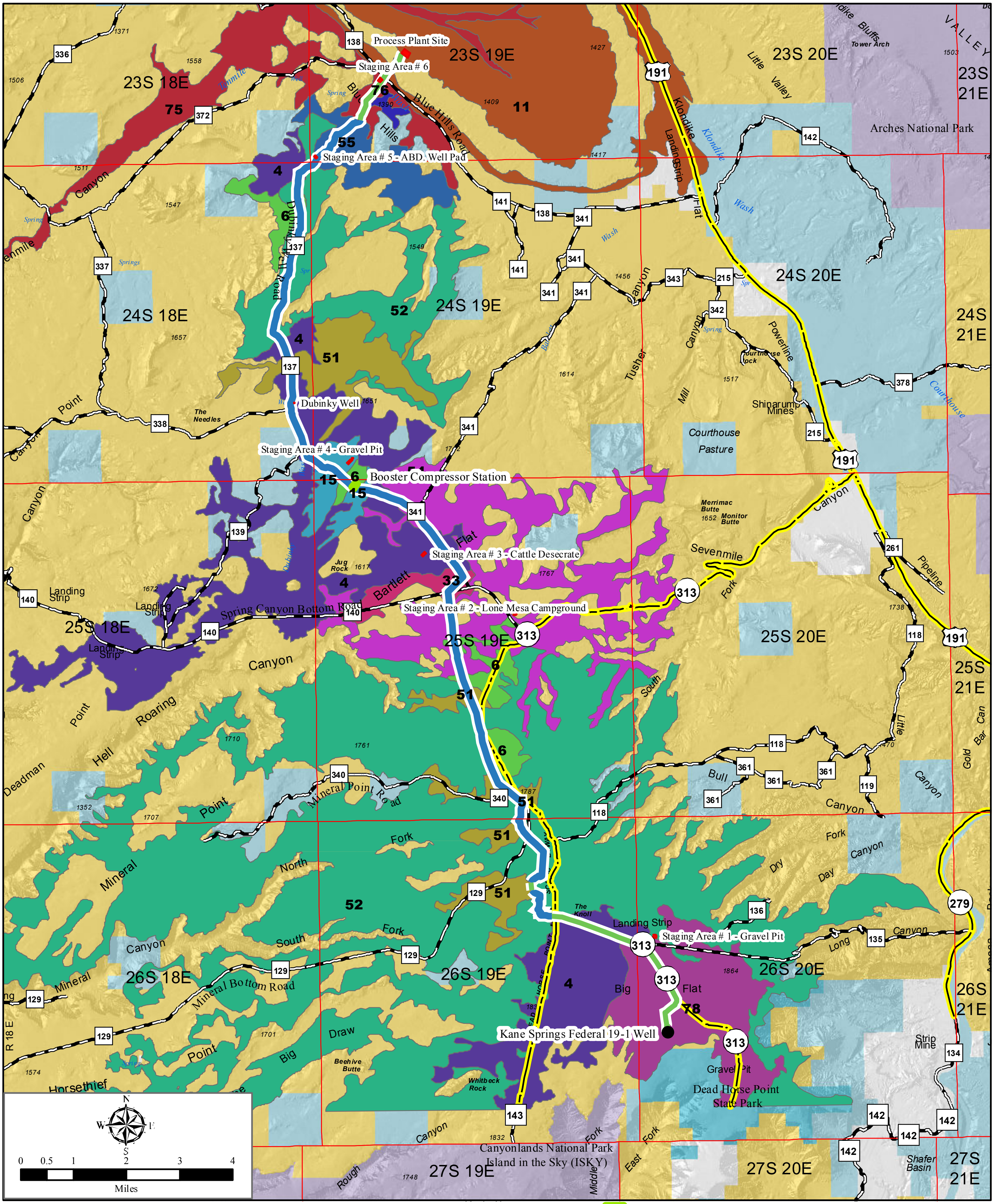
- Dead Horse Lateral Pipeline
- Campgrounds
- Dispersed Camp Sites
- SRMA
- Main Jeep Safari Routes
- State and Federal Highways
- B Roads (Maintained)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private
- State
- State Parks and Recreation



Endurance Ride Routes	Bureau of Land Management (BLM)
Above Ground Section-Dead Horse Cane Creek ROW	National Park Service (NPS)
Northern Buried Section-Dead Horse Cane Creek ROW	Private
Southern Buried Section-Dead Horse Cane Creek ROW	State
State and Federal Highways	State Parks and Recreation
B Roads (Maintained)	

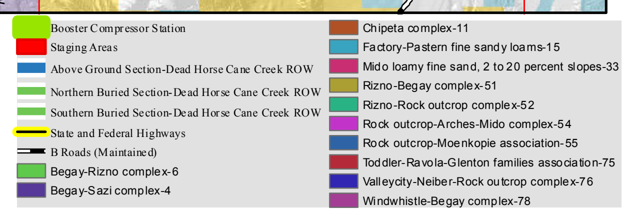
Map 3
Dead Horse Lateral Pipeline Endurance Ride

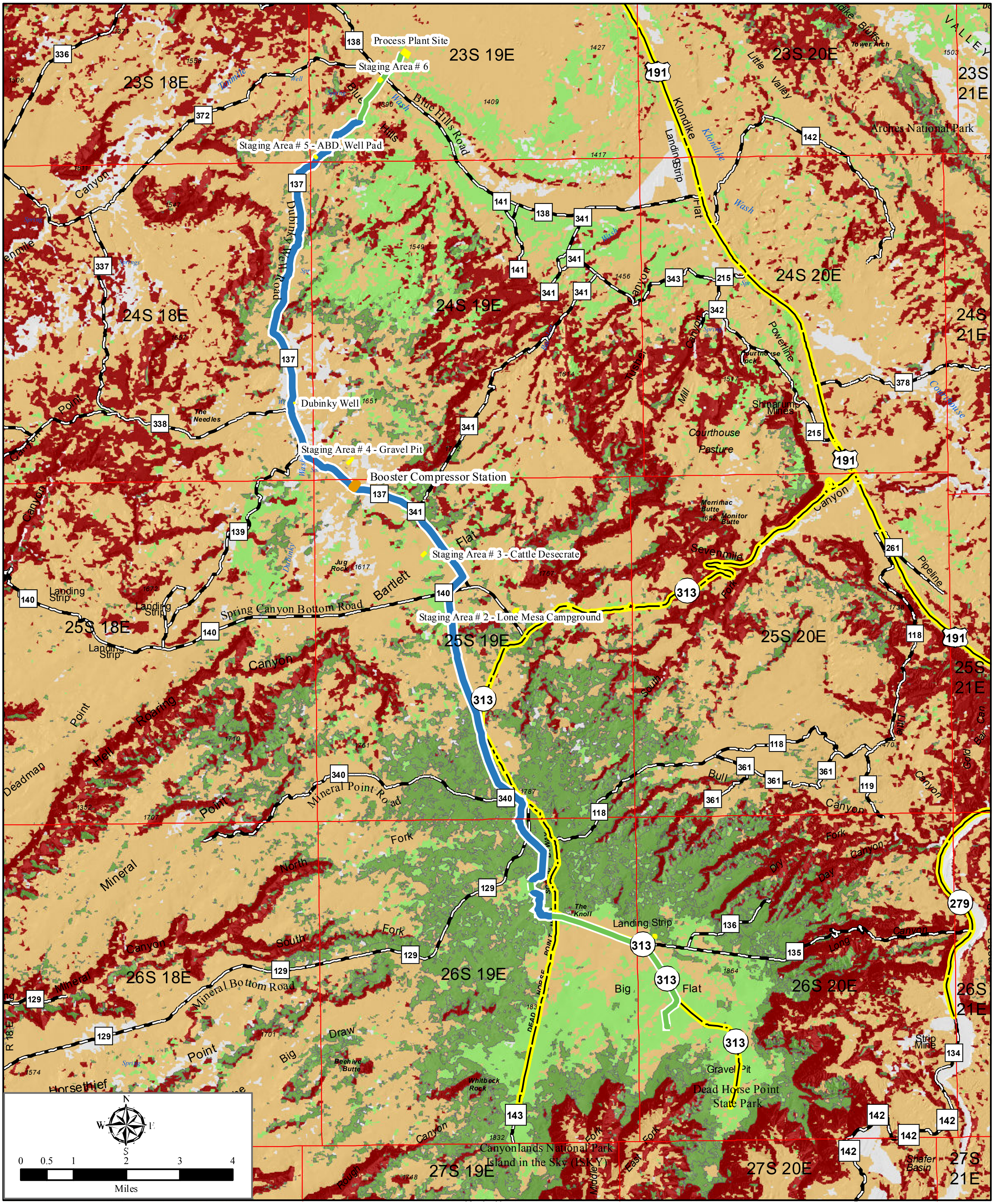
Grand County, Utah



Map 4
Dead Horse Lateral Pipeline
Soil Types

Grand County, Utah

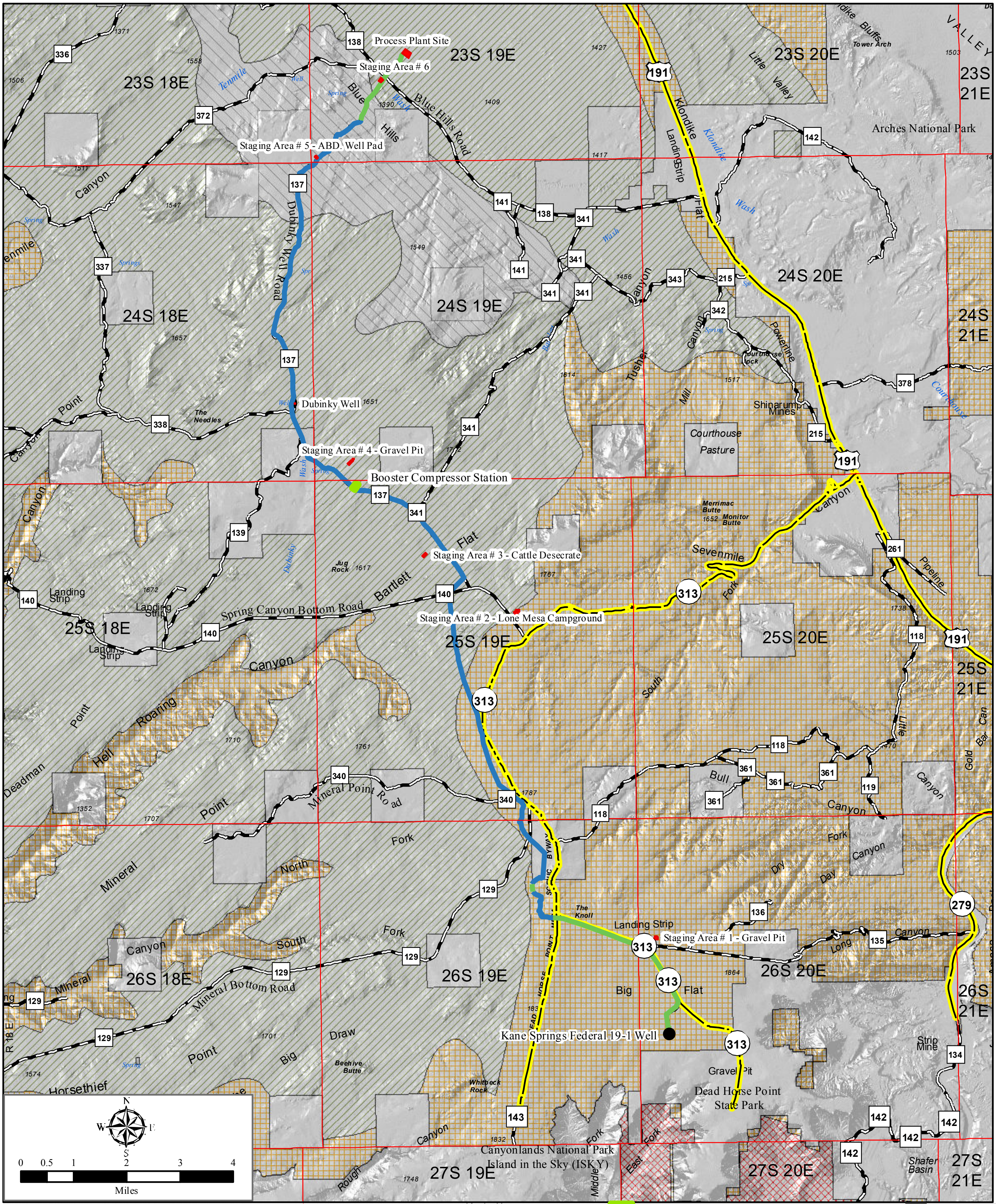




Booster Compressor Station
Staging Areas
Above Ground Section-Dead Horse Cane Creek ROW
Northern Buried Section-Dead Horse Cane Creek ROW
Southern Buried Section-Dead Horse Cane Creek ROW
State and Federal Highways
B Roads (Maintained)
Barren
Desert Shrub
Pinyon Juniper
Sagebrush and Perennial Grassland

Map 5
Dead Horse Lateral Pipeline
Vegetation Communities

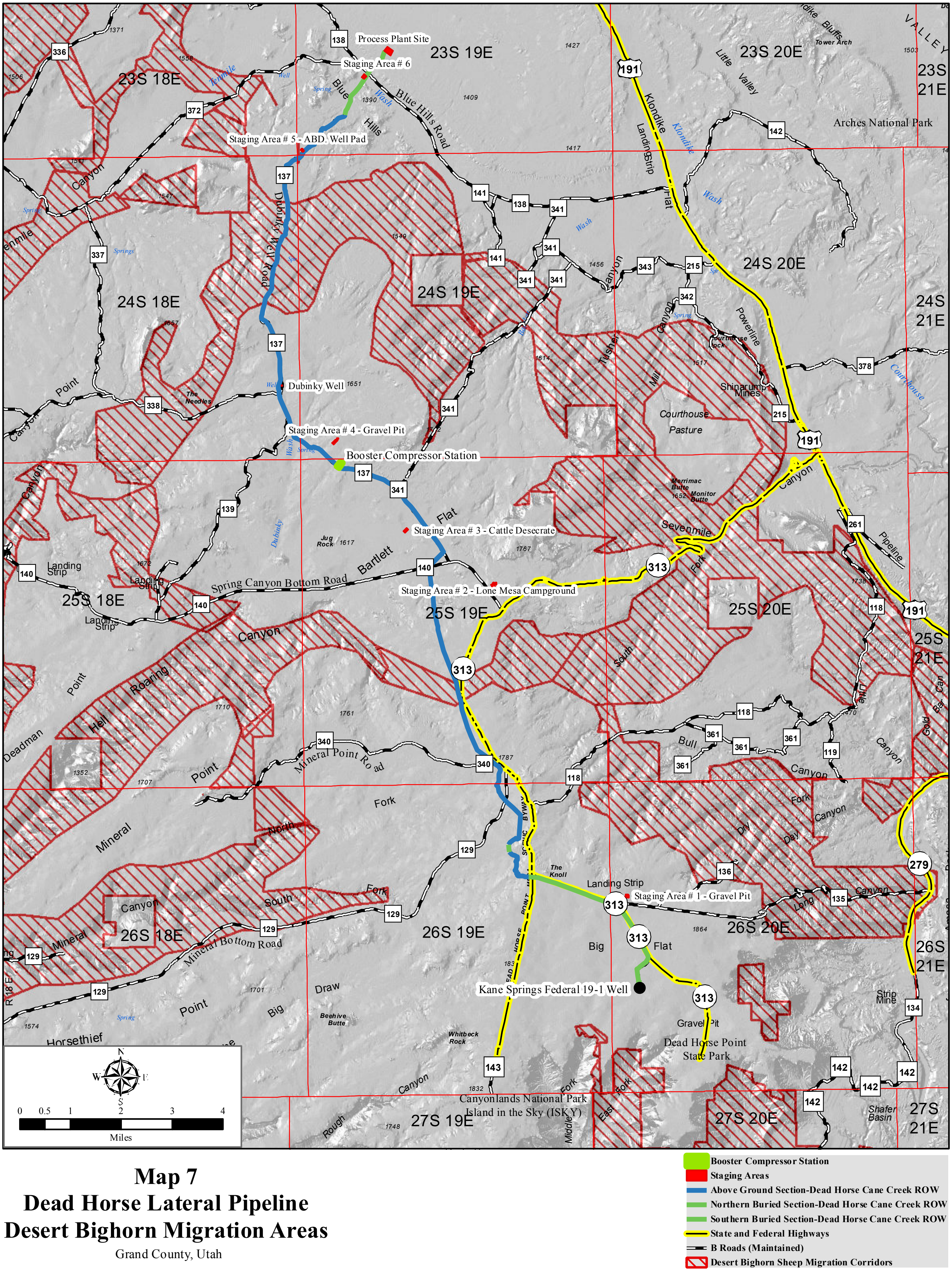
Grand County, Utah



Map 6
Dead Horse Lateral Pipeline
Visual Resource Management Classes

Grand County, Utah

- Booster Compressor Station
- Staging Areas
- Above Ground Section-Dead Horse Cane Creek ROW
- Northern Buried Section-Dead Horse Cane Creek ROW
- Southern Buried Section-Dead Horse Cane Creek ROW
- State and Federal Highways
- B Roads (Maintained)
- VRM Class I
- VRM Class II
- VRM Class III
- VRM Class IV



Map 7
Dead Horse Lateral Pipeline
Desert Bighorn Migration Areas

Grand County, Utah

APPENDIX D

Technical Details and Safety Information

WBI Energy – Pipeline Engineering **5/17/2013**

Project: Dead Horse Lateral Gathering Pipeline

Subject: Answers to BLM's questions regarding the ROW amendment to the Dead Horse Lateral pipeline.

1. Precautions (minimum) that will be taken during construction with respect to: e.g., an inspection of pipe segments before installation, inspection of welds as the pipeline is fabricated, etc.

   ANSWER: WBI Energy owns and operates federally regulated natural gas transmission pipelines with pressures that range from 60psi to 1550psi and sizes from 2" to 16" pipe. While this gathering line will not be regulated, WBI will design and build this natural gas pipeline to meet and exceed federal and industry standards that would be applied to a similar transmission pipeline. Applicable industry standards include, but are not limited to: API 5L, API 6D, ASME 31.8 and other pipeline material standards (ANSI, ASTM).

   The pipe being used in this line is 12.75" outer diameter, 0.375" in wall thickness API 5L-X42 (or greater) steel which has a 42,000psi specified minimum yield strength (SMYS). The wall thickness of this pipe is heavier than would normally be used on a pipeline of this type.

   Welds to connect pipe and fittings will be inspected for internal and external flaws using industry standard NDT (non-destructive testing) i.e. radiographic imagery, ultrasonic inspection, etc. All welds will be performed by competent individuals that have passed initial welder qualifications applicable to the specific project.

   The pipeline operating pressure between the wells and the booster will not exceed 50psi. The pipeline operating pressure between the booster and the process plant will not exceed 200psi. The maximum allowable operating pressure (MAOP) of the entire pipeline will be set at 200psi. The pipeline will be equipped with upstream and downstream protections including, but not limited to emergency shutdown (ESD) and pressure relief devices that will ensure the pipeline is not subjected to pressures above 200psi. After installation, the pipeline will be hydrotested to a minimum pressure of 1.5 times the pipeline's MAOP.

2. Discussion of pipeline integrity
   a. Related to ability to withstand vehicular impact (either deliberate or accidental) e.g., above ground pipeline adjacent to the dispersed camping area on Bartlett Flat.

      ANSWER: The pipe will be laid below ground at designated vehicular access roads, preventing vehicle contact on designated routes. Vehicular contact with the pipeline is expected to be extremely unlikely. The only vehicular contact would be with those vehicles operating off of BLM-designated roads at low speed. Special considerations have been made to route the pipeline around BLM-designated jeep trails in order to maintain access to these areas of the public land.

b. General explanation of the ability of the pipeline to respond to thermal expansion or hydraulic events.

ANSWER: The above-ground section of the pipeline will largely be left unrestrained so as to allow for thermal expansion to occur freely in order to prevent additional stresses to the pipe. The movement due to thermal expansion is expected to occur mainly in the lateral direction (perpendicular to the pipe) with some movement in the axial direction (along the pipe). The pipeline route will feature many bends to help absorb this motion and spread the effects over many smaller areas of movement.

Certain points of the above-ground pipeline will either be restrained on supports concreted into the ground or will feature abrasion protection so as to prevent abrasive damage to the pipe on hard rock surfaces as the pipe moves. The pipe is expected to move less than 5ft laterally. This motion is expected to occur slowly throughout the day as the pipe warms and cools depending on the weather conditions.

The gas moved through this pipeline is intended to be totally in vapor (gaseous) phase and no liquids are to be expected within the line.

c. Pipeline wall thickness and what that thickness means in terms of ability to withstand external impact.

ANSWER: Wall thickness and material strength both correlate to overall pipe strength, i.e. a thicker wall and a higher yield strength steel will allow a pipe to handle more stress, internally and externally.

Specific studies have not been made on how an above ground pipe will withstand a vehicular impact. One major benefit to an unrestrained above-ground pipeline is that the pipe will move if struck and absorb some of the impact energy. Also, as discussed above, 12.75” OD pipe with 0.375” wall thickness is heavy and resilient; both qualities will help the pipe absorb and withstand external impacts.

WBI operates high-pressure above-ground facilities in populated areas throughout Montana, Wyoming and the Dakotas. Vehicular impacts have occurred on large valve settings constructed using similar design criteria and materials to those that are planned to be used on the Dead Horse Lateral Pipeline. The valve settings have proven to be very resilient when impacted and WBI has not experienced any catastrophic pipeline failures resulting therefrom.

d. How operational pressure relates to maximum pressure.

ANSWER: No point on the pipeline will operate above 200psi. The pipeline will be built with components rated to a minimum of ANSI 300 which correlates to 740psi. The pipe itself can actually handle 2470psi before the steel begins to yield. The pipeline will be hydrotested and held at a pressure of more than 1.5 times MAOP for 8 hours.

e. How pressure within the pipeline relates to public safety

ANSWER: The pipeline will operate at an MAOP of 200psi. For 12.75" OD, 0.375" wt, API 5L-X42 pipe, 200psi correlates to 8.1% of the pipe's specified minimum yield strength (using Barlow's formula for pipe hoop stress). This pipe itself can actually handle 2470psi before the steel begins to yield. As stated before, the pipeline will have multiple levels of protection that will ensure that the pressure never exceeds 200psi.

f. How pipeline pressure will be monitored and controlled: continuous monitoring, remote controls, etc.

ANSWER: The natural gas gathering system upstream of the pipeline will feature its own pressure limiting equipment at the well heads. This may include but is not limited to automatic relief set points on key legs within the well piping. This safeguard will prevent gas from entering the pipeline at a higher than allowed pressure.

Supervisory Control and Data Acquisition (SCADA) will be used to monitor pipeline pressures and gas flow rates in real-time. This data will be directly monitored and used to trigger automatic and manual alarms that alert personnel to anomalous pipeline conditions or, in extreme cases, can shut down key pipeline processes to reduce pipeline flows and pressures. This system will feature continuous electronic monitoring 24hrs a day, 7 days a week. Operational headquarters will be at Fidelity's Moab Field Office

SCADA monitoring will be installed at the beginning of the 12" pipeline, at the inlet and outlet of the booster station and at the process plant. Emergency Shutdown (ESD) valves will be installed at the booster and process plant.

g. Type of corrosion protection to be used; use of pigs; cathodic protection; protective coatings.

ANSWER: The corrosion prevention/pipeline integrity plan is currently being developed for this specific pipeline. It will be completed before pipeline construction begins. The pipeline design does feature pigging facilities that will allow for the line to be swabbed and inspected internally as necessary.

In the matter of pigging operations, any liquids are anticipated to be mainly condensed water and will be of very low volume. Any liquids will be removed in a controlled manner to an appropriate liquid collection vessel, from where they can be hauled and disposed of appropriately and responsibly in accordance with regulations regarding wastewater.

3. General Maintenance
   a. What procedures will be followed to ensure public safety during routine maintenance?

      ANSWER: Pipeline personnel will be fully trained to work and travel safely within the pipeline route to perform maintenance operations. Valves and equipment will remain locked at all times that they are unmanned. Security fences will be installed around the booster station and the gas processing plant. All maintenance work performed will be done in such a way as to minimize public exposure.

      The pipeline will be patrolled by trained individuals and visually inspected a minimum of once a year. Patrols consist of travelling along the pipeline and inspecting for defects, damage, environmental impacts, etc. Line patrol is low-impact and low speed. Records of line patrol will be taken by the patroller, including any detected anomalies, remediation performed, etc. The records will be kept for the life of the pipeline.

      The less accessible areas of the above-ground pipeline will be driven with ATVs as weather conditions allow. Patrols will be performed in such a manner as to allow the operator to inspect the pipe thoroughly and effectively while minimizing impact to the environment and public.

      The patrol will be limited to only the pipeline right-of-way. Signs will be installed to inform the public that the pipeline right-of-way is to be accessed by authorized personnel only.

   b. Description of pipeline supports: How high will the pipeline be elevated off of the ground where supports are used? What type of maintenance actions can be anticipated from the use of pipe supports for a 12” pipeline?

      ANSWER: Pipeline supports will be used as necessary in areas where geographic features prevent long sections of pipe from maintaining contact with the ground. The support height will only be as tall as necessary to provide adequate structural support. The pipe will be secured to the support so as to prevent the pipe from falling. The supports will be visually inspected annually during line patrol to ensure that they are structurally sound. Pipe support inspection information will be recorded on the line patrol records that will be kept for the life of the pipeline.

c. What kind of above-ground pipeline markers will be used along the buried portion of the route?

ANSWER: The buried section of the pipeline will be marked along its route with markers posts that feature warning signs that display, at minimum, a visual warning, the contents of the line and the pipeline operator's name and emergency contact information.

d. What types of routine maintenance operations are needed? How frequently are they typically needed, what kind of equipment is used, and what is the typical length of duration of maintenance operations?

ANSWER: Typical pipeline maintenance is expected to be minimal as pipelines generally require little maintenance. Pipeline valves are exercised regularly to ensure they will seal when needed. Signs and markers will be maintained.

The booster and process plant equipment will be monitored daily as recommended by the equipment manufacturer and industry standards. All maintenance that is required for this natural gas system will be performed in a safe, clean and timely manner.

Public access to roads and land adjacent to the pipeline will be maintained during maintenance operations unless safety conditions dictate otherwise.

4. Emergency response
   a. Provide a copy of the safety manual (emergency preparedness and planning measures) that specifically addresses public safety with respect to an above-ground pipeline. How will public safety be protected if there is a rupture?

   ANSWER: A safety manual for this specific system is currently being developed and will be completed by the time construction begins. This manual will include an Emergency Response Plan (ERP). We anticipate the document to be completed in the next few weeks and will be submitted to BLM as soon as it is approved internally, not later than July 1, 2013.

   b. Provide a substantiation of the adequacy of operations/safety plan and procedures (documentation of relevant studies, past experiences, technical substantiation, etc.)

   ANSWER: WBI has an extensive ERP that is specific to all points on its transmission system. The ERP includes emergency contacts, procedures and actions that need to be taken in the case of a pipeline emergency. WBI's ERP is scrutinized by PHMSA/DOT and is therefore compliant with federal regulations. This experience will be used and incorporated to help formulate the ERP for this system. Fidelity has ERPs for its current production and gathering facilities. The combination of the two will yield an effective ERP tailored to the specific location and conditions that will be present within the entire Dead Horse/Paradox system. The ERP for the Dead Horse Lateral will be written in a concise and specific manner that will address a broad array of possible emergency conditions.

c. What procedure will be taken in case of a rupture or other emergency, including contact information and sequence?

   ANSWER: A pipeline “rupture” is a catastrophic event where the contents are expelled rapidly in a very violent manner. The chance of actual rupture for this pipeline is low due to the internal pressure and SMYS level being so low. The ERP will address the contact and action sequence associated with any pipeline emergency.

d. Describe routine pipeline integrity inspections. How will they be conducted? Will the route be patrolled (walked; use of ATV/other vehicle where the route goes cross-country)? What will be the frequency of the inspections? How will the operators maintain records of inspections and remedial actions taken?

   ANSWER: Annual (or more frequent) line patrol is used as a tool to detect any integrity issues. The patrols are conducted on foot or in light vehicles. The data taken through patrols is compiled, cataloged and filed so it can be accessed as needed in the future. The records will be kept for the life of the pipeline.

e. Does the safety plan include principles of risk management, and, if so, how? If not, provide explanation of why an assessment of risk management is not needed.

   ANSWER: Fidelity’s Emergency Response Plan as referenced in 4(a) above will detail Risk Management.

   Risk management is built into the pipeline design. The heavier than usual pipe wall, the buried road crossings, the SCADA and ESD systems, and the ERP all provide a level of risk management.

f. Under what circumstances would an evacuation be necessary? Response time? If needed, how would evacuation be conducted (i.e. police notification?). If operating at full capacity and a pipeline rupture occurred, what would be the likelihood of public injury and what type of injuries? What is the radius of effects (evacuation distance) of a rupture? In the case of an evacuation, how soon would it need to be implemented?

   ANSWER: Due to the rural and remote location of this pipeline system, coupled with the low pressure and low pipe stress level, an incident requiring an evacuation is highly unlikely. However, an evacuation could be necessary if a large leak or catastrophic pipeline failure occurs that may jeopardize public safety. Response time will vary depending on the location of the operating personnel, but will be within 1 hour. Depending on the actual circumstances surrounding the incident law enforcement or other emergency response services may be required to aid in evacuation.

Because of limited public exposure to this pipeline, the likelihood of injury is very low. Blunt trauma and burns associated with a release of gas are the likely injury types.

The recommended minimum evacuation distance applied to this pipeline operating at its MAOP of 200psi will be on the order of 390ft. This data is taken from US Dept of Housing and Development Code 49 CFR 51 which cites the Gas Research Institute Report GRI-00/0189 as the source of the distance calculation mathematical formula. The evacuation distance will be implemented as soon as operations or emergency response personnel arrive on scene.

g. Would drills be conducted with public responders? How frequently? How is authority assigned in the case of a rupture that may affect public safety?

   ANSWER: There are plans to be in contact with local emergency services for initial project implementation as well as future refreshers and updates. These will be outlined in the ERP currently in development.

h. What type of public outreach will be conducted; e.g. meeting with county officials? Public education for the community and tourists?

   ANSWER: Fidelity is planning to conduct town-hall meetings with the public and public officials in Moab. Project information pamphlets will be made available that detail the plans and current work occurring on public lands. There are also plans to include pipeline information in the pamphlets that Fidelity makes available to all visitors of Dead Horse Point State Park which details Fidelity's oil and gas operations in the Paradox Basin.

5. Spill response procedures for residual liquids
   a. Emergency shutdown procedures; e.g. automated from remote station of manual at valve locations along the route.

      ANSWER: ESD systems will be present at key points within the system. They will have manual and automatic activation based on real-time SCADA data.

   b. Anticipated volumes of liquids.

      ANSWER: Liquids are not anticipated to be present in this pipeline. It is designed to transport natural gas in the vapor phase. Any liquids in the line will be unintended and dealt with during pigging operations. Gas composition testing of the production gas has shown that there is very little water contained within. The SCADA monitoring on the pipeline system will be able to detect and indicate potential liquids in the line due to an increase in pressure drop and a decrease in pipeline efficiency. When these conditions are detected, the pipeline operators will be able to make operational decisions to remediate the liquid, i.e. controlled pigging/swabbing operations, etc.

c. Location of response materials in relation to pipeline route.

ANSWER: All remediation and repair materials will be found either at Fidelity's Moab Field Office, the booster site or at the process plant site. A spill trailer will be available at well pad 34-1 with another in Moab. There is little chance of liquids being present in the pipeline.

d. Location of response team and timing needed for response.

ANSWER: The response team will consist of oil/gas facility operators that will be trained to respond and deal with pipeline emergencies as defined in the forthcoming ERP. The operators will be in the field near the production wells, pipeline and facilities or dispatched out of Fidelity's Moab Field Office.

During pigging operations, operators will be on-site at all times to maintain control of the system and to ensure the public is kept safe and away from potentially dangerous areas.

6. Please provide specifics, in the form of site diagrams for the following facilities identified in the application:
   a. Booster Station

      ANSWER: The station plans and positioning are still in development. Plans and diagrams will be submitted no later than July 31, 2013.

   b. Gas Processing Plant

      ANSWER: Site civil plans are included herewith. Process plant mechanical diagrams will be submitted no later than July 31, 2013.

   c. Temporary use areas

      ANSWER: The line will feature approximately 5 Horizontal Directional Drill bores that will require extra temporary workspace for equipment. These are still in design/development, but diagrams will be submitted no later than July 31, 2013.

   d. Staging areas

      ANSWER: Staging area plans are included in the attached overview and detail maps. Additional detailed drawings for the staging areas will be submitted not later than July 31, 2013.

