U.S. Department of the Interior
Bureau of Land Management
Colorado River Valley Field Office
2300 River Frontage Road
Silt, Colorado 81652

ENVIRONMENTAL ASSESSMENT

NEPA NUMBER

DOI-BLM-CO-N040-2013-0119-EA

CASEFILE NUMBER

Federal Right-of-Way (ROW) Grant COC76300 and COC76300T

PROJECT NAME

Proposal to install a 12-inch diameter buried, welded steel water pipeline on BLM and private land southwest of Rifle, Garfield County, Colorado.

PIPELINE LOCATION

Township 7 South (T7S), Range 93 West (R93W), Section 6, 7, 8, and 9; Township 7 South (T7S), Range 94 West (R94W), Section 1, 9, 10, 11, and 12; Township 7 South (T7S), Range 95 West (R95W), Section 12; Garfield County, Colorado, Sixth Principal Meridian.

APPLICANT

Encana Oil & Gas (USA) Inc. Contact: Julia Carter, 370 17th Street, Suite 1700, Denver, CO 80202.

PURPOSE AND NEED FOR THE ACTION

The purpose and need of the Proposed Action is to connect the South Parachute and Mamm Creek Oil and Gas fields. The Proposed Action would support all completion and production activity in the Piceance, decreasing the amount of truck traffic that would be required to transport water. Approximately 1,000 truck-trips per well would be eliminated. The Proposed Action would allow Encana to maximize it efficiency in water reuse and recycling resulting in a dramatically reduced fresh-water footprint, trucking transportation and disposal needs.

The proposed 12-inch water pipeline is an extension of Encana's existing High Mesa water pipeline project (EA #DOI-BLM-CO-N040-2013-0046, ROW Grant COC76067). A separate Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) (EA #DOI-BLM-CO-N040-2014-0004) was completed for the Beaver Creek and Cache Creek crossings. Beaver Creek and Cache Creek are perennial streams in which a native strain of cutthroat trout subspecies occurs, currently referred to as Lineage GB pending further genetic evaluation. Lineage GB cutthroat trout are being managed as threatened pursuant to the Endangered Species Act (ESA) until their status can be fully assessed. The crossings of Creek and Cache Creek were analyzed separately from the rest of pipeline alignment because of timing for botanical surveys required for the remainder of the alignment and timing

of construction of the stream crossings to avoid high-flow and spawning by the trout. EA #DOI-BLM-CO-N040-2014-0004 also addressed crossings of two other perennial streams and 28 ephemeral drainages or other potential jurisdictional Waters of the U.S. as delineated by Encana's environmental contractor. EA #DOI-BLM-CO-N040-2014-0004 covers all portions of the total 12-mile pipeline length potentially affecting Waters of the U.S.

ALTERNATIVES

Proposed Action

Encana proposes to install a buried, internally lined, welded steel 12-inch water pipeline on BLM and private land southwest of Rifle, Garfield County, Colorado (Figures 1 and 2). The Proposed Encana 12-inch water pipeline is approximately 12.4 miles in length and would begin on private land at the north end of the high mesa waterline (analyzed in EA # DOI-BLM-CO-N040-2013-0046-EA) in the NE¼SE¼ of Section 11, T7S, R95W, and would cross a combination of private and BLM land, terminating at Fox Pond, a fresh water pond facility, on private land owned by Encana in the SE¼SW¼ of Section 9, T7S, R93W. If approved by the BLM, this work would begin in the summer of 2014 with construction expected to last approximately 20 to 25 weeks.

Installation and operation of the proposed pipeline would require issuance to Encana by the BLM of a right-of-way (ROW) grant for the portion on Federal surface (approximately 25,405 linear feet or 4.8 miles). The portion on private surface would add 39,857 feet (7.6 miles) for a total length of approximately 65,262 feet (12.4 miles). Portions of the pipeline alignment would be located within an existing, previously disturbed pipeline corridor or would parallel an existing previously disturbed pipeline corridor and/or existing roads.

In its application, Encana requested a 30-foot-wide permanent ROW and a 45-foot-wide temporary construction workspace for a total ROW width of 75 feet, with approximately 760 feet of the total alignment being 100-foot in width. A 10-foot offset would be maintained where existing pipelines are encountered during installation of the new pipeline. The pipeline would require aboveground appurtenances (block valves, meters, pig launchers, and receivers) at various points along the pipeline alignment and at the beginning and end of the alignment. Valve sets would be installed approximately every 3 miles along the pipeline alignment. Additional above-ground appurtenances would be required to connect the proposed 12-inch water pipeline to existing intersecting pipelines along the pipeline route. The pipeline would be buried at least 48-inchs in depth. Acres of surface disturbance for the project are listed in Table 1.

Table 1. Anticipated Surface Disturbance for Pipeline Construction

Land Ownership	***30-Foot Permanent Right-of-Way***	***45-Foot Temporary Use Area***	***Total Area 75-Foot Right-of-Way***
BLM (25,405 feet)	17.5 acres	26.2 acres	43.7 acres*
Private (39,857 feet)	27.4 acres	41.2 acres	68.6 acres
Total (65,262 feet)	44.9 acres	67.4 acres	112.3 acres

*Note: Approximately 760 feet would be 100-foot wide versus 75-foot wide, see Table 2.

Table 2 lists the legal descriptions for aliquot parts of BLM land to be crossed by the Proposed Action. Privately owned surface lands are not included in the table.

Table 2. Encana High Mesa to Fox Pond Waterline Legal Descriptions (West to East)

Township	*Range*	*Section*	*Legal Description*	*Length (feet)*	*Workspace Acres*	*Notes*
T7S	R95W	12	SW¼NW¼	294.07	0.569	
	R94W	9	S½SW¼, NE¼SW¼, N½SE¼	4,930.60	8.538	248 feet of this is 100-foot wide
		10	NE¼SE¼, SE¼NE¼	1,581.38	2.721	
		11	S½NW¼, NE¼	6,282.20	11.117	512 feet of this is 100-foot wide
		12	NW¼	2,316.01	4.064	
		1	SE¼SW¼, SW¼SE¼	1,378.97	2.108	
	R93W	6	SE¼SW¼, SW¼SE¼	2,200.36	3.641	
		7	N½NE¼	2,143.09	3.707	
		8	NW¼NW¼	170.96	0.385	
		8	S½SE¼	2,770.16	4.787	
		9	S½SW¼	1,337.27	2.303	
			Total	**25,405**	**43.940**	

Elements of the Proposed Action are described below.

Project Access

Encana would use existing public roads and lease roads to access to the construction workspace. No road improvements would be required. Roads would be maintained to the original condition post-construction. The BLM Grass Mesa Road would be used as the preferred route to access portions of the pipeline on or near the southern portion of the Grass Mesa Subdivision. The Rose Ranch Road would not be used because its use is limited to access for the Encana B16W, J16W, and M16W well pads along the southern end of Grass Mesa. Access by any road in question would be permitted through the jurisdictional agency or landowner. Anticipated increases in traffic for the project are shown in Table 3.

Traffic management would be used when needed or by the county bore permit. Signs would be installed on road and powerline crossings.

Construction equipment that would come into contact with creeks or benthic substrate would be cleaned and sanitized prior to delivery to the project location in an effort to prevent the movement and transportation of exotic aquatic species, noxious weeds, and the parasite (*Myxobolus cerebralis*) that causes whirling disease in salmonid fish.

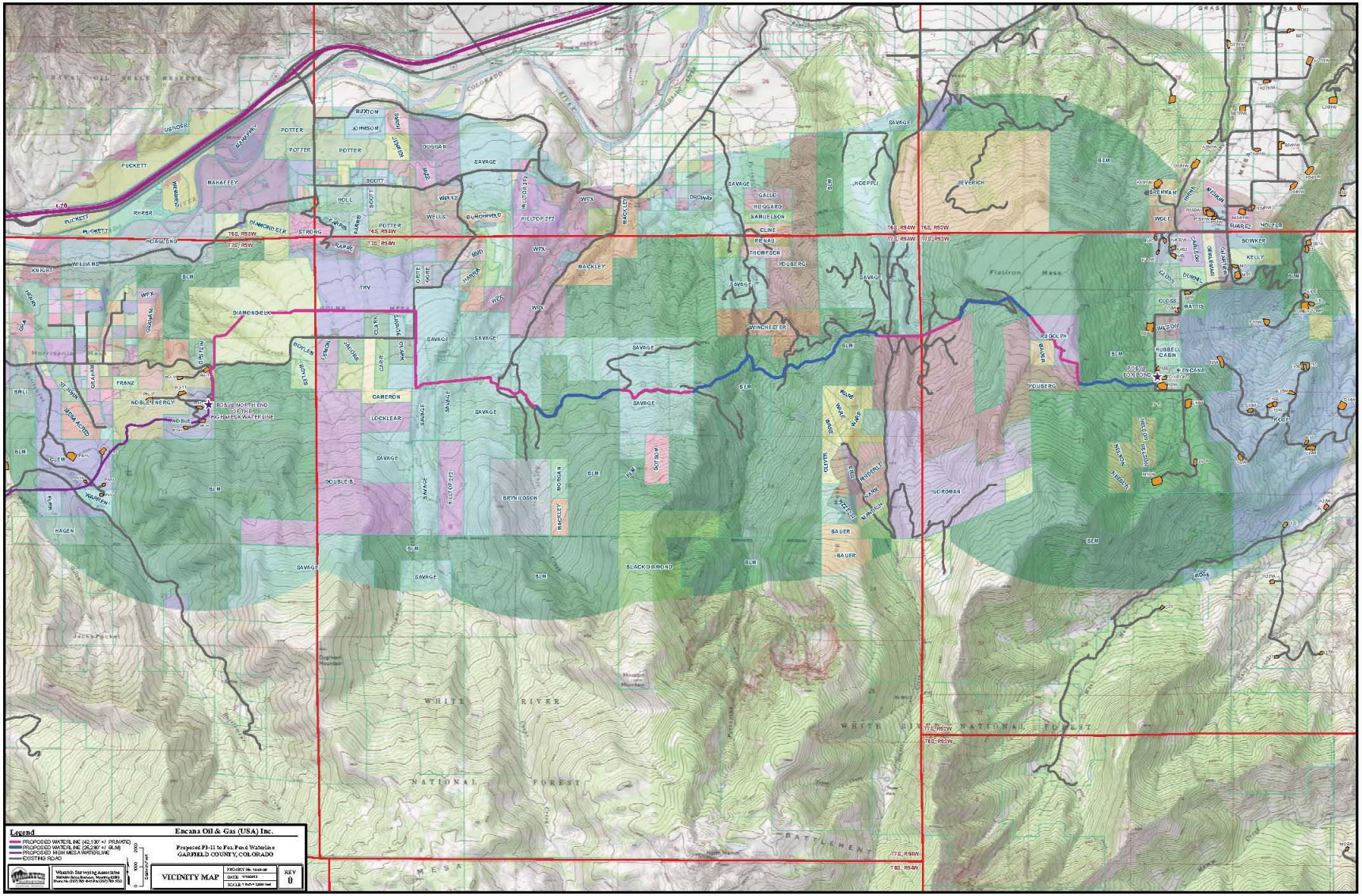

Figure 1. Project Vicinity

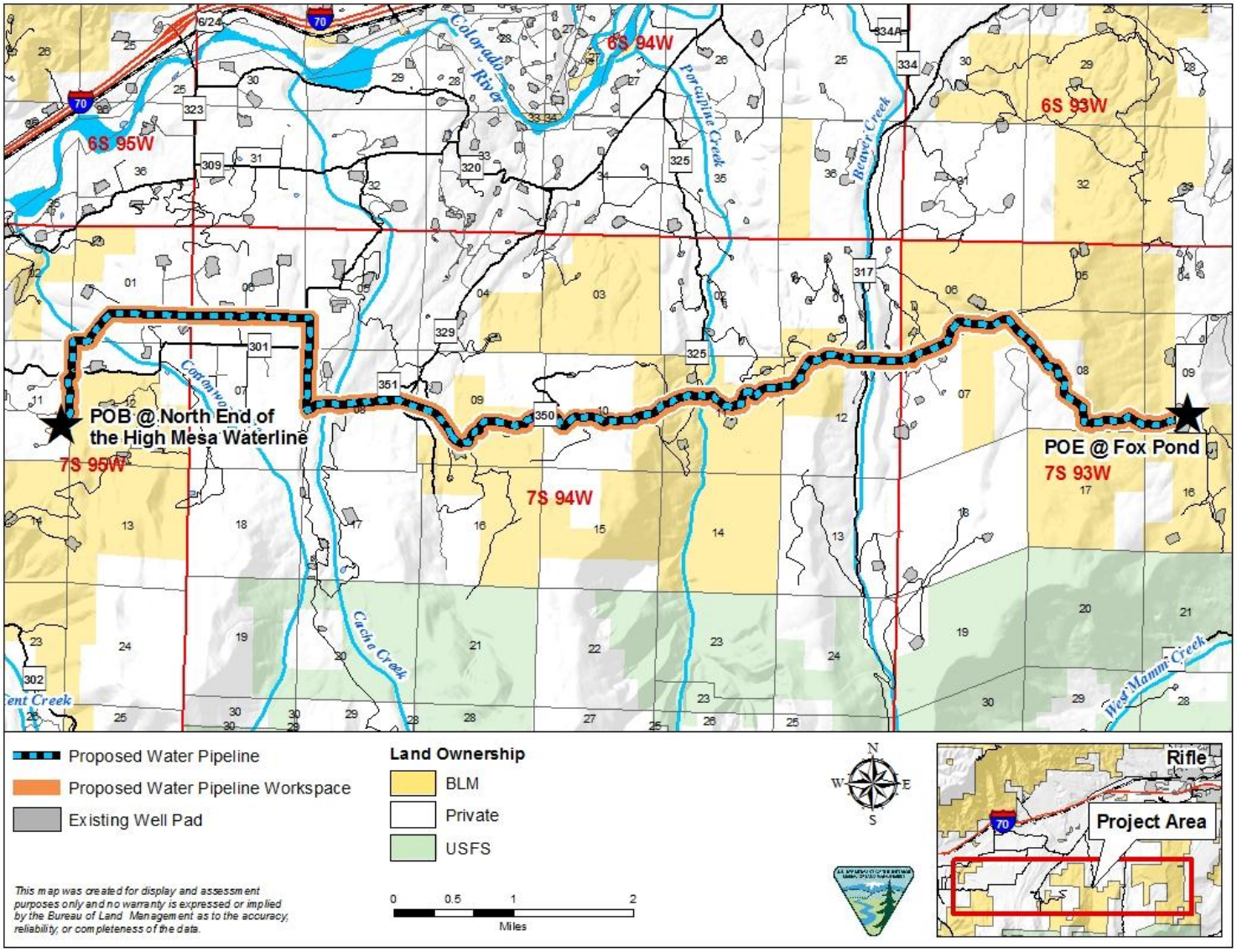

Figure 2. Pipeline Alignment in Relation to Land Status

Table 3. Anticipated Traffic			
Vehicle Class	***Number of Vehicles***	***One-way Trips per Day***	***Total Trips 25 weeks x 6 days***
Pipe Transport Truck	58 Total on the project	4	116
Welding Truck	15 Welding Trucks per day	30	4,500
2-Ton Truck	4	8	1,200
Wire-Line Truck	4	8	1,200
Pickup Truck	15	38	5,700
Total	75	88	12,716

Clearing and Grading

Vegetation would be cleared and the construction corridor graded to provide for safe and efficient operation of construction equipment and to provide space for temporary storage of spoil material and salvaged topsoil. In general, the width of the corridor clearings would be kept to a practical minimum to avoid undue disturbance.

Tree and brush clearing would be limited to mowing with hydro-ace equipment and trimming and/or crushing to avoid disturbance of root systems. All brush and other materials that are cleared would be windrowed along the corridors. Where necessary, all brush and other debris cleared would be disposed of in accordance with instructions from the jurisdictional agency or landowner and all applicable laws and regulations. Topsoil removed during the clearing and grading operations would be segregated from the sub soils. At a minimum, the first 6 inches of surface soil would typically be separated and preserved for subsequent reclamation activities on the corridor.

Three approaches to topsoil removal would be applied. These include 1) full disturbance corridor topsoil removal; 2) trench and spoil area only topsoil removal; and 3) blade with only topsoil removal. The method of topsoil removal utilized would vary depending on landowner preference, jurisdictional agency stipulations, conditions encountered on the ground during construction, recommendations by soil and reclamation specialists employed or involved in the project, and the preferences and requirements of the contractor.

Grading of the construction area would be performed to create a safe work surface for construction vehicles and heavy equipment. On flat to mildly or moderately sloping terrain, a uniform work surface would be graded across the entire disturbance corridor. A bi-level work surface would be necessary in steeper sloped areas. Sidehill cuts would be kept to a minimum to ensure resource protection and a safe, stable surface for heavy equipment use.

When required by the jurisdictional agency or landowner, construction activities would not be conducted during conditions when soils on the corridor or access roads are too wet to adequately support construction equipment. Construction activities would be discontinued until soil conditions improve.

All survey monuments located within the disturbance corridor would be protected during construction activities. In the event of obliteration or disturbance of any survey monument, the incident would be duly

reported. Where such monuments are obliterated during construction, the services of a registered land surveyor would be duly recorded with the appropriate county and other jurisdictional agencies.

Trenching

Pipeline burial depths would be conformance with the requirements of 49 CFR 192 Pipeline Safety Regulations. In general, the depth of the pipeline would be 4 feet as measured from the top of the buried pipeline. The trench would be excavated to depths greater than 4 feet when crossing railroad tracks, roads, streams, drainages, and other obstructions.

As a minimum, the trench would be excavated to a depth allowing a 24-inch clearance between the proposed pipeline and other pipelines or underground facilities. Machine excavation would not be performed closer than 5 feet from an existing pipeline, communication cables, or other buried facility encountered within the corridor. Existing pipeline locations would be marked in the field and 48-hour prior notification would be given to the pipeline or underground utility operator.

Construction methods employed to excavate a trench would vary depending on soils, terrain, and related factors. Self-propelled trenching machines would be used where possible. Conventional mechanical backhoes would be used in areas with steep slopes, unstable soils, high water table, and where deep or wide trenches are required. Where rock or rock formations are encountered, tractor-mounted mechanical rippers or rock trenching equipment would be used to facilitate excavation. In areas where rippers or trenchers are not practical, or sufficient, blasting may be employed. Strict safety precautions would be taken when blasting. Backhoes would then be used to clean the trench after ripping or blasting.

Pipe Installation

Pipe would be shipped directly from a manufacturer or supplier by rail and truck to offsite storage sites and then be hauled by truck to the pipeline project site. Each individual joint of pipe would be unloaded by cranes or tractors equipped with side booms and slings, and strung parallel to the trench. Sufficient pipe for road crossings would be stockpiled at staging areas near the crossing. Stringing operations would be coordinated with trenching and installation activities in order to properly manage the construction time at a particular tract of land. Gaps would be left at access points across the trench to allow crossing of the disturbance corridor. As construction proceeds, some of the pipe and stringing equipment would be temporarily stored at approved staging and extra workspace areas along the corridor.

After the joints of pipe are strung along the trench but before the joints are welded together, individual joints of the pipe would be bent to accommodate horizontal or vertical changes in direction. Such bends would be made utilizing an approved cold, smooth bending machine having a hydraulically operated shoe that makes the bend. Where the deflection of a bend exceeds the allowable design limits for field-bent pipe, shop fabricated pieces (induction or “hot bends”) or trimmed segmentable forged fittings would be installed.

After the pipe joints are bent, the pipe is lined up end-to-end and clamped into position. The pipeline would then be welded in conformance with 49 CFR Part 192, Subpart E, "Welding of Steel in Pipelines" and API 1104, "Standard for Welding Pipelines and Related Facilities," latest edition. Welds would be visually inspected by a qualified inspector and would be subject to radiographic inspection in conformance with U.S. Department of Transportation (USDOT) requirements. A specialized contractor certified to perform radiographic inspection would be employed to perform this work. Any defects would be repaired or removed as required under the specified regulations and standards.

Project specifications would require that the pipe be externally coated with fusion bonded epoxy coating prior to delivery. After welding, field joints would be coated with either a tape wrap or shrinkable sleeve wrap before the pipe is lowered into the trench, the pipeline coating would be visually and electronically inspected and any detected faults or scratches would be repaired.

Backfilling

Once the pipe coating operation has been completed, the pipeline would be lowered into the trench. Sideboom tractors would be used to simultaneously lift the pipe, position it over the trench, and lower it in place. Inspection would be conducted to verify that minimum cover is provided, the trench bottom is free of rocks/debris/etc., external pipe coating is not damaged, and the pipe is properly fitted and installed into the trench. In rocky areas, padding material or a rock shield would be used to protect the pipe.