APPENDIX E

Wilderness Characteristics Review

FORM 1

Documentation of BLM Wilderness Characteristics Inventory Findings from Previous Inventory on Record

1. Is there existing BLM wilderness characteristics inventory information on all or part of this area?

No (Go to Form 2) **Yes** ___X____ (If yes, and if more than one area is within the area, list the unique identifiers for those areas.):

a) Inventory Source: The area that is the focus of this report is a 900 acre polygon that is part of a much larger externally-generated wilderness proposal. An area that includes the focus area was included in the 1979 Utah initial wilderness inventory (parcel UT-06-082), and recommended to move on to the next stage: intensive inventory. This next phase apparently never happened. An area that includes part of the initial inventory area, but not the current focus area, was included in the 1999 Utah Wilderness Inventory. Although portions of the area inventoried in 1999 (known as "Labyrinth Canyon") were found to possess wilderness characteristics, an area bordering the focus area was found to lack wilderness characteristics (see attached map). The current focus area was not included in the 1999 inventory, as it was not submitted by external groups as a specific wilderness proposal.

As part of its 2008 RMP effort, Moab BLM reexamined all areas then proposed by external groups for wilderness. We obtained maps from the proponents, but no other information to indicate that BLM's original findings were in error, or that conditions on the ground had changed. The current focus area, as well as adjacent areas, was reexamined by MOAB BLM as part of its 2007 Wilderness Characteristics Review. That review determined that the current focus area lacked wilderness characteristics. To date, BLM has received no information of the type required by BLM Manual 6310 indicating that Moab BLM has erred in its findings.

Despite the absence of new information from external groups, Moab BLM reexamined the area (the current focus area) likely to be affected by a proposal for a surface natural gas pipeline, a segment of which passes through the wilderness proposal. This report documents the findings of that reexamination.

b) Inventory Area Unique Identifier(s): UT-060-082 (from initial inventory)

c) Map Name(s)/Number(s): WC review 5FEB2013

d) BLM District(s)/Field Office(s): Moab Field Office

2. BLM Inventory Findings on Record: see discussion under 1 (a), above

FORM 2: **Current Conditions: Presence or Absence of Wilderness Characteristics**

Area Unique Identifier__UT-060-82______ Acreage___900_____________ (If the inventory area consists of subunits, list the acreage of each and evaluate each separately). In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

Yes ___ No _X

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc.): The 900 acre size results from the area likely to be affected by the Fidelity pipeline proposal being cut-off from the larger proposed wilderness area by a constructed and heavily used series of roads, collectively referred to as Route 2 in the documentation accompanying this narrative. The proposed wilderness area cut off by this series of roads itself was found to lack wilderness characteristics in earlier reviews. Although Route 2 shows no evidence of recent maintenance by mechanical means, it meets the maintenance test of Manual 6310 in that Moab BLM would give approval for such maintenance were it needed to maintain passage (see attached Form 3). Route 2 is part of a permitted Jeep Safari route, and also provides access to a marked and maintained hiking trail and associated parking area. Even if Route 2 did not meet the definition of a "Wilderness Road", it constitutes a substantially noticeable impact on naturalness. In addition to the Route 2 boundary, the current focus area contains an ongoing oil well drilling project and drill pad (the pad itself associated with an earlier drilling project). The area encompassed by the Route 2 boundary road also contains several old routes not designated for motorized or mechanized use. All of these are locatable on the ground, but only a few currently constitute significant impacts on naturalness.

(2) Does the area appear to be natural?

Yes___No _____ N/A___X__ (Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below).

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?

Yes_____ No_____ N/A_____X__

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

Yes____ No_____ N/A__X__

Note: If "No" is checked for both 3 and 4 the area does not have wilderness characteristics; check "NA" for question 5.

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?

Yes______ No______ N/A___X__

Summary of Analysis *

Area Unique Identifier: UT-060-82

Summary

Results of analysis: See discussion under 1 (a) in Form 1

1. Does the area meet any of the size requirements? ___ Yes _X__ No

2. Does the area appear to be natural? ___ Yes ___ No ___ N/A _X

3. Does the area offer outstanding opportunities for solitude or a primitive and unconfined type of recreation? ___ Yes ___ No ___ N/A ___X

4. Does the area have supplemental values? ___ Yes ___ No ___ N/A _X

Check one:

___ The area, or a portion of the area, has wilderness characteristics and is identified as lands with wilderness characteristics.

X__The area does not have wilderness characteristics.

Prepared by: William P. Stevens, Outdoor Recreation Planner, Moab BLM, February 12, 2013

Reviewed by (District or Field Manager):

This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.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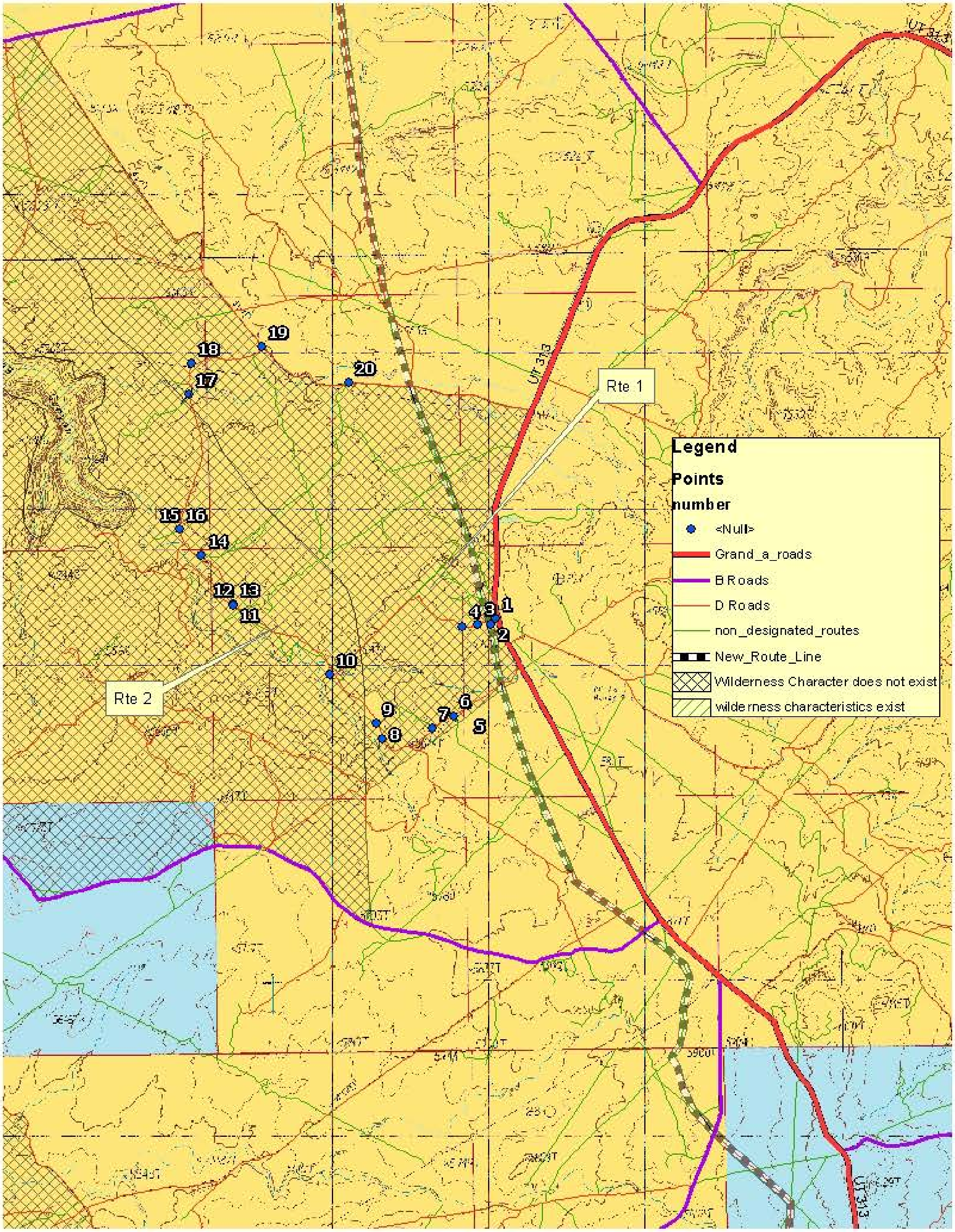
WC review 5FEB2013



APPENDIX F

Biological Information

Table F-1

Threatened, Endangered, Candidate and Utah BLM Sensitive Species that may be found in the Project Area

Table F-2

BCC (Region 16) and PIF Priority Species

TABLE F-1
THREATENED, ENDANGERED, CANDIDATE, AND UTAH BLM SPECIES THAT MAY HAVE HABITAT IN THE PROJECT AREA

Status:

FE = Federally listed as endangered.
FT = Federally listed as threatened.
FC = Federal candidate.
CS = Species receiving special management under a Conservation Agreement in order to preclude the need for a federal listing.
BLM = BLM sensitive species
SPC = Wildlife species of concern.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
MAMMALS					
Allen's big-eared bat *Idionycteris phyllotis*	BLM SPC	Preferred habitats for the species include forested mountain areas and riparian areas in woodland and scrubland regions. They are not widespread in Grand County.	The project area does not contain preferred habitat.	Yes.	UDWR, 2011; UDWR, 2005.
Big free-tailed bat *Nyctinomops macrotis*	BLM SPC	This species inhabits rocky areas in rugged country. It has been observed in in shrub desert, arid grasslands, and pinyon-juniper woodlands. It roosts in rock crevices in cliffs, old buildings, mines, and caves.	Suitable cliff habitats are not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005; Oliver, 2000.
Black-footed ferret *Mustela nigripes*	FE	This species inhabits semi-arid grasslands and mountain basins. It is primarily found in association with active prairie dog colonies of sufficient size and burrow density. The species was re-introduced to the Coyote Basin	No known populations exist on Moab Field Office lands. The distribution of this species is limited to the Coyote Basin reintroduction complex	Yes.	UDWR, 2011a; UDWR, 2005; USFWS, 2009.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		area of Uintah County.	over 200 miles to the northeast on the Colorado-Utah border.		
Fringed myotis *Myotis thysanodes*	BLM SPC	This species is known to occur in a wide range of habitats from low desert scrub to fir pine associations. Oak and pinyon-juniper woodlands are the most used vegetation communities. This species roosts in caves, mines, and buildings. Water courses and lowland riparian areas are very important.	Perennial water and lowland riparian areas are not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005; Oliver, 2000.
Gunnison's prairie dog *Cynomys gunnisoni*	BLM SPC	The primary and secondary habitats of this species consist of grasslands and high desert scrubs. They require well drained, deep soils for burrow construction. It is found in San Juan County and Grand County south of Moab.	The project area is outside of the known habitat range for this species.	Yes.	UDWR, 2011; UDWR, 2005; UDWR, 2007.
Kit fox *Vulpes macrotis*	BLM SPC	The kit fox inhabits open shrublands and desert grasslands where soils are suitable for denning.	Suitable habitat may be present in the project area.	No.	UDWR, 2011.
Spotted bat *Euderma maculatum*	BLM SPC	This species inhabits desert shrub, sagebrush-rabbitbrush, pinyon-juniper woodlands, and ponderosa pine and montane forest habitats. It prefers dry, rough terrain. Cliffs or caves may be used for roosts/hibernacula.	Suitable cliff habitats are not present in the project area vicinity.	Yes.	UDWR, 2011; UDWR, 2005; Oliver, 2000.

Species Name	**Status**	**Habitat Association**	**Potential for Occurrence within the Project Area and Cumulative Effects Area**	**Eliminated from Detailed Analysis (Yes/No)**	**References**
Townsends big-eared bat *Corynorhinus townsendii*	BLM SPC	This species inhabits semi-desert shrublands, pinyon-juniper woodlands, and open montane forests. Roosting occurs in mines and caves, in abandoned buildings, on rock cliffs, and occasionally in tree cavities.	Suitable cliff habitats are not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005; Oliver, 2000.
White-tailed prairie dog *Cynomys leucurus*	BLM SPC	White-tailed prairie dogs are typically found in open shrublands, semi-desert grasslands, and mountain valleys. They occur in loosely organized colonies that may occupy hundreds of acres on favorable sites. They occur primarily in northeast Utah, but are known to occur in Grand County.	Suitable habitat may be present in the project area.	No.	UDWR, 2011; UDWR, 2005; UDWR, 2007; Fitzgerald et al., 1994.
BIRDS					
American white pelican *Pelecanus erythrorhynchos*	BLM SPC	This species inhabits areas of open water, including large rivers, lakes, ponds, and reservoirs with surrounding habitats ranging from barren to heavily vegetated sites. Utah's only colony of breeding pelicans occurs at Gunnison Island on the north arm of the Great Salt Lake.	Occurrences in the project area would be limited to loafing and migrating individuals.	Yes.	UDWR, 2011; UDWR, 2005
Bald eagle *Haliaeetus leucocephalus*	SPC	Utah hosts a large population of wintering bald eagles. They roost and nest in tall trees. Bald eagles winter near unfrozen, open water and search for carrion along rural roadways.	Occurrences in the project area would be limited to foraging and migrating individuals.	Yes.	UDWR, 2011; UDWR, 2005

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
Bobolink *Dolichonyx oryzivorus*	BLM SPC	This species nests and forages in wet habitats. It depends upon riparian or wetland areas. It occurs as rare isolated populations in northern Utah.	Suitable habitat is not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005; Parrish et al. 2002.
Burrowing owl *Athene cunicularia*	BLM SPC	This species inhabits dry, open grasslands and prairies that have short vegetation and, typically, prairie dog burrows. Western burrowing owls are summer residents on the plains over much of Utah.	Suitable habitat may be present in the project area.	No.	Johnsgard, 2002; UDWR, 2011; UDWR, 2005.
California condor *Gymnogyps californianus*	FE	California condors prefer low elevation mountains, gorges, and hillsides that create updrafts and favorable soaring conditions. Colonies roost in snags, tall open-branched trees, or cliffs, often near important foraging grounds. The condor eats carrion, usually feeding on large items such as dead sheep, cattle, and deer. An experimental population has been released in northern Arizona.	Suitable foraging habitat may be present in the vicinity of the project area; however, the area is not preferred habitat and is several hundred miles from the release site of the experimental population.	Yes.	UDWR, 2005.
Ferruginous hawk *Buteo regalis*	BLM SPC	This species relies on grassland or shrubsteppe terrain and, in many parts of Utah, nest on the ecotone between these habitats and pinyon-juniper woodlands. Ferruginous hawks nest on juniper, pinyon pine, cottonwoods, the	Suitable habitat may be present in the project area.	No.	UDWR, 2011; UDWR, 2005. Behle, 1981; Call, 1978.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		ground, low ledges on bluffs, the tops of knolls, and man-made structures.			
Greater sage-grouse *Centrocercus urophasianus*	FC BLM SPC	This species inhabits upland sagebrush grasslands, foothills, and mountain valleys. A good understory of grasses and forbs and associated wet meadow areas are essential for optimum habitat. Sage grouse populations inhabiting the sagebrush regions north of the Colorado River in Utah have been taxonomically classified as the greater sage-grouse.	Suitable habitat is not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005. Beck et al., 1997.
Gunnison sage-grouse *Centrocercus minimus*	FC CS SPC BLM	This species depends on a variety of shrub-steppe habitats throughout their life cycle and are dependent on sagebrush. The distribution is strongly correlated with the distribution of sagebrush habitats and with large expanses of unfragmented habitat, which provides better overall habitat conditions. The Gunnison sage-grouse is known to occur only in southwestern Colorado and east of Monticello, Utah.	The project area is outside of known occupied habitat.	Yes.	UDWR, 2005; USFWS, 2013a.
Lewis' woodpecker *Melanerpes lewis*	BLM SPC	The major breeding habitat of this species consists of open park-like ponderosa pine forests and open riparian areas. The Lewis's woodpecker is attracted to burned-over Douglas-fir, mixed conifer, pinyon-juniper, riparian,	Suitable habitat is not present in the project area.	Yes.	Parrish et al., 2002; UDWR, 2011; UDWR, 2005.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		and oak woodlands, but is also found in the fringes of pine and juniper stands, and deciduous forests, especially riparian cottonwoods. Areas with a good under-story of grasses and shrubs to support insect prey populations are preferred.			
Mexican spotted owl *Strix occidentalis lucida*	FT	Habitat for Mexican spotted owl (MSO) is steep-sided canyons containing pockets of usually coniferous overstory trees mixed with smaller Gambel oak and box elder trees. They are also known to forage along mesa tops, usually within ½ mile of cliff edges.	Suitable habitat has been identified near the project area; however, project activities would take place at greater distances than the normal foraging range of ½ mile from canyon rims. USFWS protocol surveys have been conducted.	Yes.	USFWS, 2009a; UDWR, 2005.
Mountain plover *Charadrius montanus*	SPC	The mountain plover is typically associated with shortgrass prairie habitat, composed primarily of blue grama and buffalo grass. In Utah, a small mountain plover population breeds in shrub-steppe habitat where white-tailed prairie dogs (*Cynomys leucurus*) are present, and oil and gas development have contributed surface disturbance to the landscape. They are present in the Uinta Basin.	Suitable shortgrass prairie habitat habitat is not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
Northern goshawk *Accipiter gentilis*	BLM SPC CS	This species is found in deciduous, coniferous, and mixed forests, typically in mature and old growth forests. It generally selects larger tracts of forest over smaller tracts. It prefers to nest in forests dominated by ponderosa or lodgepole pine, in mixed forests dominated by Douglas-fir, cedar, hemlock, and spruce, or in deciduous forests dominated by aspen, paper birch, or willow.	Suitable forest habitat is not present in the project area.	Yes.	UDWR, 2005.
Short-eared owl *Asio flammeus*	BLM SPC	The short-eared owl is an open country, ground-nesting species that inhabits arid grasslands, agricultural areas, marshes, and occasionally open woodlands.	Suitable habitat is not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005.
Southwestern willow flycatcher *Empidonax trailli extimus*	FE	The southwestern willow flycatcher inhabits forested wetlands or scrub-shrub wetlands. It is found most frequently in riparian habitats, especially in areas of dense willow or tamarisk. Favorable riparian habitats exist along the Colorado River.	Suitable riparian habitat is not present in the project area.	Yes.	USFWS, 2002d; UDWR, 2005.
Three-toed woodpecker *Picoides tridactylus*	BLM SPC	This species prefers coniferous forests above 7,800 feet. It inhabits areas where dead timber remains after fires or logging and found less frequently in mixed forest, and occasionally in willow thickets along streams. It is also found in high elevation aspen groves, bogs,	Suitable high elevation forest habitat is not present in the project area.	Yes.	Parrish et al., 2002; UDWR, 2011.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		and swamps. This species must have an adequate supply of dead trees for foraging and nesting.			
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FC	Nesting habitat for this cuckoo includes dense lowland riparian vegetation of regenerating canopy trees, willows, or other riparian shrubs that occur within 328 feet (100 meters) of water.	Suitable riparian habitat for this species is not present in the project area.	Yes.	UDWR, 2005.
AMPHIBIANS, REPTILES, and MOLLUSKS					
Arizona toad *Bufo microscaphus*	BLM SPC	This species inhabits riparian areas and can be found near streams and irrigated croplands. Populations are concentrated within the Virgin River basin in Washington County, but also occur in Kane and Iron counties, Utah.	Suitable riparian habitats for this species are not present in the project area, which is outside the known distribution for this species.	Yes.	UDWR, 2011; UDWR, 2005.
Cornsnake *Elaphe guttata*	BLM SPC	Habitat for the cornsnake, or Great Plains rat snake, includes areas near to streams, pine woodlands, brushy fields, open hardwood forests, rocky wooded hillsides, canyons and arroyos, and caves. It is associated with the Colorado and Green River corridors in Utah.	Suitable habitat is not present in the project area, which lacks perennial streams.	Yes.	UDWR, 2011; UDWR, 2005.
Common chuckwalla *Sauromalus ater*	BLM SPC	The common chuckwalla frequents habitats near cliffs, boulders, or rocky slopes. It inhabits desert communities of creosote-bursage, blackbrush, and salt desert scrub.	Although suitable habitat may be present in the project area, it is outside the known distribution for this species.	Yes.	UDWR, 2011; UDWR. 2005.
Desert night lizard *Xantusia vigilis*	BLM SPC	This species is found in arid and semiarid rocky areas. Concealing,	Although suitable habitat may be present in the	Yes.	UDWR, 2011;

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		protective vegetation, such as yuccas and agaves, as well as rock crevices, dead brush, trunks of downed trees, and other debris are characteristic of occupied habitat.	project area, extensive areas of critical habitat exist in southern San Juan County outside of the project area.		UDWR, 2005.
Eureka mountainsnail *Oreohelix Eurekensis*	BLM SPC	This species inhabits shrubland and forested habitats, associated with limestone outcrops or soils with high calcium concentration, in areas displaying low-growing vegetation or a well-developed layer of plant litter.	Preferred habitat, vegetation, and substrates for this species are not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005.
Great Plains toad *Bufo cognatus*	SPC	This species inhabits grasslands and croplands that may be seasonally or temporarily flooded and/or in permanently flooded wetland buffers.	Suitable moist habitats for this species are not present in the project area.	Yes.	UDWR, 2011; UDWR, 2005.
Smooth greensnake *Opheodrys vernalis*	BLM SPC	Habitat for this species includes semi-desert grasslands, meadows, grassy marshes, moist grassy fields at forest edges, mountain shrublands, stream borders, bogs, open moist woodland, abandoned farmland, and vacant lots. In Utah, it has been found in the La Sal and Abajo mountains.	Suitable moist habitats for this species are not present in the project area. Tis species is rare in Utah and has not been detected in many years.	Yes.	UDWR, 2011; UDWR, 2005.
Western toad *Bufo boreas*	BLM SPC	The western toad, or boreal toad, inhabits slow moving streams, wetlands, desert springs, ponds, lakes, and meadows.	Suitable wet habitats for this species are not present in the project area. This species has not been detected in 10 years prior to 2008.	Yes.	UDWR, 2011; UDWR, 2005.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
Yavapai mountainsnail *Oreohelix yavapai cummingsi*	BLM SPC	The Yavapai mountainsnail has been reported from 2 localities in Utah, one on Navajo Mountain and one in the Abajo Mountains near Monticello, both in San Juan County. This species was found in shale and also scattered among the rock slides and thick groves of aspen and spruce with large open spaces of coarse grass and slides of sandstone.	Suitable habitats for this species are not present in project area, which is located outside the known locations of occurrence of this species.	Yes.	Oliver et al., 1999; UDWR, 2011; UDWR, 2005.
FISH					
Bluehead sucker *Catostomus discobolus*	BLM CS	Bluehead suckers are widely distributed in the Colorado River basin, occurring in mainstem rivers and tributary streams from the mouth of the Grand Canyon upstream to headwater reaches of the Green and Colorado rivers. It can be found in a variety of habitats, including fast flowing water in high gradient reaches of mountain rivers and turbid or muddy, sometimes alkaline, waters with vegetation absent or sparse.	Suitable habitat does not occur in the project area.	Yes.	UDWR, 2011; UDWR, 2005.
Bonytail *Gila elegans*	FE	The bonytail is found in main channels of large rivers generally associated with swift currents and water depths of 3-4 feet with a shifting sand bottom. Several thousand hatchery-reared bonytails have recently been reintroduced in the Colorado River near Moab, Utah, and in the Green River at the confluence with	Suitable habitat does not occur in the project area. Water depletions would not occur to support the project.	Yes.	UDWR, 2005; USFWS, 2002.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		the Yampa River, in Colorado. Critical habitat has been designated for this species within San Juan County, Utah.			
Colorado pikeminnow *Ptychocheilus lucius*	FE	This species is endemic to the Colorado River system. It is a long distance migratory fish that requires pools, deep runs, and eddy habitats maintained by high spring flows.	Suitable habitat does not occur in the project area. Water depletions would not occur to support the project.	Yes.	UDWR, 2005; USFWS, 2002a;
Flannelmouth sucker *Catostomus latipinnis*	BLM CS	This species lives in pools of streams and large rivers. These water bodies have little to no vegetation, are clear to murky, and have slow to swift waters. It inhabits waters of the Colorado River drainage.	Suitable habitat does not occur in the project area.	Yes.	UDWR, 2005.
Humpback chub *Gila cypha*	FE	This species is endemic to the Colorado River system within deep, swift-running rivers and canyon shaded environments.	Suitable habitat does not occur in the project area. Water depletions would not occur to support the project.	Yes.	USFWS, 2002b; UDWR, 2005.
Razorback sucker *Xyrauchen texanus*	FE	This species is endemic to large rivers of the Colorado River Basin. It is found in a variety of habitats including quiet eddies, pools, and mid-channel runs.	Suitable habitat does not occur in the project area. Water depletions would not occur to support the project.	Yes.	USFWS, 2002c; UDWR, 2005.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
Roundtail chub *Gila robusta*	BLM CS	This species is endemic to the Colorado system, River within deep, swift-running rivers and canyon shaded environments.	Suitable habitat does not occur in the project area.	Yes.	UDWR, 2005.
PLANTS					
Alcove bog orchid *Habenaria zothecina*	BLM	The alcove bog orchid grows in seeps, hanging gardens, and moist stream areas that are surrounded by mixed desert shrubs, pinion juniper and oakbrush communities. It is found at elevations of 4,360-8,690 feet.	Suitable moist habitat for this species is not present in the project area.	Yes.	UNPS, 2013.
Alcove rock daisy *Peritvle specuicola*	BLM	The alcove rock daisy, or hanging-garden daisy, is found in drier rock crevices and faces in seasonally wet crevices along rivers and seeps, mainly but not exclusively associated with the Navajo, Wingate, and Rico formations. It is found at elevation of 3,690-4,000 feet.	Suitable moist habitat for this species is not present in the project area.	Yes.	UNPS, 2013.
Canyonlands lomatium *Lomatium latilobum*	BLM	Canyonlands lomatium, or Canyonlands biscuitroot or Canyonlands desert-parsley, is found on sandy soil in desert shrub and pinyon-juniper communities, mainly between Entrada sandstone fins formed from expanded fractures and erosion or in slot canyons.	Suitable habitat in the form of Entrada exposures is present in the vicinity of the project area, but bedrock exposures are primarily of the Navajo Formation. Fins and slot canyons are not present.	Yes.	UNPS, 2013.
Cataract Canyon gilia *Gilia latifolia* var.	BLM	The Cataract Canyon gilia inhabits mixed desert shrub communities	The preferred habitat is not present in the project area.	Yes.	UNPS, 2013.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
imperialis		especially in wash bottoms and bases of ledges at elevations ranging from 3,800-5,215 feet.			
Cisco milkvetch *Astragalus sabulous* var. *sabulous*	BLM	This species inhabits salt desert shrub communities in the Mancos shale in the Cisco desert.	The project area is outside the habitat range for this species.	Yes.	UNPS, 2013.
Dolores rushpink *Lygodesmia grandiflora* var. *doloresensis*	BLM	This species inhabits juniper-grassland-rabbitbrush-sagebrush communities on reddish alluvial soils at elevations of 4,600-4,700 feet in Grand County.	The preferred alluvial substrate is not present in the project area.	Yes.	UNPS, 2013.
Entrada rushpink *Lygodesmia grandiflora* var. entrada	BLM	This species inhabits juniper and mixed desert shrub communities at elevations of 4,400-4,800 feet. It has been found in the Kane Springs, San Rafael, and Upper Lake Powell watersheds.	The project area is outside of the known distribution for this species.	Yes.	UNPS, 2013.
Jane's globemallow *Sphaeralcea janeae*	BLM	Jane's globemallow prefers warm and salt desert shrub communities on the White Rim and Organ Rock members of the Cutler Formation between 4,000-4,600 feet in elevation.	The project area is generally above the elevation range for this species, and the preferred substrate is not present.	Yes.	UNPS, 2013; BLM, 2008a.
Jones cycladenia *Cycladenia humilis* var. *jonesii*	FT	This species inhabits gypsiferous or saline soils derived from the Chile, Cutler, and Summerville formations and barren slopes of the Moenkopi Formation at elevations of 4,400-6,000 feet.	Suitable habitat in the form of a gypsiferous soil substrate is not found in the project area.	Yes.	UDWR, 2005.
Paradox breadroot *Pediomelum aromaticum* var. *tuhyi*	BLM	Paradox breadroot, or Tuhy breadroot, is found in open pinyon-juniper woodlands and desert shrub communities, on	The preferred substrate is not present in the project area.	Yes.	UNPS, 2013; BLM, 2008a.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		rimrock or in shallow sandy soils over the Entrada, Kayenta, and Mossback formations at elevations ranging from 4,800-6,500 feet but typical at 5,020 feet.			
Peabody's milkvetch *Astragalus pubentissimus* var. *peabodianus*	BLM	This species is found in entrenched channels draining the south and west flanks of the Tavaputs Plateau and between elevations of 4,300-5,800 feet in Grand County.	The project area does not contain entrenched channels and is not near the Tavaputs Plateau.	Yes.	UNPS, 2013.
San Rafael globemallow *Sphaeralcea psoraloides*	BLM	The San Rafael globemallow is found on the eastern and southeastern footslopes of the San Rafael Swell in saline and gypsiferous subsrates at elevations of 4,000-6,000 feet.	Suitable habitat in the form of a gypsiferous soil substrate is not found in the project area.	Yes.	UNPS, 2013.
Shultz' stickleaf *Mentzelia shultziorum*	BLM	The Shultz' stickleaf, or blazing star, is found in shadscale, erigonum, and ephedra communities on the Cutler, Paradox, and Moenkopi formations at elevations of 4,100-5,200 feet.	The preferred substrate is not present in the project area.	Yes.	UNPS, 2013.
Stage-station milkvetch *Astragalus sabulous* var. *vehiculus*	BLM	This species inhabits salt desert shrub communities on a Morrison Formation substrate in the presence of selenite.	This species is endemic to Upper Courthouse Wash, outside of the project area.	Yes.	BLM, 2008a; UNPS, 2013.
Trotter's oreoxis (spring-parsley) *Oreoxis trotteri*	BLM	This species is found in mixed juniper and warm desert shrub communities in Grand County on the eastern slope of Courthouse Rock at elevations of 4,800-6,000 feet. It is most abundant on Moab	The preferred substrate is not present in the project area.	Yes.	BLM, 2008a.

Species Name	Status	Habitat Association	Potential for Occurrence within the Project Area and Cumulative Effects Area	Eliminated from Detailed Analysis (Yes/No)	References
		Tongue member of the Entrada Formation.			

*Status was determined using the Utah T&E Species List and Appendices (UDWR, 2011); USFWS List by County (UDWR, 2011a); the BLM sensitive plant list species list (BLM, 2008a).

TABLE F-2
MIGRATORY BIRDS

The birds listed in Table F-2 include USFWS Birds of Conservation Concern (Region 16) and Partners in Flight Utah Priority Species (Colorado Plateau).

Species Name	USFWS Birds of Conservation Concern, Region 16	Partners in Flight Priority Bird Species, Colorado Plateau	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
American avocet *Recurvirostra americana*		X	Wetland	Playa	Migrant
Bald eagle *Haliaeetus leucocephalus*	X		Lowland riparian	Agriculture	Riparian
Black Rosy-finch *Leucosticte atrata*	X		Alpine	Alpine rock piles	Migrant
Black-throated grey warbler *Dendroica nigrescens*		X	Pinyon-juniper	Mountain shrub	Migrant
Brewer's sparrow *Spizella breweri*	X	X	Shrubsteppe	High desert scrub	Migrant
Broad-tailed hummingbird *Selasphorus platycercus*		X	Lowland riparian	Mountain riparian	Migrant
Brown-capped rosy-finch *Leucosticte australis*	X		Above timberline	Above timberline	Migrant
Burrowing owl *Athene cunicularia*	X		High desert scrub	Grassland	Migrant
Cassin's finch *Carpodacus cassinii*	X		Aspen	Sub-alpine conifer	Lowland riparian
Chestnut-collared longspur *Calcarius ornatus*	X		Grassland	Grassland	Grassland
Ferruginous hawk *Buteo regalis*	X	X	Pinyon-juniper	Shrubsteppe	Grassland

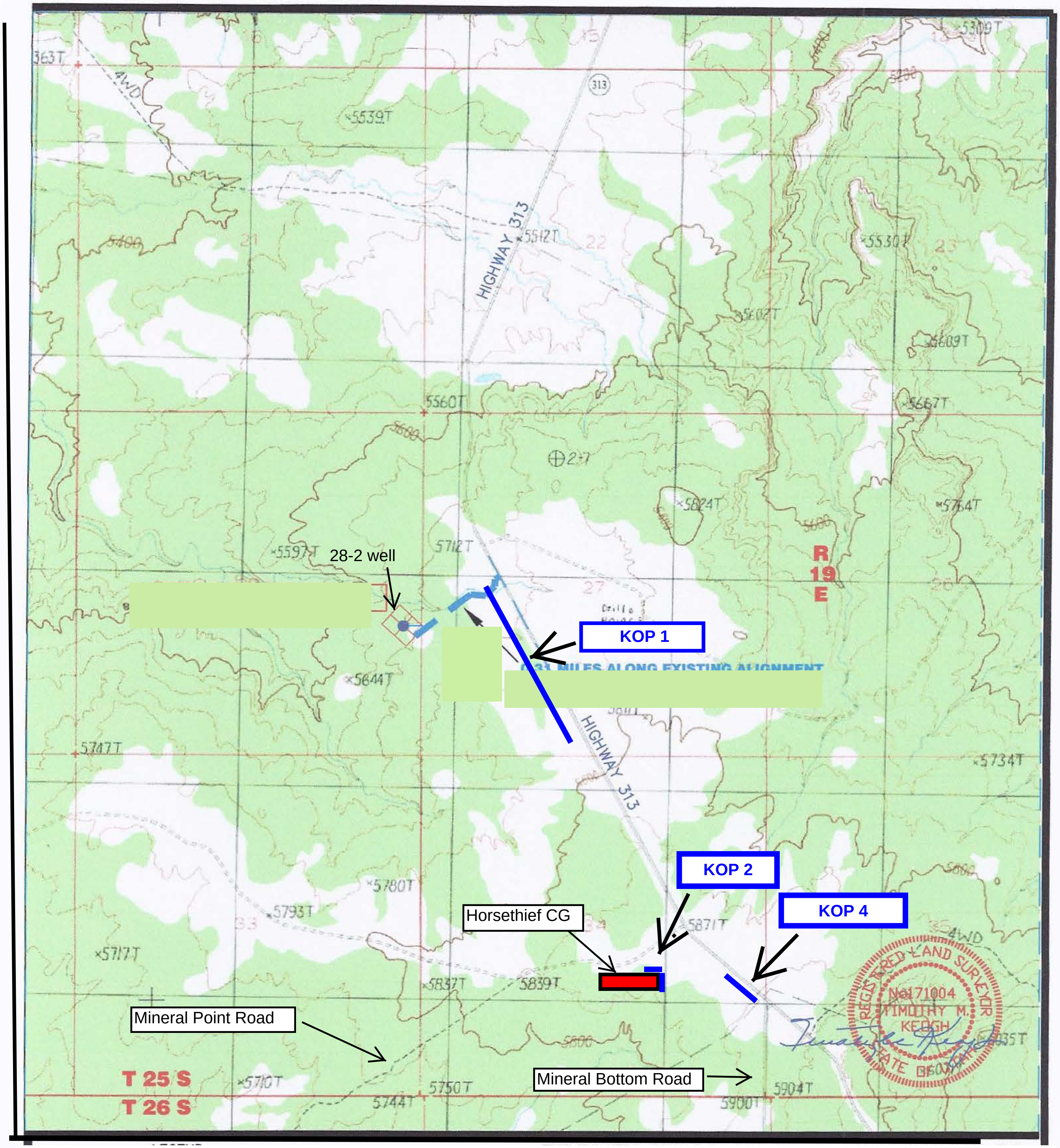
Species Name	USFWS Birds of Conservation Concern, Region 16	Partners in Flight Priority Bird Species, Colorado Plateau	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
Flammulated owl *Otus flammeolus*	X		Ponderosa pine	Sub-alpine conifer	Migrant
Gambel's quail *Callipepla gambelii*		X	Low desert scrub	Lowland riparian	Low desert scrub
Golden eagle *Aquila chrysaetos*	X		Cliff	High desert scrub	High desert scrub
Grace's warbler *Dendroica graciae*	X		Ponderosa pine	Mixed conifer	Migrant
Gray vireo *Vireo vicinior*	X	X	Pinyon-juniper	Northern oak	Migrant
Greater sage-grouse *Centrocercus urophasianus*		X	Shrubsteppe	Shrubsteppe	Shrubsteppe
Juniper titmouse *Baeolophus ridgwayi*	X		Pinyon-juniper	Pinyon-juniper	Pinyon-juniper
Lewis' woodpecker *Melanerpes lewis*	X	X	Ponderosa pine	Lowland riparian	Northern oak
Long-billed curlew *Numenius americanus*	X	X	Grassland	Agriculture	Migrant
Peregrine falcon *Falco peregrinus*	X		Cliff	Lowland riparian	Wetland
Pinyon jay *Gymnorhinus cyanocephalus*	X		Pinyon-juniper	Ponderosa pine	Pinyon-juniper
Prairie falcon *Falco mexicanus*	X		Cliff	High desert scrub	Agriculture
Sage sparrow *Amphispiza belli*		X	Shrubsteppe	High desert scrub	Low desert scrub

Species Name	USFWS Birds of Conservation Concern, Region 16	Partners in Flight Priority Bird Species, Colorado Plateau	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
Snowy plover *Charadrius alexandrius*	X		Playa	Playa	Migrant
Veery *Catharus fuscescens*	X		Lowland riparian	Lowland riparian	Deciduous forest
Virginia's warbler *Vermivora virginiae*		X	Northern oak	Pinyon-juniper	Migrant
Willow flycatcher *Empidonax traillii*	X		Lowland riparian	Mountain riparian	Migrant

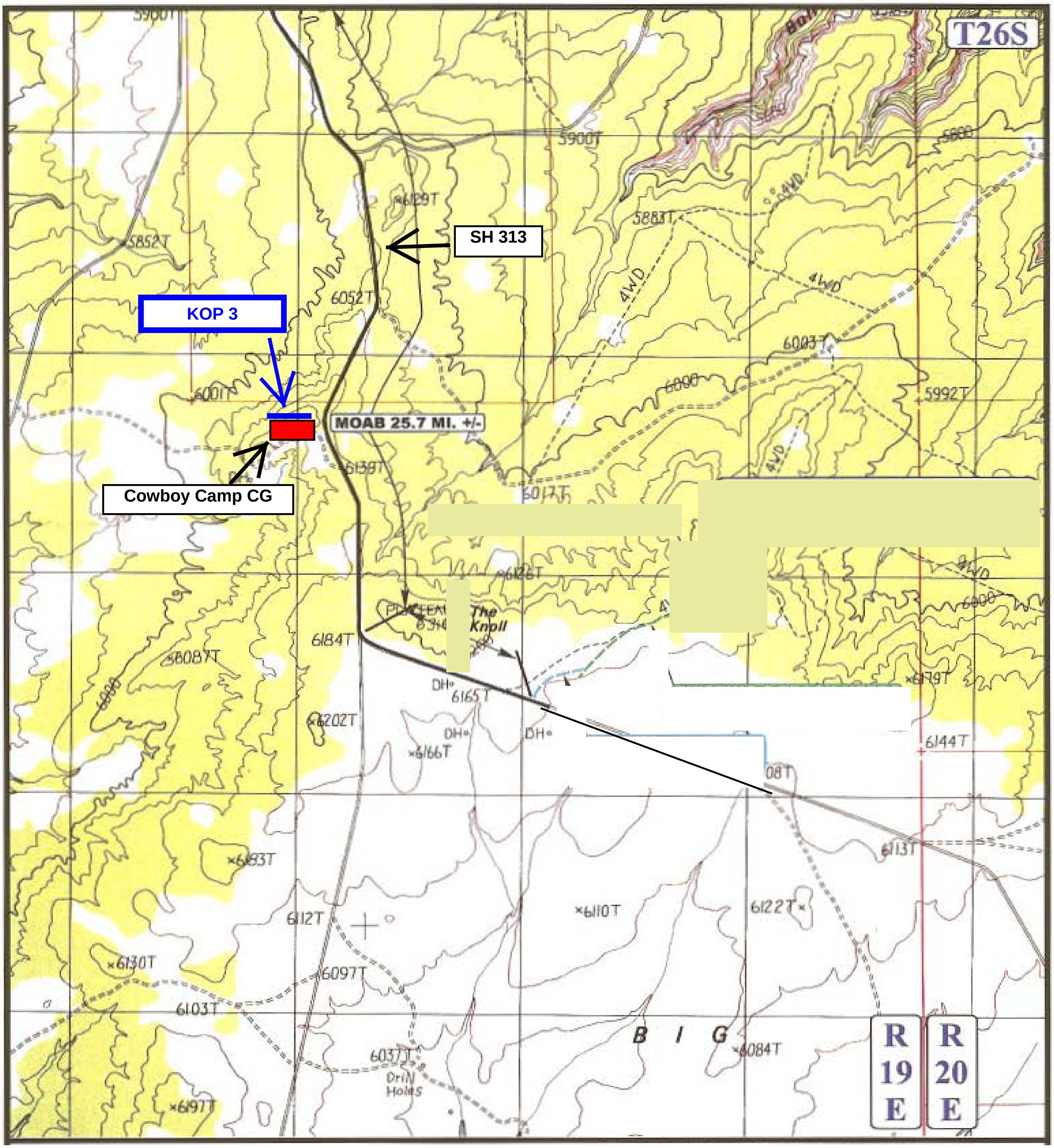
Source: Parrish et al., 2002; USFWS, 2008; UDWR, 2005.

APPENDIX G

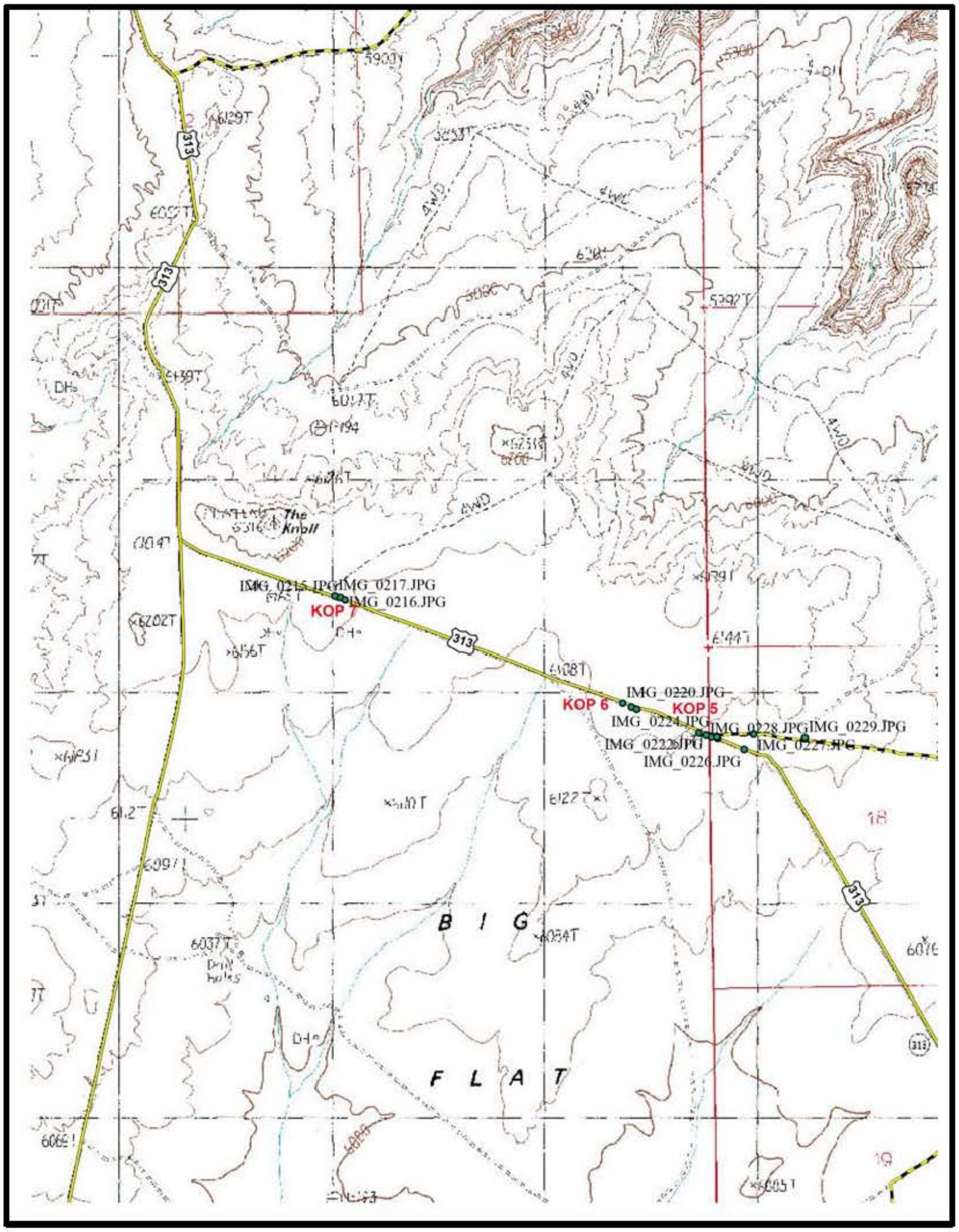
VRM Analysis



KEY OBSERVATION POINTS 1, 2, and 4



KEY OBSERVATION POINT 3



KEY OBSERVATION POINTS 5, 6, and 7

VISUAL CONTRAST RATING WORKSHEET

Date: June 7, 2013

Evaluators: Rock Smith, Katie Stevens, Bonnie Carson

Activity: **Oil & Gas: Fidelity Dead Horse Lateral Pipeline**

Section A. PROJECT INFORMATION: KOP 1-view from State Highway 313

Project Name: Fidelity Pipeline **Location:** Viewshed from State Highway 313 looking west (from the entrance road to the 28-2 well south to the top of the rise)
Key Observation Point 1: **VRM Class:** VRM II

Section B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structures: Oil well 28-2, tops of tanks
FORM	Sloping up to the south on the west side of the highway	Rounded clumps of shrubs and trees	Rounded tank tops
LINE	Sloping	Horizontal	Vertical
COLOR	Sand-orange	Gray-green shrubs and P-J.	Green
TEXTURE	Mottled	Mottled	Smooth

Section C. PROPOSED ACTIVITY DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structure: Pipeline
FORM	Sloping	Rounded clumps	Cylindrical pipe, 13 inches in diameter
LINE	Sloping	Horizontal	Sloping/linear
COLOR	Sand colored	Gray-green	Rust-colored
TEXTURE	Mottled	Mottled	Smooth

Section D. CONTRAST RATING

SHORT TERM project (< 5 years), with additional mitigation measures.

	FEATURES											
	land/water				vegetation				pipeline			
	strong	moderate	weak	none	strong	moderate	weak	none	strong	moderate	weak	None
FORM				x				x				x
LINE				x				x				x
COLOR				x				x				x
TEXTURE				x				x				x

Does project design meet visual standards? YES. The proposed project poses no impairment of the visual resources from the Scenic Byway.

Explain: The proposed pipeline project was evaluated for its impact to the viewshed from State Highway 313, which is a Scenic Driving Corridor. Surface disturbing activities within the corridor (0.5 miles from center line) must meet VRM II class objectives (2008 Moab RMP, page A-7). However, an "exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the driving corridor."

The project was evaluated in consideration of Operator-committed protection measures for visual resources suggested by the BLM. Operator-committed protection measures for visual resources include:

The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
The pipeline would be buried where the pipeline would approach to within 100 feet of either side of Mineral Point and Mineral Bottom Roads.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

The pipeline location was evaluated by observing the vicinity of the proposed pipeline from the Scenic Byway (KOP 1 on the attached map). A visual simulation was created using 13-inch diameter plastic bucket painted to approximate the color of the weathered pipeline (rust-colored).

KOP 1 is a linear, moving KOP defined as views of an observer traveling from north to south along SH 313. Traveling from the south to the north was not evaluated because the observer would be traveling downhill away from an obvious view of the pipeline and the visual focus of an observer would be the road (driver) and appearance of Big Mesa and the Monitor and Merrimac Buttes to the northeast. The proposed pipeline route is west of and parallel to the highway. The view from the SH 313 is panoramic, with views dominated by the LaSal Mountains to the east, which are the focal point of visual attention. The landscape through which the pipeline would travel is dominated by blackbrush, with scattered pinyon and juniper. The view of most concern is that of observers in vehicles heading south on SH 313 because the pipeline route climbs a small hill that is in the western view from the highway. From the highway, observers in vehicles would have the opportunity to view the sloping surface (hillslope) upon which the pipeline would be laid for approximately 15 seconds while travelling at highway speed.

The attached photos show the view from Highway 313 looking westward toward the proposed route of the pipeline. The camera was aimed toward the simulated pipeline. The photos were taken in sets, with a 50 mm zoom view and a 400 mm zoom view. The simulated pipeline could not be seen from the highway, even when the observers were stationary. The person walking the pipeline route could be seen from time to time when not obscured by trees. This shows the importance of the blackbrush shrubs on the east side of the pipeline route in hiding the view of the pipeline from drivers on SH 313. The person walking the pipeline route could only see vehicles on the highway from time to time as well and often only the roofs of the vehicles were visible. The observers on the highway concluded that the pipeline would not be visible from a moving vehicle on Highway 313.

Short-term visual impacts along the pipeline route would result from shrubs being crushed from equipment during construction operations operating on the east side of the pipeline route. If all the work on the pipeline in this area could be done from the west side of the pipeline route, the shrubs could remain on the east side of the pipeline to help prevent a view of the pipeline by observers on the road in the short term while the pipe surface is rusting. If this type of care were taken with the construction process, even a stationary observer would not be able to see the pipeline. Thus, there would be no impairment of the visual resources from Highway 313, the State Scenic Byway with implementation of the mitigation measure that the shrubs would stay undisturbed on the east side of the pipeline route.

13-inch bucket used to simulate recently installed pipeline.

13-inch bucket used to simulate rusted pipeline.

KOP 1: from Highway 313 looking west near the 28-2 road

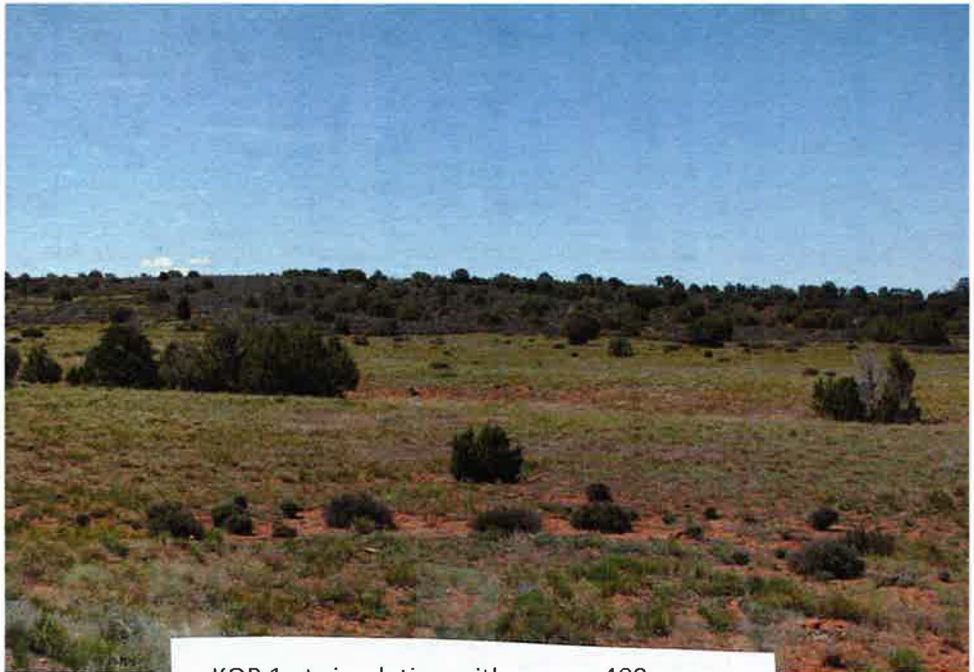
KOP 1 ascending hill from 313 with bucket and person 400 mm

KOP 1 at simulated pipeline 400 mm

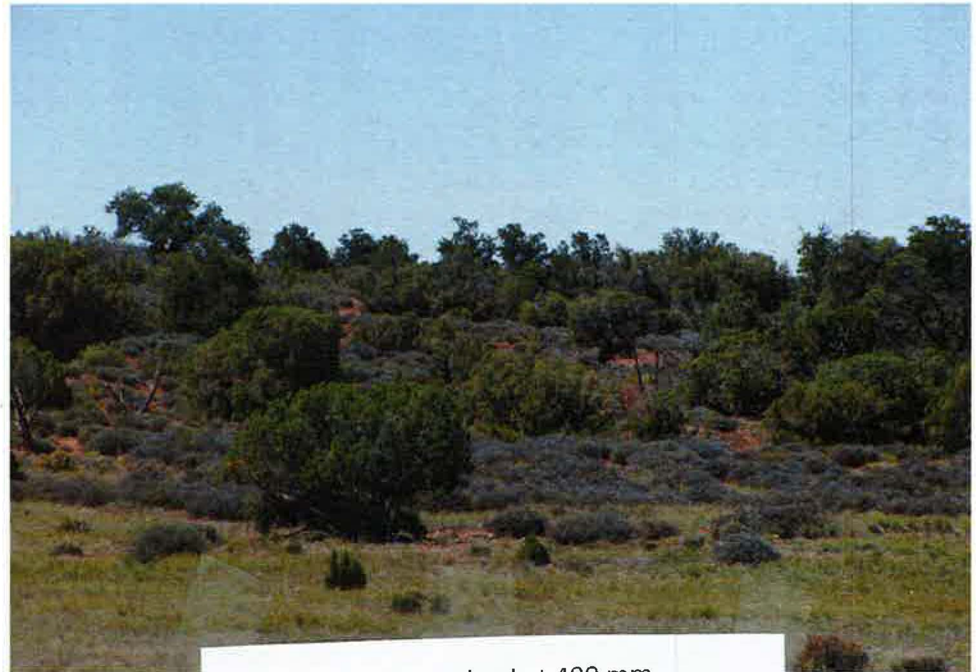
KOP 1 ascending hill from 313 with bucket and person 50 mm

KOP 1 at simulated pipeline from 313 50 mm

KOP 1: from Highway 313 looking west near the 28-2 road



KOP 1 at simulation with person 400 mm



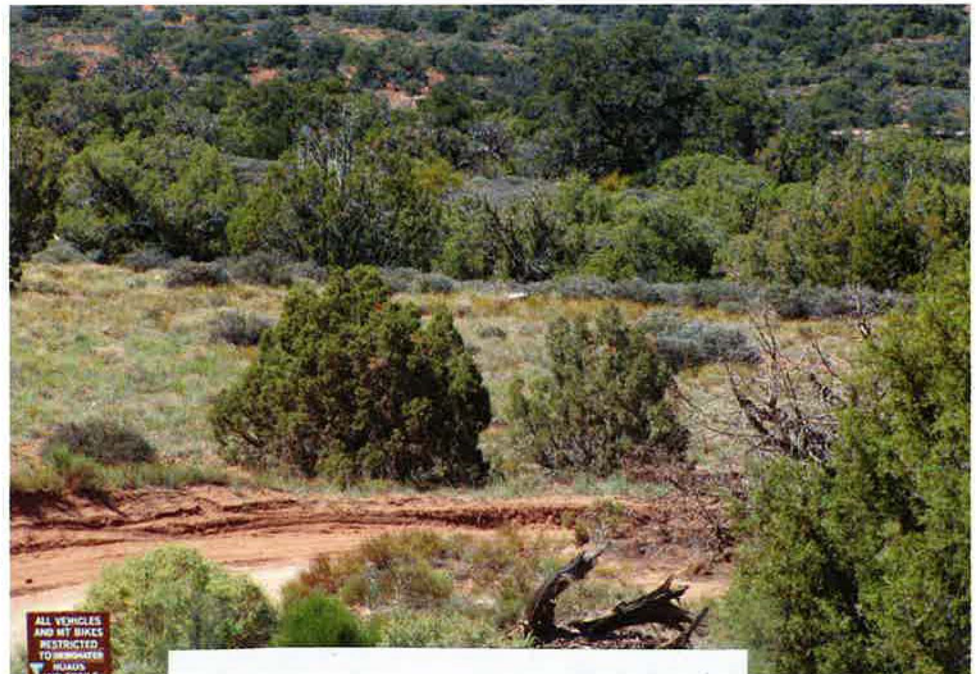
KOP 1 from 313 at bucket 400 mm

KOP 1 at simulation with person 50 mm

KOP 1 from 313 at bucket 50 mm

KOP 1: from Highway 313 looking west near the 28-2 road

KOP 1 from 313 looking at bucket 400 mm



KOP 1 from Hwy 313 at 28-2 road 400 mm

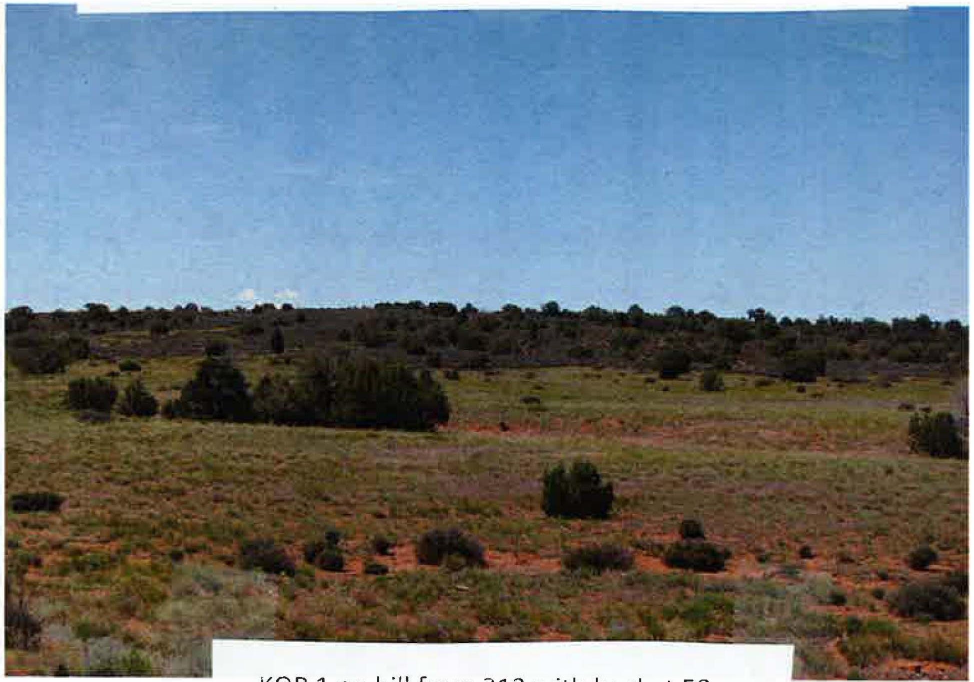
KOP 1 from 313 looking at bucket 50 mm

KOP 1 from Hwy 313 at 28-2 road 50 mm

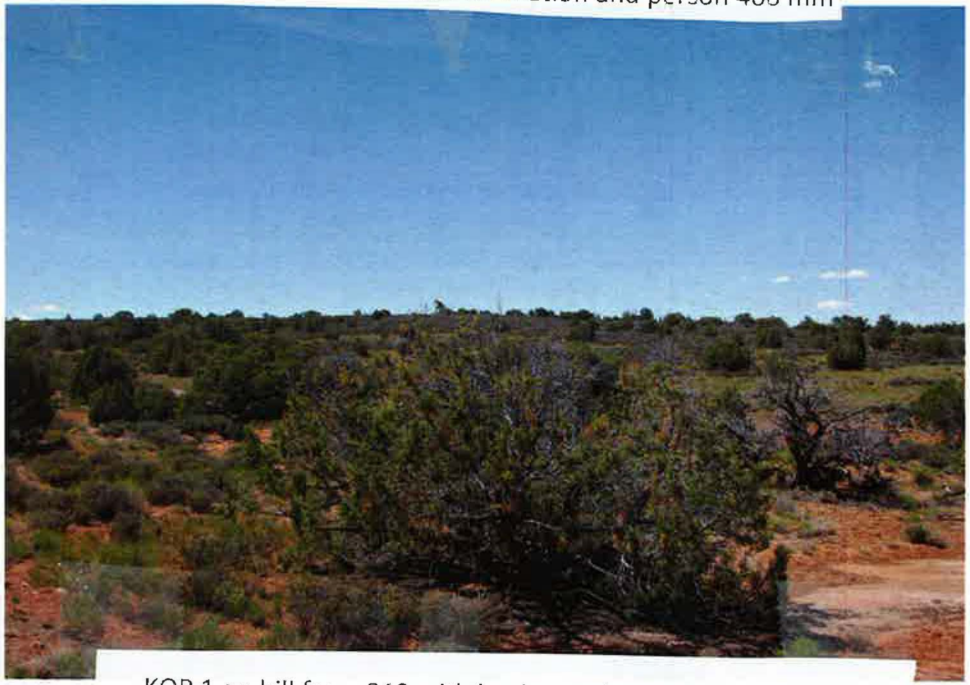
KOP 1: from Highway 313 looking west near the 28-2 road

KOP 1 on hill from 313 with bucket and person 400 mm

KOP 1 nearing hill from 313 with simulation and person 400 mm

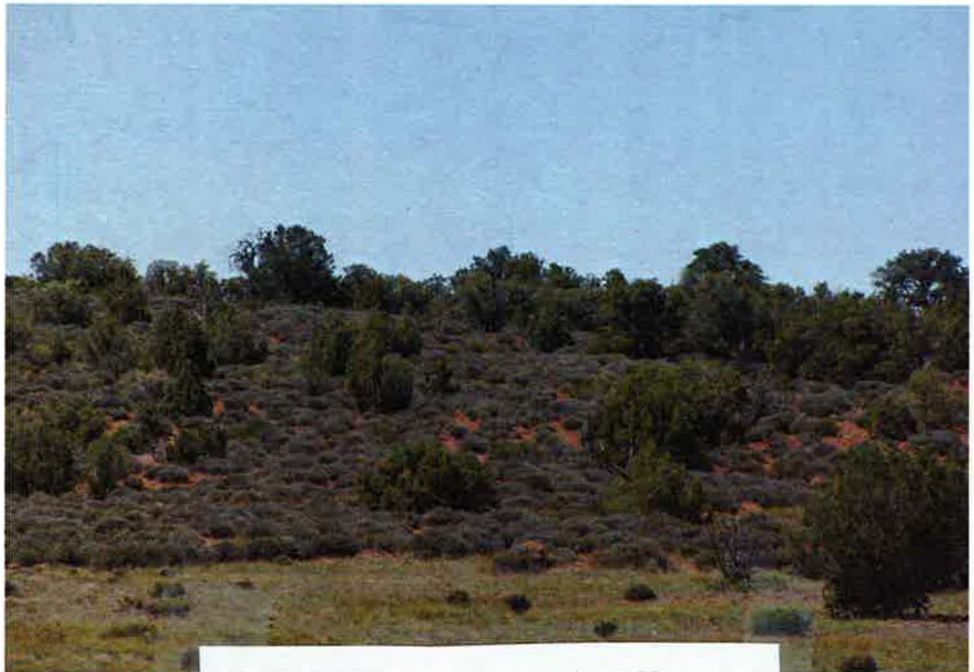


KOP 1 on hill from 313 with bucket 50 mm



KOP 1 on hill from 313 with bucket and person 50 mm

KOP 1: from Highway 313 looking west near the 28-2 road



KOP 1 from Hwy 313 at bucket 400 mm

KOP 1 nearing hill from 313 with simulation and person 50 mm

KOP 1 from Hwy 313 at bucket 50 mm

KoP 1 nearing hill from 313 with simulation and person 50 mm

KOP 1: from Highway 313 looking west near the 28-2 road

KOP 1 top of hill from 313 (with person and bucket) 400 mm

KOP 1 top of hill from 313 (with person and bucket) 50 mm

VISUAL CONTRAST RATING WORKSHEET

Date: June 7, 2013

Evaluators: Rock Smith, Katie Stevens, Bonnie Carson

Activity: **Oil & Gas: Fidelity Dead Horse Lateral Pipeline**

Section A. PROJECT INFORMATION: KOP 2 – view from the campground

Project Name: Fidelity Pipeline **Location:** Viewshed from Horsethief Campground looking east
Key Observation Point 2: Campsites at Horsethief Campground, specifically Sites 49 and 50
VRM Class: VRM II

Section B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structures
FORM	Gently upward (i.e. view toward pipeline slopes upward to the east)	Simple rounded forms created by vegetative patterns made by thick pinyon trees and shrubs.	None visible from the campground
LINE	Horizontal	Horizontal	None visible from the campground
COLOR	Some sandstone visible – and some sand-orange	Uniform medium green created by shrubs and pinyon-junipers.	None visible from the campground
TEXTURE	Mottled	Mottled	None visible from the campground

Section C. PROPOSED ACTIVITY DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structure: Pipeline
FORM	Gently upward (i.e. view toward pipeline slopes upward to the east)	Irregular areas of cleared and crushed vegetation. Short and tall rounded forms created by trees and shrubs.	Cylindrical pipe, 13 inches in diameter
LINE	Horizontal	Horizontal	Horizontal/linear
COLOR	Sandstone-orange	Gray-green	Rust-colored
TEXTURE	Mottled	Mottled	Smooth

Section D. CONTRAST RATING

SHORT TERM project (< 5 years).