Backfilling would begin after the pipeline has been successfully placed in the trench and final inspection has been completed. Backfilling would be conducted using a bulldozer, rotary auger backfiller, or other suitable equipment. Backfill would generally consist of the material originally excavated. In some cases, backfill material from other areas (borrow material) may be needed. Backfill would be graded and compacted, where necessary for ground stability, by being tamped or walked in with a wheeled or track vehicle. The soils would be replaced in a sequence and density similar to pre-construction conditions.

Subsoils would be backfilled first, followed by replacement of stockpiled topsoil. Once the excavation has been filled and compacted, the topsoil would typically be crowned in a berm, 12-inches-high or less, and tapered outward from the center and/or spread uniformly over the disturbed corridor. The material in the berm is intended to compensate for normal settling of backfilled materials. Any excess excavated materials or materials unfit for backfill would be properly disposed of in conformance with applicable laws or regulations, and landowner or jurisdictional agency requirements. Where possible, these surplus materials would be spread out over the disturbance corridor to avoid off-site disposal.

Pressure Testing

The water pipeline would be strength tested to prove its integrity in accordance with Title 49, CFR Part 192 "*Regulations for the Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standard"*. Fresh water would be utilized as the medium to perform the strength and leak tests. The water pipelines would be hydrostatically (hydro) tested. The hydro test would require approximately 411,358 gallons of water (this amount is for the entire alignment/BLM and Fee lands). The water would come from water rights that Encana holds on the Colorado River. After the completion of the hydro test, the water would be discharged in the High Mesa Water Treatment Facility or the Fox Pond water storage facility.

Post-Construction Cleanup and Restoration

Once completion of backfilling, construction work would commence to clean up, restore, and revegetate the disturbance corridor. All construction-related debris would remove and disposed of at an approved disposal area. The right-of-way would be graded as near as possible to the pre-construction contours and natural runoff and drainage patterns would be restored. The right-of-way would be left in roughened condition to provide micro-climates for plant development and collection of stormwater runoff. Reclamation and weed management would be completed as per Encana's High Mesa to Fox Pond Waterline Integrated Vegetation and Noxious Weed Management Plan (IVNWP) (Westwater 2013).

Operations and Maintenance

Encana would maintain the right-of-way for the life of the project. The pipeline would be operated and maintained in accordance with standard operating procedures that would ensure the integrity of the pipeline system. The standard operation procedures would be in accordance with safety standards and applicable regulations. Operations and maintenance of the pipeline would be performed by Encana and contracted service personnel. Maintenance would include repairing soil erosion and reseeding as necessary. The right-of-way would be considered satisfactorily reclaimed by the Garfield County Vegetation Management personnel when soil has been stabilized and a vegetation cover at least equal to that present prior to disturbance and a plant species composition at least as desirable as that present to the disturbance is established. Establishment of all the species in the seed mixture would be considered as meeting the composition/desirable species criteria.

No Action Alternative

The No Action Alternative would consist of denying the ROW application for use of Federally administered lands, and therefore construction of the Encana 12-inch water pipeline would not occur on BLM. From reviewing land status patterns in the vicinity of the project area, it does not appear that Encana could feasibly construct a connecting water pipeline between the beginning and ending points without crossing Federal land. In addition, Encana has existing pipeline infrastructure in place and wells proposed along the proposed route. The No Action Alternative constitutes denial of the Federal ROW grant needed for Encana to complete the desired water pipeline connections. Consequently, none of the planned development activities outlined in the Proposed Action would occur.

In accordance with Council on Environmental Quality (CEQ) regulations, the impacts of the No Action Alternative are evaluated in this EA to provide a baseline to compare impacts associated with the Proposed Action. Aside from the obvious Socioeconomic and field development impacts that would occur should the pipeline fail to be implemented, all other resources would not be affected under the No Action Alternative, because the project would not be authorized or implemented.

PLAN CONFORMANCE REVIEW

The Proposed Action and No Action Alternative are subject to and have been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: The current land use plan is the *Glenwood Springs Resource Management Plan* (RMP), approved in 1984 and revised in 1988 (BLM 1984). Relevant amendments include the *Oil and Gas Plan Amendment to the Glenwood Springs Resource Management Plan* (BLM 1991) and the *Oil &Gas Leasing & Development Record of Decision and Resource Management Plan Amendment (*BLM 1999a).

Decision Language: The 1991 Oil and Gas Plan Amendment (BLM 1991) included the following at page 3: "697,720 acres of BLM-administered mineral estate within the Glenwood Springs Resource Area are open to oil and gas leasing and development, subject to lease terms and (as applicable) lease stipulations" (BLM 1991, page 3).

Discussion: The Proposed Action is in conformance with the 1991 and 1999 RMP amendments cited above because the Federal mineral estate proposed for development was open to oil and gas leasing and development and, subsequent thereto, Federal fluid mineral leases were duly issued. That decision recognized the need for ancillary facilities such as access roads, natural gas pipelines, and water pipelines.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Evaluation of the Proposed Action by BLM resource specialists in the Colorado River Valley Field Office (CRVFO) included site visits, review of updated geographic information system (GIS) data, and review of recent resource surveys conducted by Encana contractors. Based on that evaluation, the BLM has determined that the currently proposed project warranted analysis of potentially significant impacts to the 17 elements of the human and natural environment:

Access and Transportation	Noise	Vegetation
Air Quality	Realty Authorizations	Visual Resources
Cultural Resources	Socioeconomics	Wastes, Hazardous and Solid
Fossil Resources	Soils	Water Quality, Surface
Invasive Non-Native Plants	Special Status Species	Wildlife, Terrestrial and Aquatic
Native American Religious Concerns		

These resources and resource uses, and potential impacts and associated mitigation, are described in the following subsections. Note that mineral resources and groundwater resources are not addressed in this EA because of a determination by BLM resource specialists that installation and operation of the proposed pipeline project would not affect these resources or associated resource uses.

Access and Transportation

Affected Environment

Access to the project area would be from private, Garfield County, and BLM roads. The BLM Grass Mesa Road would be used to access the project area on the southern portion of Grass Mesa.

Environmental Consequences

Proposed Action

The Proposed Action would result in a substantial temporary increase in truck traffic along private, Garfield County, and BLM roads during the duration of the project. The increased truck traffic on the BLM Grass Mesa road could potentially create conflicts (noise, dust, delays etc.) with Grass Mesa homeowners that live in the vicinity. Vehicle traffic would include truck trips for delivery of the pipe, fittings, and connections, and related materials; mobilization and demobilization of heavy equipment; construction inspection and supervision; reclamation; and daily commuting of workforce.

An estimated 12,716 truck trips over a 25-week period would be required to support the construction of the High Mesa to Fox Pond water pipeline (Table 3). The affected roads could be subject to short-term closures for safety. Measures would be taken to minimize these impacts through scheduling of vehicle trips. Road maintenance would be performed as needed or as required by managing agencies. Mitigation measures (Appendix A) would be required as Conditions of Approval to ensure that adequate dust abatement and road maintenance occur. The COAs would be attached as stipulations to the ROW Grant.

No Action Alternative

Under the No Action Alternative, the ROW grant would be denied, and no additional truck traffic would occur beyond production and maintenance traffic servicing of the existing well pads in the area.

Air Quality

Affected Environment

Colorado Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) are health-based criteria for the maximum acceptable concentrations of air pollutants in areas of public use. Although specific air quality monitoring has not been conducted within the project area, regional air quality monitoring has been conducted in Rifle and elsewhere in Garfield County. Air pollutants measured in the region for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter less than 10 microns (µ) in diameter (PM_{10}), and particulate matter less than 2.5 µ in diameter ($PM_{2.5}$).

The project area lies within Garfield County, which has been described as an attainment area under CAAQS and NAAQS. An attainment area is an area where ambient air pollution quantities are below (i.e., better than) NAAQS standards. Regional background values are well below established standards, and all areas within the cumulative study area are designated as attainment for all criteria pollutants. The Garfield County Quarterly Monitoring Report summarizing data collected at monitoring sites in Parachute, Silt, Battlement Mesa, and Rifle in January through June 2012 (the most recent posting) confirms continuing attainment of the CAAQS and NAAQS (Garfield County 2012). Federal air quality regulations are enforced by the CDPHE.

Federal air quality regulations adopted and enforced by the Colorado Department of Public Health and Environment (CDPHE through the Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) Program limit incremental emissions increases of air pollutants from certain sources to specific levels defined by the classification of air quality in an area. Incremental increases in PSD Class I areas are strictly limited, while increases allowed in Class II areas are less strict.

The project area and surrounding areas are classified as PSD Class II, as is Dinosaur National Monument, located approximately 180 miles to the northwest. PSD Class I areas located within 100 miles of the project area are Flat Tops Wilderness (approximately 25 miles north), Maroon Bells – Snowmass Wilderness (approximately 35 miles south), West Elk Wilderness (approximately 60 miles southeast), Black Canyon of the Gunnison National Park (approximately 65 miles south), and Eagles Nest Wilderness (approximately 60 miles east).

Environmental Consequences

Proposed Action

The CDPHE, under CAA delegated authority from the U.S. Environmental Protection Agency (EPA) and in conformance with Colorado's State Implementation Plan (SIP), is the agency with primary responsibility for air quality regulation and enforcement in connection with industrial developments and other air pollution sources in Colorado. Unlike the conceptual "reasonable but conservative" engineering designs used in NEPA analyses, CDPHE air quality preconstruction permitting is based on site-specific, detailed engineering values, which are assessed in CDPHE's review of the permit application. CDPHE requires an Air Pollutant Emission Notice (APEN) and construction permit for land development activities which disturb greater than 25 contiguous acres.

The Proposed Action includes constructing and installing 12.4 total miles of pipeline. Total disturbance area would be 112.3 acres, with 43.7 acres on BLM land (Table 1). The air quality would decrease during the approximately 25 weeks of construction.

The Proposed Action would result in localized short-term increases in emissions during brush clearing of the ROW, topsoil stockpiling, trenching, pipe delivery, pipeline installation, backfilling, and reclamation. Pollutants generated during construction activities would include emissions from vehicles and heavy equipment and fugitive dust (PM_{10} and $PM_{2.5}$) associated with soil disturbance and travel on unpaved roadways. Once construction activities are complete, air quality impacts associated with these activities would diminish dramatically and decrease to near zero over current levels as revegetation progresses to a self-sustaining perennial plant cover.

The width of pipeline ROW clearing would be kept to a practical minimum to avoid undue disturbance to existing vegetation. Where topsoil removal and storage is not necessary, brush clearing would be limited to removal of above ground vegetation to avoid disturbance of root systems, which would help reduce fugitive dust. In addition BLM would require water or dust suppressant be applied during construction.

The CRVFO analyzes air quality impacts of oil and gas development projects using results of a regional air model prepared by Tetra Tech, Inc. and its subcontractor, URS Corporation, in October 2011. The modeling addressed the cumulative impacts of incremental oil and gas development in the CRVFO by assuming a range of future Federal (BLM and USFS) and private wells and associated facilities such as compressors, storage tanks, and roads. Methods and results of the modeling are presented in an Air Resources Technical Support Document (ARTSD) (BLM 2011), available for viewing at the CRVFO in Silt, Colorado, and on its website.

Emissions addressed in the air quality model included greenhouse gases (GHGs), "criteria pollutants" (CO, NO_2, SO_2, ozone, PM_{10}, and $PM_{2.5}$), and hazardous air pollutants (HAPs) including BTEX (benzene, ethylbenzene, toluene, and xylenes), formaldehyde, and n-hexane. The model also addressed potential impacts on visibility due to particulates and "photochemical smog" (caused by chemical reactions in the atmosphere) and on lake chemistry of selected pristine lakes due to modeled deposition rates of sulfur and resultant impacts on acid neutralizing capacity of the lake waters.

For the maximum level of future oil and gas development modeled, the visibility analysis predicted a slight impact (1 day per year with a reduction in visibility of 1deciview or greater) in the Flat Tops Wilderness and no days with 1 deciview or greater reduction in visibility at all other modeled Class I and II receptors. For the remaining pollutants analyzed, modeled levels of future oil and gas development within the CRVFO would have no or negligible long-term adverse impacts on air quality.

Since the Proposed Action is within the scope of the future development modeled, no significant adverse impacts on air quality are anticipated.

No Action Alternative

Under the No Action Alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation or redesign of the project. Therefore, no project-related impacts significantly affecting air quality are anticipated.

Cultural Resources

Affected Environment

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take in to account the effects their actions will have on cultural resources. As a general policy, an agency must consider effects to cultural resources for any undertaking that involves Federal monies, Federal permitting/authorization, or Federal lands.

Five Class III (intensive pedestrian survey) cultural resource inventories (CRVFO# 1104-4, 14508-1, 1109-1, 16909-1, and 1114-2) have been conducted within the proposed project area for the proposed High Mesa to Fox Pond waterline. Grand River Institute conducted the most recent cultural resource inventory (CRVFO# 1114-2) specifically for this project. The cultural inventories and pre-field file searches of the Colorado SHPO database and BLM Colorado River Valley Field Office cultural records identified a number of historic properties within project Area of Potential Effect (APE).

Three historic properties that have been evaluated as either need data (potentially eligible) or eligible to the NRHP are within the project's area of potential effect (APE). Eligible historic site 5GF1322 was previously impacted by a pipeline corridor. If the current project is restricted to the previously disturbed corridor, no additional work or monitoring is recommended. The proposed waterline also passes through the "need data" prehistoric site 5GF4144 within a previously disturbed corridor. If the current project stays within the previous disturbance, only monitoring of the trenching in the site vicinity would be required. Additionally, two "non-supporting" segments (.1 and .3) of linear site 5GF4162 will be crossed by the current project. Eligible or potentially eligible cultural sites are referred to in Section 106 of the National Historic Preservation Act as "historic properties."

Environmental Consequences

Proposed Action

Several historic properties have been identified during the cultural inventory for this project. Due to the proposed project corridor following within previous disturbance through sites 5GF1322 and 5GF4144, and the crossing of 5GF5162 through two "non-supporting" segments, the BLM has requested a determination of ***no adverse effect to historic properties*** from the Colorado State Historic Preservation Officer (SHPO). After several clarifying correspondences, concurrence on the BLM's determination was received from the SHPO on 2/26/2014.

Although unlikely, indirect, long-term cumulative damage from increased access and the presence of project personnel could result in a range of impacts to known and undiscovered cultural resources in the vicinity of the project location. These impacts could range from accidental damage or vandalism, illegal collection and excavation.

An Education/Discovery COA for cultural resource protection will be attached to the EA. The importance of this COA would be stressed to the operator and its contractors, including informing them of their responsibilities to protect and report any cultural resources encountered during construction operations.

No Action Alternative

Under the No Action Alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation or redesign of the project. The result would be no new impacts to cultural resources.

Fossil Resources

Affected Environment

The predominant bedrock formations present at or near the surface within the project area are the Wasatch Formation (including the Fort Union Formation or equivalent at its base) and the Green River Formation. Both formations are overlain by areas of Quaternary gravels and earthflow deposits. Occurring in

varying thicknesses, these Quaternary sediments are considered Potential Fossil Yield Classification Class 2, defined as having a low probability of fossil occurrence. Class 2 geologic units are not likely to contain vertebrate or scientifically significant invertebrate fossils.

Both the Wasatch and Green River Formations are considered BLM Condition 4 formations, defined as an area that is known to contain vertebrate fossils or noteworthy occurrences of invertebrate fossils. These types of fossils are known to occur or have been documented, but may vary in occurrence and predictability. The Wasatch Formation is divided into the early Eocene Shire, and the Paleocene age Molina and Atwell Gulch members; while the Eocene aged Green River Formation is divided into the Parachute Creek, Garden Gulch, Douglas Arch, Cow Ridge, and Anvil Points members.

All members of the Wasatch Formation contain vertebrate fossils in varying abundances (Murphy and Daitch 2007). Rocks of the Wasatch Formation are lithologically very similar to one another throughout the Piceance Creek Basin as heterogeneous continental fluvial deposits with interfingering channel sandstone beds and overbank deposits consisting of variegated claystone, mudstone, and siltstone beds (Franczyk et al. 1990). Eocene mammals have been found in the lower part of the Shire member.

Fossils historically identified in the Wasatch are archaic mammals—including marsupials, representatives of two extinct orders of early mammals (pantodonts and creodonts), artiodactyls (deer-like even-toed ungulates), ancestral horses and other perissodactyls (odd-toed ungulates), carnivores, and primates—as well as birds, lizards, turtles, crocodilians, gars and other fishes, freshwater clams, gastropods (snails), and other invertebrates (BLM 1999a).

The Green River Formation consists of fine-grained lacustrine and fluvial-lacustrine rocks that were deposited in the Eocene Lake Uinta. The lake expanded early in its history, during the Long Point transgression (Johnson 1989), to cover much of the Piceance and Uinta Basins. The Green River Formation has yielded hundreds of invertebrate and plant fossils and more than 60 vertebrate taxa have been described from the formation, including crocodiles, boa constrictors, and birds.

Environmental Consequences

Proposed Action

Although mapped as the predominant surface formations of the project area, both the Green River and Wasatch are exposed only in a few outcrops found on cliff faces and landslide exposures. The thickness of the Quaternary sediments cannot be accurately determined, but construction activities have the potential to adversely affect important fossils that may be present in the underlying Wasatch and Green River Formations. The greatest potential for impacts is associated with excavation of shallow bedrock that may be unearthed during well pad and facilities (especially pipeline) construction. In general, alluvium, colluvium, and other unconsolidated sediments are much less likely than bedrock to contain well-preserved fossils.

An examination of the BLM paleontology database indicates that there are known fossil discovery sites within a mile radius of the project area. Areas covered with vegetation and soil cover do not usually yield fossil resources, but inspections would be conducted for proposed facilities that are located on or within 200 feet of Wasatch or Green River Formation bedrock surface exposures. In the event paleontological resources are encountered, BMPs related to the standard paleontological COA would be required.

Invasive Non-Native Plants

Affected Environment

Plants designated as noxious weeds by the Colorado Department of Agriculture are regulated under the Colorado Noxious Weed Act, Title 35, Article 5.5. The Colorado noxious weed list is broken down into tiered levels based on existing infestation levels and a tiered approach to weed management. List A weeds are targeted for eradication, List B species are targeted for containment to limit spread, and List C species are targeted for integrated weed management including biocontrols, additional education resources, and research. Botany surveys conducted in 2013 identified state-listed noxious weeds within the High Mesa to Fox Pond project area, as well as other non-native plant species which can also have detrimental impacts on native plant communities (WWE 2013a). The proposed project would involve installation of 12.4 miles of new buried water pipeline paralleling an existing pipeline, of which 4.8 miles would be on BLM land and 7.6 miles on private land. Portions of the project area would occur within a previously disturbed pipeline corridor, or paralleling an existing previously disturbed pipeline corridor or existing roads.

Noxious weeds and other invasive nonnatives are common throughout the project area, particularly along ditches, perennial stream corridors and adjacent drainages, agricultural fields, and disturbed areas such as well pads, pipeline routes, and roadsides. Eleven State List B species are present, including bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), hoary cress (*Cardaria draba*), houndstongue (*Cynoglossum officinale*), jointed goatgrass (*Aegilops cylindrica*), musk thistle (*Carduus nutans*), plumeless thistle (*Carduus acanthoides*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and spotted knapweed (*Centaurea stoebe* ssp. *micranthos*) located within the project area.

Seven State List C noxious weed species are also present and widely scattered in and near previously disturbed areas throughout the project area. These are bulbous bluegrass (*Poa bulbosa*), chicory (*Cichorium intybus*), cheatgrass (*Bromus tectorum*), common burdock (*Arctium minus*), common mullein (*Verbascum thapsus*), field bindweed (*Convolvulus arvensis*), and redstem filaree (*Erodium cicutarium*). Adjacent undisturbed vegetation typically does not support extensive infestations by these noxious weeds, with the exception of houndstongue, which is common and often dense in wetland areas and within dense Gambel oak (*Quercus gambelii*) and serviceberry (*Amelanchier alnifolia*) stands.

In addition to these noxious weeds are a number of other undesirable non-native plant species, primarily in association with previously disturbed areas. These include kochia (*Bassia scoparia*), prostrate knotweed (*Polygonum aviculare*), prostrate pigweed (*Amaranthus blitoides*), prickly lettuce (*Lactuca serriola*), and Russian-thistle (*Salsola tragus*). Sections of the existing pipeline corridor appear to have been reclaimed with non-native species, and are currently dominated by yellow sweetclover (*Melilotus officinale*). Crested wheatgrass (*Agropyron cristatus*) and smooth brome (*Bromus inermis*) are also present in these areas. These non-native reclamation species are known to reduce native plant species diversity and impede or prevent establishment of native species (Jordan et. al. 2008, Grant-Hoffman et. al. 2012).