	FEATURES											
	land/water				vegetation				Pipeline			
	strong	moderate	weak	none	strong	moderate	weak	none	strong	moderate	weak	none
FORM				x				x				x
LINE				x				x				x
COLOR				x				x				x
TEXTURE				x				X				x

Does project design meet visual standards? YES. The proposed project poses no impairment of the visual resources from Horsethief Campground**.**

Explain: The proposed pipeline project was evaluated for its impact to the viewshed from the Horsethief Campground. This campground is a developed recreation site; there is a No Surface Occupancy stipulation on lands within 0.5 miles of it (2008 Moab RMP, page A-8). However, an "exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the recreation site".

The project was evaluated in consideration of Operator-committed protection measures for visual resources suggested by the BLM. Operator-committed protection measures for visual resources include:

The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
The pipeline would be buried where the pipeline would approach to within 100 feet of either side of Mineral Point and Mineral Bottom Roads.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

The pipeline location was evaluated by observing the vicinity of the proposed pipeline from the Scenic Byway (KOP 2 on the attached map). A visual simulation was created using 13-inch diameter plastic bucket painted to approximate the color of the weathered pipeline (rust-colored).

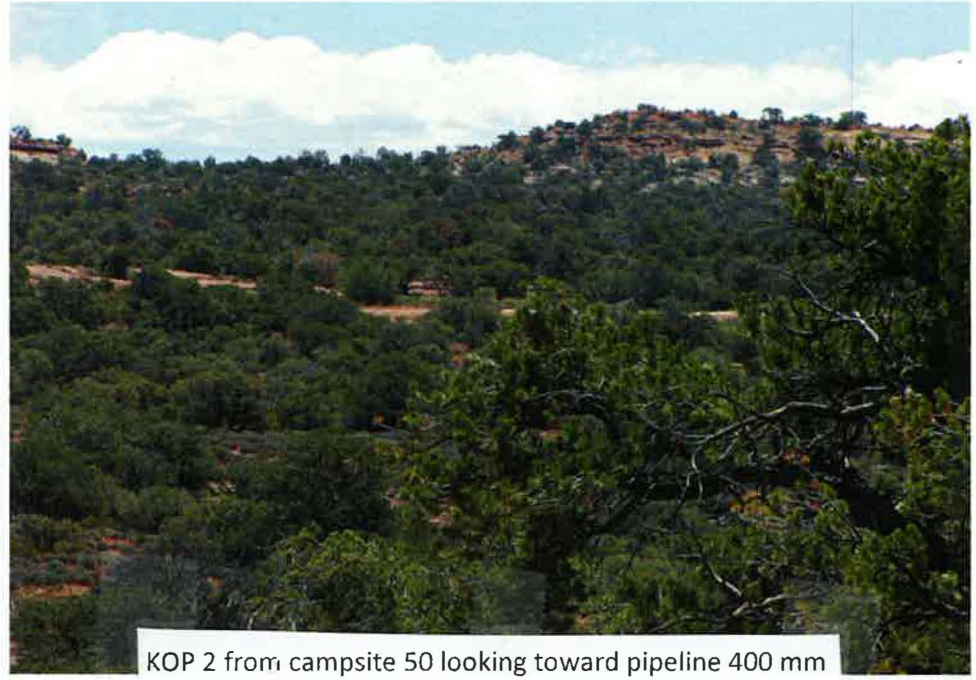
KOP 2 is a static point KOP from the campsites at the Horsethief campground. The campsites at the easternmost edge of the campground (Campsites #49 and #50) would potentially be exposed to the most direct view of the pipeline. The campground was sited to avoid being visible from Highway 313 and is located in a small depression with a rise between it and the highway. The view eastward from the campground features fairly tightly packed pinyon-juniper trees. The rise and the trees prevent the proposed pipeline route from being viewed from the campground.

The attached photos show the view from the campsites looking eastward toward the proposed route of the pipeline. The simulated pipeline (13-inch diameter rust-colored bucket) could not be seen; the person walking the pipeline route could not be seen also. To gain elevation, the photographer stood on top of a picnic table; even this did not afford a view of the bucket, person holding the bucket, or any indication of the proposed pipeline route. The person walking the pipeline route could not see the campground, which includes a toilet building on the far eastern side of the campground; i.e., the side closest to the pipeline). The combination of the rise that hides the campground from SH 313 and the tightly packed pinyon and juniper trees obscure the view to the east.

The observers concluded that the pipeline would not be visible from any of the campsites at the Horsethief Campground. Thus, there would be no impairment of the visual resources from this recreation site.

KOP 2: From far eastern campsites in Horsethief Campground

KOP 2 from campsite 49 looking toward pipeline route 50 mm



KOP 2 from campsite 50 looking toward pipeline 400 mm

KOP 2 from campsite 49 looking toward pipeline 400 mm

KOP 2 from campsite 50 looking toward pipeline 50 mm

VISUAL CONTRAST RATING WORKSHEET

Date: June 7, 2013

Evaluators: Rock Smith, Katie Stevens, Bonnie Carson

Activity: **Oil & Gas: Fidelity Dead Horse Lateral Pipeline**

Section A. **PROJECT INFORMATION:** KOP 3 - view from the campground

Project Name: Fidelity Pipeline **Location:** Viewshed of Cowboy Camp Campground toward west/northwest

Key Observation Point 3: Campsites at Cowboy Camp Campground, specifically Sites 4, 5, 6 and 7

VRM Class: VRM II

Section B. **CHARACTERISTIC LANDSCAPE DESCRIPTION**

	1. Land/Water	2. Vegetation	3. Structures: Roads
FORM	Far-ranging view across Green River; close-up view of pinyon juniper. Slopes to the west	Rounded forms of juniper and pinyon trees	Maintained and unmaintained roads
LINE	Horizontal	Horizontal	Linear
COLOR	Brownish	Grayish-green	Light brown-orange
TEXTURE	Smooth	Mottled	Smooth

Section C. **PROPOSED ACTIVITY DESCRIPTION**

	1. Land/Water	2. Vegetation	3. Structure: Pipeline
FORM	Far ranging view across Green River; close-up view of pinyon juniper. Slopes to the west	Rounded forms of juniper and pinyon trees	Cylindrical pipe, 13 inches in diameter
LINE	Horizontal	Horizontal	Linear/horizontal
COLOR	Brownish-orange	Grayish-green	Rust-colored
TEXTURE	Smooth	Mottled	Smooth

Section D. **CONTRAST RATING**

SHORT TERM project (< 5 years), with additional mitigation measures.

	FEATURES											
	land/water				vegetation				Structures			
	strong	moderate	weak	none	strong	moderate	weak	none	strong	moderate	weak	none
FORM			x				x				x	
LINE			x				x				x	
COLOR			x				x				x	
TEXTURE			x				x				x	

Does project design meet visual standards? YES. The proposed project poses no impairment of the visual resources from Cowboy Camp Campground**.**

Explain: The proposed pipeline project was evaluated for its impact to the viewshed from the Cowboy Camp Campground. This campground is a developed recreation site; there is a No Surface occupancy stipulation on lands within 0.5 miles of it (2008 Moab RMP, page A-8). However, an "exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the recreation site".

The project was evaluated in consideration of Operator-committed protection measures for visual resources suggested by the BLM. Operator-committed protection measures for visual resources include:

The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
The pipeline would be buried where the pipeline would approach to within 100 feet of either side of Mineral Point and Mineral Bottom Roads.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

The pipeline location was evaluated by observing the vicinity of the proposed pipeline from various locations in the campground (KOP 3 on the attached map). A visual simulation was created using 13-inch diameter plastic bucket painted to approximate the color of the weathered pipeline (rust-colored).

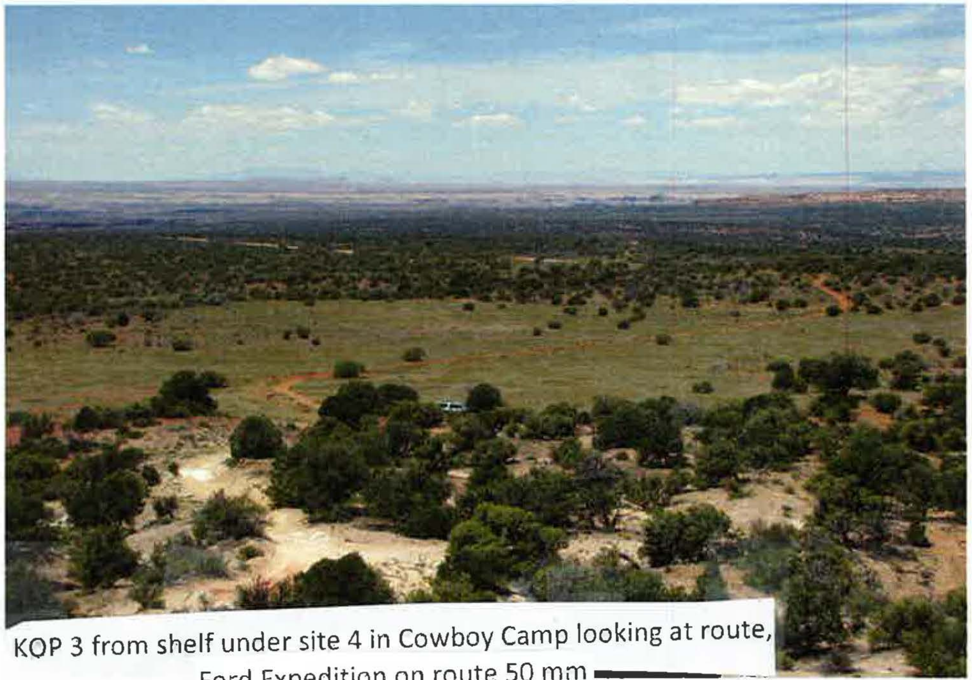
KOP 3 is a static point KOP from the campsites at the Cowboy Camp campground. Campsites #4, 5, 6 and 7 would potentially be exposed to the most direct view of the pipeline. The campground is on a plateau with a panoramic view to the west and northwest. The view from the campground features a long horizon view stretching from the distant buttes in the north to the Henry Mountains west of the Green River. The foreground view (which is *under* the campground; that is, one has to look down to see the foreground) has fairly tightly packed pinyon-juniper trees. A two track road winds under the campground plateau. This road is only visible from the campground from time to time as it emerges from the pinyon-juniper trees in approximately three locations. The constructed Class B Mineral Bottom Road is visible as a linear feature traveling from east to west in the middle ground of the viewshed. Other linear features consisting of unmaintained roads and old seismic survey routes radiate outward from the campground. The view from the campground of these unmaintained roads varies according to the position of the observer in a particular camp site.

The attached photos show the view from the campsites looking toward the proposed route of the pipeline. The pipeline would be constructed adjacent and parallel to a two-track road, which travels roughly east to west near the bottom of the high point upon which the campground is located. The pipeline would be placed on the west side of this road. It should be noted that the photos were taken looking down at the pipeline route, rather than across to the west to the dominant view. The simulated pipeline could be seen at a few locations where the pipeline route (road) emerges from the trees and affords the campground observer an unobstructed view. Of the campsites, Campsite 7 has the most direct view of the pipeline route. There are three locations on the road below this campsite where the pipeline would be visible for about 20 feet. The pipeline may be in view in other locations at other campsites, but would not be noticeable to the casual observer because of its distance, its position parallel and adjacent to a road, vegetation breaking the form, and the dominating features of the larger viewshed. The observers concluded that the pipeline would not be visible from the majority of the campsites at the Cowboy Camp

Campground. The potential view of the pipeline at these few locations could be mitigated by obscuring the pipeline with dead pieces of pinyon juniper. There is a great deal of this natural material along the two track road. With this mitigating measure in place, the viewshed from the campsites would be protected, and there would be no impairment of the visual resources from this recreation site if this mitigating measure were in place.

KOP 3: from Cowboy Camp Campground

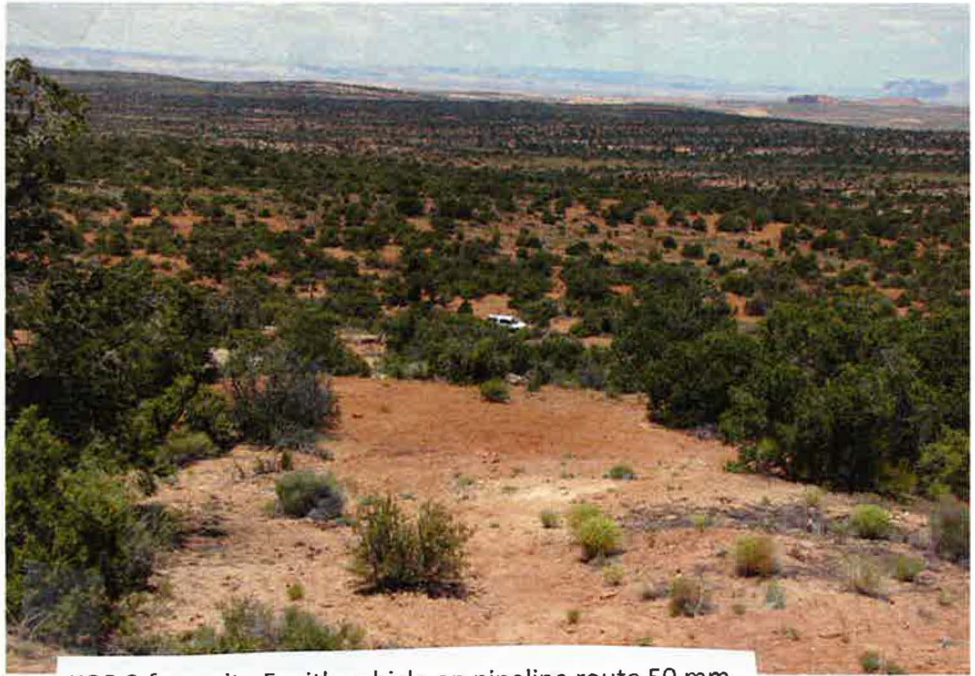
KOP 3 from point west of site 5 with bucket, vehicle and person on route 400 mm



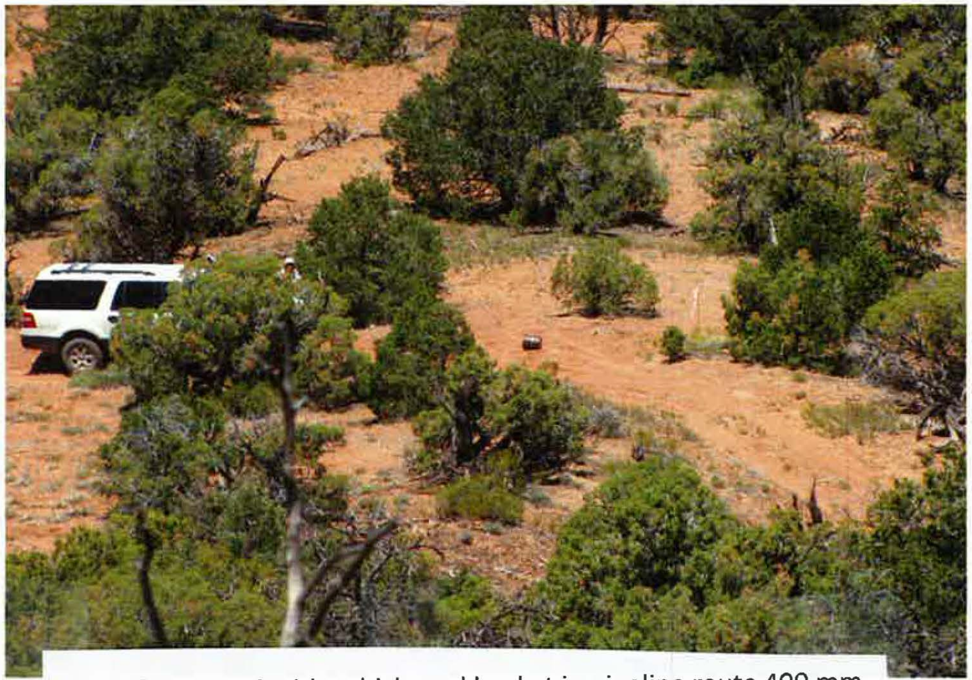
KOP 3 from shelf under site 4 in Cowboy Camp looking at route, Ford Expedition on route 50 mm

KOP 3 from point west of site 5, with bucket, vehicle and person on route 400 mm

KOP 3: from Cowboy Camp Campground



KOP 3 from site 5 with vehicle on pipeline route 50 mm



KOP 3 from site 6 with vehicle and bucket in pipeline route 400 mm

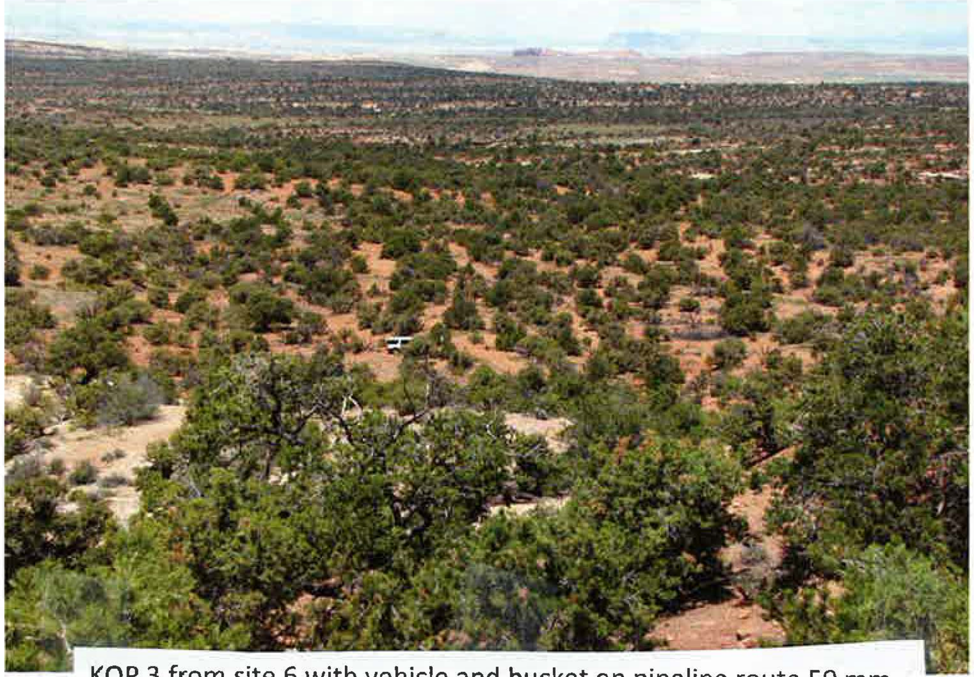
KOP 3 from shelf under site 4 in Cowboy Camp, Ford Expedition on route 400 mm

KOP 3 from site 5 with vehicle on pipeline route 400 mm

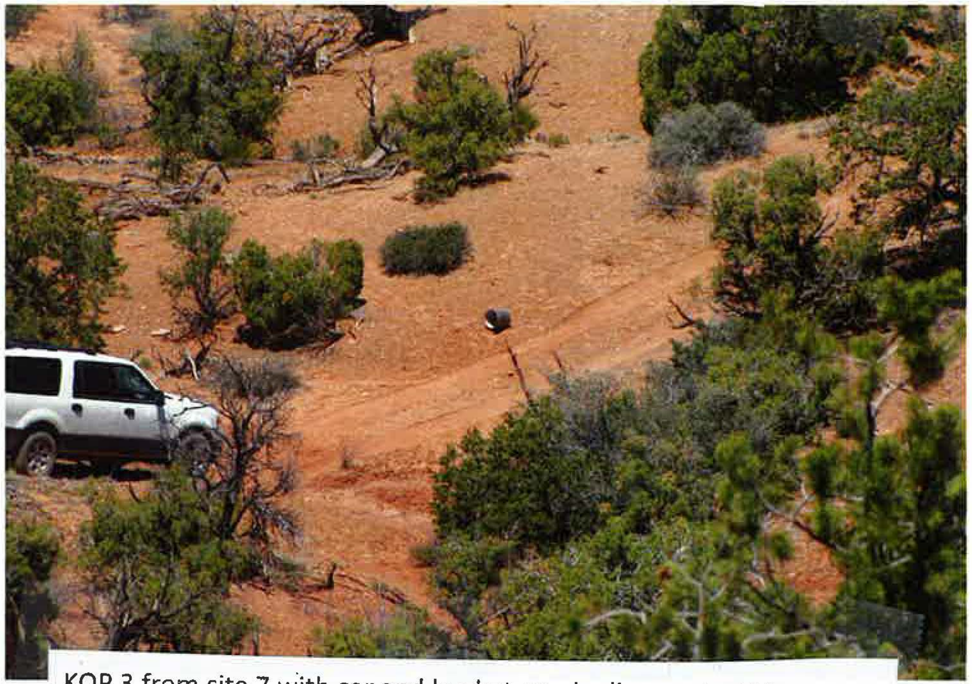
KOP 3: from Cowboy Camp Campground

KOP 3 from site 7 with car and bucket on pipeline route 50 mm

KOP 3 from site 7 with vehicle and bucket on pipeline route 400 mm



KOP 3 from site 6 with vehicle and bucket on pipeline route 50 mm



KOP 3 from site 7 with car and bucket on pipeline route 400 mm

KOP 3: from Cowboy Camp Campground

KOP 3 from toilet with vehicle in pipeline route 50 mm

KOP 3 from site 7 with vehicle on pipeline route 50 mm

KOP 3 from toilet with vehicle in pipeline route 400 mm

VISUAL CONTRAST RATING WORKSHEET

Date: June 7, 2013

Evaluators: Rock Smith, Katie Stevens, Bonnie Carson

Activity: **Oil & Gas: Fidelity Pipeline**

Section A. **PROJECT INFORMATION:** KOP 4 - view from State Highway 313

Project Name: Fidelity Pipeline **Location:** Highway 313 between Mineral Bottom Road and Horsethief Campground looking west.
Key Observation Point 4: **VRM Class:** VRM II

Section B. **CHARACTERISTIC LANDSCAPE DESCRIPTION**

	1. Land/Water	2. Vegetation	3. Structure: Parking lot for Mineral Bottom
FORM	Slightly undulating	Slightly undulating	Flat
LINE	Horizontal	Low shrubs and grass	Horizontal
COLOR	Brownish	Grayish-green	Brown
TEXTURE	Smooth	Mottled	Smooth

Section C. **PROPOSED ACTIVITY DESCRIPTION**

	1. Land/Water	2. Vegetation	3. Structure: Pipeline
FORM	Slightly undulating	Rounded clumps of vegetation, including scattered pinyon and juniper	Cylindrical pipe, 13 inches tall
LINE	Horizontal	Horizontal	Horizontal/linear
COLOR	Brownish	Gray-green	Rust colored
TEXTURE	Mottled	Mottled	Smooth

Section D. **CONTRAST RATING**

SHORT TERM project (< 5 years), with additional mitigation measures.

FEATURES

	land/water				vegetation				Structures			
	strong	moderate	weak	none	strong	moderate	weak	none	strong	moderate	weak	none
FORM				x								x
LINE				x								x
COLOR				x								x
TEXTURE				x								x

Does project design meet visual standards? YES. The proposed project poses no impairment of the visual resources from the Scenic Byway.

Explain: The proposed pipeline project was evaluated for its impact to the viewshed from State Highway 313, which is a Scenic Driving Corridor. Surface disturbing activities within the corridor (0.5 miles from center line) must meet VRM II class objectives (2008 Moab RMP, page A-7). However, an "exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the driving corridor."

The project was evaluated in consideration of Operator-committed protection measures for visual resources suggested by the BLM. Operator-committed protection measures for visual resources include:

The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds to prevent observation of the pipeline to observers in those areas.
The pipeline would be buried where the pipeline would approach to within 100 feet of either side of Mineral Point and Mineral Bottom Roads.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

The pipeline location was evaluated by observing the vicinity of the proposed pipeline from the Scenic Byway (KOP 4 on the attached map). A visual simulation was created using 13-inch diameter plastic bucket painted to approximate the color of the weathered pipeline (rust-colored).

KOP 4 is a linear, moving KOP defined as views of an observer traveling south to north along SH 313. Traveling from north to south was not evaluated because pinyon and juniper trees would block the view of the pipeline to observers. The proposed pipeline route is to the west of and parallel to the highway. Of greatest concern in this stretch of the highway is the view of the northbound traveler, because the road curves slightly toward the pipeline route. The view from the highway is panoramic, with views of the mesas and buttes to the north and La Sal Mountains to the east. The landscape through which the pipeline would travel is dominated by blackbrush, with scattered pinyon and juniper. From the highway, observers in vehicles would have the opportunity to view the pipeline route for approximately five seconds while travelling at highway speed.

The attached photos show the view from Highway 313 looking toward the proposed route of the pipeline (west). The camera was aimed toward that bucket. The photos were taken in sets, with a 50 mm zoom view and a 400 mm zoom view. The pipeline simulation could not be seen from the highway, even when the observers were stationary. The upper part of the person walking the pipeline route could be seen (when not obscured by trees). This shows the importance of the shrubs on the east side of the pipeline route in hiding the view of the pipeline from drivers on Highway 313. The observers concluded that the pipeline would not be visible from a moving vehicle on Highway 313, especially since the relative positions of the observer and the pipeline would be essentially flat.

Short-term visual impacts along the pipeline route would result from shrubs being crushed from equipment during construction operations operating on the east side of the pipeline route. If all the work on the pipeline could be done from the west side of the pipeline route in this area, the shrubs could remain on the east side of the pipeline to help prevent a view of the pipeline by observers on the road in the short term while the pipe surface is rusting. If this type of care were taken with the construction process, even a stationary observer would not be able to see the pipeline. Thus, there would be no impairment of the visual resources from SH 313, the State Scenic Byway.

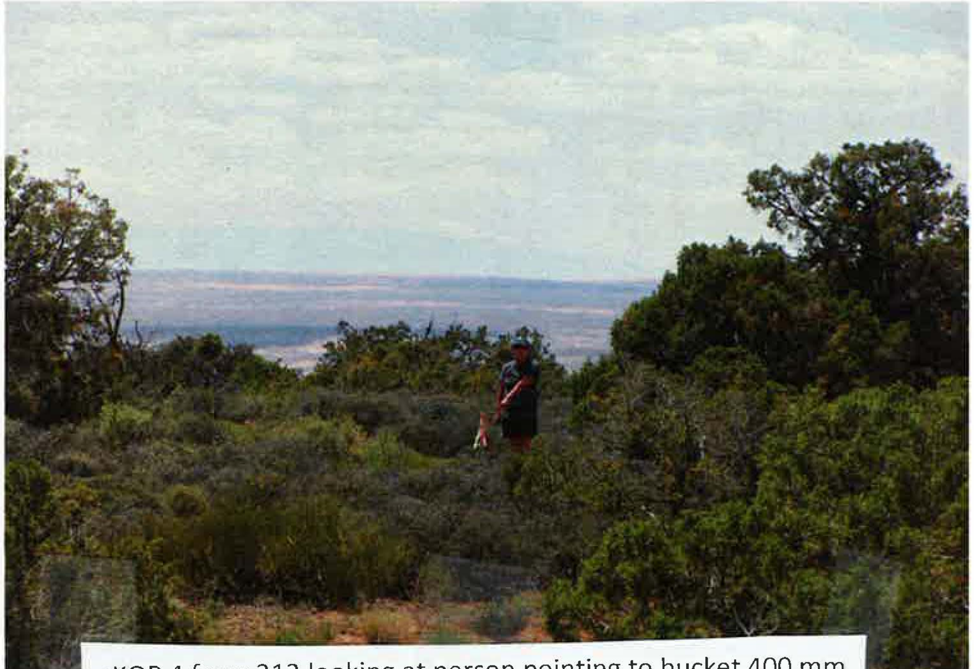
KOP 4: From Highway 313 looking west near the Mineral Bottom Road

KOP 4 looking west from 313 across Min. Bottom Parking Lot at pipeline route

KOP 4 from 313 looking at pipeline route with person and bucket 50 mm

KOP 4 looking west from 313 at person on pipeline route

KOP 4: From Highway 313 looking west near the Mineral Bottom Road



KOP 4 from 313 looking at person pointing to bucket 400 mm

KOP 4 from 313 looking at person and bucket on pipeline route 400 mm

KOP 4 from 313 looking at person and bucket 50 mm

VISUAL CONTRAST RATING WORKSHEET

Date: June 26, 2013

Evaluators: Rock Smith, Katie Stevens
Activity: **Oil & Gas: Fidelity Pipeline**

Section A. PROJECT INFORMATION: Three Pipeline Riser locations viewed from KOPs 5, 6 and 7
Project Name: Fidelity Pipeline **Location:** Southern Viewshed of Highway 313
Key Observation Point and Location Sketch: Highway 313 between Long Canyon Road and The Knoll, approximately 1.8 mile – KOP 5, 1.4 miles – KOP 6, and 0.34 miles – KOP 7 east of the SR-313/ISKY Road Intersection: KOP 5, 6 & 7
VRM Class: VRM II

Section B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structure: O&G Wells, powerline boxes
FORM	Slightly undulating	Slightly undulating	flat
LINE	horizontal	Grass and low shrubs	cylindrical and rectangular
COLOR	tan/reddish brown	Grayish green	brown
TEXTURE	smooth	mottled	smooth

Section C. PROPOSED ACTIVITY DESCRIPTION

	1. Land/Water	2. Vegetation	3. Structure: pipeline
FORM	Slightly undulating	low vegetation, with very scattered pinyon and juniper	Cylindrical pipe, 13 inches tall
LINE	horizontal	Horizontal	Horizontal/linear
COLOR	Tan/ reddish brownish	Gray green	Rust colored
TEXTURE	Mottled	Mottled	Smooth

Section D. CONTRAST RATING
SHORT TERM project (< 5 years), with additional mitigation measures.

	FEATURES											
	land/water				vegetation				Structures			
	strong	moderate	weak	none	strong	moderate	weak	none	strong	moderate	weak	none
FORM				x							X	
LINE				x							X	
COLOR				x							X	
TEXTURE				x							X	

Does the proposed project pose no impairment of the visual resources from the Scenic Byway?

Explain: The proposed pipeline project was evaluated for its impact to the viewshed from Highway 313, which is a Scenic Driving Corridor. Surface disturbing activities within the corridor (0.5 miles from center line) must meet VRM II class objectives (2008 Moab RMP, page A-7). However, an “exception could be granted if a viewshed analysis indicates no impairment of the visual resources from the driving corridor.”

The project was evaluated in consideration of Operator-committed protection measures for visual resources suggested by the BLM. The pipeline location was evaluated by observing the vicinity of the proposed pipeline from the state scenic byway (KOP 5 on the attached map). A visual simulation was created using 3’ by 5’ piece of cardboard to simulate a pipeline riser and 11” by 17” yellow file folder to simulate pipeline location warning signs.

Operator-committed protection measures for visual resources include:

The Operator will paint all permanent aboveground structures, except the pipeline, Juniper Green or a flat, non-reflective color as determined by the BLM.
The pipeline would be buried in the Big Flat area, the intersection of Dubinky Well Road and the Blue Hills Road, and near road crossings near campgrounds (other roads crossed?) to prevent observation of the pipeline to observers in those areas.
As much as possible, spoil materials will be used to camouflage the appearance of the pipeline from casual observers from vehicles on adjacent roads, particularly along the SH 313 scenic corridor.
Where the aboveground pipeline would be located adjacent to a road, the Operator will place the pipeline behind trees, shrubs, and rocks, where present, to prevent viewing by travelers on the road as much as possible.
If the terrain in a particular area is conducive to moving rock to be able to lower the pipeline nearer to the surface and minimize the use of supports, rock would be moved and repositioned to assist in camouflaging the appearance of the pipeline from an adjacent road.

KOP 7 is a linear, moving KOP defined as views of an observer traveling along SH 313. SH 313 is a scenic byway. The proposed pipeline route is to the south of the highway in this location. This area is within the view of those traveling the highway in both directions. The view from the Highway is panoramic, with views of the LaSal Mountains to the east. The landscape through which the pipeline would travel is dominated by grasses and short shrubs, with very scattered pinyon and juniper.

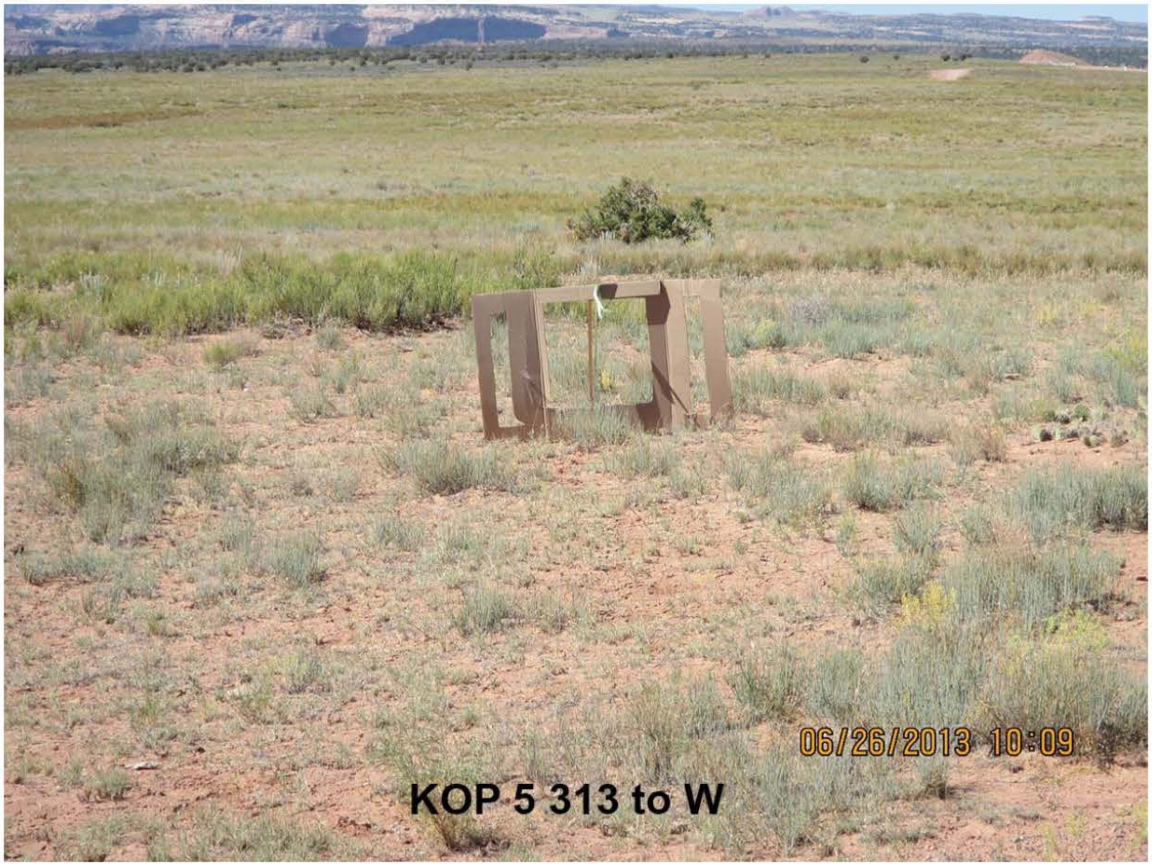
There is a buried electric transmission line located between SR-313 and the pipeline route. There are regularly spaced riser boxes (approximately two foot square, painted in a camouflaged manner) along this electric line. The Fidelity pipeline will parallel the electric line and would be buried on the far side (from SR-313) of electric line. There will be a temporary visual intrusion into the scene during construction of the pipeline and while the disturbance caused by the burial is reclaimed and revegetated. Where lateral pipelines from individual and groups of wells meet the main pipeline, there will be a riser constructed above ground. These risers are pipe loops that surface and re-enter the ground. The purpose of the risers is to allow the placement of, and access to, valves that can be turned off to stop the flow of gas from the lateral pipelines into the main pipe. These structures will be approximately three feet tall, and will have a pipe fence surrounding the riser. The total structure with fence will be approximately three feet tall by six feet wide by six feet deep. A cardboard cutout was used to simulate the riser and pipe fence for evaluation purposes. None of these risers will be skylined and will be viewed in all directions against a backdrop of natural vegetation and soil. The will be painted to match the vegetation and/or soil in the area.

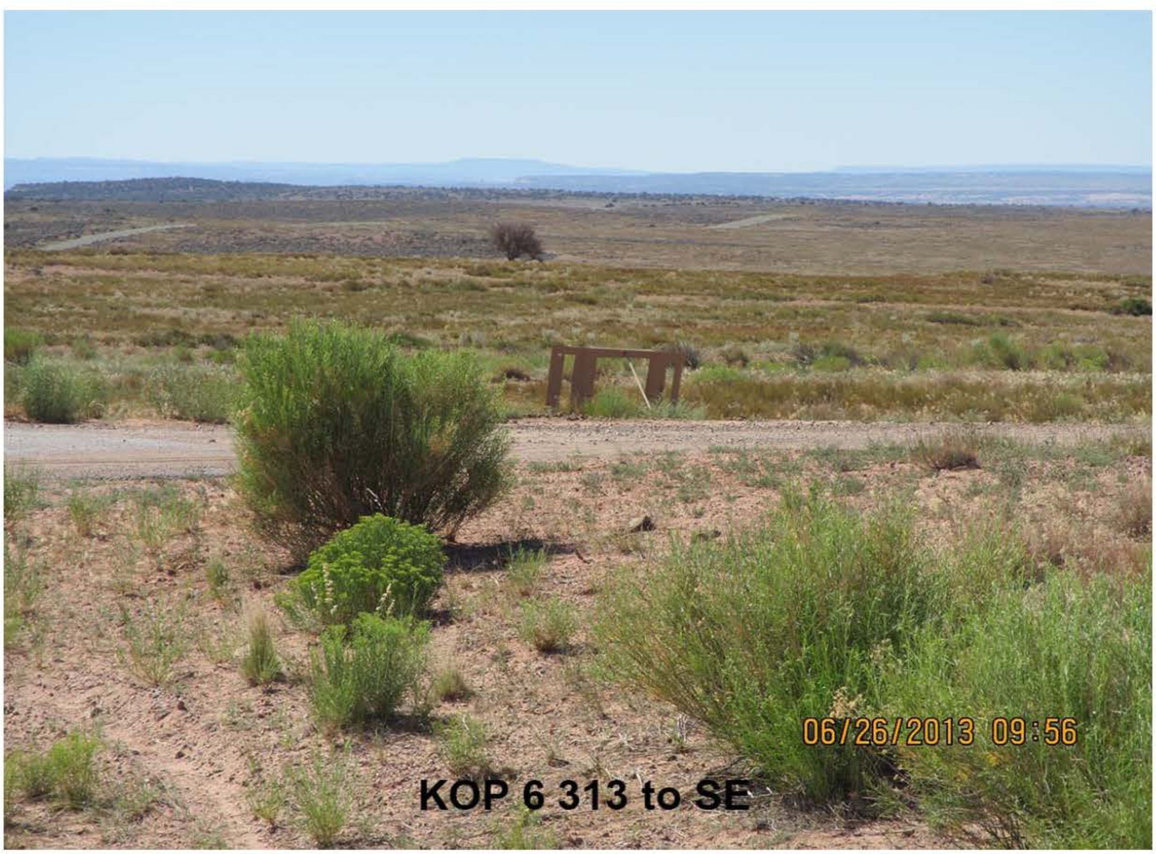
The riser at KOP 5 is within the view of eastbound. But the eastbound travelers’ attention would be drawn to the dramatic and panoramic view of the La Sal Mountains to the east. This riser would be visible to those traveling westbound on SR-313, but if painted a color that blended into the larger scene; it would not be an intrusion into the view.

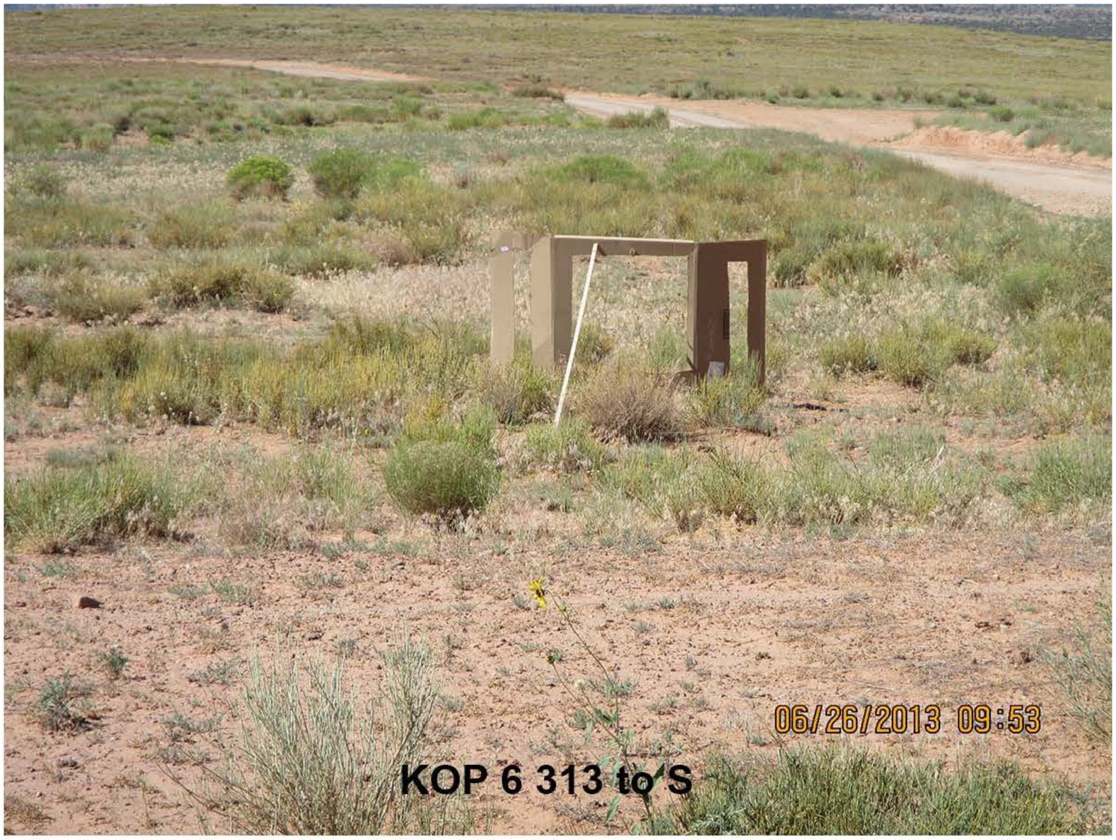
The riser at KOP 6 is only partially visible to eastbound traffic because of a rise in the ground surface and that is viewed across an existing dirt road. It is visible to eastbound traffic looking south when they are directly adjacent to the structure. But the eastbound travelers' attention would be drawn to the dramatic and panoramic view of the La Sal Mountains to the east. This riser would be visible to those traveling westbound on SR-313, but if painted a color that blended into the larger scene; it would not be an intrusion into the view.

The riser at KOP 7 is not visible to eastbound traffic because of a rise in the ground surface. It is partially visible to eastbound traffic looking south when they are directly adjacent to the structure. But the eastbound travelers' attention would be drawn to the dramatic and panoramic view of the La Sal Mountains to the east. This riser would be visible to those traveling westbound on SR-313, but if painted a color that blended into the larger scene; it would not be an intrusion into the view.

The risers would be visible to observers traveling in vehicles at highway speeds, further decreasing the likelihood of intruding into the view of the much larger landscape.


06/26/2013 10:09
KOP 5 313 to W

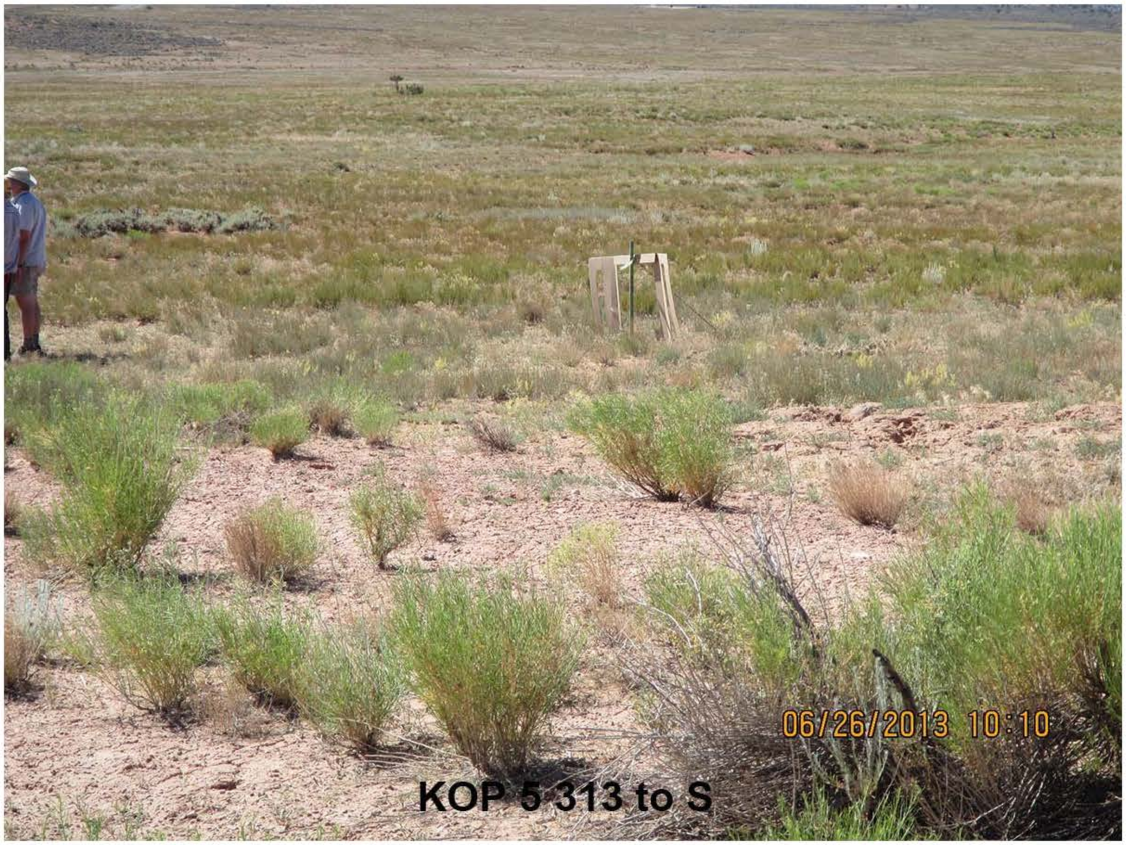

06/26/2013 09:56
KOP 6 313 to SE


06/26/2013 09:53
KOP 6 313 to S

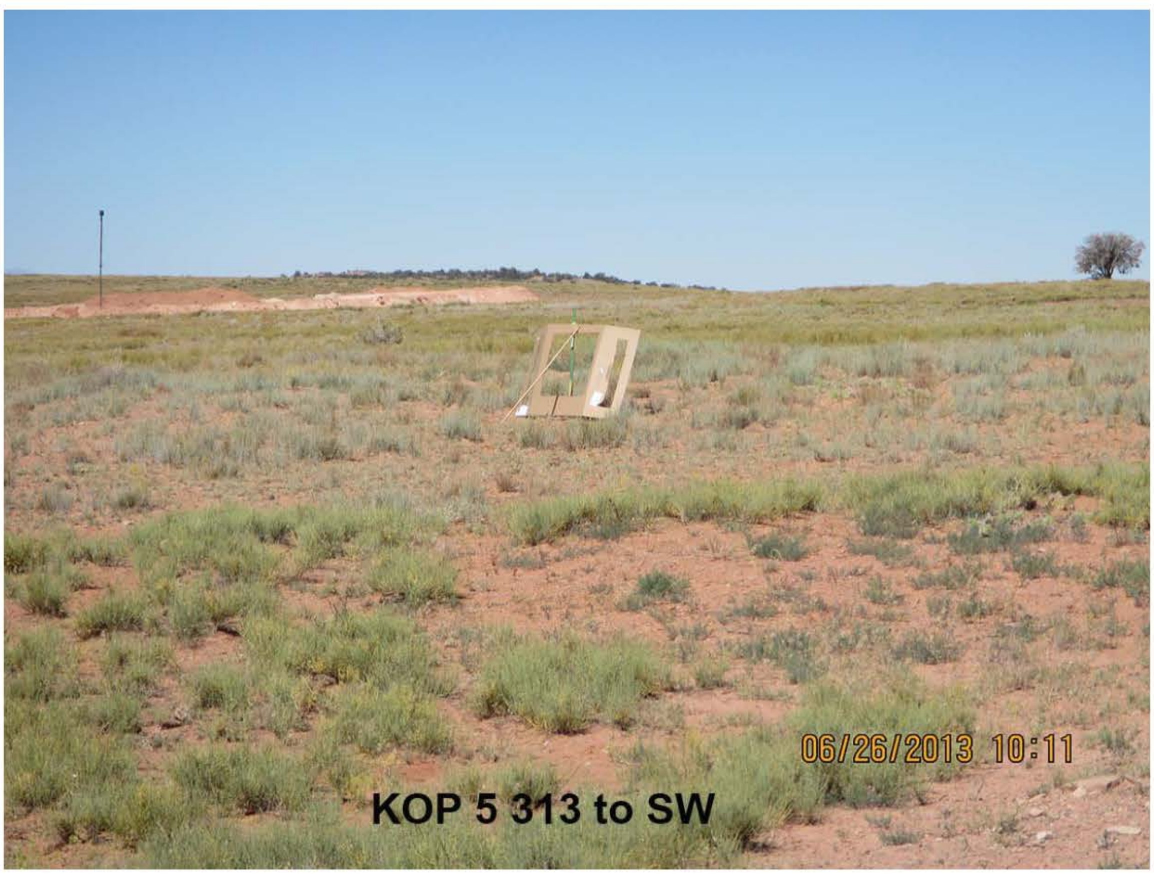

06/26/2013 09:54
KOP 6 313 to W

KOP 7 313 to S

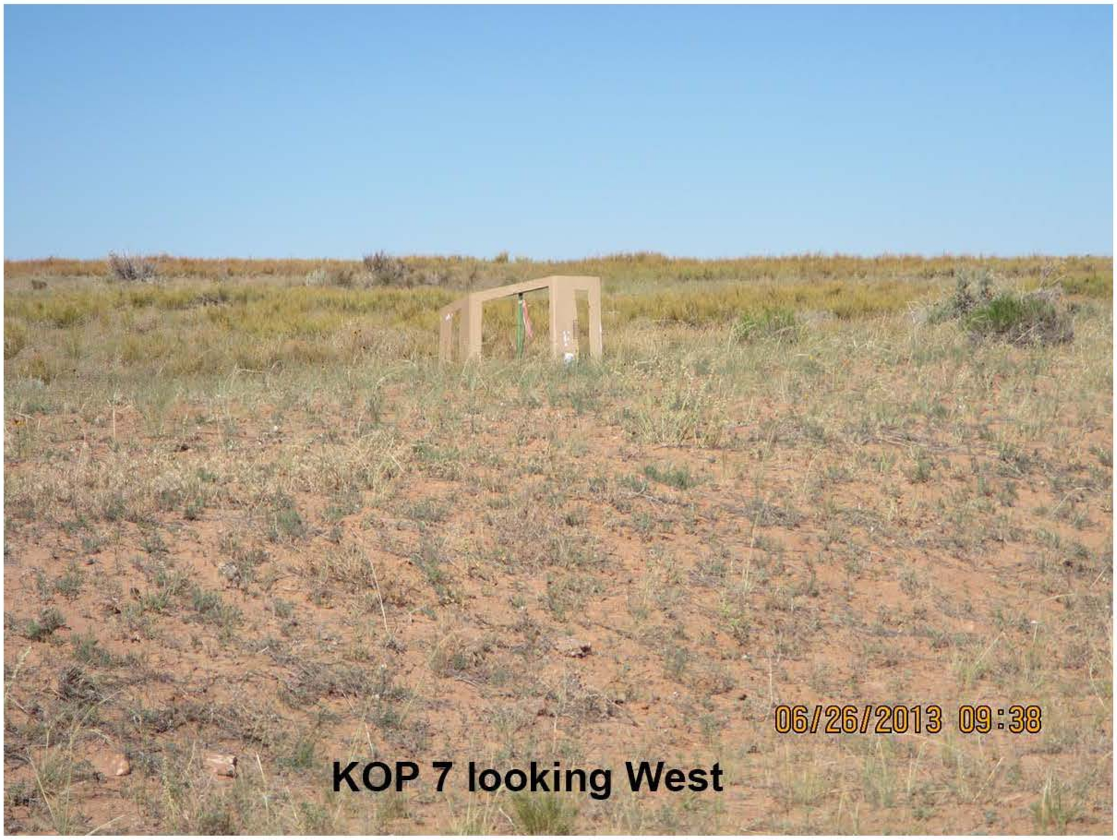
Kop7 313 to SE



KOP 5 313 to S



KOP 5 313 to SW


06/26/2013 09:38
KOP 7 looking West

APPENDIX H

Reclamation Plan

RECLAMATION PLAN

DEAD HORSE LATERAL PIPELINE

Prepared for:

Bureau of Land Management
Moab Field Office
82 East Dogwood
Moab, Utah 84532

Prepared by:

Fidelity Exploration & Production Company
1700 Lincoln, Suite 2800
Denver, Colorado 80203

July 2013

Table of Contents

1. Introduction and Project Overview

Fidelity Exploration & Production Company (Operator) proposes to construct, operate, maintain, and eventually decommission a 126,512-foot 12-inch diameter natural gas pipeline, known as the Dead Horse Lateral, which would transport produced natural gas from the Operator's oil and gas wells in the Big Flat area to a new natural gas processing plant near Blue Hills Road. A booster compressor station would be constructed along the pipeline route to optimize system functionality and facilitate gas flow to the gas processing plant. In addition pig launching facilities and seven aboveground valves will be installed along the pipeline ROW. This reclamation plan has been prepared to lay out reclamation procedures to be followed during construction of the pipeline and during close out of the booster compressor station and gas plant.

The pipeline would be constructed above and below ground across State of Utah and federal lands. It would remain in operation as long as the Operator's producing wells supply sufficient gas to justify its use. The typical life of a productive well may last as long as 30 years.

Buried pipeline construction. The pipeline would be buried for approximately 3.8 miles in Big Flat and 1.6 miles near the intersection of Dubinky Well and Blue Hills Roads. The soils in these areas are anticipated to be sufficiently deep to provide adequate pipe coverage after installation in a trench. Installing a buried pipeline typically requires a temporary construction corridor of 75 feet where the pipeline would be buried adjacent to SH 313 in Big Flat or Dubinky Well Road near Blue Hills Road. Equipment would operate on the side of the trench nearer to the adjacent road. The area immediately adjacent to the pipeline route may require grading and/or blading where the terrain is too rough for placement of equipment. Vegetation would be removed prior to construction of the trench, which would be mechanically cut and excavated with a backhoe or trencher. The top of the trench would be slightly wider than the 3-foot bottom width. Spoils, subsoils, and topsoil would be temporarily placed in the remainder of the 75-foot construction corridor in piles opposite the working side of the trench. Topsoil, as available, would be stored separately from the spoils and placed in piles adjacent to the spoil piles. A pipeline segment would be installed at least 4 feet deep to ensure a minimum cover of 3 feet. After the pipe is lowered in the trench, spoils would be replaced in the trench and compacted. If needed, backfill materials would be obtained from an approved source and brought to the construction area. Extra spoil would be placed adjacent to the trench and spread along the trench. Topsoil would be redistributed on top of the spoils.

Aboveground pipeline construction. The Operator would use a temporary construction corridor up to 50 feet wide where the aboveground pipeline would be installed adjacent to Dubinky Well Road, a designated route, or a non-designated route. In areas where the pipeline will travel cross-country, a 50-foot construction corridor would be located within a 200-foot corridor that has been inventoried for the presence of cultural resources. The exact location of the construction corridor within the inventoried area would be determined in consideration of site-specific environmental conditions, such as the presence of cultural resources, trees, boulders, or bedrock ledges. It may be necessary to blade or grade the surface in some areas to provide safe equipment access. In such areas, the Operator would minimize the level of effort needed and retain as much of the natural vegetation as possible.

The booster compressor station would be constructed on a 3-acre site along the pipeline route north of Bartlett Flat approximately three miles from the Lone Mesa Campground. The proposed gas processing plant would be constructed on a 10-acre site near a large aboveground electric transmission line, northeast of the intersection of Dubinky Well Road and Blue Hills Road and north of a ridge.

This reclamation plan was prepared in accordance with the *Approved Resource Management Plan* (RMP) for the BLM Moab Field Office (MFO), (USDI-BLM, 2008), *The Practical Guide to Reclamation in Utah* (Utah Division of Oil, Gas and Mining, 2001), *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (The Gold Book, USDI-BLM, 2007), and specific guidance from the BLM MFO Authorized Officer (AO).

2. Reclamation Goals

The Operator's reclamation goals are to re-establish a self-sustaining, diverse, vegetation community composed of species native to the region, in sufficient density and diversity that approximates natural, undisturbed vegetation.

For the booster compressor station and the gas plant areas, reclamation goals include:

- Stabilize disturbed areas;
- Restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil;
- Control erosion; and
- Minimize habitat loss, visual loss, and forage loss during the life of the facilities.

For the pipeline ROW, reclamation goals include:

- Return the land to a condition approximating that which existed prior to disturbance; and
- Ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

3. General Project Area Description

General description of the project area provided herein reflects information repeated from the main body of the Dead Horse Lateral pipeline Environmental Assessment (EA). Some of the information may have been paraphrased, a portion of the original text may have been omitted, and technical references have been removed for the sake of brevity.

The reader is directed to the EA document for the comprehensive text and supporting information.

The project area is located in the east-central part of the Colorado Plateau physiographic province, which is a structural element of the Green River Desert and the northern Paradox Basin geologic province, which generally extends to the southeast from the project area and into Colorado. The proposed project area lies within an ecoregion that is dominated by the presence of the Colorado and Green rivers and their tributary canyons, which have been chiefly responsible for the finely divided topography that extends into the project area despite the general aridity of the climate. Ecosystems in or near the project area are tied to the perennial flow of the Colorado River or seasonally variable flows of ephemeral streams, or are dramatically isolated from these watercourses.

Land use in the project area includes intense but seasonal recreational use resulting from visitation to the viewpoints available in the Island in the Sky and DHPSP, camping, off-highway vehicle (OHV) use, and hiking; however, the area has also been historically used for grazing and hydrocarbon production. The Long Canyon field, adjacent to the project area, was discovered in 1962.

3.1. Soils

Soils that would be affected by constructing the proposed pipeline and associated facilities consist primarily of residuum, colluvium, and aeolian materials derived primarily from sandstones and shale. Surface soils are generally underlain by Quaternary colluvial deposits of sand and slope wash, the Jurassic Navajo sandstone, the Triassic Kayenta Formation, the Mancos formation or the Morrison formation. Sandstone bedrock exposures are commonly observed where soils are thin, and exposed bedrock occurs near canyon rims on the upland. Deeper soils are found over the Big Flat anticline, which appears as a grassy plain that extends northwestward from the proposed well locations. Soils derived from Mancos and Morrison shales, found in the northern most section of the project area, are considered sensitive soils. These soils have low soil productivity, low nutrient levels, low permeability, compaction susceptibility and low resilience.

Eleven soil mapping units underlay the proposed pipeline ROW and associated facilities: the Begay-Rizno complex, Rizno-Begay complex, the Rizno-Rock outcrop complex, the Begay-Sazi series, Windwhistle-Begay complex, the Chipeta complex, the Factory-Pastern fine sandy loam, the Mido loamy fine sand, 2 to 20 percent slopes, the Rock outcrop-Arches-Mido complex, the Rock outcrop-Moenkopie association, and the Toddler-Ravola-Glenton families association.

3.2. Vegetation

Primary vegetation communities in the proposed Dead Horse Lateral pipeline project area include pinyon-juniper woodlands, sagebrush and perennial grasslands, desert shrublands, and barren areas. No special status plants, including T&E or Candidate species, exist or have habitat in the project area. Plants in the communities found in the project area are typical of those found in shrub-steppe habitats.

Desert shrubland. Desert shrublands display a sparse mix of low shrubs, forbs, and grasses with large open spaces between the plants. The shrubs may be evergreen or deciduous. They typically have small leaves, frequently have spines or thorns, and develop shallow but extensive root systems to procure rainwater. Desert shrubs are adapted to tolerate extreme drought. The ground between shrubs is typically bare of vegetative growth except after rains when annuals may cover the desert floor. Elevations for this type of vegetative community range from 4,000 to 5,400 feet. Typical shrub species include shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), blackbrush (*Coleogyne ramosissima*), four-wing saltbush (*Atriplex canescens*), Nuttall's saltbush (*Atriplex nuttallii*), mat saltbush (*Atriplex corrugata*), Mormon tea (*Ephedra viridus)*, spiny hopsage (*Grayia spinosa*), horsebrush (*Tetradymia canescens*), and rabbitbrush (*Chrysothamnus nauseosus)*.

Pinyon-juniper woodlands. Colorado pinyon pine *(Pinus edulis)* and Utah juniper *(Juniperus osteosperma)* woodlands are widespread on the Colorado Plateau between 4,700 up to 7,000 feet in elevation. Pinyon trees in the project area are found along the canyon rims and in higher elevations. Junipers are found generally at lower elevations than pinyons, being better adapted to drought conditions and more stressful environments. Drought discourages pinyon tree growth and makes them susceptible to insect damage; however, both trees are generally heat and drought-resistant. Both trees grow slowly and seldom exceed a height of 30 feet. Pinyon trees rarely adjust to physical changes or abuse; however, junipers are fairly hardy and can withstand removal of a large part of its root system. Neither pinyon nor juniper trees re-establish themselves through root sprouts. Seeds are typically eaten by rodents and, consequently, regeneration is slow.

Pinyon-juniper woodlands generally lack vegetative diversity and are associated with desert vegetation. Mature stands are typically characterized by few understory species. Big sagebrush *(Artemisa tridentate)* and other shrubs are typically scattered between the trees. Forbs and grasses are usually dominated by annuals.

Sagebrush and perennial grasslands. Sagebrush and perennial grasslands consist of big sagebrush interspersed with perennial and annual plains grasses. The sagebrush and perennial grassland community generally occurs below 6,000 feet. Grasses typically intergrade upslope with the pinyon-juniper community as elevations rise.

Big sagebrush are rounded, drought tolerant, native shrubs with short branched, woody trunks that grow approximately two feet tall. Sagebrush plants reproduce by seed dispersal, approximately 90 percent of which is dispersed within 30 feet of the parent shrub. Sagebrush increase rapidly when soil is disturbed in its natural habitat. The potential for sagebrush production is limited by the seasonal precipitation patterns typical of the Colorado Plateau, but, where established, sagebrush can live to over 50 years. They are present in the survey area as late-successional sagebrush shrubs that are 30 to 40 years old.

Principal shrub species associated with sagebrush include fourwing saltbush, winterfat *(Ceratoides lanata),* and bitterbrush (*Purshia tridentata*).

Dominant grass species depend on the soil, with sandy sites, such as in the project area, typically supporting species such as Indian ricegrass *(Oryzopsis hymenoides)*, sand dropseed (*Sporobolus cryptandrus*), needle-and-thread grass (Stipa comata), western wheatgrass (*Elymus smithii*), Sandberg bluegrass (*Poa secunda*), and squirreltail (*Sitanion hystrix*). Grasses readily sprout from underground root structures if they remain intact; however, drought conditions may result in the death of perennial grasses and favor annuals like cheatgrass (Bromus tectorum).

4. Reclamation Planning

For the Dead Horse Lateral pipeline project, reclamation along the pipeline ROW will be concurrent with construction. With surface laid pipe and buried pipe concurrent reclamation, minimal planning is required. For the associated facilities to be constructed for operation of the pipeline, including the booster compressor station, the gas plant and the valve/pigging locations, reclamation planning will be required. For the associated facilities predisturbance soil salvage planning should be conducted.

The intent of soil salvage planning is to maintain the biological, chemical, and physical integrity of the topsoil and subsoil, using the following measures:

- Identify and segregate all salvaged topsoil and subsoil based on a site specific soil/vegetation survey.
- Protect all stored soil material from erosion, degradation, and contamination.
- Incorporate stored soil material into the disturbed landscape.
- Seed soils to be stored beyond one growing season, with desired vegetation.