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of 112.3 acres would be disturbed, including 43.7 acres on BLM lands and 68.6 acres on private lands. Reclamation of disturbed areas would occur following completion of the project. Reclamation would consist of seeding in accordance with the reclamation COAs presented in Appendix A.

Reclamation seeding on BLM lands would be restricted to native plant species, but on privately owned lands the composition of plant species used for reclamation would be at the discretion of the landowners.

Surface-disturbing activities, such as those proposed for this project, provide a niche for invasion and establishment of non-native plant species particularly when these species are already present in the surrounding area. The mechanisms for this invasion and establishment are multi-fold. Soil disturbance and removal of native vegetation creates niches for invasive species (Parendes and Jones 2000). Linear disturbances, such as roads, provide corridors of connected habitat along which invasive plants can easily spread (Gelbard and Belnap 2003). Construction equipment and heavy vehicles often transport invasive plant seeds alone or in dirt clods on tires or the vehicle undercarriage (Schmidt 1989, Zwaenepoel et. al. 2006).

Noxious weeds and other invasive species are adapted to colonize and dominate in disturbed ground. They generally do not require well-developed soils, can out-compete native species for resources, produce prodigious quantities of seeds, and have seeds which can survive for many years or even decades within the soil. When weeds establish on a site, they can also significantly alter the composition of the soil microbial community of bacteria and fungi, making it increasingly more difficult over time for native species to reestablish on the site (Hierro et. al. 2006, Reinhart and Callaway 2006, Vinton and Goergen 2006, Jordan et. al. 2008, Vogelsgang and Bever 2009). Some weed species produce defensive chemicals which can impede germination of native plant seeds, as well as germination of spores for mycorrhizal fungi species upon which most perennial native plants are dependent (Bainard et. al. 2009). Due to the quantity and longevity of weed seeds and the effects of weeds on the soil, once these invasive species have established on a site they can be extremely difficult to eliminate.

The proposed project area has a history of disturbance associated with previous pipeline installation, oil and gas development, agricultural fields, and livestock grazing. As a result, noxious weeds and other problematic nonnative species are widespread in disturbed sites throughout the project area, particularly along existing roads and the existing pipeline corridor where the proposed project would occur. With new project disturbances, the potential for increased establishment of these undesirable plants following construction activities is very high. Movement of soil by construction equipment could be expected to spread weed seeds within the project area, and the total area of disturbed habitat would increase. Vehicles and equipment could also transport new noxious weed species to the site, where they would have disturbed habitats in which to establish.

To mitigate the risk from invasive species, the standard weed control COA would be attached to ROW Grants to require periodic monitoring and weed control practices to ensure that noxious weeds are controlled (Appendix A). Establishment of native plant species is also crucial in preventing invasive non-native plant species establishment and spread. Therefore, the standard reclamation COAs would also be attached to ROW Grants to require seeding and monitoring of reclamation seeding results (Appendix A).

No Action Alternative

Under the No Action Alternative, the pipeline would not be constructed, and there would be no alteration of the existing noxious weed and non-native invasive plant infestation situation.

Native American Religious Concerns

Affected Environment

The Proposed Action would be implemented within an area identified by the Ute Tribes as part of their ancestral homeland. Five Class III cultural resource inventories (see section on Cultural Resources) were

conducted in the vicinity of the project to determine if any areas were known to be culturally sensitive to Native Americans. No sensitive areas were identified or are currently known in the proposed project area.

Environmental Consequences

Proposed Action

The Ute Tribe of the Uintah and Ouray Bands, the Southern Ute Tribe, and Ute Mountain Ute Tribe were notified of the proposed High Mesa to Fox Pond Waterline Project on December 20, 2013. No responses, questions, or requests for additional information have been received as of January 20, 2014.

If new data regarding cultural resources are identified or disclosed, new terms and conditions may have to be negotiated to accommodate their concerns.

Although the Proposed Action would have no direct impacts, increased access and personnel in the vicinity of the proposed project could indirectly impact unknown Native American resources ranging from illegal collection to vandalism.

The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13). The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the agency Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).

Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act. WPX Energy Rocky Mountain LLC will notify its staff and contractors of the requirement under the NHPA, that work must cease if cultural resources are found during project operations. A standard Education/Discovery COA for the protection of Native American values would be attached to the APDs (Appendix A). The importance of these COAs would be stressed to the operator and its contractors, including informing them of their responsibilities to protect and report any cultural resources encountered. The proponent and contractors would also be made aware of requirements under the NAGPRA.

No Action Alternative

Under the No Action Alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation or redesign of the project. The result would be no new impacts to cultural resources.

Noise

Affected Environment

The project area is located south of Rifle and east of Parachute, Colorado, with activities proposed near the Grass Mesa subdivision. The project area is within a rural setting characterized by oil and gas development activities. Noise levels in the area are presently created by traffic on private, Garfield County, and BLM roads and from activities associated with existing wells and ongoing drilling and completion activities in the area.

Noise is generally described as unwanted sound, weighted and noise intensity (or loudness) is measured as sound pressure in decibels (dBAs). The decibel scale is logarithmic, not linear, because the range of sound that can be detected by the human ear is so great that it is convenient to compress the scale to encompass all the sounds that need to be measured. Each 20-unit increase on the decibel scale increases the sound loudness by a factor of 10. Sound levels have been calculated for areas that exhibit typical land uses and population densities. In rural recreational areas, ambient sound levels are expected to be approximately 30 to 40 dBA (USEPA 1974, Harris 1991). As a basis for comparison, the noise level would be 60 dBA during a normal conversation between two people standing 5 feet apart.

Environmental Consequences

Proposed Action

The project would result in increased levels of noise during the construction and installation phases. The noise would be most noticeable along the roads used to haul equipment and at the project location. Oil and gas activities are subject to noise abatement procedures as defined in the COGCC Rules and Regulations (Aesthetic & Noise Control Regulations). Operations involving pipeline or gas facility installation or maintenance, compressors, the use of a drilling rig, completion rig, workover rig, or stimulation are subject to the maximum permissible noise levels for industrial zones. The 2013 COGCC noise control rules call for noise levels from oil and gas operations at any well site and/or gas facility to comply with the maximum permissible levels (Table 4) at a distance of 350 feet.

Table 4. Noise Standards for Light Industrial and Residential/Agriculture/Rural

Zone	*7:00 A.M. to 7:00 P.M*	*7:00 P.M. to 7:00 A.M*
Light Industrial	70 dBA	65 dBA
Residential/Agricultural/Rural	55 dBA	50 dBA

Given the location of the proposed project activities, with close occupied structures, the standard for residential, agricultural, and rural lands is applicable. The allowable noise level for periodic impulsive or shrill noises is reduced by 5 dBA from the levels shown (COGCC 2013). Short-term increases in nearby noise levels would result from construction and installation phases of the pipeline. Based on the Inverse Square Law of Noise Propagation (Harris 1991) and an typical noise level for construction sites of 65 dBA at 500 feet (Table 5), project-related noise levels would be approximately 59 dBA at a distance of 1,000 feet, approximating active commercial areas (USEPA 1974).

Table 5. Noise Levels at Typical Construction Sites and along Access Roads

Equipment	*Noise Level (dBA)*		
	50 feet	*500 feet*	*1,000 feet*
Air Compressor, Concrete Pump	82	62	56
Backhoe	85	65	59
Bulldozer	89	69	63
Crane	88	68	62
Front End Loader	83	63	57
Heavy Truck	88	68	62
Motor Grader	85	65	59
Road Scraper	87	67	61

Table 5. Noise Levels at Typical Construction Sites and along Access Roads			
Equipment	***Noise Level (dBA)***		
	50 feet	***500 feet***	***1,000 feet***
Tractor, Vibrator/Roller	80	60	54
Sources: BLM (1999a), La Plata County (2002)			

Traffic noise would also be elevated temporarily as a consequence of the Proposed Action. The greatest increase would be along access roads during the construction and installation phases. Based on the La Plata County data presented in Table 4 approximately 68 dBA of noise (at 500 feet) would be created by each fuel and water truck that travels these roads. Less noise would be created by smaller trucks and passenger vehicles such as pickup trucks and sport utility vehicles. Although the duration of increased noise from this source would be short, it would occur repeatedly during the construction and installation phases.

Upon completion and initiation of operation of the proposed water pipeline, noise impacts related to large truck traffic and construction equipment along the access roads would decrease, but noise from small truck traffic for routine pipeline maintenance would continue for the lifespan of the pipeline.

No Action Alternative

Under this alternative, the installation of a new water pipeline would not occur, avoiding any new noise impacts associated with construction.

Realty Authorizations

Affected Environment

The Proposed Action would require a realty authorization by the BLM. Construction of the Encana High Mesa to Fox Pond water pipeline would be authorized under a new ROW grant for which Encana has applied (COC 76300 and COC 76300T). Numerous existing Federal realty authorizations involve BLM lands within the project area (Table 6).

In 2012, Bargath, LLC, and WPX Energy Rocky Mountain, LLC, were issued BLM ROWs to construct two separate but parallel pipelines referred to as the 16-inch Kokopelli Phase II Natural Gas Pipeline (COC 75020) and Spruce Creek to Beaver Creek 6-inch buried water pipelines (COC 75224 – Relinquished 06/18/2013 because water line was constructed along an alternate route on private land).

Energy Transfer (ETC) was issued a BLM ROW (COC73824) in 2009 to construct a new 12-inch gas pipeline from Beaver Creek east to West Mamm Creek and 16-inch gas line from Beaver Creek west to Spruce Creek, to be located in the proposed WPX and Kokopelli II corridor and now the Encana High Mesa to Fox Pond waterline corridor. The ETC projects have yet to be constructed and are not planned for construction in 2014. BLM notified ETC of the planned Kokopelli line being considered for authorization and made the determination that the first pipeline to be constructed would have the next available or most desirable space in the corridor. Summit Midstream Partners LLC has purchaced ETC Canyon Pipeline LLC, changed the name to Red Rock Gathering LLC, and submitted a transfer of ownership to the BLM.

The Beaver Creek-Grass Mesa ditch originates from a diversion point in Beaver Creek in SW¼NE¼, Section 25, T7S R94W and runs north and east across private and BLM land (Sections 8 and 9, T7S R93W) to and through the Grass Mesa Subdivision lots. The ditch has been in existence since 1922;

BLM recognizes that maintenance can be conducted on the ditch without prior authorization as long as the work is confined to the existing ditch course. A COA would be stipulated in the ROW (Appendix A) requiring the operator to mitigate construction impacts to the existing ditch on BLM.

Table 6. Existing Realty Authorizations in the Project Area

FLPMA Powerlines	FLPMA Access Roads	FLPMA Water Facilities and other Energy Facilities	MLA Natural Gas Pipelines and Facilities
COC29423 –Public Service Company of Colorado/Tri-State Generation and Transmission	COC059786 – Williams Production RMT Co COC065900 – Encana Oil & Gas (USA) Inc. COC068682 – Encana Oil & Gas (USA) Inc. COC074214 – Laramie Energy II LLC COC074411 - Williams Production RMT Co COC074732 – Rudolph Associates LLC	COC060636 –H & L Dorell Partnership COC071804 – Encana Oil & Gas (USA) Inc. COC071879 – Encana Oil & Gas (USA) Inc. COC074857 – Encana Oil & Gas (USA) Inc. COC074858 -Encana Oil & Gas (USA) Inc. COC075494 – Encana Oil & Gas (USA) Inc. COC075938 – WPX Energy Rocky Mountain LLC COC075971 – WPX Energy Rocky Mountain LLC	COC051003 – Canyon Gas Resources LLC COC051003A – ETC Canyon Pipeline LLC COC057234 – Canyon Gas Resources LLC COC059787 – Williams Production RMT Co COC 066088 – Canyon Gas Resources LLC COC066459 – Encana Oil & Gas (USA) Inc. COC066794 – Encana Oil & Gas (USA) Inc. COC067721 – Canyon Gas Resources COC071881 – Canyon Gas Resources LLC COC072076 – Canyon Gas Resources LLC COC072903 – ETC Canyon Pipeline LLC COC073824 – ETC Canyon Pipeline LLC COC074216 – ETC Canyon Pipeline LLC COC074563 – Williams Production RMT Co COC074640 – ETC Canyon Pipeline LLC COC074837 – ETC Canyon Pipeline LLC COC075103 – Encana Oil & Gas (USA) Inc. COC075504 – Grand River Gathering LLC COC081297 – Public Service Company of CO

Environmental Consequences

Proposed Action

The Proposed Action would be constructed in the late summer and fall of 2014. Potential impacts to existing Federal realty authorizations associated with construction may coincide with other projects in the area. A COA would be included in the ROW authorizations requiring Encana to coordinate with other ROW holders regarding pipeline alignments, locations and crossings, and be fully responsible for weed control and reclamation of the disturbed portions of the pipeline corridor. Furthermore, the operator would be responsible for reestablishment of the existing Beaver Creek Grass Mesa ditch course where it enters and leaves the planned High Mesa to Fox Pond waterline disturbance corridor in a manner that allows ditch water to flow freely without impediments.

No Action Alternative

The No Action Alternative would not require a new realty authorization, and no impacts would occur to the various existing authorizations.

Socioeconomics

Affected Environment

The project area is located entirely within Garfield County, Colorado, with a total county land area of 2,958 square miles (Garfield County 2013a). The county seat is Glenwood Springs; other towns include Carbondale, New Castle, Silt, Rifle, Battlement Mesa, and Parachute. Interstate 70 transects the county east to west with a network of county and private roads servicing the project area.

The population of the county grew by an average of approximately 2.5% per year from 2000 to 2011 but decreased by 2.6% from 2008 to 2011 due to the national economic downturn, resulting in a net increase of 27% from 44,259 to 56,270 residents (CDOLA 2013a). Population growth in Garfield County is expected to nearly double to 109,887 in 2040 (CDOLA 2012). In July 2011, the Garfield County population was 70% urban and 30% rural, with a population density of approximately 19 people per square mile (City Data 2012).

In February 2013, the total estimated civilian labor force was 34,107 with an unemployment rate of 7.8% (CDLE 2013). In the fourth quarter of 2011, the industry groups with the highest percentage of total employment were construction (14.4%), retail trade (13.7%), and Health Care and Social Assistance (13.5%). Table 7 lists the top 10 industries in Garfield County for the fourth quarter of 2011 (CDLE 2013).

Table 7. Selected Industry Sectors for Garfield County

Rank	*Job Sector*	*Employees*
1	Construction (buildings and engineered projects)	2,901
2	Retail Trade	2,782
3	Health Care and Social Assistance	2,732
4	Education Services	2,484
5	Accommodation and Food Services	2,464
6	Mineral Extraction (including mining and oil and gas)	2,426
7	Public Administration	1,717

8	Professional, Scientific & Technical Services	1,047
9	Administration, Support, Waste Management, and Remediation	874
10	Transportation and Warehousing	782

Personal income in Garfield County has also risen, growing approximately 6% per year from $1.3 billion in 2000 to $2.1 billion in 2011. However, personal income dropped by nearly 10% from 2008 to 2011. Annual per capita income has grown in the same period approximately 3% per year, from $29,081 to $37,858, but annual per capita income dropped by nearly 11% from 2008 to 2011 (USDOC 2012).

The communities of Parachute, Rifle, Silt, and New Castle are considered to have the most affordable housing, while the communities of Glenwood Springs and Carbondale have the least affordable housing. In March 2012 the cost of living index in Garfield County was 88.6 (less than the U.S. average of 100) (City Data 2012).

Activities on public land in the vicinity of the project area are primarily ranching/farming, hunting, OHV travel, and the development of oil and gas resources. Hunters contribute to the economy because many require lodging, restaurants, sporting goods, guides and outfitting services, food, fuel, and other associated supplies.

Production of natural gas in Garfield County increased dramatically during recent years, from approximately 70 billion cubic feet (BCF) in 2000 to 700 BCF in 2012 (COGCC 2013a). Approximately 1,286 drilling permits were approved in Garfield County between April 2, 2012 and March 29, 2013 (COGCC 2013b). However, U.S. natural gas prices have dropped in recent years from $10.79 per thousand cubic feet (MCF) in July 2008 to $1.89/MCF in April 2012 (USDOE 2013). The U.S. price of natural gas has begun to improve, in December 2012 it was $3.35/MCF, but has not reached the prices of 2008. Natural gas development activity in Garfield County remains low.

Property tax revenue from oil and gas development is a source of public revenue in Garfield County. In 2012, oil and gas assessed valuation in Garfield County was approximately $2.8 billion, or about 73% of total property tax assessed value distribution (Garfield County 2013b). The county's largest taxpayers are in the oil and gas industry (Garfield County 2013c).

The Federal government makes Payments in Lieu of Taxes (PILT) to local governments to help offset losses in property taxes due to nontaxable Federal lands within their boundaries (USDI NBC 2013). The PILT distributions are based on acres for all Federal land management agencies. Approximately 60% of all Garfield County lands are Federally owned (Garfield County 2013a). The amount may also be adjusted based on population and as apportioned by Congress. By formula, payments are decreased as other Federal funds, such as mineral royalty payments, increase. PILT amounts to Garfield County over the last five years ranged from $1,732, 974 in 2008 to $403,176 in 2012 (USDI NBC 2013).

In addition to PILT distributions, Federal mineral royalties are levied on oil and gas production from Federal mineral leases. Oil and gas lessees pay royalties equal to 12.5% of the wellhead value of oil and gas produced from public land (BLM 2007a). Half the royalty receipts received from production are distributed to the state and county governments, which are then allocated to fund county services, schools, and local communities.

The NEPA process requires a review of the environmental justice issues as established by Executive Order 12898 (February 11, 1994). The order established that each Federal agency identify any "disproportionately high and adverse human health or environment effects of its programs, policies, and activities on minority and low-income populations." The Hispanic/Latino community is the only minority population of note in the

project vicinity. In 2010, approximately 28% of the residents of Garfield County identified themselves as Hispanic/Latino, compared to 17% in 2000 (CDOLA 2013b). Statewide, the population of Hispanic/Latino residents grew 41.2% during the same 10-year period (CDOLA 2013c). African-American, American Indian, Asian, and Pacific Islander residents accounted for a combined 1.6% of the Garfield County population in 2010, compared to a statewide level of 7% (CDOLA 2013b).

Environmental Consequences

Proposed Action

The Proposed Action would have minor positive impacts on the local economy of Garfield County through the creation of additional job opportunities in the oil and gas industry and in supporting trades and services. In addition, Garfield County would receive additional tax and royalty revenues. The Proposed Action could result in negative social impacts including changing the character of the area, reducing scenic quality, increasing dust levels especially during construction, and increasing traffic.

No Action Alternative

Under the No Action Alternative, the construction and installation of a water pipeline would not occur precluding any new positive or negative socioeconomic impacts.

Soils

Affected Environment

The Proposed Action would be implemented on private land and BLM land at elevations between 5,971 and 7,851 feet. Portions of the proposed pipeline and workspace would be located within an existing previously disturbed pipeline corridor and/or parallel an existing previously disturbed pipeline corridor and/or access road. The eastern portion of the proposed pipeline alignment would be located in area that burned in the 1988 Flat Iron Mesa Fire. The proposed project area is covered by the *Soil Survey of Rifle Area, Colorado* (NRCS 2013, USDA1985). The soil types across the length of the project occur generally on a mix of loams found on mesas, sides of valleys and alluvial fans, alluvium derived from basalt, sandstones, and shale. More specifically, the project area contains the soil types in Table 8.

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of 112.3 acres of soil would be disturbed for pipeline construction and installation, of which 43.7 acres would occur on BLM lands and 68.6 acres, would occur on private lands. The Proposed Action would involve surface disturbance resulting in vegetation loss and soil compaction and displacement. In general, most of the Proposed Action contains adequate vegetation buffers and moderate slopes that would minimize the potential for sediment transport. However, construction activities would cause slight to moderate increases in local soil loss, loss of soil productivity, and sediment available for transport to the Colorado River and its tributaries in the area. Potential for such soil loss and transport would increase as a function of slope, soil type, width of construction corridor, and proximity to streams. There would be a slight alteration of topography as the level placement is optimum for the pipeline alignment. Construction activities would cause mixing of soil horizons, slight to moderate increases in local soil loss, and loss of soil productivity. Infestations of noxious and other invasive weeds resulting from soil disturbance would also affect soil productivity.