The site specific soil/vegetation evaluation will be utilized to characterize site soils and develop the site-specific soil salvage plan for the booster compressor station and gas plant. Suitable soils have physical and chemical characteristics favorable for plant growth while the incorporation of unsuitable materials in the soil stockpile will impair plant growth and potentially prevent successful reclamation. Variable salvage depth would consider the limitation of construction equipment. When variable salvage depths are required, consideration of the minimum volume of soil required during reclamation would be made in order to provide a sufficient depth of suitable soil across the site. The vegetation assessment, occurrence of weeds and soil types, and transitions will be used to define reclamation success benchmarks.

5. Site Preparation and Construction Operations

The Operator will ensure that construction site preparation will allow the re-establishment of a stable subsurface environment, facilitate reconstruction of natural drainage features and topography, facilitate replacement of salvaged soil and alleviate soil compaction, and minimize soil loss from wind and water erosion, and facilitate the retention of soil biota and attendant physical and chemical properties.

Successful reclamation will be facilitated by limiting the amount of initial disturbance to the minimum amount needed for safe operations. Vegetation removal and the degree of surface disturbance will be minimized wherever possible. High walls and high cut slopes will be avoided.

During pipeline and associated facilities construction stormwater management actions will be taken to ensure disturbed areas are quickly stabilized to control surface water flow and to protect both the disturbed and adjacent areas from erosion and siltation. This may involve the incorporation of specific Best Management Practices (BMPs) including construction and maintenance of temporary silt ponds, silt fences, berms, ditches, and mulching.

5.1. Vegetation management

Construction begins with staking to delineate the area where land disturbance will occur. Construction activities should be controlled to prevent disturbance outside of the staked area. Depending on the vegetation cover type, the first step during construction would be vegetation grubbing; within the associated facilities areas, soil salvage operations will take place at this time as well. The following vegetation management tools will be utilized during construction activities.

- Trees, if present and tall vegetation will be left in place whenever feasible to provide screening.
- Trees and woody vegetation removed from the ROW will be moved aside prior to any soil disturbing activities. Care will be taken to avoid mixing soil with the trees and woody vegetation.
- Grass, forbs, and small woody vegetation, such as sagebrush will be excavated as the topsoil is removed.
- All brush, limbs, crushed stumps and other woody material will be stockpiled separately from the topsoil at the perimeter of the ROW. The stripped vegetation will be respread evenly on the site following topsoil respreading.

5.2. Topsoil management

In areas where the pipeline will be buried, a backhoe or trencher will cut and excavate a trench. The top six (6) inches of soil will be excavated and stored separately from the subsoils and spoil materials. The topsoil will be stored along the trench. When redistributed, spoils and subsoils will be replaced in the trench first with placement of the topsoil within the trench last. This will ensure that the topsoil is placed on the surface to serve as the growth medium for seeding operations.

Grading activities for the associated facilities typically use cut and fill methods to construct a level site according to the dimensions defined on the site plat. Depending on site topography, the amount of grading will vary. The following topsoil management tools will be utilized during construction activities.

- Operations will disturb the minimum amount of surface area necessary to conduct safe and efficient operations. When possible, equipment will be stored and operated on top of vegetated ground to minimize surface disturbance.
- Stockpile slopes will not exceed 5:1 angles (20% slopes) to allow for seeding and minimize erosion.
- Topsoil piles will not be located in drainages.
- On sites where there is not at least an average of 6 inches of topsoil across the site available for stockpiling, soil amendments will be used to augment the available topsoil and improve plant germination and growth. Soil amendments will be agreed to by both the operator and the BLM prior to disturbing the site.
- Earthwork for reclamation will be completed within 90 days of pipeline construction for the pipeline ROW and within six (6) months at the associated facilities locations at facility decommissioning, unless a delay is approved in writing by the BLM authorized officer.
- Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment. If such equipment creates ruts in excess of four (4) inches deep, the soil will be deemed too wet.
- No major depressions will be left that would trap water and cause ponding unless the purpose is to trap runoff and sediment.
- If the topsoil stockpile is not used within six months, it will be seeded or otherwise protected to ensure topsoil integrity and prevent erosion. Before seeding, the stockpile may be scarified along contours to minimize wind and water erosion.

6. Site Stabilization for Associated Facilities

During the operational life of the Dead Horse Lateral associated facilities, including the booster compressor station and gas plant, the sites will be stabilized to control runoff and erosion. Basic site stabilization measures may include some or all of the following:

- Re-grading the site to approximate original contour to the extent practicable;
- Installing rock surface on remaining roadway into location;
- Installation of erosion and sedimentation control measures (stormwater BMPs);

- Control of invasive and noxious weeds.
- Restoring and stabilizing stream channels, drainages, or other surface water features to exhibit similar hydrologic characteristics to natural functioning systems.
- Repairing or upgrading range management facilities (e.g. fence repair or cattle guard installation).

7. Final reclamation

7.1. Definition and success criteria

Final reclamation measures shall result in restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. The goal of final reclamation is to reclaim disturbed areas and ensure that reclamation standards are met. Final reclamation will be judged successful when the BLM authorized officer determines that:

1. The original landform has been restored for all disturbed areas including pipelines, associated facilities, and roads.
2. A self-sustaining, vigorous, diverse, native (or otherwise representative of baseline conditions) plant community is established on the site, with a density sufficient to control erosion and invasion by non-native plants and to reestablish wildlife habitat or forage production.
3. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.
4. No single species will account for more than 30% total vegetative composition (or as specified by the AO) unless it is evident at higher levels in the adjacent landscape.
5. Permanent vegetative cover will be determined successful when the basal cover of desirable perennial species is at least 75% of the basal cover on adjacent or nearby undisturbed areas where vegetation is in a healthy condition; or be representative of baseline survey conditions for a specific well location.
6. Plants must be resilient as evidenced by well-developed root systems and flowers. [Shrubs, will be well established and in a “young” age class at a minimum (therefore, not comprised mainly of seedlings that may not survive until the following year).]
7. Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.

8. The site is free of State- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil.

9. Invasive and non-native weeds are controlled.

7.2. Procedures

The BLM will be notified 24 hours prior to the commencement of any final reclamation operations. Fidelity will prepare and submit a Notice of Intent (NOI) Sundry Notice to BLM for formal approval of reclamation actions. Any deviations from final reclamation procedures noted in this plan will be presented in the Sundry Notice. An appropriate Notification of Completion will be provided to BLM once the AO has determined that final reclamation activities have been successful.

Final reclamation operations will include the following:

- All surface facilities associated with the gas plant, booster compression station and valves/pigging locations would be removed unless otherwise specified by the AO. All waste materials transported and disposed of off-site, must be placed in an authorized disposal facility in accordance with all local, state and federal requirements.
- Final reclamation actions will be completed within 6 months of pipeline construction or associated facilities decommissioning, weather permitting.
- All disturbed areas, including pipelines and associated facilities will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape.
- Salvaged topsoil will be respread evenly over the entire disturbed site to ensure successful revegetation.
- To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, woody debris, and large rocks over recontoured cut and fill slopes.
- Water breaks and terracing will only be installed when absolutely necessary to prevent erosion of fill material. Water breaks and terracing are not permanent features and will be removed and reseeded when the rest of the site is successfully revegetated and stabilized.
- Final abandonment of pipelines and flowlines will involve flushing and properly disposing of any fluids in the lines. Buried pipelines may remain in place.
- All surface lines and any lines that are buried close to the surface that may become exposed in the foreseeable future due to water or wind erosion, soil movement, or anticipated subsequent use, must be removed.

Seedbed Preparation and Seeding:

- Initial seedbed preparation will consist of recontouring to the appropriate final reclamation standard. Where soil depth allows, compacted areas to be seeded will be ripped to a minimum depth of 6 inches, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified and left with a rough surface. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration .
- If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to loosen up the soil and create seed germination micro-sites.
- Seeding will be conducted no more than two weeks following completion of final seedbed preparation.
- The Operator will utilize a certified weed-free seed mix that when fully established, will provide a self-sustaining plant community that is reflective of pre-disturbance vegetation, or as specified by the AO. Because of the varying soil and site conditions found along the pipeline ROW, two certified weed-free seed mixes were designed by BLM (shown below). The sagebrush/perennial grassland seed mix will be used on the majority of disturbed surfaces. Where more droughty and saline soils are encountered, the desert shrubland seed mix will be utilized.

Sagebrush/Perennial Grassland Seed Mix

Seed: Common Name	Seed: Scientific Name	Broadcast Application Rate (lbs/acre)
Indian Ricegrass	Oryzopsis hymenoides	3
Blue Grama	Bouteloua gracilis	5
Bottlebrush Squirreltail	Sitanion hystrix	1
Galleta	Hilaria jamesii	2
Fourwing Saltbush	Atriplex canescens	2
Winterfat	Ceratoides lanata	4

Desert Shrubland Seed Mix

Seed: Common Name	Seed: Scientific Name	Broadcast Application Rate (lbs/acre)
Indian Ricegrass	Oryzopsis hymenoides	3
Galleta	Hilaria jamesii	2
Shadescale	Atriplex confertifolia	2
Mat Saltbush (if it is available)	Atriplex corrugata	2
Nuttall's saltbush (if it is available)	Atriplex nuttallii	2

- The application rates shown in the tables are based on 45 pure live seeds (PLS) per square foot, drill-seeded to a depth of 0.25 to 0.5 inch, which is the method that will be used where feasible. In areas that will not be drill-seeded, the seed mix will be broadcast-seeded at twice the application rate shown in the table. If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.
- No seeding will occur from April 15 to September 15. Fall seeding is preferred and will be conducted after September 15 and prior to ground freezing. Shrub species, if necessary will be seeded separately and will be seeded during the winter. Spring seeding will be conducted after the frost leaves the ground and no later than April 15.
- To help mitigate the contrast between the established perimeter vegetation and the newly established vegetation, sites will be seeded five feet further outside the disturbed area.
- Seed tags will be provided to the AO prior to initiation of seeding activities.

<u>Erosion Control and Mulching</u>:

- Where applicable, the mitigation techniques such as surface roughening and mulching will be used to keep water on site, thereby enhancing re-vegetation of the site and controlling erosion and runoff.
- All erosion control devices and materials will be installed and maintained to be fully functional until revegetation is determined successful by the BLM.
- Silt fencing, waddles, hay bales, and other erosion control devices will be used on were necessary to prevent soil movement from water erosion.
- Mulch, silt fencing, waddles, hay bales, and other erosion control devices will be used on areas at risk of soil movement from wind and water erosion.
- Mulch will be used if necessary to control erosion, create vegetation micro-sites, and retain soil moisture and may include hay, small-grain straw, wood fiber, live

mulch, cotton, jute, or synthetic netting. Mulch will be free from mold, fungi, and certified free of noxious or invasive weed seeds.

- If straw or hay mulch is used, it will contain fibers long enough to facilitate crimping and provide the greatest cover.
- The Operator may investigate the use of hydromulch to facilitate and enhance reclamation efforts, if necessary.

<u>Weed Control</u>
Construction of the pipeline and associated facilities has the potential to transport, establish, and/or expand populations of noxious weeds. During and following construction activities, disturbed areas will be monitored for the presence of noxious weed infestations. To minimize distribution of weeds, construction contractors will be required to have equipment arrive at construction sites in a clean condition, free of weeds and soil from previous sites. Also, construction equipment and vehicles will not be allowed to drive through weed-infested areas.

Aggressive, rapid re-vegetation of disturbed areas effectively reduces the potential for noxious weed invasions. Drill seeding will be employed on the majority of disturbed areas within the project area to:

- Ensure prompt re-growth of desirable plant species;
- Reduce the potential for proliferation of noxious weeds;
- Promote vigorous stands of grasses, which can effectively compete with noxious weeds for growing space, nutrients, and soil moisture; and
- Maintain a certified weed-free seed mix for re-vegetation purposes.

The operator will periodically inspect the pipeline ROW and other disturbed areas for noxious weed growth during the first two years following disturbance activities. If noxious weeds are identified, they will be promptly treated and controlled prior to the plant setting seeds. The operator will promote spot spraying of individual plants as the principal method of control, rather than broadcast spraying of large areas.

Herbicide application shall be:

- In compliance with all pertinent state and federal regulations.
- With only those herbicides registered and approved by the U.S. Environmental Protection Agency (EPA).
- In strict compliance with application rates and application techniques specified on EPA approved label instructions.
- Applied only by licensed applicators or licensed supervisors.
- In strict observance of all laws and regulations governing herbicide handling, storage, disposal, and spill cleanup.
- Mixed without the use of oil carriers with the herbicide.

Prior to application of herbicide spray on federal surface, a Pesticide Use Proposal (PUP) will be submitted to the BLM for approval.

8. Monitoring and Maintenance

Monitoring will be performed to ensure timely achievement of the long-term reclamation goals, to document accomplishments in achieving those goals and identify adaptive management needs. The Operator proposes the following monitoring components.

- Reclaimed areas will be monitored semi-annually. Actions will be taken to ensure that reclamation standards are met as quickly as reasonably practical and are maintained during the life of the permit.
- Reclamation monitoring will be documented in an annual reclamation report submitted to the authorized officer by May 1. The report will document compliance with all aspects of the reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or will be taken to meet the objectives and standards. Annual reports will not be submitted for sites approved by the authorized officer in writing as having met stabilization or final reclamation standards.
- The AO will be informed when reclamation has been completed, appears to be successful, and the site is ready for final inspection.
- The Operator will update the plan, if needed, to incorporate results of previous reclamation efforts.
- In order to inspect and operate the pipeline during normal or emergency operations, it may be necessary to drive, park, and operate equipment on restored vegetation within the previously disturbed area. Damage to soils and vegetation will be repaired and reclaimed following use.

Reclamation maintenance ensures that re-vegetation, site stabilization, and other measures function properly until reaching reclamation success. Based on the climatic conditions and lack of an appropriate volume of vibrant topsoil, successful reclamation within the project area may require a period of 3 to 5 years. In order to maintain this timeline, regular reclamation maintenance may be necessary to identify and solve potential reclamation issues. Reclamation monitoring, as described above, will provide annual feedback on whether to conduct special reclamation maintenance inspections and develop site-specific reclamation maintenance prescriptions.

Adaptive management strategies will allow addressing issues such as vegetation failure, erosion, or weed infestations to maintain a successful reclamation trend. Reclamation maintenance techniques and site specific maintenance prescriptions may include, but not be limited to:

- Inter-seeding or spot seeding;
- Reseeding;
- Fertilizer or other soil amendment application;
- Weed control;
- Compaction relief;
- Erosion control devices and BMPs;
- Wildlife and/or livestock exclusion fences; and
- Snow fences for collecting moisture.

APPENDIX I

Construction and Site Diagrams

Figure 1
n Schematic - Plan View Buried Pipeline
Adjacent to SH 313 in Big Flat
Dubinky Well Road near Blue Hills Road

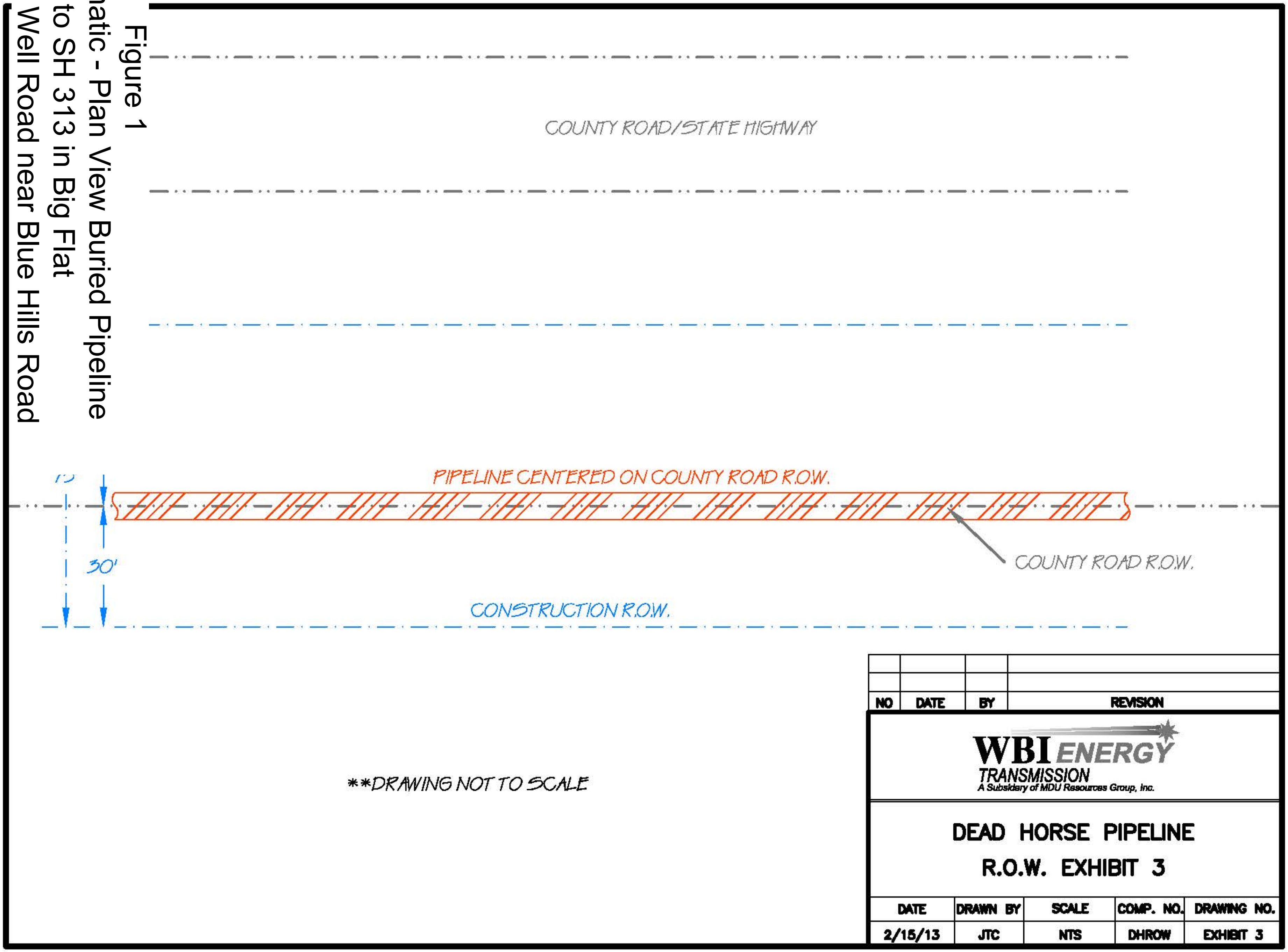


Figure 2
on Schematic - Aboveground Pipeline
djacent to Dubinky Well Road

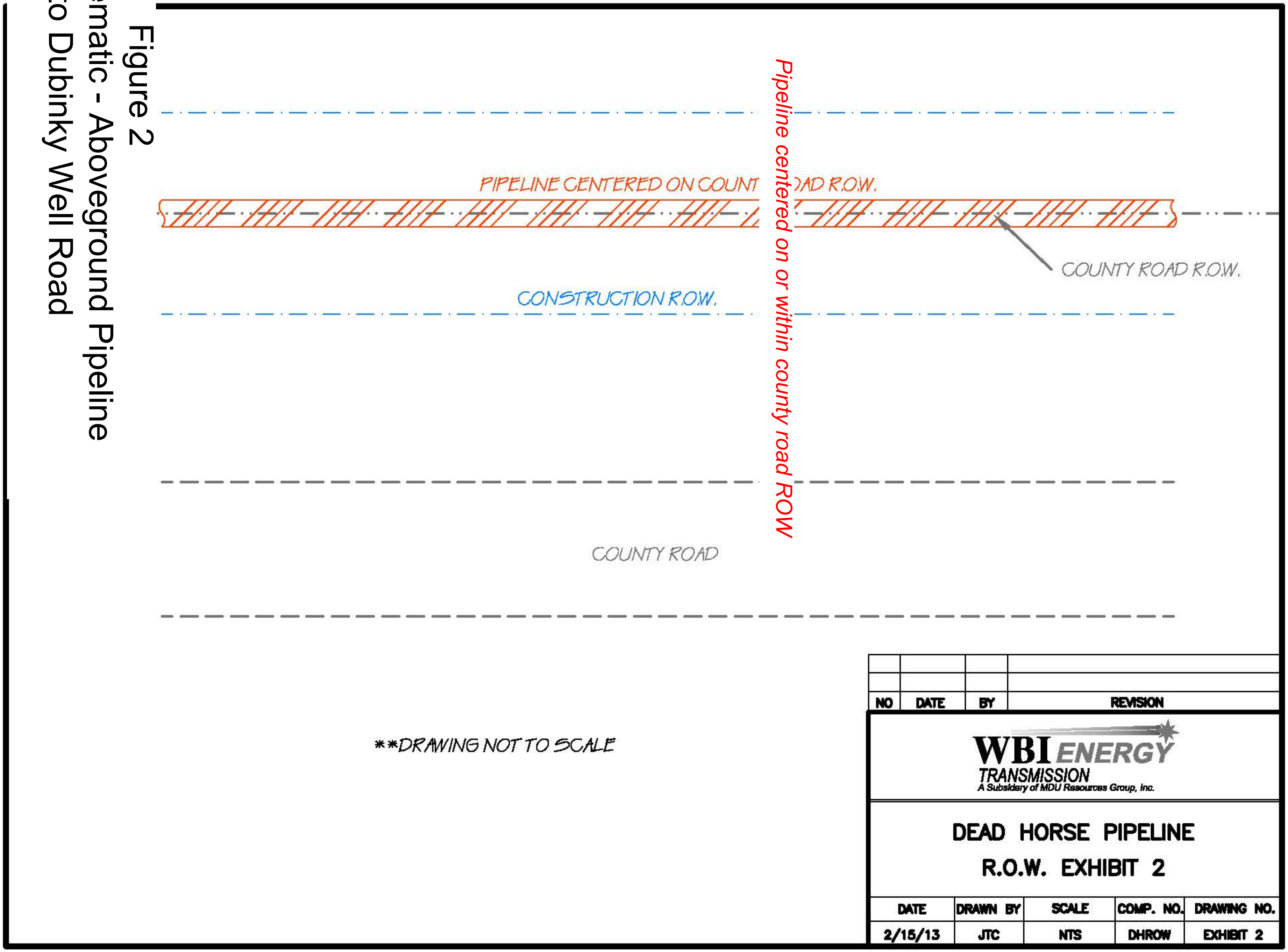
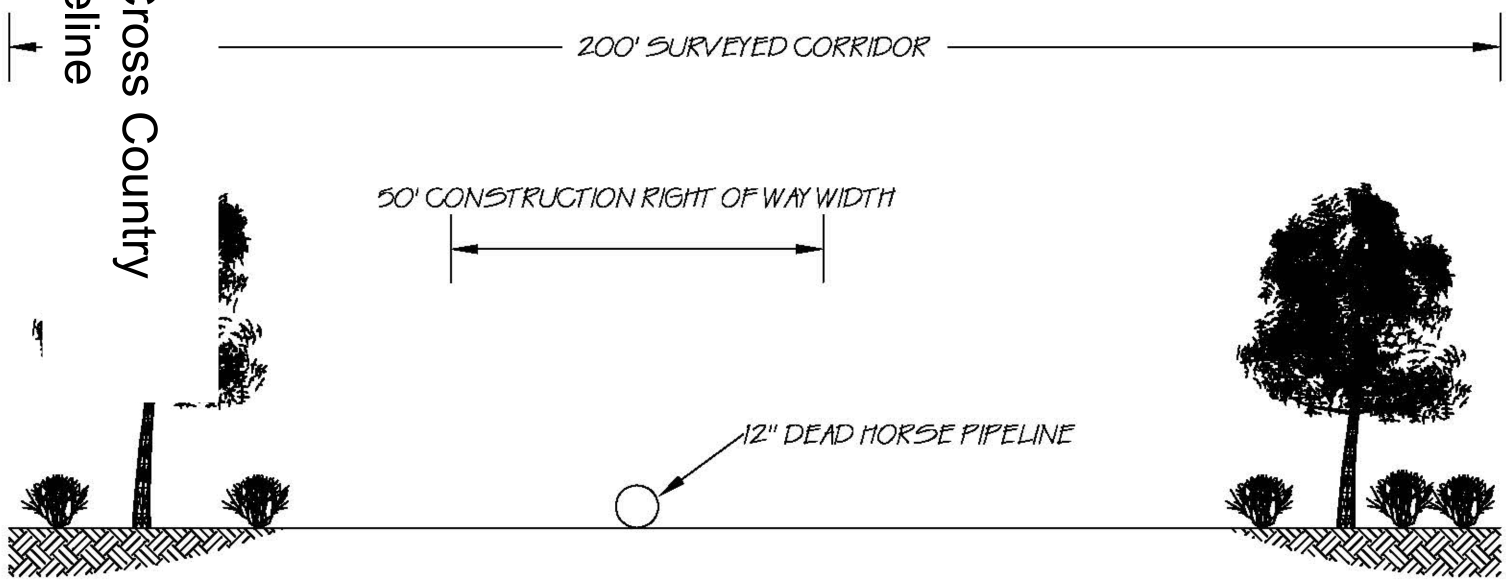


Figure 3
ction Schematic - Cross Country
Aboveground Pipeline



**DRAWING NOT TO SCALE

NOTES:
1. CONSTRUCTION RIGHT OF WAY CAN MOVE WITHIN THE 200' SURVEYED CORRIDOR.
2. CONSTRUCTION R.O.W. WILL NEVER EXCEED 50'

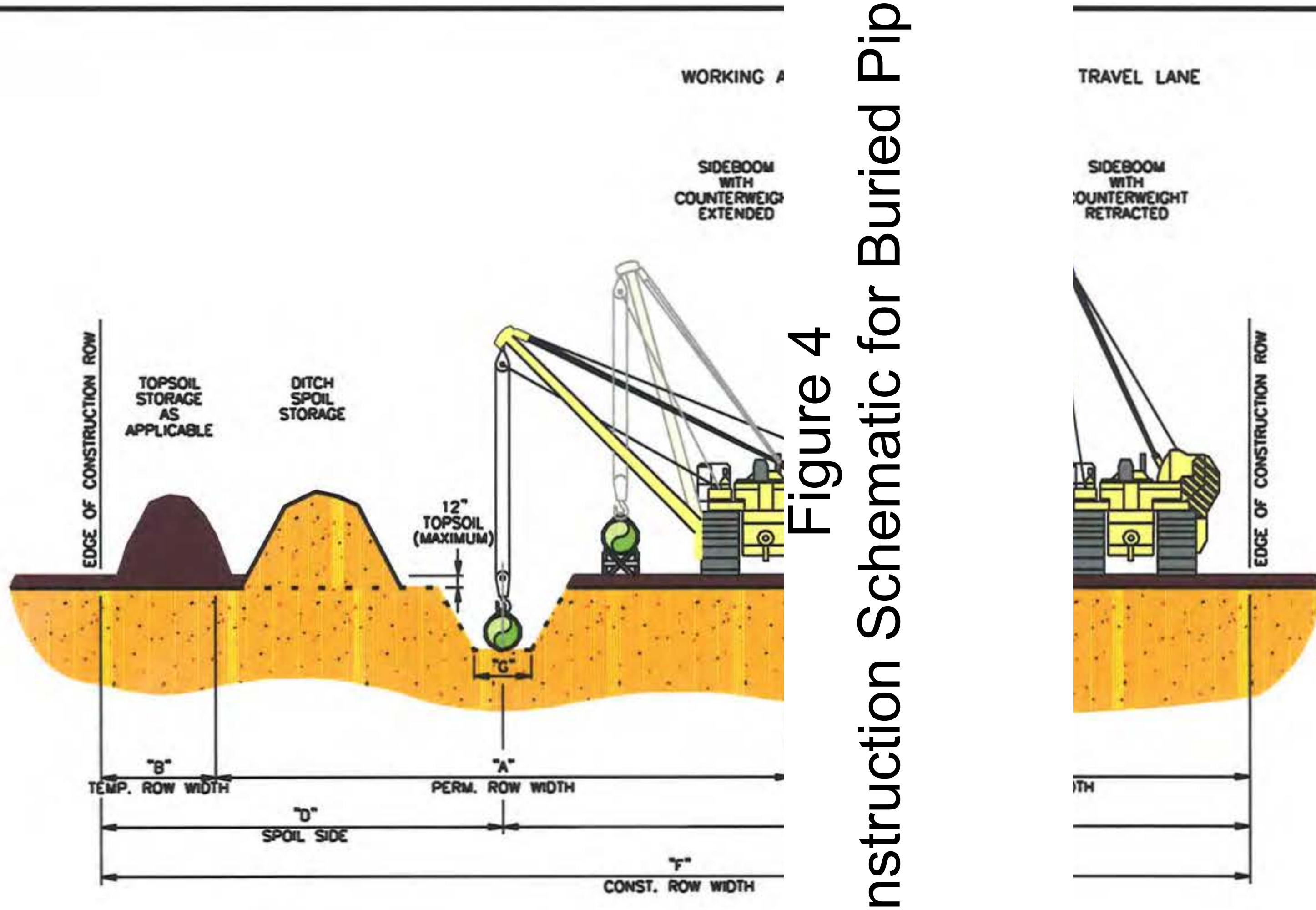
NO	DATE	BY	REVISION

WBI ENERGY TRANSMISSION
A Subsidiary of MDU Resources Group, Inc.

DEAD HORSE PIPELINE
R.O.W. EXHIBIT 1

DATE	DRAWN BY	SCALE	COMP. NO.	DRAWING NO.
2/15/13	JTC	NTS	DHROW	EXHIBIT 1

Figure 4
Construction Schematic for Buried Pipeli



DRAWING ASSUMES TYPE "B" SOIL

ROW Dimensions (feet except for diameter which is inches)							
Diameter Pipe	A	B	C	D	E	F	G
12"	40	5	30	25	50	75	3
16"	40	10	40	30	60	90	3
24"	50	10	40	35	65	100	4
30"	50	10	40	35	65	100	5
36"	50	10	40	35	65	100	5
42"	60	10	40	40	70	110	6
48"	75	10	35	47.5	72.5		

The INGAA Foundation

MAINLINE CONSTRUCTION
NON-PARALLEL CONSTRUCTION
RIGHT-OF-WAY

NO.

APPR.