Table 8. Project Area Soils

Soil Type and % of Route	***Description***	***Erosion Hazard***	***Pipeline Segment***
Badland Map Unit 9 1.0% of Route	Steep to very steep, nearly barren land dissected by many intermittent drainage channels. Slopes are generally greater than 50%. About 85% or more of the area is unvegetated and 15% of this unit has only a sparse plant cover, mainly scattered pinyon and juniper. Limited value for livestock grazing and protection and cover for wildlife.	Very Severe	T7S R94W, Section 11
Morval-Tridell Complex Map Unit 45 53.1% of Route	Deep, well-drained soils on alluvial fans and sides of mesas from 6,500 to 8,000 feet and 6-25% slopes. Soils formed in reworked alluvium derived from basalt and sandstone. Morval soil makes up about 55% of the unit and the Tridell soil makes up about 30%. Permeability is moderate to moderately rapid, surface runoff is medium. Used mainly for livestock grazing.	Moderate	T7S R93W, Sections 6, 7, 8, and 9 T7S R94W, Sections 1, 9, 10, 11, and 12
Nihill Channery Loam Map Unit 47 0.4% of Route	Deep, well-drained soil on alluvial fans and sides of valleys from 5,000 to 6,500 feet and 6-25% slopes. Formed in alluvium derived from Green River shale and sandstone. Permeability is moderately rapid and surface runoff is slow. Used mainly for livestock grazing and wildlife habitat.	Severe	T7S R94W, Section 11
Potts-Ildefonso Complex Map Unit 58 6.4% of Route	Deep, well drained, strongly sloping to hilly soils found on mesas, alluvial fans, and sides of valleys from 5,000 to 6,500 feet and 12-25% slopes. The Potts soil (60% of unit) and consists of alluvium derived from sandstone, shale, or basalt. The Ildefonso soil (30% of unit) formed in very strong calcareous, basaltic alluvium and small amounts of eolian material. Included with this soil are small areas of Morval and Lazear soils (10-18% of unit) at the higher elevations. Permeability is moderate (Potts) to moderately rapid (Ildefonso), water capacity is low (Ildefonso) to high (Potts), and surface runoff is medium. Used for limited grazing and wildlife habitat.	Moderate	T7S R95W, Section 12
Torriorthents-Camborthids-Rock Outcrop Complex Map Unit 66 7% of Route	Exposed sandstone and shale bedrock, loose stones, and soils that are shallow and deep over sandstone and shale bedrock and stony basaltic alluvium on foothills and mountainsides with 15-70% slopes). Used for livestock grazing, wildlife habitat, and recreation.	Moderate to Severe	T7S R93W, Sections 7 and 8 T7S R94W, Sections 11 and 12
Torriorthents-Rock Outcrop Complex Map Unit 67 3.1% of Route	Exposed sandstone and shale bedrock and stony soils that are shallow to moderately deep over sandstone and shale and stony basaltic alluvium on foothills and mountainsides from 5,800 to 8,500 feet and 15-70% slopes. Used for limited livestock grazing, wildlife habitat, and recreation.	Very Severe	T7S R94W, Section 12
Villa Grove-Zoltay Loams Map Unit 71 6.9% of Route	Deep, well-drained moderately steep to hilly soils found on mountainsides and alluvial fans from 7,500 to 7,600 feet and 15-30% slopes. Used for livestock grazing, wildlife habitat, and some irrigated pasture.	Slight to Moderate	T7S R93W, Sections 6 and 7

Throughout the affected area, the potential would exist for accidental spills or leaks of petroleum products and hazardous materials during construction. These events would cause soil contamination. Long-term soil productivity could be achieved by continued maintenance to reduce erosion, remediation of soil contamination, and reduction in the pipeline footprint through interim reclamation. Such impacts could be adequately mitigated by the general and site-specific COAs listed in Appendix A. Following interim and final reclamation, it would be the responsibility of the operator to continue revegetation efforts until self-sustaining communities of desirable vegetation has been established. Appropriate revegetation is important to mitigate soil erosion and weed infestations.

No Action Alternative

Under the No Action Alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation of the project. Therefore, no project-related impacts significantly affecting soil resources would occur.

Special Status Species – Plants

Federally Listed, Proposed, or Candidate Species

Affected Environment

According to the latest species list from the USFWS, four Federally listed plant species may occur within or be impacted by actions occurring in Garfield County. Table 9 lists these species and summarizes information on their habitat associations, potential for occurrence in the project vicinity based on known geographic range and habitats present, and potential for adverse impacts from the Proposed Action.

The proposed project is within the range of only two of these Federally listed plant species, Colorado hookless cactus and Ute lady's-tresses orchid. Botany surveys were conducted in 2013, and no plants of either species were found. Colorado hookless cactus habitat is generally below 6,000 feet in elevation, and only the area near the western end of the pipeline at Cottonwood Creek is within the habitat elevation range for this species at 5,970 feet. While suitable habitat is present for Colorado hookless cactus, no plants were found during surveys in 2013. Ute lady's-tresses can occur up to 7,200 feet in elevation, and perennial stream crossings below this elevation would occur at Cottonwood, Cache, Porcupine, and Beaver Creeks. However, all of these crossing areas are in steeply incised portions drainages, with no suitable riparian habitat for Ute lady's-tresses. Porcupine Creek also has a scoured streambed from past flash flooding. Therefore, no suitable habitat exists for Ute lady's-tresses (WWE 2013a).

Table 9. Potential for Occurrence of Threatened or Endangered Plant Species

Species and Status	***Occurrence***	***Habitat Association***	***Range or Habitat in Vicinity?***	***Potentially Affected?***
Parachute penstemon *(Penstemon debilis)* -- Threatened	Sparsely vegetated, south-facing, steep, white shale talus of the Parachute Creek Member of the Green River Formation; 8,000 to 9,000 feet	Other oil shale endemics such as Roan Cliffs blazing-star, Cathedral Bluffs meadow- rue, dragon milkvetch, Piceance bladderpod, and oil shale fescue	No	No

Table 9. Potential for Occurrence of Threatened or Endangered Plant Species				
Species and Status	***Occurrence***	***Habitat Association***	***Range or Habitat in Vicinity?***	***Potentially Affected?***
DeBeque phacelia *(Phacelia submutica)* – Threatened	Sparsely vegetated, steep slopes in chocolate-brown, gray, or red clay on Atwell Gulch and Shire Members, Wasatch Formation; 4,700 to 6,200 feet	Desert shrubland with four wing saltbush, shadscale, greasewood, broom snakeweed, bottlebrush squirreltail and Indian ricegrass, grading upward into scattered junipers	No	No
Colorado hookless cactus *(Sclerocactus glaucus)* – Threatened	Rocky hills, mesa slopes, and alluvial benches in salt desert shrub communities; often with well-formed microbiotic crusts; can occur in dense cheatgrass 4,500 to 6,000 feet	Desert shrubland with shadscale, galleta grass, black sagebrush, Indian ricegrass grading upward into big sagebrush and sagebrush/pinyon-juniper	Yes	No
Ute lady's-tresses orchid *(Spiranthes diluvialis)* – Threatened	Subirrigated alluvial soils along streams and in open meadows in floodplains; 4,500 to 7,200 feet	Boxelder, cottonwoods, willows, and herbaceous riparian graminoids and forbs.	Yes	No

Environmental Consequences

Proposed Action

Because there are no known occurrences or suitable habitat for DeBeque phacelia, Parachute penstemon, or Ute lady's-tresses orchids within 100 meters of the proposed pipeline disturbance areas, the project would have "**No Effect**" on any of these Federally listed plant species. Because there are no known occurrences of Colorado hookless cactus within 100 meters of the proposed pipeline disturbance areas, the project would have "**No Effect**" on Colorado hookless cactus.

No Action Alternative

Under the No Action Alternative, the proposed pipeline would not be constructed. Therefore, there would be **"No Effect"** on any Federally listed plant species.

BLM Sensitive Plant Species

Affected Environment

BLM sensitive plant species with habitat and/or occurrence records in Garfield County are listed in Table 10, along with summaries of their habitat requirements, potential for occurrence within the project area, and potential to be impacted by the Proposed Action. Harrington's penstemon and DeBeque milkvetch are the only species with the potential to occur within the project area.

Table 10. Potential for Occurrence of BLM Sensitive Plant Species

Species and Status	***Occurrence***	***Habitat Association***	***Range or Habitat in Vicinity?***	***Potentially Affected?***
DeBeque milkvetch (*Astragalus debequaeus*)	Varicolored, fine-textured, seleniferous or saline soils of Wasatch Formation; 5,100 to 6,400 feet	Pinyon-juniper woodlands and desert shrub.	Yes	No
Naturita milkvetch (*Astragalus naturitensis*)	Sandstone mesas, ledges, crevices and slopes in pinyon/juniper woodlands; 5,000 to 7,000 feet	Pinyon-juniper woodlands	No	No
Piceance bladderpod (*Lesquerella parviflora*)	Shale outcrops of the Green River Formation, on ledges and slopes of canyons in open areas; 6,200 to 8,600 feet	Pinyon-juniper woodlands, shrublands; often with other oil shale endemic species	No	No
Roan Cliffs blazing-star (*Mentzelia rhizomata*)	Steep, eroding talus slopes of shale, Green River Formation; 5,800-9,000 feet	Pinyon-juniper woodlands, shrublands; often with other oil shale endemic species	No	No
Harrington's beardtongue (*Penstemon harringtonii*)	Flats to hillsides with rocky loam and rocky clay loam soils derived from coarse calcareous parent materials or basalt; 6,200-9,200 feet	Sagebrush shrublands, typically with scattered pinyon-juniper	Yes	Yes
Cathedral Bluffs meadow-rue (*Thalictrum heliophilum*)	Endemic on sparsely vegetated, steep shale talus slopes of the Green River Formation; 6,300-8,800 feet	Pinyon-juniper woodlands and shrublands; often with other oil shale endemics, sometimes with rabbitbrush or snowberry	No	No

Harrington's penstemon has been documented in the past in an elevation range between 6,100 feet to 7,880 feet from Grass Mesa to Cache Creek; the proposed pipeline alignment falls within this occupied habitat (WWE 2004, 2008, 2011a; BLM 2009b, c, d; 2011b). Harrington's penstemon is a perennial vascular plant found primarily in dry, sagebrush-dominated communities in six counties in northwest Colorado, roughly grouped into three population centers: 1) the Rifle-Rulison area in Garfield County; 2) the Eagle/Grand/Routt/Summit Counties area (Eagle); and 3) the Roaring Fork area in Pitkin County. It forms rosettes, which develop flowering stalks; single plants can form multiple rosettes (DeYoung pers. comm.).

Harrington's penstemon is known to occur in abundance within the project area vicinity. A botanical survey was conducted in 2013 within a 50 meter buffer area on either side of the pipeline centerline. When sub-populations of Harrington's penstemon were found, their extents were mapped up to 300 meters from the centerline. The number of Harrington's penstemon plants potentially affected by the project was determined using direct counts and density estimates derived from sampling within occurrences found during surveys (WWE 2013a).

Environmental Consequences

Proposed Action

Harrington's penstemon is the only BLM sensitive plant species with the potential to be impacted by this project. The total estimated number of Harrington's penstemon plants potentially impacted by project implementation is 10,464 plants within 27 subpopulations. Thirteen of these subpopulations are located on BLM lands with an estimated 3,809 plants, and 14 subpopulations are located on private lands with an estimated 6,650 plants. Project implementation would remove all vegetation from 12.48 acres of Harrington's penstemon habitat, with 4.46 acres on BLM lands and 8.02 acres on private lands.

Potential indirect effects could result from increased vehicle traffic and pipeline installation could generate dust which could negatively impact Harrington's penstemon plants. However, because project implementation would occur during the winter months, outside of the growing season for Harrington's penstemon, the potential impact from dust is expected to be minimal. The greatest risk for dust impacts would occur following pipeline installation and prior to establishment of reclamation vegetation, when the bare ground surface would be vulnerable to strong winds.

Harrington's penstemon plants could also be indirectly impacted by noxious weeds and other invasive plants, or by herbicides used to control these species. Noxious weeds are common and widespread throughout the project area, and current control efforts, particularly of plumeless thistle, appear ineffective in preventing spread (WWE 2013a). New ground disturbance from pipeline installation could result in increased noxious weed establishment and spread into Harrington's penstemon habitat, creating competition for resources including water, nutrients, and sunlight. Mulch used in reclamation, even though certified as weed-free, may contain seeds of non-native species which could introduce new species and competition with Harrington's penstemon plants. Herbicides used to treat noxious weeds associated with project implementation have the potential to drift into areas occupied by Harrington's penstemon, with the associated potential for plant mortality or reduced vigor. Herbicides, and loss of native vegetation, could also potentially impact plant pollinators, which in turn could negatively impact Harrington's penstemon.

Direct and indirect effects from project implementation on Harrington's penstemon would contribute to cumulative effects to the species from other planned and existing oil and gas projects within this habitat area. In combination with other existing, proposed, and analyzed projects within the Rifle-Rulison population center, an estimated 2.68% of the known Harrington's penstemon plants would experience direct mortality from oil and gas projects. This exceeds the cap of 2% impact recommended by the Colorado State BLM office for Harrington's penstemon plants. Additionally, the 2013 survey noted extensive impacts to this species from cattle, deer, and/or elk herbivory, with a high percentage of flowering stalks browsed off. The survey also reported impacts to Harrington's penstemon plants from a pinyon-juniper thinning project approximately 75 meters southeast of the project area, where plants were covered by downed trees. These cumulative impacts could negatively affect the ability of Harrington's penstemon to re-establish within the project disturbance area following project completion, due to the reduction in seed availability from remaining plants (WWE 2013a).

To mitigate for the loss of Harrington's penstemon plants, Encana Corporation would be required to pay $25,000 to the Upper Colorado Environmental Plant Center for collection of seed from the plants to be directly impacted by pipeline and 3 years of plant propagation and seed grow-out. Ground disturbance within Harrington's penstemon habitat would not commence until this seed has been collected. To increase the probability of successful Harrington's penstemon reestablishment, a site-specific reclamation seed mix would be used to promote shrubs and forbs commonly co-occurring with Harrington's

penstemon, and Harrington's penstemon seed produced at the Upper Colorado Environmental Plant Center would be sown within the pipeline corridor during reclamation. To reduce the risk of introducing non-native plant species to Harrington's penstemon habitat, no mulch would be used during the reclamation in these areas. To reduce the risk of negative indirect impacts to adjacent Harrington's penstemon plants, specific COAs would require dust mitigation with restrictions on substances used for dust mitigation if pipeline installation cannot be completed outside of the growing season. In addition, specific COAs would require noxious weed treatment and place restrictions on herbicide use.

No Action Alternative

Under the No Action Alternative, the proposed pipeline would not be constructed. Therefore, the project would have no impact on any BLM sensitive plant species.

Special Status Species – Animals

Federally Listed, Proposed, or Candidate Species

Affected Environment

Table 11. Potential for Occurrence of Threatened or Endangered Animal Species

Species and Status	***Distribution in Region***	***Preferred Habitats***	***Potentially Present in Vicinity?***	***Potentially Adversely Affected?***
Canada lynx *(Lynx canadensis)* – Threatened	Dispersed use in in upper montane and subalpine zones of Colorado mountains.	Subalpine spruce-fir forests; also lodgepole pine and aspen to as low as upper montane.	No	No
(Western) Yellow-billed cuckoo *(Coccyzus americanus)* – Candidate	Major rivers and tributaries of western, northwestern, and south-central Colorado.	Large cottonwood stands with tall shrub understory along rivers.	No	No
Mexican spotted owl (*Strix occidentalis lucida*) – Threatened	No historic occurrence in area; present in southwestern Colorado and southern Front Range.	Rocky cliffs in canyons with closed-canopy coniferous forests.	No	No
Razorback sucker *(Xyrauchen texanus)* – Endangered	Mainstem Colorado River and major tributary rivers – upstream to town of Rifle in CRVFO.	General: Deep, slow runs, pools, and eddies. Spawning: silt to gravel substrates in shallow water and seasonally flooded overbank areas.	No	No
Colorado pikeminnow *(Ptychocheilus lucius)* – Endangered			No	**Yes**
Humpback chub *(Gila cypha)* -- Endangered	Mainstem Colorado River and major tributaries – upstream to Black Rocks near Utah state line.	Rocky runs, riffles, and rapids in swift, deep rivers.	No	**Yes**
Bonytail chub *(Gila elegans)* – Endangered			No	**Yes**
"Lineage GB" cutthroat trout (*Oncorhynchus clarki* ssp.) – Threatened	Identified in 60 streams in Colorado River basin, including CRVFO area.	Clean, cool headwaters streams and ponds isolated from other strains of cutthroat trout.	**Yes**	No

Environmental Consequences

Proposed Action

The project would have "**No Effect**" on the Canada lynx, Mexican spotted owl, and western yellow-billed cuckoo, which are not expected to occur in the project vicinity based their ranges and habitats present. The endangered Colorado River fishes could potentially be affected by the consumptive use of water taken from the Colorado River basin to support activities associated with the Proposed Action. Depletions in flows in the Colorado River and major tributaries are a major source of impacts to these fishes due to changes in the flow regime that reduce the availability and suitability of spawning sites and habitats needed for survival and growth of the larvae. Principal sources of depletion in the Colorado River basin include withdrawals for agricultural or industrial uses, withdrawals for municipal water supplies, and evaporative losses from reservoirs. On average, approximately 0.7 acre-feet of Colorado River water is consumed during activities related to each oil and gas well. Additional depletions related to oil and gas activities, including the Proposed Action, include dust abatement and use of water in pressure-testing the pipeline before being put into service. The High Mesa to Fox Pond waterline project is projected to result in consumptive use of approximately 1.19 acre-feet of fresh water for dust abatement and 0.635 acre-feet for pressure testing.

In 2008, the BLM prepared a Programmatic Biological Assessment (PBA) addressing water-depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado. In response to this PBA, the USFWS issued a Programmatic Biological Opinion (PBO) (ES/GJ-6-CO-08-F-0006) on December 19, 2008. The PBO concurred with BLM's effects determination of "**May Affect, Likely to Adversely Affect**" for the Colorado pikeminnow, humpback chub, bonytail chub, or razorback sucker as a result of depletions associated with oil and gas projects.

To offset these impacts, the BLM has set up a Recovery Agreement, which includes a one-time fee per well. The estimated depletions from the Proposed Action will be added to the CRVFO tracking log and submitted to the USFWS per the PBA/PBO at the end of the year to account for depletions associated with BLM's fluid mineral program. The calculated mitigation fees are used by the USFWS for mitigation projects and contribute to the recovery of these endangered species through restoration of habitat, propagation, and genetics management, instream flow identification and protection, program management, non-native fish management, research, and monitoring, and public education.

Inflow of chemical pollutants such as fuels and lubricants used in pipeline construction could impact the endangered big-river fishes and the Lineage GB fish if concentrations were sufficient to cause acute effects. The potential for adverse impacts would be limited to the Colorado pikeminnow and razorback sucker, the two species known to occur within the CRVFO area. Spills or other releases of chemical pollutants as a result of oil and gas activities are infrequent in the CRVFO area due to the various design requirements imposed by BLM and the State of Colorado.

In the event of a spill or accidental release, the operator is required to implement its Spill Prevention, Control, and Countermeasures (SPCC) plan, including such cleanup and mitigation measures as required by BLM or the State. In addition, stormwater controls (Appendix A) would reduce the risk of transport of these substances as well as sediments to surface waters, including the Colorado River. For these reasons, and because any spills making their way into the Colorado River would be rapidly diluted to levels below that are not deleterious, or even detectable, the potential for adverse impacts from chemical releases is not considered significant. Consequently, the Proposed Action would have "**No Effect**" on the endangered big-river fishes from potential impacts to water quality.

Although Lineage GB cutthroat trout exist primarily upstream of the proposed waterline crossing of Beaver and Cache Creeks, the proposed action has the potential to cause direct and indirect impacts to these fish due to the presence of suitable habitat and the possibility that some of these fish occasionally move downstream.

These impacts were addressed in a separate document (EA #DOI-BLM-CO-N040-2014-0004).

No Action Alternative

Under the No Action Alternative, the Federal ROW grant authorizing the installation of the pipelines would be denied. No new surface disturbance would occur on BLM land. However, Encana could install longer pipelines entirely across private lands, resulting in more surface disturbance. Additional impacts to any Federally listed, proposed, or candidate animal species would not be expected, however, since a vast portion of the nearby private lands was included in the biological surveys.

BLM Sensitive Animal Species

Affected Environment

BLM sensitive animal species with habitat and/or occurrence records in the portion of the CRVFO that includes the project area and vicinity are listed in Table 12. Species indicated in the table as present or possibly present in the project vicinity are described more fully following the table.

Table 12. BLM Sensitive Vertebrate Species Present or Potentially Present in the Project Area

Common Name	***Habitat***	***Potential for Occurrence***
Fringed myotis (*Myotis thysanodes*)	Roosting: Caves, trees, mines, and buildings. Foraging: Pinyon-juniper, montane conifers, and semi-desert shrubs.	Possible
Townsend's big-eared bat (*Corynorhinus townsendii*)		
Northern goshawk (*Accipiter gentilis*)	Montane and subalpine coniferous forests and aspen forests; may move to lower elevation pinyon/juniper woodland in search of prey during winter.	Possible in winter
Bald eagle *(Haliaeetus leucocephalus)*	Nesting/Roosting: Mature cottonwood forests along rivers. Foraging: Fish and waterfowl along rivers and lakes; may feed on carrion, rabbits, and other foods in winter.	Unlikely
Peregrine falcon (*Falco peregrinus*)	Nesting: Cliffs, usually near a river, large lake, or ocean. Foraging: Waterfowl on rivers and lakes; upland fowl in open grassland or steppe.	Unlikely
Brewer's sparrow (Spizella breweri)	Extensive stands of sagebrush, primarily Wyoming sagebrush on level or undulating terrain.	Possible
Midget faded rattlesnake (*Crotalus oreganus concolor*)	Cold desert of NW Colorado, SW Wyoming, and NE Utah, primarily in sagebrush with rock outcrops and exposed canyon walls.	Possible
Great Basin spadefoot (*Spea intermontana*)	Permanent or seasonal ponds and slow-flowing streams in pinyon-juniper woodlands and semi-desert shrublands.	No suitable habitat
Northern leopard frog (*Lithobates pipiens*)	Clean, perennial waters in slow-flowing streams, wet meadows, marshes, and shallows of clean ponds and lakes.	Possible – habitat marginal
Bluehead sucker (*Catostomus latipinnis*)	Primarily smaller streams with a rock substrate and mid- to fast- moving waters; also shallows of larger rivers.	Present in Colorado River

Table 12. BLM Sensitive Vertebrate Species Present or Potentially Present in the Project Area		
Common Name	***Habitat***	***Potential for Occurrence***
Flannelmouth sucker (*Catostomus discobolus*)	Runs, riffles, eddies, and backwaters in large rivers.	Present in Colorado River
Roundtail chub (*Gila robusta*)	Slow-moving waters adjacent to fast waters in large rivers.	
"Lineage CR" cutthroat trout (*Oncorhynchus clarki* ssp.)	Headwaters streams and ponds with cool, clear waters isolated from populations of non-native cutthroats and rainbow trout.	Not Present

Environmental Consequences

Proposed Action

Fringed Myotis and Townsend's Big-eared Bat – Loss of large trees, potentially used for roosting, would be negligible. No significant loss of habitat above which the bats could search for aerial prey would occur, and the area they might avoid during construction activities would represent a small portion of their total feeding range, if present.

Northern Goshawk – This species is mostly limited to spruce/fir or aspen forests, such as atop the Roan Plateau, Battlement Mesa, and other areas that reach subalpine elevations. However, goshawks may migrate to lower elevation pinyon/juniper or Douglas-fir habitats during winter and therefore could make occasional, transitory use of the project area for winter foraging. Goshawks feed primarily on small birds but also on diurnal small mammals (rabbits, chipmunks, etc.).

Brewer's Sparrow – This migratory songbird is a near-obligate on sagebrush shrublands and is most common in extensive stands of Wyoming or mountain big sagebrush on gentle or rolling terrain at lower and middle elevations. The project area includes potentially suitable sagebrush stands, and pipeline construction during the nesting season could result in direct loss of nests, eggs, or young as well as displacement of nesting adults due to the operation of heavy equipment and other construction-related activities. However a standard COA (Appendix A) would prohibit vegetation removal and other surface-disturbing activities during the period May 1 to June 30 unless a survey during the nesting season demonstrates that no Brewer's sparrows are nesting within the affected area (also see the section on Migratory Birds).

Northern Leopard Frog – The northern leopard frog is limited to perennial waters, including ponds and slow-flowing perennial streams or persistent portions of intermittent streams. It requires good water quality and abundant aquatic or shoreline vegetation. The habitat in the project area appears marginally suitable for the species, but no leopard frogs have been reported during fish surveys or other surveys of the stream. Because the project would not involve habitat disturbance near water sources, impacts to this species are not expected.

Flannelmouth Sucker and Roundtail Chub – Similar to the endangered Colorado River fishes described previously, these species are vulnerable to alterations in flow regimes in the Colorado River that affect the availability and suitability of spawning sites and habitats needed for development of the larvae. The amount of consumptive water use associated with the Proposed Action would not be expected to cause discernible impacts to flows in the Colorado River. Also similar to the endangered big-river fishes, these BLM sensitive species are adapted to naturally high sediment loads and therefore would not be affected

by increased sediment transport to the Colorado River. However, these species are vulnerable to inflow of sediments into smaller streams by smothering the eggs. The potential for adverse impacts from inflow of chemical pollutants is also greater in small streams due less dilution and the presence of larval or juvenile fishes, which are more susceptible to mortality from acute toxicity. The COAs for the protection of water quality (Appendix A) would minimize the potential for impacts from inflow of sediments or toxicants. Prompt implementation of the SPCC plan following any spill or other release of hydrocarbons, saline waters, or other contaminants would further reduce the risk of significant adverse impacts to these species and other aquatic life in affected waters.

No Action Alternative

Under the No Action Alternative, the Federal ROW grant authorizing the installation of the pipelines would be denied. No new surface disturbance would occur on BLM land. However, Encana could install the longer pipelines entirely across private lands, resulting in more surface disturbance than associated with the Proposed Action. Additional impacts to any BLM sensitive animal species would not be expected, however, since a vast portion of the nearby private lands was included in the biological surveys.

Vegetation

Affected Environment

The proposed pipeline would traverse a variety of vegetation communities, ranging in elevation from 6,000 feet at Cottonwood Creek up to 7,875 on Flatiron Mesa. Much of the pipeline corridor would cross level to gently rolling terrain in valley bottoms and on mesa tops and benches. Below Flatiron Mesa, and in the Beaver Creek and Porcupine Creek areas, the terrain crossed is steeper, with numerous ephemeral wash crossings. Vegetation types vary depending on slope, aspect, soils, elevation, and hydrology. Dominant vegetation types include mountain shrub communities, pinyon-juniper woodlands, sagebrush shrublands, riparian areas, rangelands, and agricultural fields.

Mountain shrublands occur at the higher elevations, and is comprised mainly of Gambel oak (*Quercus gambelii*), mountain mahogany (*Cercocarpus montanus*), rabbitbrush (*Ericameria* sp.), serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpos rotundifolius*), and sagebrush (*Artemisia tridentata*). Common understory species include elk sedge (*Carex geyeri*), Oregon grape (*Mahonia repens*), white-flowered peavine (*Lathyrus leucanthus*), and a variety of other graminoids and forbs.

At the lower end of the mountain shrubland zone, vegetation becomes a patchwork of mountain shrubland and sagebrush shrubland habitats, which then grade into pinyon-juniper woodland patches at lower elevations. Sagebrush shrubland habitats are dominated by Wyoming sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Common associated species include bottlebrush squirreltail grass (*Elymus elymoides*), death camus (*Zigadenus venenosus*), galleta grass (*Pleuraphis jamesii*), golden aster (*Heterotheca villosa*), Indian ricegrass (*Achnatherum hymenoides*), needle and thread grass (*Hesperstipa comata*), rabbitbrush (*Ericameria nauseosus*), snakeweed (*Gutierrezia sarothrae*), spearleaf buckwheat (*Eriogonum lonchophyllum*), sulphur-flower buckwheat (*Eriogonum umbellatum*), tansy aster (*Machaeranthera pinnatifida*), and yarrow (*Achillea lanulosa*). Pinyon-juniper woodlands are dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). Commonly associated species include golden aster (*Heterotheca villosa*), rock goldenrod (*Petradoria pumila*), small-leaf pussytoes (*Antennaria parviflora*), and squirreltail grass (*Elymus elymoides*).

Riparian vegetation at perennial stream crossings of the pipeline corridor are dominated by trees and shrubs, including alder (*Alnus incana*), aspen (*Populus tremuloides*), box elder (*Acer negundo*),

chokecherry (*Prunus virginiana*), Gambel oak, hawthorn (*Crataegus rivularis*), narrowleaf cottonwood (*Populus angustifolia*), narrowleaf willow (*Salix exigua*), red-osier dogwood (*Cornus sericea*), Rocky Mountain maple (*Acer glabrum*), serviceberry, skunkbush sumac (*Rhus trilobata*), snowberry, and Wood's rose (*Rosa woodsii*). Understory vegetation includes a variety of rushes, sedges, and obligate wetland grasses, including two common non-native species, Kentucky bluegrass (*Poa pratensis*) and redtop (*Agrostis stolonifera*).

Agricultural fields and rangelands at the lower elevations of the pipeline corridor consist primarily of non-native vegetation, planted for hay production and livestock grazing. These fields are irrigated from a series of ditches that divert water primarily from Cache and Cottonwood Creeks. Common plant species here include alfalfa (*Medicago sativa*), orchardgrass (*Dactylis glomerata*), smooth brome (*Bromus inermis*), and timothy (*Phleum pratense*). Areas bordering previously disturbed areas are dominated by a variety of noxious weeds and non-native invasive species. The adjacent existing pipeline corridor includes common non-native reclamation species, including crested wheatgrass (*Agropyron cristatum*), smooth brome, and yellow sweetclover (*Melilotus officinalis*) (WWE 2013a, 2013b).

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of 112.3 acres would be disturbed, with 43.7 acres on BLM lands and 68.6 acres on private lands. Vegetation lost in these areas would be a mix of native mountain shrublands, sagebrush shrublands, pinyon-juniper woodlands, and riparian areas, in addition to seeded nonnative reclamation species, agricultural species, and non-native invasive species. Following project completion and reclamation, all of the disturbed areas would be reclaimed. On BLM lands, reclamation seeding would consist of native species appropriate for each vegetation community. On private lands, the composition of the reclamation seed mixes would be at the discretion of the private landowners.

Adjacent native vegetation would not be directly impacted but could be indirectly impacted by increased dust deposition on leaves. Depending on weather conditions during construction and prior to establishment of reclamation vegetation, dust levels could increase above ambient levels in the short term from the new pipeline installation. Increased dust levels can negatively impact plants by clogging stomatal openings in the leaves, impeding gas exchange and reducing light availability at the leaf surface, and thereby reducing photosynthesis rates, plant growth rates, and seed production. Dust on leaf surfaces can also facilitate plant tissue uptake of toxic pollutants (Thompson et. al. 1984, Farmer 1993, Sharifi et. al. 1997). Dust can also affect snowmelt patterns and resulting hydrology and soil moisture availability, alter soil pH and nutrient availability, and result in plant community composition changes (Angold 1997, Auerbach et. al. 1997, Johnston and Johnston 2004, Field et. al. 2010).

Cumulative impacts from the proposed project development and plant habitat loss, in combination with previous oil and gas development in this area, could also indirectly impact adjacent vegetation through negative effects on pollinators. Pollinators depend on both appropriate floral communities and on appropriate nesting habitat. Many pollinators show fidelity to specific habitat areas, and if these sites become isolated from contiguous habitat by disturbances such as roads, pollinators may be reluctant to cross these barriers to utilize other habitats (Osborne and Williams 2001, Bhattacharya et. al. 2002). Roads and pipeline construction can negatively impact pollinators by creating barriers, by removing habitat as a result of new construction, and by direct mortality through collisions with vehicles.

Additional indirect impacts to adjacent vegetation could occur from noxious weeds and other non-native plants associated with project area disturbances. The proposed removal of native vegetation would

increase the vulnerability to invasion and establishment of noxious weeds and other non-native invasive plant species, particularly with the existing widespread establishment of noxious weeds and other non-native species. Neighboring vegetation would also become more vulnerable to invasion by noxious weeds and other non-native species. Ground disturbance combined with vehicle traffic and construction equipment provides both excellent habitat and vectors for invasive species, particularly when these species are already present within the soil seed bank (Schmidt 1989, Parendes and Jones 2000, Gelbard and Belnap, 2003, Larson 2003, Zaenepoel et. al. 2006). These non-native species can negatively impact native plant communities, both directly through competition for resources, and indirectly through alteration of soil microbial communities (Klironomos 2002, Hierro et. al. 2006, Reinhart and Callaway 2006, Vogelsgang and Bever 2009). Herbicide treatments of noxious weeds can also result in negative effects or mortality to native plants if they are co-occurring or located nearby (BLM 2007b). Implementation of standard COAs for noxious weeds and interim reclamation (Appendix A) would reduce the risk of noxious weed establishment and spread through the combination of chemically treating noxious weeds while also seeding with desired plant species.

No Action Alternative

Under the No Action Alternative the pipeline would not be constructed, and there would be no new impacts to existing vegetation.

Visual Resources

Affected Environment

The proposed 12-inch water pipeline would be located on private and BLM land south of Interstate 70 and would extend 12.4 miles beginning approximately 5.5 miles air miles south of Rifle and terminating approximately 5 air miles east of Parachute, Colorado. The lands administered by the BLM are classified as Visual Resource Management (VRM) Class IV as identified by the 1984 Glenwood Springs Resource Management Plan (Figure 3). The objective for VRM Classes IV, as defined in the BLM's Manual H-8410-1-Visual Resource Inventory (BLM 1986), is described below.

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

Federal lease terms regarding visual concerns are not applicable on private land. Visual resource management objectives do not apply to non-BLM lands; visual values for those lands are only protected by landowner discretion. The BLM can only make recommendations to mitigate impacts to scenic values.

The proposed pipeline and workspace would be located within or parallel an existing previously disturbed pipeline corridor or access road. The eastern segment of the proposed pipeline alignment would be located in area that burned in the 1988 Flat Iron Mesa Fire.

The area of the Proposed Action has a variety of landscape character types and varying degrees of alteration from human activities. The topography varies from drainage valley bottoms, to relatively flat mesas, to steep foothills rising to steeper mountain peaks in the background. Numerous side drainages and gulches dissect the landforms adding to the variety and topographic texture. The area is characteristic

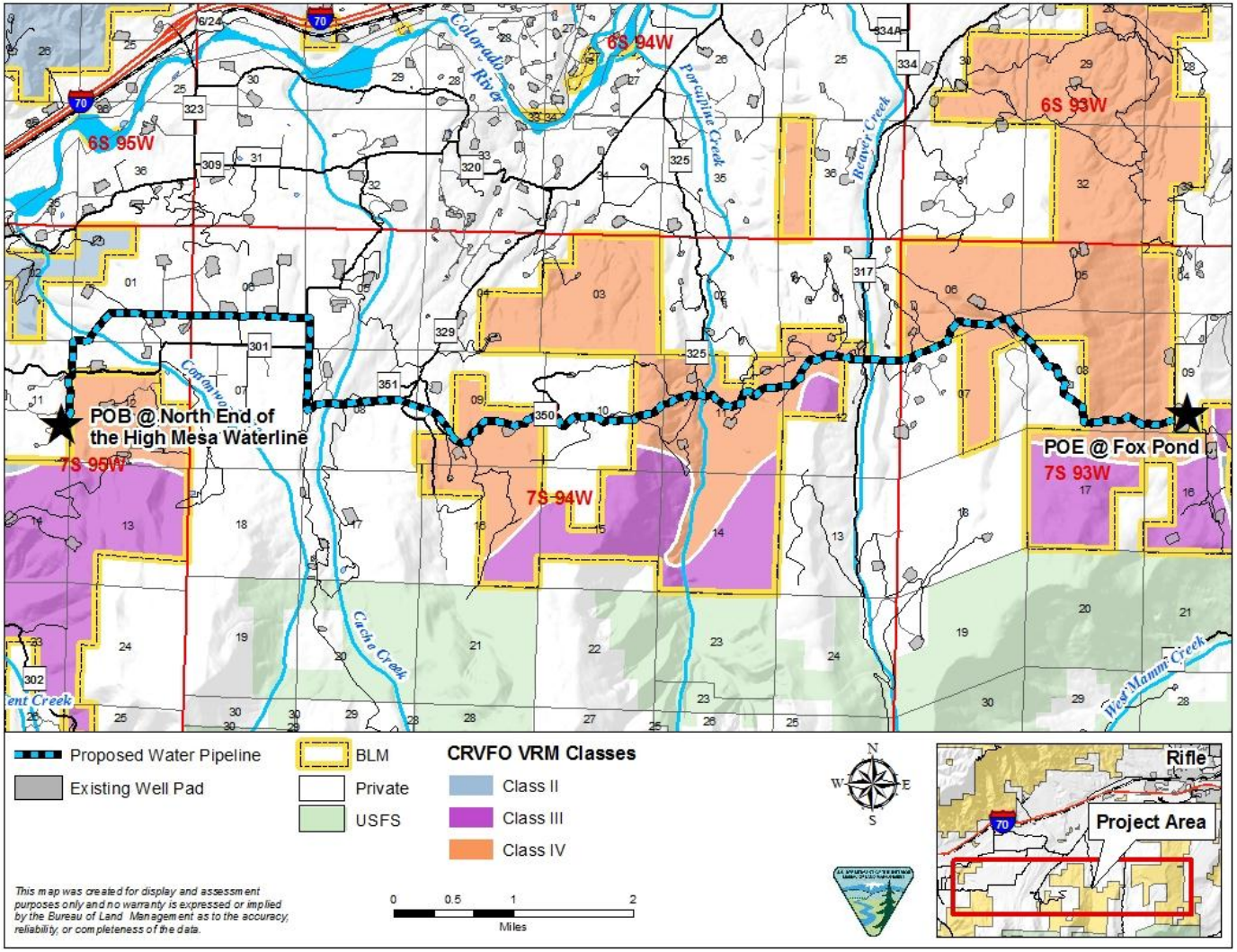

Figure 3. Proposed Action in Relation to CRVFO Visual Resource Management Classes.

of rural agricultural/ranching land, scattered rural residences and oil and gas development. Vegetation consists of pastoral land, sagebrush flats, pinyon juniper woodlands, and mixed oak brush/mountain shrub plant communities. The project is bound by the Colorado River Valley to the north, Grass Mesa to the east, White River National Forest to the south and Morrisiana Mesa to the west.

Environmental Consequences

Proposed Action

To avoid or minimize impacts to visual resources, the proposed route would be installed within an existing, previously disturbed pipeline corridor or would parallel an existing previously disturbed pipeline corridor and an existing road. The corridor contains existing pipelines as well as future pipelines planned but not yet constructed (BLM 2009b, 2012). The first pipeline to be constructed would have the next available or most desirable space in the corridor. It is likely that impacts associated with these proposed projects would be additive in the area of the shared corridor depending on when the projects are constructed because the vegetation may not have had sufficient time to recover prior to additional construction. In addition, as more projects are constructed within the corridor this would increase the average disturbance area because of the distance required between each pipeline.

Short-term visual impacts due to pipeline installation would occur in the project area. The existing landscape would be changed by the introduction of contrasting elements within the landscape in the form of new lines, colors, forms, and textures. The new pipeline would increase the presence of heavy equipment and vehicular traffic with an associated increase in dust and light pollution. The Proposed Action would create 43.7 acres of surface disturbance on BLM. Once the pipeline is installed, the pipeline corridor would be recontoured and seeded.

Although, the extent of the pipeline on BLM is VRM Class IV and can dominate the view and be the major focus of the viewer's attention, every attempt should be made to minimize the visual impact. The segment of the Proposed Action located on BLM would follow the natural contours as much as possible, reducing the amount of perpendicular lines in the landscape. Most of the Proposed Action would not be visible to viewers traveling along major travel corridors because adjacent topography would provide screening into the project area. Standard BMPs related to reclamation, facility paint colors, and screening the pipeline alignments from view would mitigate the visual impacts of the project in these areas of the pipeline corridor (see standard COAs in Appendix A).

The most visible part of the pipeline on BLM is the east-west alignment that drops down from the top of Flatiron Mesa onto Grass Mesa. This part of the pipeline would parallel an existing road and would be visible to residents of the Grass Mesa Subdivision. Thinning and feathering should be incorporated in this segment of the pipeline to soften the hard line created by construction, exposing the transition from bare ground to vegetation. Locations of thinning and feathering should be coordinated with the results from the biological survey in order to avoid any potential Penstemon harringtonii populations.