WILLBROS ENGINEERING/EPC

DRAWING NUMBER: STD-INGAA-001A

SHEET: 1 OF 1

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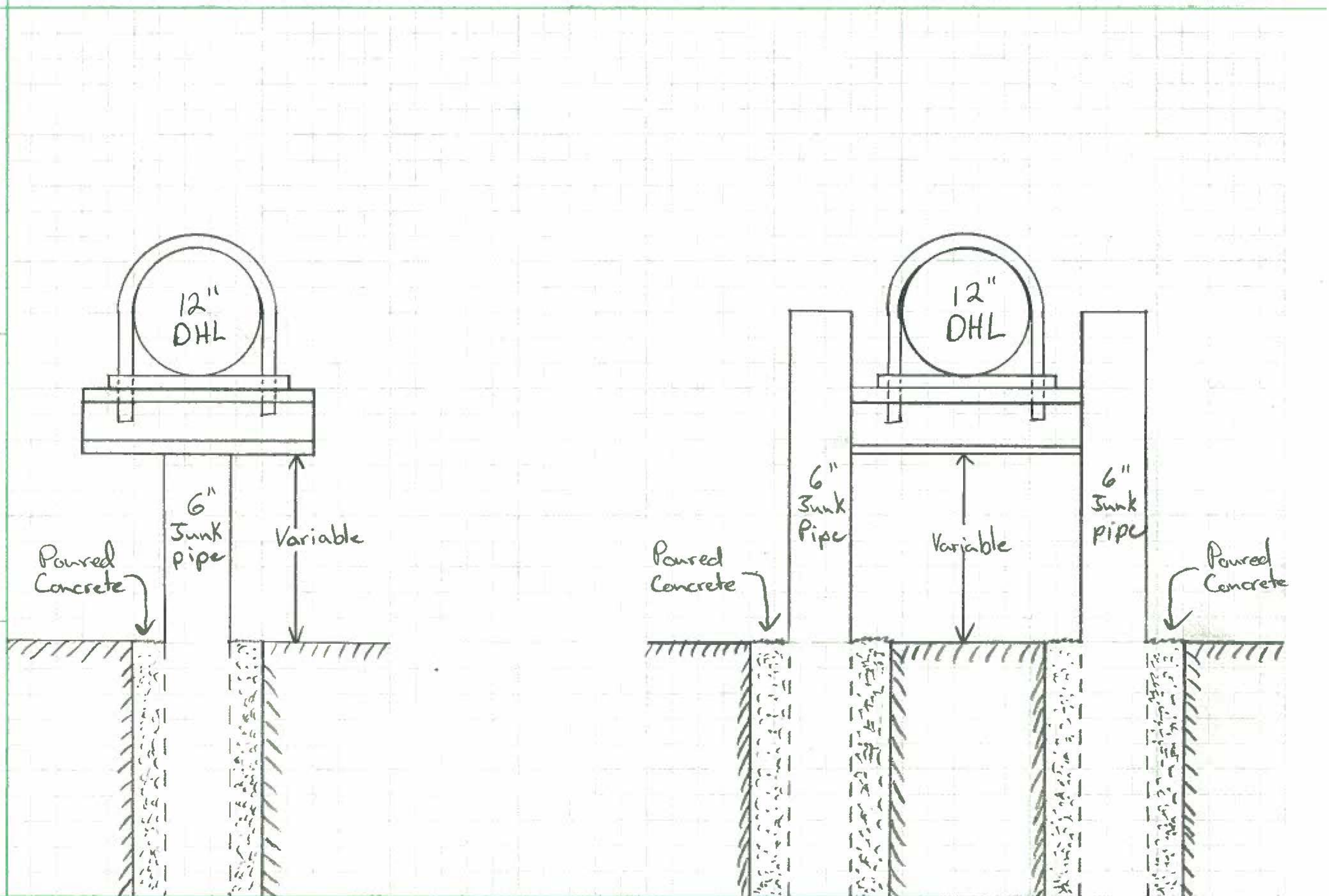


Figure 5
Pipe Supports Schematic

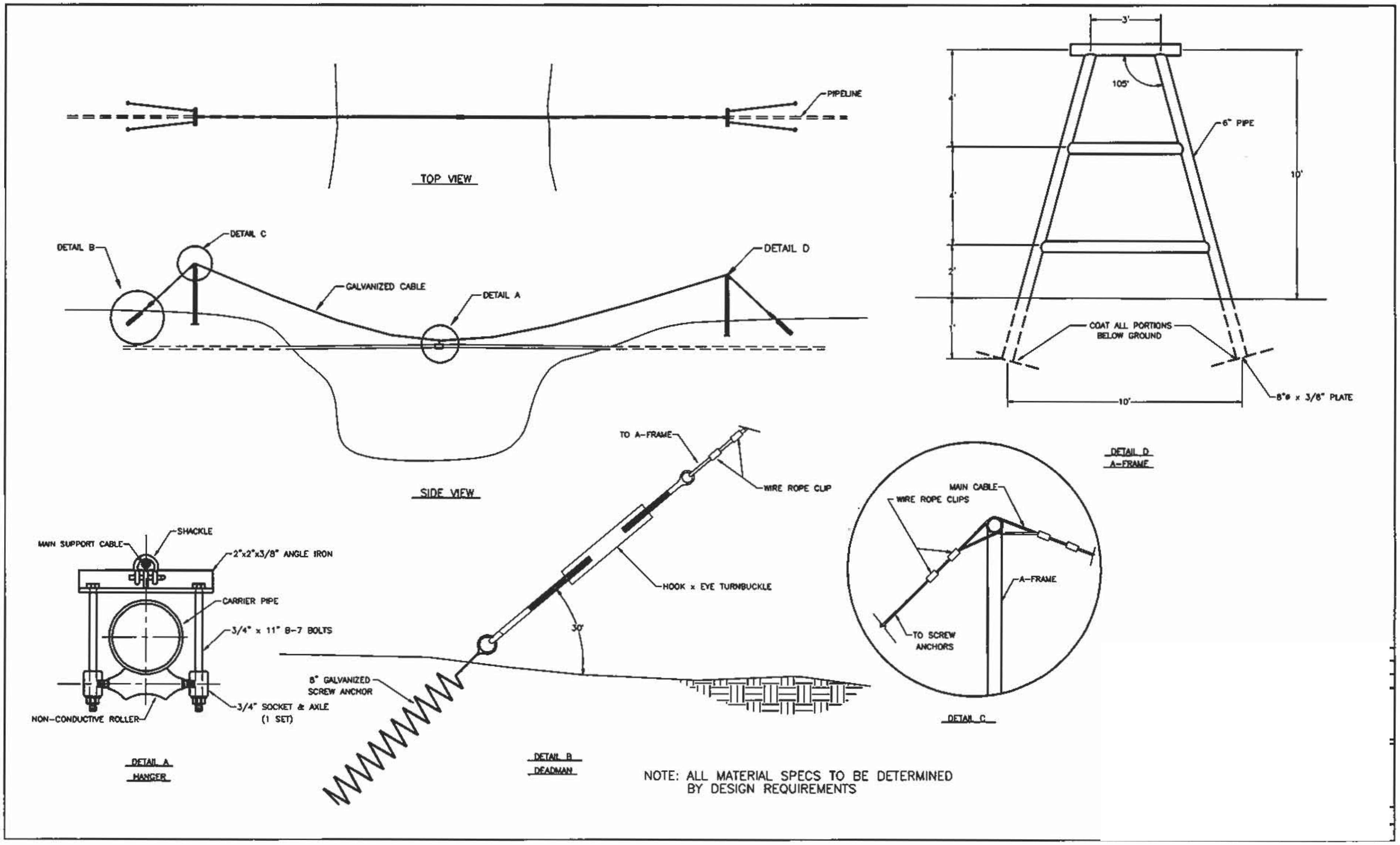
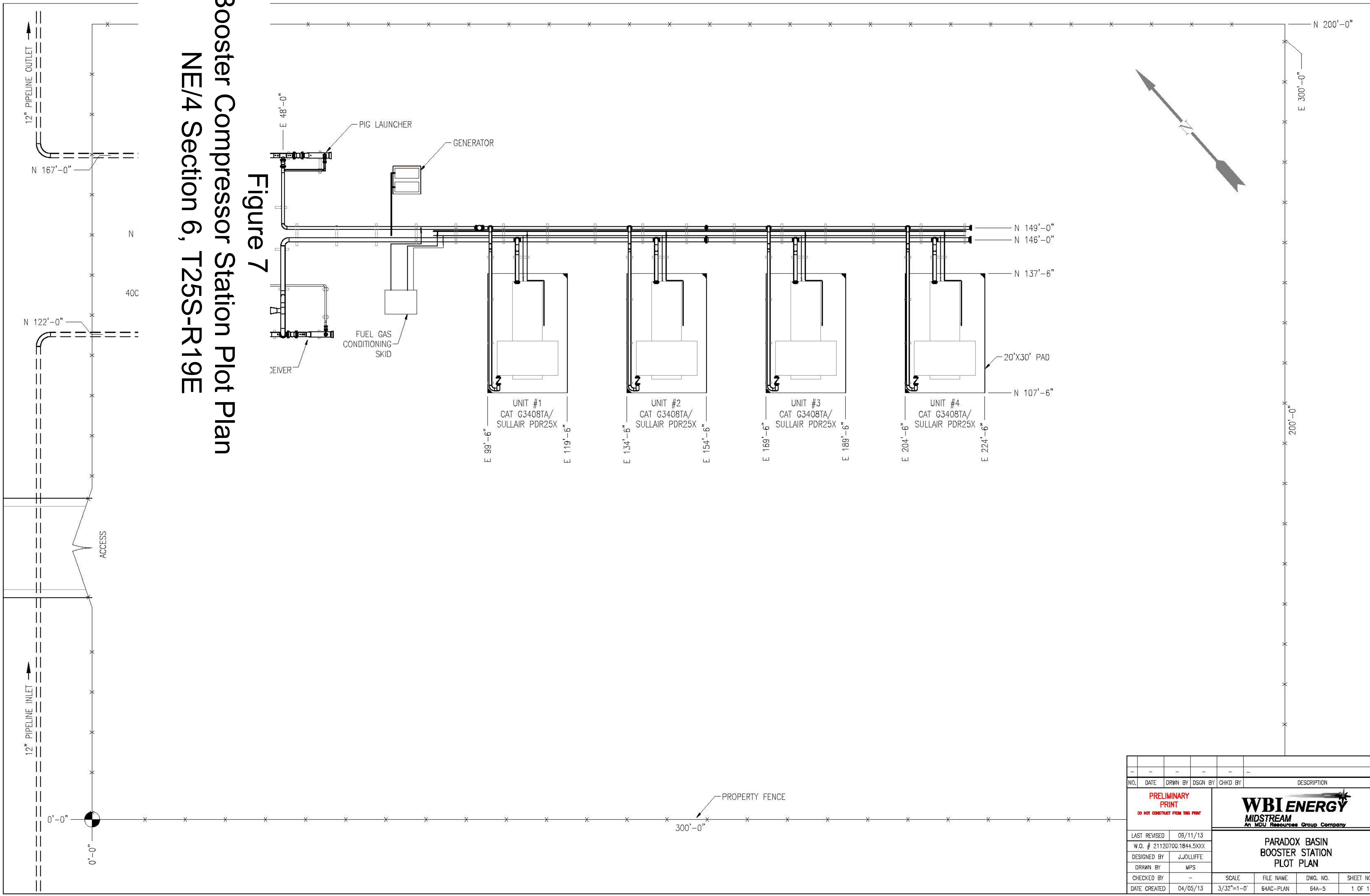


Figure 6
Spanned Drainage Crossing with A-Frame Supports

Figure 7
Booster Compressor Station Plot Plan
NE/4 Section 6, T25S-R19E



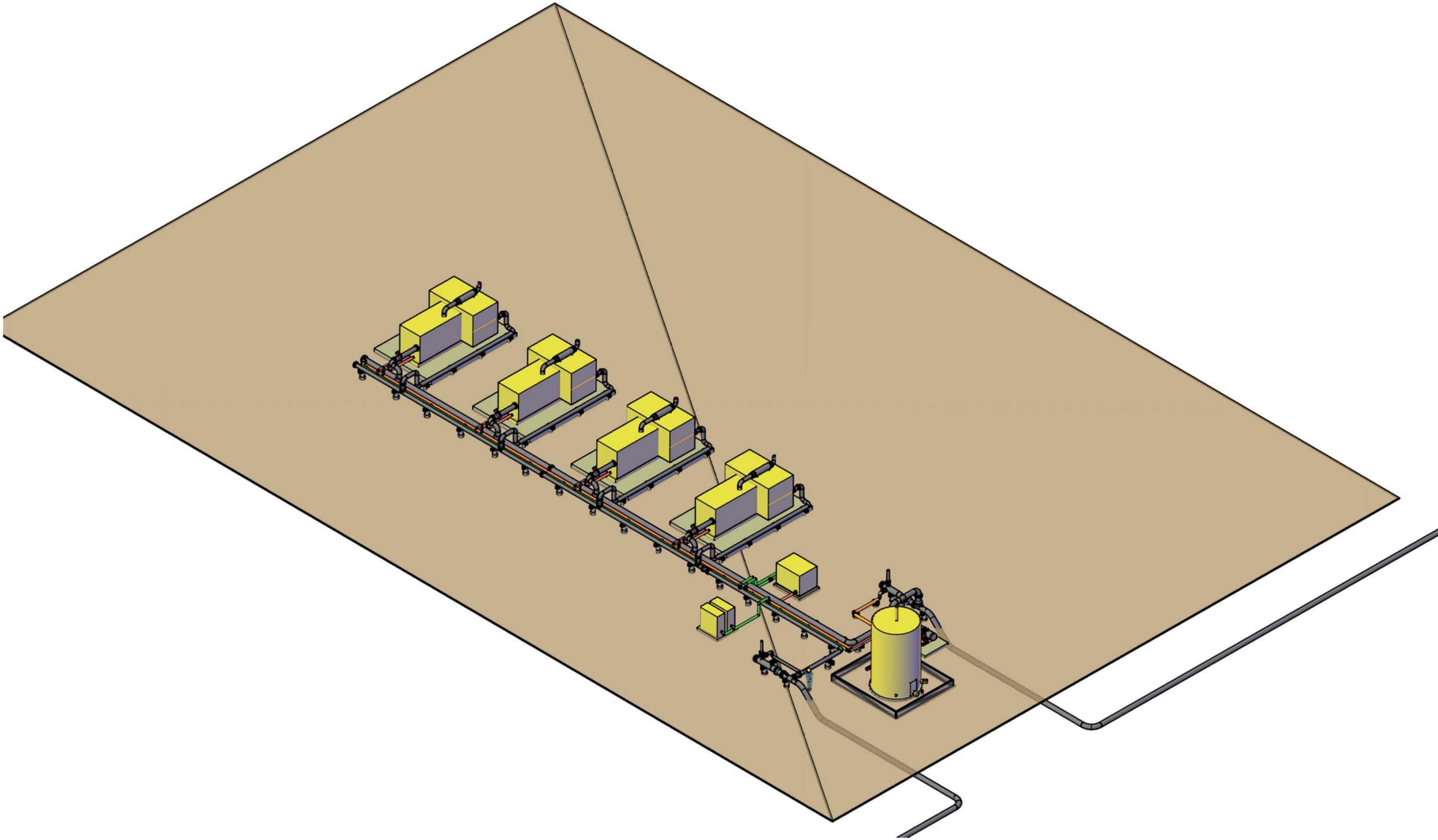


Figure 9
Typical Compressor Housing - Booster Compressor Station
NE/4 Section 6, T25S-R19E

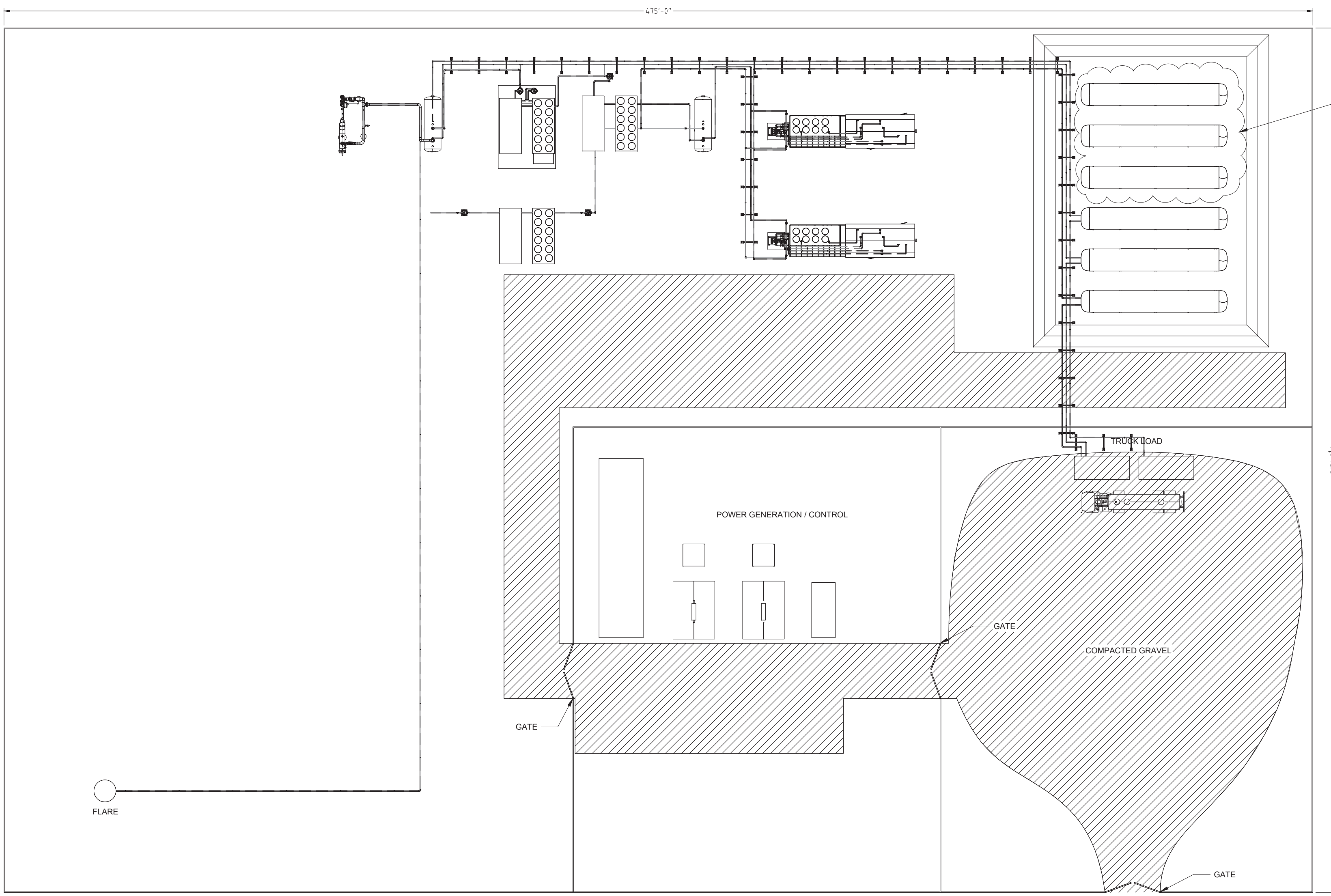


Figure 10
Gas Plant - Plan View
Sections 20 and 29, T23S-R19E

MOAB - FIDELITY GAS PLANT GENERAL ARRANGEMENT	rk mechanical	This document is confidential and proprietary information of RK Mechanical, Incorporated. The receiving party is hereby notified that disclosing, copying and/or distributing the contents of this information is strictly prohibited without the expressed written consent of RK Mechanical, Incorporated.	DRAWN BY JLUEBBERS / DRAWING NUMBER N/A	DATE DRAWN 6/26/2013 / PROJECT NUMBER 3710

FILENAME: M:\RKE-OPS\2013\3710 - Moab Gas Plant\1100.000 CAD\MOAB-FIDELITY GAS PLANT\Constructs\PIPE\3D\Site_Layout_rB.dwg

FORM: MCS-36x24.dwg | M:\RKE-OPS\2013\3710 - Moab Gas Plant\1100.000 CAD\MOAB-FIDELITY GAS PLANT\Constructs\PIPE\3D\Site_Layout_rB.dwg [PLAN VIEW GA] | PLOTTED: Wednesday, June 26, 2013 1:44:51 PM | BY: John Luebbers

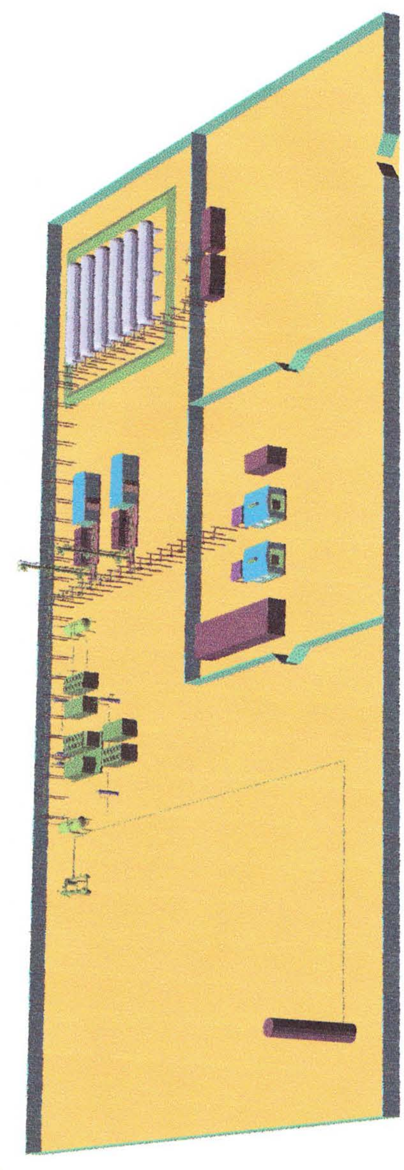


Figure 11
Gas Plant 3D View

APPENDIX J – RESPONSE TO PUBLIC COMMENTS

Source	Comment	Response
General Comments		
1. State of Utah	The State of Utah supports granting Fidelity Exploration and Production Company an amended ROW to construct a gas pipeline and market gas produced from the Cane Creek Unit…The proposal maximizes the ultimate recovery of oil and gas consistent with Utah law, which seeks to minimize the waste of oil and gas resources and limit the flaring of natural gas…about 1.6 billion cubic feet of gas has been flared without the opportunity to be marketed to end users. At an average annual price of $3.16 for the period from 1991 to 2012, over 5.2 million dollars of revenue was not realized. In times of budget difficulties at the state and federal, all reasonable sources of revenue should be encouraged…The continued development of Big Flat-Hatch Point shows how recreation and responsible energy development can co-exist and thrive in the same location.	The comment is acknowledged. As noted in the EA Section 1.3 Need for the Proposed Action, the proposal is also consistent with federal law.
2. Jason Blake	A gas gathering pipeline is long overdue in the big flat area and should	The comment is acknowledged.

Source	Comment	Response
	be expedited. Flaring natural gas from producing wells is a waste of usable energy and detrimental to the environment.	
Project Description – Proposed Action		
3. Sierra Club	The BLM must specify how it will monitor Operator employees' adherence to instructions prohibiting illegal collection or destruction of cultural or paleontological resources" and "not to exceed speed limits or 20 miles per hour on any unpaved road during construction or normal daily activities." Will penalties be imposed for infractions? If so, in what form? Given the absence of any discussion on this issue, it appears that the BLM will simply repeat in the EA what it has been told by the Operator, without establishing either an agency or independent monitoring system.	The BLM would periodically monitor the project from beginning to end. During the duration of the project, compliance inspections would be conducted by the BLM to ensure that all requirements are being met. The Operator has committed to provide funding for an independent 3rd-party contractor who will work directly for the BLM. The BLM will require the monitor to be present on-site continually while construction operations are taking place to ensure compliance with all conditions of approval, stipulations of the ROW grant, and appropriate regulations. The BLM would require the monitor to conduct daily pre-work meetings to review these requirements. The monitor would be required to contact the BLM staff to provide frequent updates as to compliance status. If the construction operations do not conform to the requirements, the monitor would be granted authority from the BLM to stop construction until the matter at issue is resolved. The Operator has committed to prohibiting staff and contractors from illegal collection or destruction of cultural or paleontological resources. In addition, the Operator has committed to employing biological, cultural, and paleontological monitors who would perform their duties in conformance with direction received from the BLM. Additional information has been added to Section 4.3.1.12 of the EA to clarify how monitoring would be conducted.

Source	Comment	Response
4. Sierra Club	It is incumbent on the BLM to more fully understand future potential in order to justify granting approval for a 12 inch pipeline. The EA relies on unknown data in terms of gas volumes, thus a 12 inch pipeline cannot be justified at this time. The BLM cannot simply say that it "does not speculate as to how much natural gas may be produced...." (p.13) The BLM has to have a reasonable and scientific-based explanation of natural gas production in the area in order to both understand the Operator's request for a 12 inch pipeline and for moving ahead with approving a pipeline of that size, especially when approval already exists for a 6 inch pipeline.	A number of variables affect the volume of gas that can be transported by a given pipeline, including pipeline diameter, operating pressure, and the location at which pressure is applied. It is a matter of engineering efficiency to design a pipeline to exceed the anticipated stresses to which it may be subject, while being able to accommodate varying operating conditions, such as transport volume and operating pressure, over the functional life of the pipeline. Wells that would be served by this pipeline exhibit very high initial production rates which decline rapidly over the first year or two of production until stabilizing at a much lower rate of decline. A properly designed pipeline would be able to accommodate surges in production volume associated with newly completed wells. To minimize resource impacts, including those resulting from flared natural gas, it is in the interest of the public for the pipeline to be capable of transporting all of the gas that is produced from the area to market. An under-designed pipeline would result in similar construction impacts, but would not fully mitigate the range of impacts resulting from flared natural gas that are currently occurring.
5. Sierra Club	No independent analysis is offered to justify the size of the pipeline, its integrity and security, and the components of the booster and gas processing stations... One result of this is an absence of analysis of the intensity of impact, not simply the type of impact, that the pipeline and its construction would cause.	See response to comment #4. The BLM is not obligated to perform an independent analysis of the size of the proposed pipeline or the components needed to operate the pipeline and transport the gas to market. The pipeline would be constructed to meet or exceed accepted industry standards and in compliance with all applicable regulatory guidelines (UAC Rule 746-409.Pipeline Safety). Details are described in Section 2.2.2. Similarly, the equipment needed to operate the pipeline, such as compressors and generators, are standard equipment typically needed to operate a pipeline. The BLM considers the inclusion of the proposed equipment that would be installed to operate the pipeline a

Source	Comment	Response
		reasonable and necessary component of Alternatives A and C. In addition, the environmental protection measures included with Alternatives A and C are designed to minimize impacts to resources. Intensity refers to the severity of an impact. The evaluation of intensity in the case of the proposed pipeline and infrastructure would be evaluated by the BLM regardless of the diameter of the pipeline and the components of the infrastructure. As described in 40 CFR 1508.27(b), the evaluation of intensity of an impact considers 10 aspects of an action. The comment did not identify aspects of the analysis that may not meet the criteria.
6. Sierra Club	The Operator is saying concrete supports will be utilized ("Certain points of the above - ground pipeline will either be restrained on supports concreted into the ground...." (Appendix D, 2b, no pagination). In addition, the Operator now says "Pipeline supports will be used as necessary in areas where geographic features prevent long sections of pipe from maintaining contact with the ground." (Appendix D, 3b, no pagination) What is the nature of these supports? How many will there be over the length of the pipeline? Where specifically will they be installed? How will their integrity be maintained? Will every support be embedded in concrete? What is the maximum height of the proposed supports? This	Details of the construction and use of supports are provided in the EA in Section 2.2.3, page 23 "Aboveground pipeline construction" and page 24 "Wash crossings." The pipeline would be laid directly on the ground surface for most of its length. As noted in Section 2.2.3, rocks may be moved to allow placement on the surface where terrain conditions would otherwise present challenges to surface installation; therefore, it is not possible to disclose specific locations where supports would be used along the entire length of the pipeline route. The Operator would use supports across larger washes, including Dubinky Wash. The supports would be secured into the ground with concrete. The height of the supports would be determined by the site-specific terrain features where their use is needed. Additional details regarding pipeline supports have been added to Section 2.2.3. The supports would be inspected for integrity during general inspections of the pipeline. A minimum annual inspection of pipe supports was added to the EA in Section 2.2.6.

Source	Comment	Response
	information should be available and adequately incorporated into the EA	
7. Sierra Club	Until the BLM and the general public can be assured of the security of the pipeline from vehicular impacts and other impacts, the project needs to be deferred.	Cross-country travel off of a designated route is prohibited by the BLM Travel Management Plan. The pipeline is proposed for burial beneath all designated routes, including roads and trails. Vehicles, on designated routes would not run into or impact the pipeline in any way.
8. Sierra Club	Neither the booster station nor processing plant was mentioned in the Operator's original application and thus could not be considered for scoping comments nor in BLM's analysis of impacts. In its own words, the BLM says neither it nor the Operator knows the components of the booster station… In a project of this size and importance, it is insufficient to issue an EA that is based on incomplete data, analysis, and "estimates." The EA was issued before the BLM received information, including specifics in the form of site diagrams from the Operator. This precludes a proper analysis of the impacts of these large structures (Appendix D, 6, no pagination) The project should not move forward until this critical data and analysis is incorporated into the document and	The booster station and gas processing plant were analyzed for impacts to all resources included in the EA. The BLM did receive information as to the types and anticipated scale of equipment for incorporation into the analysis of impacts to air quality. Equipment emissions for these two proposed infrastructure sites were included in the emissions inventory and were included in the quantification. Impacts to physical resources such as soils and vegetation were conservatively assumed to correspond to the size of each facility, 3 acres for the booster station and 10 acres for the gas processing plant. The Proposed Action included a description of the locations and the types of equipment that would be installed at each site (Section 2.2). The BLM has added site diagrams of the facilities to the EA in Appendix I which are referenced in Section 2.2. Additional design features regarding the facilities were added to Section 2.2.9. Also, further details regarding the facilities were added to the text in Section 2.2.4. Impacts to visual resources from the installation of a booster station were described in Section 4.3.1.8. Additional discussion of the environmental impacts pertaining to the facilities was added to Section 4.3.1.8 based on the supplementary project details added to Section 2.2. As stated in that section, the booster station would be mitigated by painting it a flat color and

Source	Comment	Response
	available for public comment.	as a result would not dominate the view of the casual observer who is most likely to be travelling along the Dubinky Well Road. An intervening ridge between the gas processing plant and the Blue Hills Road would prevent a direct view of most of the gas processing plant infrastructure. The top of the flare stack and distillation column may be visible from this road but would be painted an earth tone color so as not to dominate the view. The information added to the EA does not result in identification of significant new impacts or affect the scope of the analysis.
NEPA Sufficiency – Alternatives		
9. SUWA	An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action… For the Dead Horse Pipeline EA, the consideration of more environmentally protective alternatives is also consistent with FLPMA's requirement that the BLM "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved… an actual "range" of alternatives be considered, so as to "preclude agencies from defining the objectives of their actions in terms so unreasonably narrow that they can be accomplished by only one alternative (i.e. the applicant's proposed	A reasonable number of alternatives need to be analyzed to cover the full spectrum of alternatives (CEQ, *Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981*, Question 1b). To be reasonable, an alternative has to respond to the Purpose and Need (See Sections 1.3 and 1.4), it has to be technically and economically feasible, needs to be consistent with the basic policy objectives for management of the area (which means an alternative must be in conformance with the RMP), its implementation must not be remote or speculative, and it must not be substantially similar in design and effects to an alternative that is already analyzed. The range of alternatives explores alternative means of meeting the purpose and need for the action in a case where a proposal may involve unresolved conflicts concerning alternative uses of available resources. Unresolved conflicts may result from a lack of consensus among interested parties or if reasonable alternative exists that would be substantially different in design or effects from the alternatives that are analyzed. Therefore, if environmental impacts would occur with implementation of the Proposed Action, then other action alternatives must be investigated to mitigate (avoid, minimize, compensate, rectify, reduce or eliminate) impacts while

Source	Comment	Response
	project)… the "evaluation of alternatives mandated by [NEPA] is to be an evaluation of alternative means to accomplish the general goals of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals… in defining what is a "reasonable" range of alternatives, NEPA requires consideration of alternatives "that are practical or feasible" and not just "whether the proponent or applicant likes or is itself capable of carrying out a particular alternative.	meeting the underlying need for the proposal. This EA fully analyzes the alternatives of an aboveground pipeline and a buried pipeline along the proposed route. In addition, the BLM considered another 5 alternatives in the EA that were eliminated from further analysis. See responses to comments #11, #12, #13, and #14.
10. SUWA	The EA fails to include a map of the existing right-of-way, which is the No Action alternative. The decision-maker and the interested public were not informed as to the location of the existing right-of-way, limiting their ability to make fully-informed and reasoned opinions as to the relative benefits and impacts between the existing right-of-way and the proposed right-of-way alignment. BLM must correct this oversight and provide a supplemental public comment	A comparison of the Proposed Action versus the original ROW route is provided in Table 1-1 of Section 1.2 of the EA. A map of the existing right-of-way has been added to the EA in Appendix C and is referenced in Section 1.2.

Source	Comment	Response
	period.	
11. SUWA	Locating the proposed 12-inch pipeline in the *existing* right-of-way minimizes the impacts to lands proposed for wilderness designation, in conformance with FLPMA's mandate to minimize the adverse impacts to the environment and natural resources. BLM's position that it is not required to manage lands proposed for wilderness to a non-impairment standard (EA at 15) does not relieve the agency from fully analyzing the reasonable and feasible alternative of locating the above ground pipeline in the existing right-of-way along Highway 313, rather than in the area proposed for wilderness designation to the west of the highway	The February 2013 reevaluation of the area proposed as wilderness by the public was conducted in conformance with current BLM guidance included in Manual 6310. The conclusions reached by the BLM as a result of the reevaluation are explained in Section 1.8.5. Therefore, the BLM concluded that analysis of the alternative proposed by the comment was not warranted, and the relocation of the proposed pipeline route is not necessary. The concern expressed by SUWA during scoping did not suggest an alternative action that would resolve any outstanding issues that required analysis beyond the stipulations contained in the BLM's 2008 RMP. SUWA points out that the existing ROW route would minimize impacts to lands that it proposes for wilderness designation. The BLM concluded that these lands lack wilderness characteristics. Using the existing ROW route would have deleterious impacts to the visual resources along Utah Highway 313, a heavily travelled State Scenic Byway. The BLM therefore, concluded that the existing ROW route would impact the visual resources enjoyed by about 659,920 people (2011 and 2012 data) while travelling that road to Utah's premier State Park (Dead Horse Point) as well as to Canyonlands National Park. By moving the pipeline route to the west of the highway, the visual resources along Highway 313 are protected. Although this means that the pipeline route crosses SUWA proposed wilderness for about 5,900 feet, the BLM concluded that there are no wilderness quality lands in that location to impact. The resource raised by this comment is wilderness characteristics, which the BLM has discussed in depth in Section 1.8.5 as well as Appendix E. The legislative proposal is not a resource within the context of the BLM meeting its management responsibilities under FLPMA.