No Action Alternative

The No Action Alternative would deny the ROW application for use of Federally administered lands, and therefore construction of the 12-inch water pipeline would not occur on BLM land and impacts to visual resources would not occur.

Wastes, Hazardous or Solid

Affected Environment

The affected environment for hazardous materials includes air, water, soil, and biological resources that may potentially be affected by an accidental release of hazardous materials during transportation to and from the project area, storage, and use in construction and operations. Sensitive areas for hazardous materials releases include areas adjacent to water bodies, above aquifers, and areas where humans or wildlife would be directly impacted.

BLM Instruction Memoranda numbers WO-93-344 and CO-97-023 require that all National Environmental Policy Act documents list and describe any hazardous and/or extremely hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project. The Glenwood Springs Resource Area, Oil & Gas Leasing & Development, Draft Supplemental Environmental Impact Statement (June 1998), Appendix L, Hazardous Substance Management Plan, contains a comprehensive list of materials that are commonly used for oil and gas projects. It also includes a description of the common industry practices for use of these materials and disposal of the waste products. These practices are dictated by various Federal and State laws and regulations, and the BLM standard lease terms and stipulations that would accompany any authorization resulting from this analysis. Pertinent of the Federal laws dealing with hazardous materials include the following:

- The Oil Pollution Act (Public Law 101-380, August 18, 1990) prohibits discharge of pollutants into Waters of the U.S., which by definition would include any tributary, including any dry wash that eventually connects with the Colorado River.

- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Public Law 96-510 of 1980) provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment. It also provides national, regional, and local contingency plans. Applicable emergency operations plans in place include the National Contingency Plan (40 CFR 300, required by section 105 of CERCLA), the Region VIII Regional Contingency Plan, the Colorado River Sub-Area Contingency Plan (these three are Environmental Protection Agency produced plans), the Mesa County Emergency Operations Plan (developed by the Mesa County Office of Emergency Management), and the BLM Grand Junction Field Office Hazardous Materials Contingency Plan.

- The Resource Conservation and Recovery Act (RCRA) (Public Law 94-580, October 21, 1976) regulates the use of hazardous substances and disposal of hazardous wastes. Note: While oil and gas lessees are exempt from RCRA, right-of-way holders are not. RCRA strictly regulates the management and disposal of hazardous wastes.

In the event of a spill or accidental release, the operator is required to implement its Spill Prevention, Control, and Countermeasures (SPCC) plan, including such cleanup and mitigation measures as required by BLM or the State. Emergency responses to releases of hazardous materials or petroleum products on BLM lands are handled through the BLM Grand Junction Field Office contingency plan. BLM would have access to regional resources if justified by the nature of an incident.

Environmental Consequences

Proposed Action

Possible pollutants that could be released during the construction phase of this project would include diesel fuel, hydraulic fluid, and lubricants. These materials would be used during construction of the pads, roads, and pipelines, and for refueling and maintaining equipment and vehicles. Potentially harmful substances used in the construction and operation phases would be kept onsite in limited quantities and trucked to and from the site as required. No hazardous substance, as defined by 40 CFR 355 would be used, produced, stored, transported, or disposed of in amounts above threshold quantities. Waste generated by construction activities would not be exempt from hazardous waste regulations under the oil and gas exploration and production exemption of RCRA. Exempt wastes include those associated with well production and transmission of natural gas through the gathering lines and the natural gas itself.

With the exception of produced hydrocarbons, ethylene glycol (antifreeze), lubricants, and amine compounds, chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act in quantities of 10,000 pounds or more would not be used, produced, stored, transported, or disposed of during construction or operation of the facilities. None of the chemicals that would be used in construction meet the criteria for an acutely hazardous material/substance, or meet the quantities criteria per BLM Instruction Memorandum No. 93-344. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in amounts above threshold planning quantities would be produced, used, stored, transported, or disposed of during construction or operation of the facilities.

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

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

No Action Alternative

Under this alternative, the Federal ROW grant authorizing the installation of the pipeline would be denied. No new surface disturbance would occur on BLM.

Water Quality

Affected Environment

Construction of the Proposed Action would occur within the Colorado River below Rifle Creek and Colorado River above Rifle Creek USGS 5th code hydrologic units. The water pipeline would cross several sub-watersheds including Cottonwood Creek, Cache Creek, Spruce Creek, Porcupine Creek, Beaver Creek, and Ramsey Gulch USGS 6th code hydrologic units. The Beaver Creek drainage is within the Rifle Watershed Protection District and the project would require a watershed permit from the City of Rifle.

The Proposed Action will cross several ephemeral, intermittent, and perennial drainages which flow to the north and eventually into the Colorado River. According to the Stream Classifications and Water Quality Standards (CDPHE, Water Quality Control Commission [WQCC] Regulation No. 37) (CDPHE 2014), drainages that drain the project area are within water quality stream segment 4a, which includes all tributaries

to the Colorado River including wetlands, from a point immediately below the confluence with the Roaring Fork to a point immediately below the confluence with Parachute Creek except for specific listings including the mainstem of Beaver Creek and Cache Creek. The following is a brief description of segment 4a.

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

Segment 4a (COLCLC04a) is on the State of Colorado 303(d) List of Impaired Waters and Monitoring and Evaluation List (CDPHE, WQCC Regulation No. 93) (CDPHE 2012). The Colorado Monitoring and Evaluation List identifies water bodies where there is reason to suspect water quality problems, but uncertainty also exists regarding one or more factors. Segment 4a is on the list for selenium and is a medium priority.

The USGS has collected surface water flow and quality data from the Colorado River below the project area near Rulison in 1977 and is currently collecting data upstream at South Canyon near Glenwood Springs and downstream near Cameo (USGS 2014) (Table 13).

Table 13. Selected Water Quality Data for Sampling Locations near the Project Area

Parameter	***Colorado River Above So. Canyon USGS #09085150 4/24/2014***	***Colorado River below Rulison, CO USGS #09092570 7/8/1977***	***Colorado River Near Cameo, CO USGS #0909550 5/20/2014***
Instantaneous Discharge (cfs)	7,630	2,000	9,960
Water Temperature (°C)	6.9	21	12.5
Field pH (standard units)	8	8.3	8
Specific Conductance (µS/cm/cm at 25°C)	404	970	400
Total Dissolved Solids (mg/L)	232	585	233
Hardness as CaCO3 (mg/L)	126	230	127
Chloride (mg/L)	39.7	180	37
Selenium (µg/L)	0.61	< 1	0.5
Dissolved Oxygen (mg/L)	10.3	9.2	8.6

Note: NA = data not available
Source: USGS 2014 http://nwis.waterdata.usgs.gov

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of approximately 112.3 acres of soil would be disturbed for pipeline construction and installation, of which 43.7 acres would occur on BLM lands and 68.6 acres, would occur on private lands. The proposed pipeline and workspace would be located within or parallel an existing

previously disturbed pipeline corridor or an existing access road. Reclamation plans would be implemented and monitored following the proposed construction activities. Potential impacts to surface waters could occur from surface-disturbing activities, traffic, and waste management. Surface-disturbing activities associated with the pipeline can cause loss of vegetation cover, increased soil compaction, temporarily increased availability of sediments for runoff events, increased volume and velocity of runoff, and increase sedimentation to surface waters.

The proposed pipeline route has the potential to impact ephemeral, intermittent, and perennial drainages that are tributary to the Colorado River. Culverts would carry stormwater through sections crossed by existing roads reducing the potential for flooding, erosion, and maintenance problems in these areas. Other substances associated with construction-related activities, including petroleum-based hydrocarbons, could also be carried by runoff into surface waters. Initially, impacts would be minimized by proper stormwater management and timely installation of BMPs, including control of erosion, stockpiling of topsoil, and timely rehabilitation of disturbed surfaces. Inspection and monitoring of construction activities to identify possible spill events and ensure required clean-up would also reduce these potential impacts.

The pipeline would be pressure-tested to detect leakage prior to use and to verify the integrity of the pipeline materials and construction methods. Implementation of the standard and site-specific COAs for mitigating impacts to surface waters (Appendix A) would minimize risks of adverse impacts associated with construction and ongoing production activities. In addition, Encana would be required to obtain a Watershed Permit from the City of Rifle, which would include protections tied specifically to protection of the municipal water supply.

No Action Alternative

Under the No Action Alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation of the project. Therefore, no project-related increases in potential impacts to water quality would be expected.

Waters of the U.S.

This section summarizes results of a wetland delineation and identification of potential Waters of the U.S. conducted by WestWater Engineers in conjunction with the 12.4-mile pipeline project. A separate delineation report is being submitted to the Grand Junction Regulatory Office, U.S. Army Corps of Engineers, Sacramento District, by WestWater Engineers. The purpose of that report is to support a request for concurrence by USACE that the project is authorized under Nationwide Permit (NWP) 12 for utility activities.

Affected Environment

Section 404 of the Clean Water Act requires a Department of the Army Permit from the U.S. Army Corps of Engineers (USACE) prior to discharging or dredged or fill material into Waters of the U.S. as defined by 33 CFR Part 328. Large discharges require and individual permit; small discharges may be authorized under a Nationwide Permit.

Surveys for Waters of the U.S. were performed by WestWater Engineering (WWE) staff during June, July, and August 2013. Potential Waters of the U.S. were identified in accordance with the USACE Jurisdictional Determination Form Instructional Guidebook (USACE 2007). A total of 4 WOUS associated with perennial streams and 28 additional potential jurisdictional WOUS would be crossed by the proposed 12-inch water pipeline project from High Mesa to Fox Pond (WWE 2013a).

WWE performed a wetland delineation of potential wetlands and other Waters of the U.S. during the initial determinations and surveys in August 2013. Delineated wetland boundaries were identified on the basis of the vegetation, soils, and hydrologic characteristics present at the site in accordance with U.S. Army Corps of Engineers (USACE) standards included in the "Corps of Engineers Wetland Delineation Manual, January 1987" (USACE 1987) and Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0, September 2008) (USACE 2008). In total, WWE identified 0.23 acre of potential Waters of the U.S. (0.18 acre temporarily impacted), comprising 0.07 acre of wetlands (0.05 acre of temporarily impacted wetlands) and 0.16 acre of non-wetland waters (0.13 acre of temporarily impacted non-wetland waters). The delineated jurisdictional wetlands and/or riparian corridors within or adjacent to the Proposed Action are described further in EA #DOI-BLM-CO-N040-2014-0004, which was completed for the Beaver Creek and Cache Creek Crossings. EA #DOI-BLM-CO-N040-2014-0004 also addressed crossings of two other perennial streams and 28 ephemeral drainages or other potential jurisdictional wetlands delineated by WWE as Waters of the U.S. EA #DOI-BLM-CO-N040-2014-0004 covers all portions of the total 12.4-mile pipeline length potentially affecting Waters of the U.S.

Environmental Consequences

Proposed Action

Crossings of waters of the U.S. could cause temporary increases in sediment transport as a result of disturbance of the substrate and reduced plant cover. Increased sediment loads in ephemeral or intermittent drainages crossed by the pipeline could potentially supply sediments to the Colorado River. General and site-specific surface-use COAs listed in Appendix A would be implemented to minimize both short-term and long-term disruption of hydrologic function of the ephemeral or intermittent drainages, thereby reducing the potential for sediment transport to the Colorado River.

No Action Alternative

Under the No Action Alternative, the project components included in the Proposed Action would not be constructed. Therefore, no impacts to wetlands or riparian areas or Waters of the U.S. associated with the project would occur.

Wildlife

Aquatic Species

The project area includes a crossing of Cache Creek and Beaver Creek, two perennial, fish-bearing streams, as well as Porcupine Creek and Cottonwood Creek, two non-fish-bearing perennial streams. The crossings of Cache Creek and Beaver Creek were addressed in EA #DOI-BLM-CO-N040-2014-0004. Aquatic macroinvertebrates living in perennial streams such as these during a portion of their lifecycles include larvae of stoneflies, mayflies, and some caddisflies in fast-flowing reaches with rocky or detrital substrates. Both the aquatic larvae and winged adults of stoneflies, mayflies, and caddisflies are probably the main prey for fish in these two creeks, along with terrestrial invertebrates that land or fall onto the surface or are carried into the stream in runoff from adjacent uplands. In slow-flowing portions of the creeks with fine substrates, aquatic macroinvertebrates probably include the larvae of midges, mosquitoes, and some caddisflies. These species are able to tolerate relatively warm, turbid, and poorly oxygenated waters, and their more abbreviated larval stages allow them to reproduce in intermittent streams and in seasonally inundated overbank areas.

Environmental Consequences

Proposed Action

Implementation of the Proposed Action has the potential to result in increases in erosion and sedimentation into nearby drainages and eventually the Colorado River. Because the Proposed Action includes summer use of the project areas, it is likely that roads and pads would not be muddy for extended periods of time. Roads are generally drier and in better condition during the non-winter months and consequently less prone to erosion. Vehicular use during muddy road conditions could contribute to increased erosion of sediments into nearby ephemeral drainages and eventually the Colorado River. The potential increase in transport of sediments to ephemeral drainages and the Colorado River would be minimal given background sediment loads currently carried by these streams. Consequently, no sediment-intolerant aquatic wildlife species are known or expected to be present that would be negatively affected by the expected minimal amount of sediment transport. Measures to minimize erosion and sedimentation of aquatic environments are included among the COAs (Appendix A).

No Action Alternative

The No Action Alternative would constitute denial of the pipeline as proposed through BLM. Therefore, no impacts to Aquatic Wildlife would occur on BLM lands.

Migratory Birds

Affected Environment

The Migratory Bird Treaty Act (MBTA) includes guidance for the protection of native passerines (flycatchers and songbirds) as well as birds of prey, migratory waterbirds (waterfowl, wading birds, and shorebirds), and other species such as doves, hummingbirds, swifts, and woodpeckers. Within the context of the MBTA, “migratory” birds include non-migratory “resident” species as well as true migrants, essentially encompassing most native bird species. The nesting time period is of special importance as the ability to create a nest, incubate, and rear chicks to fledging is a vulnerable time period for birds, and disturbances to nesting activities can lead to larger consequences for individual birds. In addition, because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality and availability of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

The U.S. Fish and Wildlife Service (USFWS) has published a list of Birds of Conservation Concern (BCC) that warrant prompt conservation attention to stabilize or increase populations or to secure threatened habitats (USFWS 2008); therefore, this analysis focuses on BCC species, as well as two other groups—raptors and Neotropical (long-distance) migrants—that are particularly vulnerable to habitat loss or modification on their breeding grounds.

BCC species potentially present in the portion of the CRVFO area that includes the proposed pipeline, based on habitat preferences and known geographic ranges, are the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), flammulated owl (*Psiloscops flammeolus*), Lewis's woodpecker (*Melanerpes lewis*), willow flycatcher (*Empidonax traillii*), gray vireo (*Vireo vicinior*), pinyon jay (*Gymnorhinus cyanocephalus*), juniper titmouse (*Baeolophus griseus*), Brewer's sparrow (*Spizella breweri*), and Cassin’s finch (*Haemorhous cassinii*). Among these, the bald eagle is also listed as a BLM sensitive species in Colorado and is covered in the section on Special Status Species. The golden eagle hunts primarily over large expanses of unwooded habitat and nests on cliffs, which are not present in the project area. Habitat

associations of these species and other raptors or Neotropical migrants potentially nesting in the project area include the following:

Pinyon-Juniper Woodlands – This habitat type provides cover, food, and nesting habitat for a variety of migratory birds. BCC species associated with pinyon-juniper habitats during the nesting season include the flammulated owl pinyon jay, juniper titmouse, and gray vireo, the latter two generally farther west than the CRVFO area. Another BCC species, Cassin's finch, nests in higher elevation conifers but is a winter visitor in pinyon-juniper. Non-BCC migrants include the plumbeous vireo (*Vireo plumbeus*), blue-gray gnatcatcher (*Polioptila caerulea*), American robin (*Turdus migratorius*), mountain and western bluebirds (*Sialia currucoides, S. mexicanus*), black-throated gray warbler (*Dendroica nigrescens*), Virginia's warbler (*Oreothlypis virginiae*), and lark sparrow (*Chondestes grammacus*).

Raptors potentially nesting in pinyon-juniper habitats in addition to the flammulated owl include the red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*B. swainsoni*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*A. striatus*), American kestrel (*Falco sparverius*), and northern pygmy-owl (*Glaucidium gnoma*).

Mixed Mountain Shrublands – The vegetation of mixed mountain shrublands varies substantially depending on elevation, slope, aspect, and soil. More mesic (moist) sites such as on north-facing slopes and along minor drainage ways are typically dominated by Gambel's oak and serviceberry, while more xeric (dry) sites such as south-facing slopes are typically dominated by mountain-mahogany, bitterbrush, snowberry, and sagebrush. Other passerines in this habitat type include the dusky flycatcher (*Empidonax oberholseri*), western scrub-jay (*Aphelocoma californica*), MacGillivray's warbler (*Oporornis tolmiei*), lazuli bunting (*Passerina amoena*), lesser goldfinch (*Carduelis psaltria*), black-headed grosbeak (*Pheucticus melanocephalus*), and spotted towhee (*Pipilo maculatus*).

Sagebrush Shrublands – The sagebrush shrubland habitat type, like the mixed mountain shrubland type, varies considerably depending on elevation, slope, aspect, and soil. Extensive stands of sagebrush provide cover, food, and nesting habitat for one BCC species, Brewer's sparrow. Three other migrants—the Say's phoebe (*Sayornis saya*), western kingbird (*Tyrannus verticalis*), and vesper sparrow (*Pooecetes gramineus*)—are relatively common in this type and also occur in sparse pinyon-juniper or grassland types. The western meadowlark (*Sturnella neglecta*) may also nest in sagebrush. In addition to providing hunting habitat for the golden eagle, red-tailed hawk, Swainson's hawk, and American kestrel, sagebrush shrublands may be used for breeding by the ground-nesting northern harrier (*Circus cyaneus*).

Riparian Woodlands and Shrublands – Bird species found in riparian habitats in the CRVFO area include three BCC species: the bald eagle and Lewis's woodpecker primarily in mature cottonwoods along the Colorado River and the willow flycatcher primarily in dense stands of tall willows along tributary streams. Lewis's woodpecker is seldom found as far east as the CRVFO area. The subspecies of willow flycatcher in the CRVFO area is distinct from the subspecies (southwestern willow flycatcher) that is a candidate for Federal listing.

Non-BCC migrants nesting along streams in the CRVFO area include the cordilleran flycatcher (*Empidonax occidentalis*), warbling vireo (*Vireo gilvus*), house wren (*Troglodytes aedon*), Bullock's oriole (*Icterus bullockii*), yellow warbler (*Dendroica petechia*), and American goldfinch (*Carduelis tristis*) in cottonwood woodlands and the willow flycatcher (*Empidonax traillii*) and song sparrow (*Melospiza melodia*) in willow shrublands. Raptors commonly associated with cottonwood woodlands include the red-tailed, Cooper's, and sharp-shinned hawks, the great horned owl (*Bubo virginiana*), and the long-eared owl (*Asio otus*).

Environmental Consequences

Proposed Action

Direct impacts to migratory birds from the Proposed Action include the loss of approximately 112.3 acres of vegetation. This could displace some BCC and other migratory birds over the life of the project. However, the loss habitat along a narrow strip of which more than half is already a pipeline corridor would be less impactful in terms of both habitat loss and habitat fragmentation than an equal area of impact in a more equably shaped area. It is unlikely that the Proposed Action would directly affect vegetation suitable for nesting raptors. Therefore, while habitat loss and associated habitat fragmentation may affect a small number of individual migratory or resident birds, these impacts would be insignificant at the population or species levels.

Construction activities during the nesting season could result in the destruction of active nests, including any eggs or young within the nests. The COA for BCC species would prevent the destruction of nests since it would prohibit surface-disturbing activities in suitable habitat from May 15 to July 15 (Appendix A). Additionally, visual and noise disturbance near active nests could indirectly impact these species causing nest abandonment, nest failure, or reduced productivity. To reduce these potential impacts, raptor surveys would be conducted to identify active nests.

No Action Alternative

Under this alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation or redesign of the project by Encana. Therefore, no project-related impacts significantly affecting migratory birds would occur.

Terrestrial Wildlife

Affected Environment

Mammals

The High Mesa Waterline alignment is within Colorado Parks and Wildlife (CPW) Data Analysis Unit (DAU) E14 for elk. Rocky Mountain elk (*Cervus elaphus nelsoni*) use the project area for foraging from late September through early June, with some incidental summer use. Given the elevation and location of big-game winter range on BLM lands in the vicinity, elk may move out of the area during winters with deep snow accumulations and concentrate at lower elevations where snow is less deep and not as persistent. Habitats along the proposed route are dominated by east- or north-facing pinyon-juniper woodlands, irrigated pasturelands, and mixed mountain shrublands. Lands crossed by the alignment include winter range, winter concentration areas, and severe winter range, as mapped by CPW.

Small carnivores potentially present in the area include the long-tailed weasel (*Mustela frenata*), western spotted skunk (*Spilogale gracilis*), and ringtail (*Bassariscus astutus*) in native habitats in the southern part of the project area and the nearly ubiquitous striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*) in lower elevations along the Colorado River. Large carnivores present in the vicinity include the mountain lion (*Puma concolor*) and black bear (*Ursus americanus*). CPW has mapped the project area black bear overall range. The presence of Gambel's oak stands and other tall shrubs provides higher quality habitat for bears than the pinyon-juniper and pastureland habitats.

Small mammals present within the planning area include rodents such as the mountain cottontail (*Sylvilagus nuttallii*), desert cottontail (*S. audubonii*), rock squirrel (*Otospermophilus variegatus*), golden-mantled ground squirrel (*Callospermophilus lateralis.*), least chipmunk (*Neotamias minimus*), bushy-tailed woodrat (packrat)(*Neotoma cinerea*), deer mouse (*Peromyscus maniculatus*), and long-tailed vole (*Microtus longicaudus*).

Birds

The section on Migratory Birds describes raptors and migratory passerines present or expected to occur within the project vicinity. Additional avian species likely to occur include upland fowl, water birds, and resident passerines. The only upland gamebird expected is the wild (*Meleagris gallopavo*), which is common throughout the general area in mountain shrub habitats where acorns, berries, and invertebrate prey in the dense leaf litter provide abundant food. In addition to use of the Colorado River channel by ducks and geese, a large wading bird, the great blue heron (*Ardea herodias*) hunts for prey along the river's edge and overbank areas and may roost and nest in large riparian cottonwoods.

Resident passerines particularly common in the project area include three corvids—the common raven (*Corvus corax*), American crow (C. *brachyrhynchos*), and black-billed magpie (*Pica hudsonia*)—in addition to the native house finch (*Haemorhous mexicanus*) and non-native Eurasian starling (*Sturnus vulgaris*) in addition to the non-native rock pigeon (*Columba livia*). Migratory blackbird species common around agricultural and rural residential areas include Brewer's blackbird (*Euphagus cyanocephalus*), common grackle (*Quiscalus quiscula*), and brown-headed cowbird (*Molothrus ater*). The red-winged blackbird (*Aegolius phoeniceus*) is common in cattail marshes as well as agricultural and rural residential areas. In large marshes, the redwing may be joined by, or excluded by, the yellow-headed blackbird (*Xanthocephalus xanthocephalus*).

Reptiles and Amphibians

The project area is higher in elevation than the ranges of most reptile species known to occur in Garfield County. Species most likely to occur include the western fence lizard (*Sceloporus undulatus*) and gopher snake (bullsnake) (*Pituophis catenifer*) in sagebrush or oakbrush shrublands and pasture margins and the western terrestrial garter snake (*Thamnophis elegans*) along the Colorado River and other moist drainages. Other reptiles potentially present along the river are the milk snake (*Lampropeltis triangulum*) and smooth green snake (*Opheodrys vernalis*). All of these species are predatory, feeding primarily on insects, small mammals, eggs or nestlings of ground-nesting songbirds, depending on the size of the particular reptile species.

Amphibians potentially occurring along the Colorado River and in overbank surface waters on the floodplain include the barred salamander (*Ambystoma tigrinum*), Woodhouse's toad (*Bufo woodhousii*), and northern chorus frog (*Pseudacris triseriata*) in addition to the northern leopard frog (see the section on Special Status Species). The three non-special-status species breed primarily in small ponds, slow-flowing streams, or inundated wetlands—including seasonally inundated areas and perennial waters devoid of predatory fishes. Following breeding, adults may move into nearby habitats to feed. Water quality requirements of these species are lower than those for the northern leopard frog and include waters with high turbidity and warm temperatures, but not highly alkaline or saline waters.

Environmental Consequences

Proposed Action

The Proposed Action would result in the initial loss of 112.3 acres of vegetation, of which more than half is considered severe winter range or winter concentration areas for mule deer and elk. The project would adhere to seasonal restrictions that prohibit construction activities from December 1 through April 30. Pipeline installation is anticipated to occur from May through November. As a result, the project should have minimal impacts to the ability of deer and elk to use the general area along the ROW and in nearby habitats.

Avoidance of areas with otherwise suitable forage and cover would result in effective habitat loss. However, the amount of direct or indirect habitat loss associated with the Proposed Action would be minor in comparison to the overall availability of suitable habitat in the vicinity. Although some individuals would be subject to physiological or behavioral stress and potentially reduced survivorship or reproductive success, population-level impacts are not expected to be significant.

An additional potential impact on wildlife of the Proposed Action is the introduction and spread of weeds. Invasion by weeds has become an increasingly important concern associated with surface-disturbing activities in the West. Roads often act as a conduit for their spread, particularly unpaved roads for which imported roadbase and gravel may contain large numbers of weed seeds associated with the areas where they were mined. Weeds often outcompete native plants, rendering an area less productive as a source of forage for wildlife. Implementation of the mitigation measures in the section on Invasive Non-Native Species would minimize the potential for invasion and establishment of weeds in the project area.

Construction and reclamation of the ROW would convert existing shrub-dominated communities to grass- and forb-dominated communities, with shrubs planted in any areas found to be supporting Harrington's penstemon. Conversion of shrubby habitats would reduce foraging, reproduction, and sheltering habitat for a number of species, including the black bear. Because no long-term human occupancy of the ROW would occur, few long-term indirect impacts associated with the project would reduce the availability and suitability of habitats. A protective surface-use COA (Appendix A) would be included to manage trash during construction and reduce the potential for conflicts with bears.

No Action Alternative

Under this alternative, the portion of the pipeline on BLM-administered public lands would be denied, resulting in cancellation or redesign of the project by Encana. Therefore, no project-related impacts significantly affecting terrestrial wildlife are anticipated.

SUMMARY OF CUMULATIVE IMPACTS

Historically, habitat loss or modification in the CRVFO areas was characteristic of agricultural, ranching lands, rural residential, with localized industrial impacts associated with the railroad and I-70 corridors and the small communities. More recently, the continued growth of residential and commercial uses, utility corridors, oil and gas developments, and other rural industrial uses (e.g., gravel mining along the Colorado River) has added to the accumulation of impacts in the area. Cumulative impacts have included (1) direct habitat loss, habitat fragmentation, and decreased habitat effectiveness; (2) increased potential for runoff, erosion, and sedimentation; (3) expansion of noxious weeds and other invasive species; (4) increased fugitive dust from construction of oil and gas pads, roads, and pipelines and associated truck travel; (5) increased noise, especially along access and haul roads; (6) increased potential for spills and other releases of chemical pollutants; and (7) decreased scenic quality.

Although none of the cumulative impacts was described in the 1999 FSEIS (BLM 1999a) as significant, and while new technologies and regulatory requirements have reduced the impacts of some land uses, it is clear that past, present, and reasonably foreseeable future actions have had and would continue to have adverse effects on various elements of the human environment. Anticipated impacts for existing and future actions range from negligible to locally major, and primarily negative, for specific resources.

The Proposed Action would contribute to the collective adverse impact for some resources. Although the contribution would be minor, the Proposed Action would contribute incrementally to the collective impact to air quality, vegetation, migratory birds, terrestrial wildlife, and other resources. These cumulative impacts would be in addition to those associated with nearby pipeline projects proposed for Bargath, LLC and WPX Energy Rocky Mountain, LLC (BLM 2012); and Energy Transfer (ETC), now Red Rock Gathering LLC (BLM 2009b). These projects have yet to be constructed and are not planned for construction in 2014, but could be constructed at some point in the future.

PERSONS AND AGENCIES CONSULTED

Encana Oil & Gas (USA) Inc.: Renata Busch, Robert Anderson, and Julia Carter
West Water Engineering (WWE): Nick Jaramillo and Melani Jensen

INTERDISCIPLINARY REVIEW

BLM staff who participated in preparation of this EA, including review of survey results submitted by the operator's consultants, evaluation of impacts likely to occur from implementation of the Proposed Action, and identification of appropriate COAs to be attached and enforced by BLM, are listed in Table 14.

Table 14. BLM Interdisciplinary Team Authors and Reviewers

Name	***Title***	***Areas of Participation***
John Brogan	Archaeologist	Cultural Resources, Native American Religious Concerns
Allen Crockett	Supervisory Natural Resource Specialist	Technical Review, NEPA Review
Shauna Kocman	Petroleum Engineer	Air Quality, Noise, Soils, Surface Water
Julie McGrew	Natural Resource Specialist	Project Lead, Access and Transportation, Range Management, Socioeconomics, Visual Resources, Lands and Realty
Judy Perkins	Botanist	Invasive Non-Native Species, Special Status Plants, Vegetation
Sylvia Ringer	Wildlife Biologist	Migratory Birds, Special Status Animals, Aquatic and Terrestrial Wildlife
Todd Sieber	Geologist	Fossil Resources, Geology and Minerals, Groundwater

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APPENDIX A

Stipulations to Right-of-Way Grant COC76300
and Temporary Use Permit COC76300T

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RIGHT-OF-WAY STIPULATIONS (CONDITIONS OF APPROVAL)
Reference: DOI-BLM-CO-N040-2013-0119-EA

RIGHT-OF-WAY STIPULATIONS APPLICABLE TO ENCANA HIGH MESA TO FOX POND WATER PIPELINE (COC76300 AND COC76300T) CONSTRUCTION AND OPERATION ACTIVITIES.

COMMON CARRIER: Common carrier provisions shall be applied, per **43CFR2885.11(b)**, to construction, operation, and maintenance of the pipeline as a common carrier. This means that the pipeline owners and operators must accept, convey, transport, or purchase without discrimination all oil or gas delivered to the pipeline without regard to where the oil and gas was produced (i.e., whether on Federal or non-Federal lands).

Wording and numbering of these stipulations may differ from those included in the 12-inch buried steel, water pipeline across Beaver Creek and Cache Creek Environmental Assessment (EA) (BLM-DOI-CON040-2014-0004). In cases of discrepancies, the following Stipulations supersede earlier versions.

1. Administrative Notification. The operator shall notify the BLM representative at least 48 hours prior to initiation of construction. If requested by the BLM representative, the operator shall schedule a pre-construction meeting, including key operator and contractor personnel, to ensure that any unresolved issues are fully addressed prior to initiation of surface-disturbing activities or placement of production facilities. Project staking including trench centerlines and offset limits along the disturbance corridor shall be completed to the satisfaction of the AO prior to commencing any surface disturbing activities. Furthermore, all old flagging along alternate routes or unnecessary flagging installed during the planning of this project shall be located and removed from the project area prior to construction start-up.

2. Pipeline Construction and Maintenance. The disturbance limits of the pipelines shall be staked and/or flagged prior to any commencement of operations. All trees and brush within the disturbance corridor shall be hydro-axed or chipped prior to beginning excavation work. Topsoil stripping shall not be allowed where topsoil windrowing or stockpiling is to occur along the pipeline corridor to retain the root mass of the brush species and enhance the recovery of the hydro-axed vegetation. No equipment or vehicle use shall be allowed outside the staked disturbance corridor of the pipeline ROW unless authorized by BLM personnel for visual mitigation work.

   The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.

   The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plan of development which was approved and made part of the grant. Any relocation, additional construction, or use that is not in accord with the approved plan of development, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and approved plan of development, shall be made available on the right-of-way area during construction, operation, and termination. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.

3. Indemnification. The operator agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601

et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the ROW (unless the release or threatened release is wholly unrelated to the operator's activity in the ROW). This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.

4. Compliance with Laws and Regulations. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the operator shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601 *et seq*.) with regard to any toxic substances that are used, generated by, or stored on the ROW or on facilities authorized under this ROW grant (see 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or state government as a result of a reportable release of spill of any toxic substances shall be furnished to the BLM concurrent with the filing of the reports to the involved Federal agency or state government.

5. Pipeline Installation. The water pipeline shall be buried within the authorized right-of-way width. The pipeline shall be installed to industry and BLM "Gold Book" standards. *(Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book. Fourth Edition—Revised 2007; (P-417 BLM/WO/ST-06/021+3071/REV 07.)*

   The pipeline(s) shall be buried with at least 4 feet of cover from the top of the pipe to the surface. The centerline of the ROW and the exterior limits shall be clearly flagged prior to any construction activity.

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

6. Compliance with Stipulations. This grant is issued subject to the operator's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations parts 2800 and 2880.

7. Private Landowners and Existing Rights-of-Way. The operator shall obtain agreements allowing construction with all existing authorized surface users of Federal ROW locations prior to surface disturbance or construction of the location, staging areas, or access across or adjacent to any existing ROW locations. In the case of privately owned surface, the operator shall certify to BLM that a Surface Use Agreement has been reached with the authorized surface user prior to construction.

8. Chemical Storage and Use. The operator shall not store hazardous materials, chemicals, fuels, lubricating oils, or perform concrete coating activities within 200 feet of any waterbody or dry drainage. Equipment or vehicles that are crossing or working within 200 feet of water bodies shall not be refueled unless the Environmental Inspector gives a specific exception. If any hazardous material must be temporarily stored or transferred within 200 feet of a waterbody (i.e. stationary pumps), then it must be placed within a secondary containment structure that is capable of containing 110 percent of the volume of the stored material.

9. Saturated Soil Conditions. When saturated soil conditions exist on or along the ROW any type of construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils.

10. As-Built Survey. An "as-built" center line survey of the right-of-way crossing Federal land, provided by a Certified Land Surveyor licensed to work in the State of Colorado, shall be provided to the AO within 2 months of completion of the project.

11. Dust Abatement. The operator shall implement dust abatement measures as needed to prevent fugitive dust from vehicular traffic, equipment operations, or wind events. The BLM may direct the operator to change the level and type of treatment (watering or application of various dust agents, surfactants, and road surfacing material) if dust abatement measures are observed to be insufficient to prevent fugitive dust. Posted speed limits on county and private roads shall be strictly followed during all phases of the pipeline project to reduce vehicle speeds and thereby reduce dust along the access roads.

12. Drainage Crossings and Culverts. Construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g. burying pipelines, installing culverts) shall be timed to avoid high flow conditions. Construction that disturbs any flowing stream shall utilize a piped stream diversion (flumed flows) to divert flow around the disturbed area.

    Culverts at drainage crossings shall be designed and installed to pass a 25-year or greater storm event. On perennial and intermittent streams, culverts shall be designed to allow for passage of aquatic biota. The minimum culvert diameter in any installation for a drainage crossing or road drainage shall be 24 inches. Crossings of drainages deemed to be jurisdictional Waters of the U.S. pursuant to Section 404 of the Clean Water Act may require additional culvert design capacity. Due to the flashy nature of area drainages and anticipated culvert maintenance, the U.S. Army Corps of Engineers (USACE) recommends designing drainage crossings for the 100-year event. Contact the USACE Colorado West Regulatory Branch at 970-243-1199 ext. 17.

    Pipelines installed beneath perennial stream crossings shall be buried at a minimum depth of 7 feet below the channel substrate to avoid exposure by channel scour and degradation. At ephemeral and intermittent washes the pipeline shall be buried at a minimum depth of 4 feet below the channel substrate. Following burial, the channel grade and substrate composition shall be returned to preconstruction conditions.

6. Wetlands and Riparian Zones.

    1. The operator shall restore temporarily disturbed wetlands or riparian areas. The operator shall consult with the BLM Colorado River Valley Field Office (CRVFO) to determine appropriate mitigation, including verification of native plant species to be used in restoration.

    b. The Operator will implement a Stormwater Management Plan, as per requirements of Garfield County, the Colorado Department of Public Health and Environment (CDPHE), or the Colorado Oil and Gas Conservation Commission (COGCC).

    c. Water used for hydrostatic testing will be discharged into areas in a manner such that return flows do not directly enter perennial streams, seeps, or ponds.

    d. To the extent possible, riparian vegetation removed during trenching operations across streams shall be saved and replanted along the stream bank once construction is completed.

    e. Crossings of all flowing streams and irrigation ditches that are not directionally bored shall be flumed to prevent any disruption in water flow. The trench shall be cut beneath the flume and a dry trench shall be maintained.

f. All pipeline welds shall be x-rayed within the Rifle Municipal Watershed and within 100 feet of any perennial or intermittent stream crossing.

g. All available topsoil shall be salvaged and respread onsite during ROW reclamation, with a minimum stripping depth of 6 inches.

h. Boulders left on the ROW surface during reclamation shall be placed on the landscape in a generally random arrangement, with occasional short alignments of boulders to act as water bars or to block vehicle access.

i. All silt fences left onsite during reclamation shall be removed by the end of the first growing season following ROW reclamation.

7. Reclamation. The goals, objectives, timelines, measures, and monitoring methods for final reclamation of oil and gas disturbances are described in Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS). Specific measures to follow during interim and temporary (pre-interim) reclamation are described below.

a. Reclamation Plans. In areas that have low reclamation potential or are especially challenging to restore, reclamation plans will be required prior to ROW Grant approval. The plan shall contain the following components: detailed reclamation plats, which include contours and indicate irregular rather than smooth contours as appropriate for visual and ecological benefit; timeline for drilling completion, interim reclamation earthwork, and seeding; soil test results and/or a soil profile description; amendments to be used; soil treatment techniques such as roughening, pocking, and terracing; erosion control techniques such as hydromulch, blankets/matting, and wattles; and visual mitigations if in a sensitive VRM area.

b. Deadline for Interim Reclamation Earthwork and Seeding. Interim reclamation to reduce a pad to the maximum size needed for production, including earthwork and seeding of the interim reclaimed areas, shall be completed within 6 months following completion of the last well planned to be drilled on that pad as part of a continuous operation. If a period of greater than one year is expected to occur between drilling episodes, BLM may require implementation of all or part of the interim reclamation program.

Reclamation, including seeding, of temporarily disturbed areas along roads and pipelines, and of topsoil piles and berms, shall be completed within 30 days following completion of construction. Any such area on which construction is completed prior to December 1 shall be seeded during the remainder of the early winter season instead of during the following spring, unless BLM approves otherwise based on weather. If road or pipeline construction occurs discontinuously (e.g., new segments installed as new pads are built) or continuously but with a total duration greater than 30 days, reclamation, including seeding, shall be phased such that no portion of the temporarily disturbed area remains in an unreclaimed condition for longer than 30 days. BLM may authorize deviation from this requirement based on the season and the amount of work remaining on the entirety of the road or pipeline when the 30-day period has expired.

If requested by the project lead NRS for a specific pad or group of pads, the operator shall contact the NRS by telephone or email approximately 72 hours before reclamation and reseeding begin. This will allow the NRS to schedule a pre-reclamation field visit if needed to ensure that all parties are in agreement and provide time for adjustments to the plan before work is initiated.

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis. If the BLM

approves an extension for seeding, the operator may be required to stabilize the reclaimed surfaces using hydromulch, erosion matting, or other method until seeding is implemented.

c. Topsoil Stripping, Storage, and Replacement. *All* topsoil shall be stripped following removal of vegetation during construction of pads, pipelines, roads, or other surface facilities. In areas of thin soil, a minimum of the upper 6 inches of surficial material shall be stripped. The BLM may specify a stripping depth during the onsite visit or based on subsequent information regarding soil thickness and suitability. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation.

d. Seedbed Preparation. For cut-and-fill slopes, initial seedbed preparation shall consist of backfilling and recontouring to achieve the configuration specified in the reclamation plan. For compacted areas, initial seedbed preparation shall include ripping to a minimum depth of 18 inches, with a maximum furrow spacing of 2 feet. Where practicable, ripping shall be conducted in two passes at perpendicular directions. Following final contouring, the backfilled or ripped surfaces shall be covered evenly with topsoil.

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

If directed by the BLM, the operator shall implement measures following seedbed preparation when broadcast-seeding or hydroseeding is to be used) to create small depressions to enhance capture of moisture and establishment of seeded species. Depressions shall be no deeper than 1 to 2 inches and shall not result in piles or mounds of displaced soil. Excavated depressions shall not be used unless approved by the BLM for the purpose of erosion control on slopes. Where excavated depressions are approved by the BLM, the excavated soil shall be placed only on the downslope side of the depression.