Source	Comment	Response
12. SUWA	BLM must fully analyze the alternative of locating the 12-inch surface pipeline in the *existing* right-of-way alignment along Highway 313, in order to determine if the impacts to the Labyrinth Rims/Gemini Bridges Special Recreation Management Area (SRMA) would be lessened by that alignment, rather than the proposed alignment to the west of the highway in a relatively undeveloped area.	According to the Utah NEPA Guidebook, an alternative may be eliminated if: • It is substantially similar in design to an alternative that is analyzed. • It would have substantially similar or greater effects than an alternative that is analyzed. An alternative for utilizing the existing ROW route was discussed in Section 1.2 and Section 2.5.4. Additional information has been added to the cited sections to clarify why the suggested alternative was eliminated from further analysis. The BLM concluded that utilizing the existing ROW route would have greater impacts to recreation and visual resources within the SRMA than the route of the Proposed Action. The existing ROW route would require the disturbance of swaths of undisturbed soils and vegetation to the west of Highway 313, while still being visible from that highway. The rock exposures near both Cowboy Camp Campground and Lone Mesa Campground would need to be modified by blasting and grading to allow installation of an aboveground pipeline on an acceptably smooth surface along the existing ROW route. The BLM concluded that such surface modifications would result in large visual scars. Therefore, a surface laid pipeline in these locations would result in impacts inconsistent with the objectives of VRM II, Scenic Byway management, and the 2008 Moab RMP. No mitigation measures could be developed that would alleviate the degree of impacts. The area where the pipeline route would deviate from the existing ROW route is not "relatively" undeveloped. The proposed pipeline route in this area would follow existing and designated routes; i.e., existing linear

Source	Comment	Response
		features used by various kinds of off-road vehicles. The use of these routes for construction would allow installation of the pipeline with minimal residual disturbance after reclamation operations establish vegetation. The numbers of visitors to these existing and designated routes west of Highway 313 are unknown but are very small in number especially when compared to the 659,920 people that would potentially view the pipeline if the existing ROW route were to be utilized for a surface pipeline.
13. SUWA	Failure to modify the proposed right-of-way alignment so that the aboveground pipeline is located in the existing and approved Highway 313 right-of-way corridor south of the Spring Canyon road, rather than "offset" from Highway 313, will result in undue and unnecessary degradation. The proposed alignment results in unnecessary degradation of lands proposed for wilderness, soils, vegetation, and wildlife habitat west of the Highway 313 corridor. The degradation is unnecessary and undue in that the Highway 313 corridor is sufficient and the only apparent purpose in the proposed alignment is to in order to shorten the pipeline by a small fraction. The existing alignment and the proposed alignment are both located in the Labyrinth Rims/Gemini Bridges SRMA and in VRM Class II areas. *See*	The BLM is required to balance potentially degrading uses (e.g., pipeline construction and operation, recreational use and development) with conservation of the natural environment, including visual resources, to prevent environmental degradation. If the BLM balances those uses, generally it will have taken the steps necessary to prevent unnecessary or undue degradation. Without evidence that future injury would occur from construction and operation of the pipeline along the proposed route or that the Proposed Action would cause degradation beyond what is reasonably anticipated, there is no basis for asserting that undue or unnecessary degradation of the lands would occur. Although the existing ROW route and the proposed pipeline route within the area at issue (between SH 313 and Spring Canyon Bottom Road) are both located, as the comment noted, in VRM Class II areas, most visitors, and consequently observers, to the SRMA travel to DHPSP and ISKY as an in-and-out drive (See Section 3.3.4). Therefore, where the pipeline route would deviate from SH 313 would be less likely to be seen by most visitors. With respect to visual impacts, see response to comment #12 above. The route length as proposed (24 miles) would be shortened by 2.9 miles from the existing ROW route (26.9 miles). The proposed pipeline route was conceived to minimize impacts to visual resources along Highway 313 as

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	EA Maps 2 and 6. As noted supra, the impacts to recreation and visual resources are similar, if not greater, under the proposed alignment. Although some impacts are "due and necessary" when constructing the pipeline, the existing right-of-way alignment along Spring Canyon road and Highway 313 should be followed to prevent undue and unnecessary degradation of the natural resources.	well as at the developed recreation sites. The proposed pipeline route minimizes visual impacts to the 659,920 visitors that utilize Highway 313 as well as to the campers who utilize the 3 developed campgrounds within the project area. The proposed pipeline route avoids Cowboy Camp Campground, is not visible from Horsethief Campground, and is well to the west of the Lone Mesa Campground. The existing ROW route would place the pipeline outside the disturbed area of Highway 313, but still within sight of Highway 313. Placing a pipeline outside the disturbed area of Highway 313 would result in new disturbance to soils, vegetation and wildlife habitat, while being clearly in the line of sight from Highway 313. Also, the existing ROW route would disturb more soils, vegetation and wildlife habitat than the proposed route, because it is about 3 miles longer. (For a discussion of wilderness, see response to comment #11). Visual resource impacts associated with constructing the pipeline adjacent to Highway 313 would create a visual scar clearly visible to the visitors travelling along this Scenic Byway. In addition, the visual resource impacts from using the existing ROW route would not be in conformance with the visual objectives of the 2008 RMP nor with the management of a Scenic Byway. Therefore, the BLM determined that constructing a pipeline within the existing ROW route would result in greater impacts than the proposed pipeline route.
14. SUWA	The EA completely failed to take a hard look at the No Action alternative. Specifically, the EA failed to assess and	No Action alternative in this EA was framed to conform to the guidance in the BLM Utah NEPA Guidebook, updated July 2010 (Guidebook). With respect to federal decisions on applicant proposals, "'no action' means not

Source	Comment	Response
	document the potential impacts of developing the existing, approved right-of-way with one or more of the approved pipelines (i.e. 4-inch fuel gas line, 6-inch crude oil pipeline, 8-inch natural gas pipeline) and the approved compressor booster stations. *See* EA at 3-4. Rather, the EA presented the No Action alternative as merely the failure to approve the 12-inch natural gas pipeline.	approving the proposal. See Guidebook, page 14. The impacts of developing the approved existing right-of-way with one or more of the approved pipelines and approved compressor stations was fully analyzed in EA UT-068-91-79 Pipeline Right-of-Way.
NEPA Sufficiency – Cumulative Impacts		
15. Sierra Club	The BLM contradicts itself in the EA. On the one hand, the EA says the BLM does not want to speculate on future technologies for disposal of natural gas or lease sales. On the other hand, the EA includes a section entitled "Reasonably Foreseeable Action Scenario" (section 4.4.5.3, p. 140). It appears that the agency is only willing to consider future implications when the argument suits its purpose, which in this case is to support its proposed Action to construct the pipeline.	The BLM develops a Reasonably Foreseeable Development (RFD) scenario as a tool to assist in land use planning. The RFD for the Moab FO was developed in 2005 to provide a basis for forecasting patterns of energy development so that potential impacts to other resources can be identified and management guidelines can be developed in consideration of desired future outcomes. It is a long-term (15 year) projection of oil and gas exploration, development, production, and reclamation activity. The RFD can play a critical role in assisting the BLM to evaluate the highest and best use of a given area and is available by following this link: http://www.blm.gov/ut/st/en/fo/moab/planning/background_documents.html To be effective, the RFD determines where areas have been developed, are likely to be developed in the future, and to what extent they are likely to be developed. In this way, the RFD is used by the BLM to minimize impacts from past, current, and future oil and gas development to wildlife species, recreation, visual resources, water resources, and all other resources present

Source	Comment	Response
		within a planning area. The RFD may reference the possibility of future technologies but does not forecast the nature and effectiveness of such technologies, particularly as they may apply to lands in the planning area. Identification of lands that may be leased in the future are also determined during the land use planning process. The most recent result of that process is the RMP approved in 2008 for the Moab FO. The BLM recognizes that oil and gas exploration and production technologies may change, and sensibilities regarding other resources may change, particularly as a result of new information gained over time; therefore RMPs are living documents that are periodically revised and evolve, as needed.
16. Sierra Club	We understand the importance of examining cumulative impacts (and benefits), but question how and where the BLM has identified the additional 21 wells (37 future wells minus the current 16 wells (of which only 9 are producing)). We ask that the BLM revise the figures in Table 4-22 to reflect the current 16 wells (of which only 9 are producing) or outline in detail its plans and justifications for adding an additional 21 wells in the Big Flats area in the coming years.	The RFD projected that 3-5 wells would be drilled annually in the Big Flat-Hatch Point area or an average of 4 wells annually. Hatch Point, which is located across the Colorado River from Big Flat, has not experienced the level of exploration and development as has been experienced on Big Flat; thus, the BLM assumed that of the average of four wells drilled annually, only one of them would be drilled on Hatch Point, and the remaining three wells on Big Flat. If 3 wells were drilled annually in the Big Flat area, 21 additional oil and gas wells are projected to be drilled in the 7 years remaining until 2020 (BLM, 2005). By definition, cumulative impacts are impacts projected from past, current, and future actions. Table 4-22 displays the cumulative mineral lease payments from natural gas production for Alternatives A and C for 37 wells, including the current 16 active wells and the projected 21 future wells. A well that is currently active, which means it is not plugged and abandoned, may be shut in or present in some other status that allows for future production. Therefore, all 16 currently active wells were included in the

Source	Comment	Response
		payments in Table 4-22. See the response to comment #15.
17. SUWA	The Fidelity EA lacks adequate cumulative impacts analysis for air quality all of the activities taking place in the Moab Field Office. The EA fails to adequately analyze and consider the cumulative impacts to air quality from this oil and gas development as well as all other ongoing and reasonably foreseeable oil and gas development, combined with other pollution-generating activities such as off-road and other motor vehicle use authorized in the Moab RMP's Travel Plan. The Fidelity EA's cumulative impact analysis relies on a 2013 emissions inventory conducted for this EA along with information contained in the Moab RMP. *See id.* None of these sources provides adequate cumulative impacts analysis for air quality.	Motorized use is an intermittent, temporary, and mobile source of air emissions that is highly unlikely to cause or contribute to an exceedence or violation of any National Ambient Air Quality Standards for pollutants which may be emitted. Vehicle traffic on unpaved roads, rarely if ever, results in violation to the standards. Therefore, motorized use does not contribute appreciably to the cumulative impacts for air quality (Leonard Herr, BLM Air Quality Specialist).
18. SUWA	Principal among the failings of the Moab RMP's air quality analysis is a lack of any quantitative analysis of impacts to ozone or other criteria pollutants regulated by the Clean Air Act. This is particularly egregious now because the nearby Vernal Field Office	The project under consideration is a natural gas pipeline and supporting infrastructure. Implementation of either Alternative A or C will reduce impacts to air quality by transporting the product to commercial markets as opposed to flaring the gas into the atmosphere. See Sections 4.3.1.1, 4.3.3.1, and 4.4.1.4. The National Park Service has not submitted comments with respect to this

Source	Comment	Response
	has recorded levels of ozone well in excess of NAAQS…Furthermore, nearby data shows that this area will shortly exceed ozone NAAQS. According to the Moab RMP, ozone concentrations in the region are nearing NAAQS limits…EPA is currently in the process of revising its NAAQS ozone limits…The National Park Service has reminded BLM that without conducing ozone modeling, BLM does not have the "information necessary to determine whether air quality standards could be violated."… the BLM has never analyzed the significant contributions to particulate matter pollution that come from other activities it has authorized in the Moab RMP. In particular, it has failed to consider the contributions from off-road vehicles (ORVs) and other motorized vehicles traveling on routes designated in the Moab RMP's Travel Plan…Oil and gas projects create significant fugitive dust…the Monticello RMP significantly understated particulate matter pollution in the planning area; the Moab RMP has done the same…The BLM's Vernal RMP, which is a contemporary of the Moab RMP, performed dispersion modeling for all	EA. The analysis of air quality as it relates to the Moab or Monticello RMPs is out of the scope of this document. See the response to comment #17.

Source	Comment	Response
	NAAQS criteria pollutants, with the exception of ozone. Vernal RMP at 4-14 to -34. This demonstrates that the Moab RMP may also prepare such cumulative analysis…The Moab RMP's failure to undertake a cumulative impacts analysis of the air impacts of oil and gas development and motor vehicle use on routes designated in the Moab RMP means that it does not know whether it has authorized activities that will result in, or are now exacerbating ongoing exceedances of federal air quality standards thereby affecting public health. Nor has the BLM provided "quantified or detailed information" about cumulative impacts. Accordingly, the BLM must perform dispersion modeling to accurately assess impacts to all criteria pollutants. The Moab Field Office must prepare a full cumulative impacts analysis making use of dispersion modeling for all NAAQS criteria pollutants.	
NEPA Sufficiency – Mitigation Measures		
19. SUWA	BLM must discuss the mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated." …agencies must	The effectiveness of the applicant committed design features is addressed in the analysis for Section 4. The text in Sections 4.3.1.10 and 4.3.3.10 have been supplemented to address the effectiveness of the additional mitigation

Source	Comment	Response
	"analyze the mitigation measures in detail [and] explain how effective the measures would be . . . A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." General statements that the BLM will conduct monitoring are also not an appropriate form of mitigation, as monitoring does not actually reduce or alleviate any impacts.	measures identified for reducing or avoiding the adverse impacts.
Air Quality		
20. SUWA	Since the approval of the Moab RMP the Moab Field Office has prepared environmental analyses for at least forty-five oil and gas wells. None of these analyses included any dispersion modeling. The BLM has analyzed at least the following oil and gas projects without conducting quantitative air quality analyses:… Big Flat Area 9-Well Oil and Gas Exploration Project Fidelity Exploration & Production Company, DOI-BLM-UT-Y010-2010-	The proposal under consideration is the construction and operation of a natural gas pipeline and its supporting infrastructure. Oil and gas wells are not included in the proposal. The BLM has worked with cooperating agencies, such as the National Park Service, to develop modeling protocols prior to performing the modeling needed to support an analysis of impacts to air quality from proposed oil and gas projects where impacts were likely to result. For example, the EPA-approved AERMOD model was used to estimate the maximum NO_2 and PM_{10} concentrations within Canyonlands and Arches National Parks for DOI-BLM-UT-Y010-2010-0117-EA, Big Flat Area 9-Well Oil and Gas Exploration Project. This EA is one of the projects referenced by the commenter. AERMOD is a steady-state plume model that incorporates air

Source	Comment	Response
	0117-EA (2011)	dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain (EPA Technology Transfer Network [TTN], http://www.epa.gov/scram001/dispersion_prefrec.htm). The modeled emissions concentrations were compared to Class I increments to determine the effects of 8 existing and 9 proposed wells to the NAAQS. The results of the model concluded that all predicted impacts were well below their respective increments. To support the analysis in that same EA, the CALPUFF air dispersion model was used to estimate the annual nitrogen deposition rate. CALPUFF is a non-steady-state puff dispersion model that simulates the effects of time- and space-varying meteorological conditions on pollution transport, transformation, and removal. CALPUFF can be applied for long-range transport and for complex terrain (EPA TTN). The construction and operation of a natural gas pipeline would diminish emissions to the atmosphere and result in beneficial impacts to air quality after construction is finished. See Section 4.4.1.4.
21. SUWA	…as the EPA has previously indicated, without dispersion modeling the public cannot be assured that the BLM is observing NAAQS and other federal air quality standards.	The decision on whether to model a specific source is based on several factors, including the amount of emissions, the duration of emissions, and the proximity of the source to sensitive receptors. This is a well-established principle in air quality management. The BLM evaluated the emissions inventory for the proposed project and concluded that emissions to the atmosphere would be reduced by transporting natural gas to market via a pipeline rather than flaring natural gas to the atmosphere. Beneficial impacts to the atmosphere would result. See Section 4.4.1.4. Due to the reduction of ozone precursor emission levels, the results of a project-level ozone analysis would not provide any new substantive

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		information that would further inform BLM decision-making through the NEPA process
Socioeconomics		
22. Sierra Club	The narrative on socioeconomic impacts on tourism (pp. 11-12) is extremely weak in terms of analysis and essentially misses the point of an effective socioeconomic impact analysis. The weakness is relying on visitor numbers to both Dead Horse State Park and Canyonlands Island in the Sky District. Visitors from outside of the area (and even many from the immediate region) make plans and commitments to visit one or both of these parks. It is extremely unlikely that more than a handful would tum around upon noticing an oil rig. A far more effective and rigorous analysis of the socioeconomic impact on tourists' interests and perceptions is required to understand the costs to tourists' appreciation of the two parks and the views along Route 313-a scenic byway, as the EA mentions. Even taking the BLM tables at face value, there is no further analysis of the cash value provided by the visitors to the state and national park. In this sense, the EA is	An analysis that includes the socioeconomic impacts from a decline in visitation would be appropriate if there were evidence to suggest that such a decline would be likely. The comment does not provide evidence to suggest that a decline in visitation, visitors' experiences, or cash value resulting to the state and national park would be likely to occur. To the contrary, the BLM's data demonstrates that no impacts to recreation visitation in the SRMA have resulted from a much more visible activity; specifically, well pad development and drilling activities. Data gathered since the EA was released for public comment in July indicates that visitation has actually increased to the BLM-managed developed recreation areas adjacent to the Route 313 Scenic Byway. In the 12-month period ending August 15, 2013, visitation increased 14 percent at Horsethief Campground and 18 percent at Cowboy Camp Campground, the two sites most likely to be affected by pipeline construction. Despite the absence of evidence of a decline in visitation resulting from visible oil and gas development, the commenter assumes that the much less visible impact of a pipeline will cause a decline in visitation. The commenter's premise that the pipeline, which would be much less visible than pump jacks and stock tanks, would cause a drop in visitation is an assertion with no data support. If there is no decrease in recreation visitation, there is no reason to presume that the recreational experience has been diminished. Increasing recreational visitation typically correlates to an increasing recreational economy, as measured by cash value. Therefore, no impacts would result to

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	incomplete.	the planning area's recreation economy as a result of constructing and operating the proposed pipeline.
23. Sierra Club	A more useful analysis would place a value-both socioeconomic and scenic--on the landscapes along and beyond the course of the proposed pipeline… If it (the BLM methodology) is found to be inadequate for the type of analysis needed to assess the scenic values of the landscapes, the agency can also turn to the US Forest Service which has developed a methodology for conducting such an analysis	If a socioeconomic or scenic value would change as a result of the proposed pipeline, the resultant costs would be relevant to an analysis. An analysis such as the one suggested in the comment would be useful if a decrease in socioeconomic and scenic values or in overall visitation to the project area were to be expected. There is a "cost" to value if: (a) recreation visitation declines as a result of the project; or (b) a visitor's visual experience (e.g., its non-market value) declines as a result of the project. The BLM has placed a value on the scenic qualities of the project landscape through its VRM analyses, which is discussed in detail in the EA and Appendix G. Using recreation participation as an indicator of recreation demand has inherent limitations. For example, people may value the existence of recreational lands for cultural, aesthetic, scientific, or spiritual reasons not expressed in recreation participation indicators; however, the BLM has no reason to believe that a pipeline that is virtually invisible from SH 313 will somehow negatively affect visitor numbers or experiences. The fact that the commenter may be offended by simply knowing that a pipeline is there (whether visible to the average visitor or not) does not mean that others will take the same degree of offense. If a value is unlikely to be affected by a project, the methodology used to determine that value is irrelevant.
24. Sierra Club	The BLM dismisses the scoping request for an appraisal of comparative economic value to be derived from the	The request for the type of analysis described in the comment is predicated on the unsupported assertion that the pipeline will cause a diminution of the "open scenic landscapes available to visitors, recreationists, campers, and

Source	Comment	Response
	installation of the pipeline vs. open scenic landscapes available to visitors, recreationists, campers, and local businesses in Grand County. By not making such a comparative analysis, the BLM deprives itself, local governments, non-profit organizations, businesses, and the general public of a basis for weighing the value of competing interests and to adequately assess the presumed value of the proposed pipeline.	local businesses in Grand County." If such an effect were indeed likely, the BLM would have expected a decline in visitation in the project area caused by oil and gas drilling and development activities, which are much more visible. See the responses to comments #22 and #23.
25. Sierra Club	It is unfortunate that the EA does not cite nor include in its bibliography the independent assessment of the value of public lands in Grand County.	The BLM is well aware of this report and contributed to its development. The report is very broad-based, as it addresses not only BLM lands, but also National Park Service, U.S. Forest Service, and State of Utah lands. It is not at all specific to the project area. The socioeconomic profile of Grand County included in this report would be relevant to the analysis in the EA only if the BLM expected that the proposed project could impact the variables discussed in the report. There is, however, no reason to believe that the pipeline project would be likely to have a substantive impact on items highlighted in that report. For example, the BLM does not expect a shift away from the recreation sector to the minerals sector by the possible creation of 23 jobs. Nor does the BLM expect a substantive change in visitation to the various recreation lands discussed in the report. The commenter continues to assert that the proposed project would somehow negatively impact the socioeconomic sector, but, again, this is only an unsupported assertion. The commenter does not identify or address

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		any specific finding of the report likely to be affected by the proposed pipeline project. Because of this lack of effect, a summary of the report was not included in the description of the affected environment since the BLM does not believe, nor does the commenter provide evidence to the contrary, that socioeconomic sectors discussed in the referenced report would be affected by the project. The BLM does not dispute the importance of the recreation industry to the Grand County economy. It has been well-documented in numerous sources, including the 2008 Moab RMP.
26. Sierra Club	Given all of the above and the conclusions reached by the BLM through the use of its input-output IMPLAN model, a cost-benefit analysis is the logical next step to be conducted by the BLM to not only justify the placement of the pipeline within Grand County and for increased awareness of the public.	The commenter presumes that there would be a cost to recreation visitors and the recreation-based economy of Grand County. The commenter needs to provide at least some information or evidence to support the assertion that the BLM analysis is incomplete, insufficient, or in error. In the development of this EA, the BLM followed the procedures and guidance described in Section 1.6 and the management prescriptions developed by the Moab RMP. The BLM is not required to perform a cost-benefit analysis. The BLM does not believe that there would be recreation-related costs, or if they were to result from implementation of the proposed action, would be so small as to be virtually unable to be measured.
27. Sierra Club	It is clear from the discussion of the IMPLAN findings that both job and income benefits to Grand County residents will be minimal and that the financial gain to the County from royalties and taxes is either small or not	Economic and fiscal benefits would be likely to result from the project implementation. A discussion of the fiscal benefits to Grand County is contained and estimated (quantified) in Section 4.3.1.5. Whether or not the fiscal benefits are "minimal" is subjective. The commenter provides no evidence that BLM's benefit analysis is incorrect. The commenter continuously focuses on the "cost" to the Grand County recreation-based

Source	Comment	Response
	indicated.	economy, without providing information that would cause the BLM to reevaluate its analysis or evidence that such a cost is actually likely to occur.
28. Sierra Club	It is disingenuous for the EA to argue “Fiscal benefits from past and present natural gas production have been lost because natural gas has been flared rather than delivered to market.” (section 4.4.5.2, pp. 139-140). The BLM approved these leases with the understanding that gas would be flared and thus lost. The agency cannot use its own past decisions as a rationale for now arguing that value was lost. Further, it has to be assumed that the Operator preferred to flare the gas rather than invest in a method to collect the natural gas.	Lease issuance does not provide a guarantee to the lessee that minerals are present and commercially viable to develop. The leases grant the lessee the right to extract any oil or natural gas that may be found on the lease. Flaring, what was considered at one time incidental or residual natural gas, was performed in conformance with applicable laws and regulations. As stated in Section 1.2 Background, “drilling to the target reservoirs continued to present technical challenges and commercial production success has been uncertain. Historic natural gas production from wells that were drilled to produce oil has been too variable to reliably predict gas production volumes.” In fact, drilling to the target reservoirs did not, until recently, result in successful production of oil. From the Big Flat Area 9-Well Oil and Gas Exploration Project EA, DOI-BLM-UT-Y010-2010-0117-EA, which was issued in 2011: “Until the completion of the Cane Creek 2-1 in 2004, …only the vertical Long Canyon No. 1 well has been an economic success. The Long Canyon No. 1 well was drilled in 1962 and has produced more than 1 million barrels of oil. Some of the more recent wells drilled over the last 20 years in the Big Flat area were originally drilled vertically and re-entered to be drilled horizontally after the initial vertical well bore failed to result in a productive well. Of the 13 wells drilled in the Big Flat area since 1990, only 7 wells, or 54 percent, are producing wells.” The Big Flat wells were considered oil wells because oil was the hydrocarbon that was produced. Not all wells produced natural gas. Since DOI-BLM-UT-Y010-2010-0117-EA was approved in 2011, eight wells have been drilled, six of which are currently in production. The

Source	Comment	Response
		remaining two wells are in pre-production operational status. The ability of the recently drilled wells to exhibit sufficiently producible quantities of hydrocarbons, including natural gas, resulted in the State of Utah and the BLM reevaluating the disposition of the produced natural gas. This EA considers a proposal that resulted directly from that reevaluation by both entities. Whether or not the commenter's assumption that the Operator would prefer to flare the natural gas rather than "invest" in a pipeline is irrelevant in consideration of the BLM's Purpose and Need for the action. See Sections 1.1-1.4.
Soils		
29. SUWA	The EA fails to estimate the total acreage of biological soil crusts that would be crushed if the proposed action is approved. The EA also fails to assess the potential soil erosion that will occur as a result of the destruction of the biological soil crusts. Without this information, it is not possible for the public and the decision-maker to assess whether these impacts are significant.	An estimate of the total acreage covered by biological soil crusts along a 26-mile pipeline route would correspond to the presence of the preferred grow habits for these organisms; e.g., on barren soil near shallow and surfacing bedrock in arid and/or in semi-arid regions where vegetative cover is generally sparse. They are not present on bedrock exposures or talus slopes, cliff faces, or areas where rock fragments dominate. The EA in Section 3.3.6.2 notes: Although pinnacles are an obvious indicator of the presence of BSCs, the crusts may be present but not immediately evident by observation. The visible evidence of BSCs in the project area varies widely as a result of differing soil characteristics. A variety of assumptions can be developed to provide an estimate of acres of BSCs that would be affected by pipeline construction; however, the assumptions may be sufficiently broad as to render such an estimate as nothing more than entirely speculative. As explained in Section 3.3.6.2, BSCs bind soil particles together, increasing the size of soil aggregates…Their roughened surface slows

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		precipitation runoff. Since the project area exhibits a semi-arid climate and experiences most precipitation in the form of late summer thunderstorms, the growth of BSCs is more likely to diminish aeolian erosion. Implementation of an effective reclamation plan and regrowth of vegetation along the pipeline route would diminish the effects of pipeline construction. See EA Section 4.3.1.7 regarding soil stability with the reestablishment of grasses as a result of reclamation operations. BSCs are unlikely to be present on barren areas of bedrock or in grasslands where soils are deep do not display surfacing bedrock. Therefore, assuming that all areas along the pipeline route except for barren and grassland areas are covered with BSCs, an estimated 116.7 acres could contain BSCs under Alternative A (derived from Table 4-7). The corresponding amount for Alternative C would be 201.8 acres (derived from Table 4-10). These estimates were added to the EA in Sections 4.3.1.6 and 4.3.3.6.
30. SUWA	The EA continues that constructing the pipeline adjacent to "three miles of non-designated routes" will likewise minimize soil disturbance. *Id.* This latter assertion makes no sense unless there is on-going illegal motorized use on the un-designated route. The statement appears to be an attempt to rationalize the *proposed* alignment west of Highway 313, rather than the *existing* right-of-way alignment in the Highway 313 right-of-way corridor. BLM must take a hard look at the impacts of the proposed pipeline alignment west of Highway 313 to	Constructing the pipeline adjacent to three miles of non-designated routes will likewise minimize soil disturbance because these routes still exist. Being assigned a "non-designated" determination means that public use of a route since the current RMP was adopted in 2008 is not legal; however, non-designated routes have not been reclaimed. Where they are located in the pinyon-juniper vegetation community, the linear features created by the roads remain visually apparent, especially since understory plant species are sparse (See Section 3.3.7.3). The BLM took a hard look at impacts to visual resources in the area west of SH 313 from key observation points along the scenic corridor and from Cowboy Camp and Horsethief Campgrounds, which is documented in Appendix G. Impacts to recreation are analyzed in Section 4.3.1.4 and 4.3.3.4. Impacts to soils are analyzed in Sections 4.3.1.6 and 4.3.3.6. Impacts to vegetation are analyzed in Sections 4.3.1.7 and 4.3.3.7. See responses to comments #9-14.

Source	Comment	Response
	visual resources, recreation and the SRMA, soils and vegetation, as compared to locating the pipeline in the existing Highway 313 right-of-way.	
Vegetation		
31. SUWA	The EA must include an estimate of how many trees will be destroyed for the construction of the pipeline, road upgrades, staging areas, booster compressor station and processing plant and take a hard look at the impacts of the removal of mature pinyon and juniper trees that are not "avoided" during construction of the pipeline, to determine if the effects from such actions are significant.	A variety of assumptions were developed to provide an estimate of the number of trees that would be lost by pipeline construction; however, the assumptions may be sufficiently broad as to render such an estimate as nothing more than entirely speculative. Table 4-7 discloses that 28.6 acres in the pinyon-juniper vegetation community would be affected by Alternative A. Table 4-10 discloses that 57.4 acres in the pinyon-juniper vegetation community would be affected by Alternative C. To estimate the number of trees that may lie within the construction corridor for each alternative, the BLM reviewed an aerial photo of the proposed pipeline route in the southwest quarter of Section 2, T26S-R19E. The imagery indicates that the tree density along the pipeline route is greatest in this section. The BLM counted the visible number of trees within the construction corridors in this section and used those amounts to derive estimates of the numbers of trees within the entire construction corridor within the pinyon-juniper vegetation community for Alternatives A and C. An estimated 849 trees may be located within the construction corridor for Alternative A, and an estimated 1,705 trees may be located within the construction corridor for Alternative C. Because trees would be avoided where possible (See Section 2.2.9), not all of the trees in the construction corridor would be removed for the implementation of Alternative A. These estimates were added to the EA in Sections 4.3.1.7 and 4.3.3.7.

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32. SUWA	The EA states that the operator has committed to monitor and control "the growth and establishments of weeds" in order to mitigate the impacts to wildlife that could result from weed invasion. EA 102-103. However, as the EA fails to disclose what measures the operator will take to control the growth and establishment of weeds, the effectiveness of the control measures cannot be assessed. Monitoring for weeds and invasive species does not actually reduce or alleviate any impacts to a level of insignificance, and is not effective as a mitigation measure.	The Operator's Reclamation Plan was included as Appendix H of the EA. The Reclamation Plan included details of the procedures that would be followed to prevent the introduction of weeds and the measures that would be taken for their control. Text has been added to Section 4.3.1.9 which directs the reader to Appendix H.
Visual Resources		
33. Sierra Club	It is disingenuous for the BLM in this EA to refer to Route 313 as a scenic byway in the same context of noting when various oil/gas wells were drilled within sight of that road. Does the BLM really think that oil rigs are scenic? The size of the booster station will be a serious visual disturbance.	The Kane Springs 25-19-34-1 well and the Kane Springs 27-1 well were drilled in 1993 and 1990, respectively. Both wells are near SH 313 and clearly visible to anyone driving along the highway to Dead Horse Point State Park and the Island in the Sky District of Canyonlands National Park. SH 313 was designated by the state as the Dead Horse Point Mesa Scenic Byway in 2002 and designated by the BLM as a scenic driving corridor in 2008. Although the "scenic" designations were made after the wells were drilled and production facilities installed, SH 313 was not designated "scenic" because of the presence of the oil wells. The State of Utah and BLM made the designations in recognition of the obvious outstanding scenery that is visible while driving along the length SH 313 despite the transitory appearance of the wells.

Source	Comment	Response
		See responses to comments #8 and #34.
34. SUWA	The proposed booster compressor station and processing plant are located on lands managed as VRM Class III, for which management activities may attract the attention of the casual observer, but should not dominate the view, and changes to the natural landscape should repeat the basic elements of the landscape. The EA, Appendix D, states that plans and diagrams for the booster compressor station and the processing plant were to be submitted no later than July 31, 2013. However, the EA fails to include this information, and verbal communication with Moab BLM staff on August 26, 2013 confirms that BLM does not have this information. Thus, BLM does not have sufficient information to take a hard look and analyze at the potential impacts of this proposal on visual resources. BLM's decision must be deferred until the agency obtains adequate information as to the height, night lighting and other details of the booster compressor station and the processing plant, assesses compliance with the RMP's	See the response to comment #8.

Source	Comment	Response
	VRM decisions, and provides this information to the public for review and additional comment.	