If directed by the BLM, the operator shall conduct soil testing prior to reseeding to identify if and what type of soil amendments may be required to enhance revegetation success. At a minimum, the soil tests shall include texture, pH, organic matter, sodium adsorption ratio (SAR), cation exchange capacity (CEC), alkalinity/salinity, and basic nutrients (nitrogen, phosphorus, potassium [NPK]). Depending on the outcome of the soil testing, the BLM may require the operator to submit a plan for soil amendment. Any requests to use soil amendments not directed by the BLM shall be submitted to the CRVFO for approval.

Seedbed preparation is not required for topsoil storage piles or other areas of temporary seeding.

e. Seed Mixes. Seed mixes consistent with BLM standards in terms of species and seeding rate for the specific habitat types shall be used on all BLM lands affected by the project (Attachment 1 of the letter provided to operators dated October 23, 2012). Note that temporary seeding no longer allows the use of sterile hybrid non-native species.

For private surfaces, the menu-based seed mixes are recommended, but the surface landowner has ultimate authority over the seed mix to be used in reclamation. The seed shall contain no prohibited or restricted noxious weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of “other crop” seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of

other crop seed is recommended. Seed tags or other official documentation shall be submitted to BLM at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.

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

Where practicable, seed shall be installed by drill-seeding to a depth of 0.25 to 0.5 inch. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover or by hydroseeding and hydromulching. If hydroseeding and hydromulching are used, these shall be conducted as separate steps to ensure adequate contact of seeds with the soil and adequate coverage by the mulch.

If interim revegetation is unsuccessful, the operator shall implement subsequent reseedings until interim reclamation standards are met.

g. Mulch. Mulch shall be applied within 24 hours following completion of seeding. Mulch may consist of either hydromulch or of certified weed-free and non-native seed-free straw, certified weed-free native grass hay, or wood straw crimped into the soil.

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

h. Erosion Control. Cut-and-fill slopes shall be protected against erosion with the use of water bars, lateral furrows, or other measures approved by the BLM. Cut-and-fill slopes along drainages or in areas with high erosion potential shall also be protected from erosion using hydromulch designed specifically for erosion control or biodegradable blankets/matting, bales, or wattles of weed-free straw or weed-free native grass hay. A well-anchored fabric silt fence shall also be placed at the toe of cut-and-fill slopes along drainages or to protect other sensitive areas from deposition of soils eroded off the slopes. Additional BMPs shall be employed as necessary to reduce soil erosion and offsite transport of sediments.

i. Monitoring. The operator shall conduct annual monitoring surveys of all sites categorized as "operator reclamation in progress" and shall submit an annual monitoring report of these sites, including a description of the monitoring protocols followed, to the BLM by **December 31** of each year. The monitoring program shall use the four Reclamation Categories defined in Appendix I of the 1998 DSEIS to assess progress toward reclamation objectives. The annual report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing the corrective actions or other measures specified by the BLM.

8. Weed Control. The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the Glenwood Springs Field Office *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. **Within areas occupied by Harrington's penstemon, and within a 0.5 mile buffer of occupied habitat, pesticide application shall be restricted to spot spray or hand wicking only. No broadcast spraying shall be permitted in these areas.** A Pesticide Use Proposal (PUP) must be approved by the BLM prior to the use of herbicides. Annual weed monitoring reports and Pesticide Application Records (PARs),

including GPS data in accordance with the February 27, 2014, letter to operators, shall be submitted to BLM by **December 1**.

9. Big Game Winter Range Timing Limitation. To minimize impacts to wintering big game, no construction, drilling or completion activities shall occur during a Timing Limitation (TL) period from **December 1 to April 30 annually**.

10. Bald and Golden Eagles. It shall be the responsibility of the operator to comply with the Bald and Golden Eagle Protection Act (Eagle Act) with respect to "take" of either eagle species. Under the Eagle Act, "take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest and disturb. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. Avoidance of eagle nest sites, particularly during the nesting season, is the primary and preferred method to avoid a take. Any oil or gas construction, drilling, or completion activities planned within 0.5 mile of a bald or golden eagle nest, or other associated activities greater than 0.5 miles from a nest that may disturb eagles, should be coordinated with the BLM project lead and BLM wildlife biologist and the USFWS representative to the BLM Field Office (970-876-9051).

11. Raptor Nesting. To protect nesting raptors, a survey shall be conducted prior to construction, drilling, or completion activities that are to begin during the raptor nesting season (February 1 to August 15). The survey shall include all potential nesting habitat within 0.25 mile of a well pad or 0.125 mile of an access road, pipeline, or other surface facility. Results of the survey shall be submitted to the BLM. If a raptor nest is located within the buffer widths specified above, a 60-day raptor nesting TL will be applied by the BLM to preclude initiation of construction, drilling, and completion activities during the period of March 15 – May 15. The operator is responsible for complying with the MBTA, which prohibits the "take" of birds or of active nests (those containing eggs or young), including nest failure caused by human activity (see COA for Migratory Birds).

12. Migratory Birds. Consistent with Executive Order 13186 and BLM Colorado guidelines, CRVFO has established a COA (Appendix A) prohibiting initiation of vegetation removal or ground-disturbing activities during the period **May 15 to July 15**, the peak period for incubation and brood rearing among migratory birds. An exception to this COA can be granted if a survey by a qualified biologist during the nesting season of BCC species potentially present indicates no active nests within 30 meters (100 feet) of the disturbance area.

13. Birds of Conservation Concern. Pursuant to BLM Instruction Memorandum 2008-050, all surface-disturbing activities of previously undisturbed lands providing suitable habitat for Birds of Conservation Concern (BCC) is prohibited from **May 15 to July 15**. An exception to this TL may be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate that no BCC species are nesting within 30 meters (100 feet) of the area to be disturbed. Nesting shall be deemed to be occurring if a territorial (singing) male is present within the distance specified above. Nesting surveys shall include an audial survey for diagnostic vocalizations in conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under favorable conditions for detecting and identifying a BCC species. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 1 and continue into the 60-day period at the same location.

14. Range Management. Range improvements (fences, gates, reservoirs, pipelines, etc.) shall be avoided during development of natural gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator will be responsible for repairing or replacing the damaged range improvements. If a new or improved access road bisects an existing livestock fence, steel frame gate(s) or a cattleguard with associated bypass gate shall be installed across the roadway to control grazing livestock.

15. *Ips* Beetle. To avoid mortality of pinyon pines due to infestations of the *Ips* beetle, any pinyon trees damaged during road, pad, or pipeline construction shall be chipped after being severed from the stump or grubbed from the ground, buried in the toe of fill slopes (if feasible), or cut and removed from the site within 24 hours to a location approved by the Colorado State Forest Service.

16. Fossil Resources. All persons associated with operations under this authorization shall be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM of the findings. The discovery must be protected until notified to proceed by the BLM. Where feasible, the operator shall suspend ground-disturbing activities at the discovery site and immediately notify the BLM of any finds. The BLM will, as soon as feasible, have a BLM-permitted paleontologist check out the find and record and collect it if warranted. If ground-disturbing activities cannot be immediately suspended, the operator shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.

17. Cultural Education/Discovery. All persons in the area who are associated with this project shall be informed that if anyone is found disturbing historic, archaeological, or scientific resources, including collecting artifacts, the person or persons will be subject to prosecution. Pursuant to 43 CFR 10.4(g), the BLM shall be notified by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), activities shall stop in the vicinity of the discovery, and the discovery shall be protected for 30 days or until notified by the BLM to proceed.

    If in connection with operations under this contract, the operator, its contractors, their subcontractors, or the employees of any of them discovers, encounters, or becomes aware of any objects or sites of cultural value or scientific interest such as historic ruins or prehistoric ruins, graves or grave markers, fossils, or artifacts, the operator shall immediately suspend all operations in the vicinity of the cultural resource and shall notify the BLM of the findings (16 USC 470h-3, 36 CFR 800.112). Operations may resume at the discovery site upon receipt of written instructions and authorization by the BLM. Approval to proceed will be based upon evaluation of the resource. Evaluation shall be by a qualified professional selected by the BLM from a Federal agency insofar as practicable. When not practicable, the operator shall bear the cost of the services of a non-Federal professional.

    Within five working days, the BLM will inform the operator as to:

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

The operator may relocate activities to avoid the expense of mitigation and delays associated with this process, as long as the new area has been appropriately cleared of resources and the exposed materials are recorded and stabilized. Otherwise, the operator shall be responsible for mitigation costs. The BLM will provide technical and procedural guidelines for relocation and/or to conduct mitigation. Upon verification from the BLM that the required mitigation has been completed, the operator will be allowed to resume construction.

Antiquities, historic ruins, prehistoric ruins, and other cultural or paleontological objects of scientific interest that are outside the authorization boundaries but potentially affected, either directly or indirectly, by the Proposed Action shall also be included in this evaluation or mitigation. Impacts that occur to such resources as a result of the authorized activities shall be mitigated at the operator's cost, including the cost of consultation with Native American groups.

Any person who, without a permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361).

18. Visual Resources. To the extent practicable, existing woody vegetation outside the ROW corridor shall be preserved when clearing and grading for the pipeline corridor. The BLM may direct that cleared woody vegetation and rocks within the ROW corridor be salvaged and re-distributed over reshaped cut-and-fill slopes and along the highly visible sections of the pipeline corridor to emulate the texture closer to that of the native landscape and to encourage vegetation growth.

    To assist with revegetation, root systems shall be left in place where feasible and only removed in the trench construction.

    Above-ground facilities shall be painted **Shadow Gray** to minimize contrast with adjacent vegetation or rock outcrops.

    Rocks saved during construction shall be placed “white side down” on the pipeline corridor during interim reclamation to reduce the amount of color contrast with the surrounding landscape and to deter off-road travel. Rocks and woody debris shall be replaced on the pipeline corridor to emulate the texture closer to that of the native landscape and to encourage vegetation growth.

    During construction, the BLM and RRG representatives shall jointly review construction measures to determine effectiveness in meeting visual resource mitigation measures, and if subtle changes in construction techniques are warranted.

19. Windrowing of Topsoil. Topsoil shall also be windrowed, segregated, and stored along pipelines and roads for later spreading across the disturbed corridor during final reclamation. Topsoil berms shall be promptly seeded to maintain soil microbial activity, reduce erosion, and minimize weed establishment.

20. Cuts and Fills. Cuts and fills shall be minimized when working on erosive soils and slopes in excess of 30 percent. Cut-and-fill slopes shall be stabilized through revegetation practices with an approved seed mix shortly following construction activities to minimize the potential for slope failures and excessive erosion. Fill slopes adjacent to drainages shall be protected with well-anchored silt fences, straw wattles, or other acceptable BMPs designed to minimize the potential for sediment transport.

On slopes greater than 50 percent, BLM personnel may request a professional geotechnical analysis prior to construction.

When saturated soil conditions exist on or along the proposed pipeline corridor, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage.

21. Utilities Locates. All existing pipelines, surface valves, and other utilities shall be field located, clearly marked, and the appropriate Utility Notification Center (www.unc.org) shall be notified before any construction/surface work occurs. All publicly owned underground facilities shall be marked according to the APWA color code.

22. Survey Monuments. The holder shall protect all survey monuments found within the right-of-way. Survey monuments include, but are not limited to, General Land Office and BLM Cadastral Survey Corners, reference corners, witness points, U.S. Coast and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the holder shall immediately report the incident, in writing, to the authorized officer and the respective installing authority, if known. Where General Land Office or BLM right-of-way monuments or references are obliterated during operations, the holder shall secure the services of a registered land surveyor or a BLM Cadastral Surveyor to restore the disturbed Monument(s) and References using survey procedures found in the Manual of Surveying Instruction of the Survey of the Public Lands in the United States, latest edition. The holder shall record survey into the appropriate county and send a copy to the authorized officer.

SITE-SPECIFIC STIPULATIONS

Harrington's Penstemon – The Operator shall incorporate the following steps to avoid, minimize, and mitigate impacts to Harrington's penstemon:

1. Weed Control. Noxious weeds shall be treated where Harrington's penstemon presence is confirmed prior to construction to minimize the threat to Harrington's penstemon in the area. The BLM Botanist shall be present to monitor the pre-treatment activities in areas occupied by Harrington's penstemon

   - A Pesticide Use Permit (PUP), specific to Harrington's penstemon sites, shall be obtained from the BLM prior to any herbicide treatment of noxious weeds within occupied Harrington's penstemon habitat.
   - Noxious weed treatments within occupied Harrington's penstemon habitat, and within a 0.5 mile buffer of occupied habitat, shall be restricted to spot spraying or wicking only. No broadcast spraying shall be permitted.

2. Dust Control. Dust control measures shall be implemented in all areas within 100 meters of occupied Harrington's penstemon habitat, and limited to clean water only. No additive agents shall be used for dust control in these areas.

3. Mulch. No hay or straw mulch shall be used during reclamation within occupied Harrington's penstemon habitat areas. Hydromulch may be used if approved by the BLM prior to application.

4. Harrington's Penstemon Mitigation.

   - The operator shall fund the propagation of seed for Harrington's penstemon (*Penstemon harringtonii*). A total of $25,000 shall be paid by Encana Corporation to the Upper Colorado

Environmental Plant Center to cover the costs of seed collection in the impacted areas, seed cleaning and testing, nursery planting and five years of seed-increase grow-out, cleaning and testing of produced seed, and field sowing of seed on reclamation sites. Mitigation planting sites shall be within the reclaimed pipeline corridor at or near the locations of impacted Harrington's penstemon occurrences, or, if agreed upon by both the BLM and the operator, in wildlife habitat improvement sites occurring within Harrington's penstemon habitat. Harrington's penstemon seed shall be collected from those plants to be impacted within the pipeline corridor prior to the start of construction.

- Within sections of the pipeline corridor occupied by Harrington's penstemon, the seed mix shown in Table A shall be used instead of CRVFO's standard menu-based seed mix.

Table A. Seed Mix for Initial Seeding of Harrington's Penstemon Sites[1]

Common Name	*Scientific Name*	*Variety*	*Season*	*Form*
Choose Five Grasses (50% of Total PLS)				
Bottlebrush Squirreltail	*Elymus elymoides, Sitanion hystrix*	VNS	Cool	Bunchgrass
Bluebunch Wheatgrass	*Pseudoroegneria spicata, Agropyron spicatum*	Secar, P-7, Anatone, Goldar	Cool	Bunchgrass
Indian Ricegrass	*Achnatherum [Oryzopsis] hymenoides*	Paloma, Rimrock	Cool	Bunchgrass
Needle-and-Thread Grass	*Hesperostipa [Stipa] comata*	VNS	Cool	Bunchgrass
Junegrass	*Koeleria macrantha*	VNS	Cool	Bunchgrass
Columbia Needlegrass	*Achnatherum nelsonii, Stipa columbiana*	VNS	Cool	Bunchgrass
Muttongrass	*Poa fendleriana*	VNS	Cool	Weakly Rhizomatous
Choose Three Forbs (30% of Total PLS)				
Arrowleaf Balsamroot	*Balsamorhiza sagittata*	Rocky Mountain Beeplant	*Cleome serrulata*	
Silverleaf Lupine	*Lupinus argenteus*	Scarlet Globemallow	*Sphaeralcea coccinea*	
Fernleaf Biscuitroot	*Lomatium dissectum*	Sulphur Flower Buckwheat	*Eriogonum umbellatum*	
Include One Shrub (20% of Total PLS)				
Fourwing Saltbush	*Atriplex canescens*	NA	NA	

[1] Because Harrington's penstemon was confirmed along the pipeline route: (a) it shall be broadcast seeded into formerly occupied areas using seeds from the Upper Colorado Environmental Plant Center when available; and (b) mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*) shall be broadcast seeded into the reclaimed area prior to snowfall using seeds collected along corridor.

A minimum of five grass, three forb, and one shrub species shall be included in the seed mix initially installed by drill-seeding or hydroseeding (Table A-3). Seeding shall be at the rate of 60 pure live seeds (PLS) per square foot if drill-seeded and 120 PLS per square foot if broadcast-seeded or hydroseeded where drill-seeding is impracticable. If hydroseeding is used, application of seeds shall be performed as a separate step from application of hydromulch. In addition, seeds of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) shall be collected from plants in the vicinity of the pipeline corridor and seeded within 6 months of collection. Sagebrush seeding

shall occur prior to winter snowfall, or on top of snow. Sagebrush may be sown either by broadcast seeding, or, if not on snowpack, by placing the seed in the fluffy seed box of a seed drill, with the drop tube left open to allow seed to fall out on the ground surface.

Realty Authorizations.

1. Agreements with Other ROW Grant Holders. Potential impacts to existing BLM ROWs from the lease operations proposed by WPX Energy or by the rights-of-way to be authorized to Energy Transfer (Summit Midstream Partners, LLC) would be mitigated based on written maintenance and use agreements between Bargath, WPX Energy, Energy Transfer (Summit Midstream Partners, LLC), and the existing ROW holders. Such agreements shall be obtained and verified with the BLM prior to any disturbance or construction across or adjacent to an existing right-of-way.

2. Restoration of Beaver Creek Grass Mesa Ditch. Prior to initiating construction across or alongside this ditch, representatives for Encana, BLM and the ditch owners shall meet at the site, identify the ditch course and identify specific reclamation measures following pipeline construction so the ditch course is well-established and allowed to flow water freely without impediments. Pipeline locations and marking along this stretch of ditch course and pipeline right-of-way will be required prior to any surface disturbance.

Beaver Creek and Cache Creek Pipeline Creek Crossings. At all stream crossings, construction shall occur as presented in the Nationwide Permit #12 Verification Request and Preliminary Jurisdictional Determination (WWE 2012b).

1. Crossings shall be accomplished during low flow periods (prior to April 15, or after spring runoff). Along steep slopes and/or riparian areas, the width of disturbance shall be reduced to the maximum degree possible.
2. All perennial creeks shall be crossed via a temporary flumed crossing method. At flumed crossings, the ditch will be dug 7-feet deeper than the lowest part of the channel for pipe placement. Non-flowing stream crossings shall be crossed using the typical open-cut crossing method. Revegetation and recontouring shall be accomplished to approximate original conditions.
3. Equipment mats shall be used under all vehicles in wetland areas to minimize disturbance.
4. All soil removed from the ditch shall be placed in uplands until the pipeline is in place and back filling begins. Stockpiled soils shall be returned to the trench in reverse order of excavation.
5. Vegetation and topsoil shall be distributed once the ditch has been backfilled and the channel returned to its pre-existing condition. Wetland vegetation shall be placed at the surface upon completion. Stream banks leading into the channel shall be graded no steeper than 2:1 after completion of construction.
6. The proponent shall submit a riparian area reclamation plan to the BLM for approval prior to initiating riparian area reclamation. Restoration plantings of riparian vegetation shall be designed to match the existing species composition along Beaver Creek and Cache Creek at the pipeline crossing sites, with the exception of tree species.
7. The proponent shall submit before and after photos to the USACE for verification of stream and wetland remediation once it has been completed, if required. Existing contours below the ordinary high water mark shall be restored at all crossings.

Aquatic Wildlife Habitat (Lineage GB Cutthroat Trout). In addition to the COAs for stream crossings, the Beaver Creek and Cache Creek crossing must protect trout.

1. No construction shall take place that affects Beaver Creek or Cache Creek for the time interval beginning April 15 (or after spring runoff) through the end of August. Protection of the aquatic environment during this time frame will help protect cutthroat trout eggs and fry.
2. Whirling disease is a concern in any trout steam in western Colorado. The Operator shall disinfect all heavy equipment, hand tools, boots, and any other equipment that was previously used in a river, stream, lake, pond, or wetland prior to moving the equipment to another waterbody. Disinfection shall be performed by removing mud and debris and then implementing one of the following practices:

   i. Spray/soak equipment with a disinfectant solution capable of killing whirling disease spores.

   ii. Spray/soak equipment with water greater than 140 degrees Fahrenheit for at least 10 minutes.

   iii. Sanitize water suction hoses and water transportation tanks (using methods described above) and discard rinse water at an appropriately permitted disposal facility.

3. Revegetation and recontouring shall be accomplished to approximate original conditions. Wetland and riparian vegetation shall be placed at the surface upon completion. The proponent shall submit a riparian area reclamation plan to the BLM for approval prior to initiating riparian area reclamation. Restoration plantings of riparian vegetation shall be designed to match the existing species composition along Beaver Creek and Cache Creek at the pipeline crossing sites, with the exception of tree species. Limited rocks and boulders along the edge of the creek should allow for bank stabilization, but must be few enough to also allow for riparian vegetation to become established once again.
4. All cutthroat trout must be removed from the work site prior to construction and immediately placed downstream or upstream. Block nets must be installed below and above the worksite to prevent fish from reentering the work site. A qualified biologist, approved by BLM and with a valid state permit, must perform the work. The biologist must have sufficient training and experience to be able to identify all fish species found in these streams and safely move the fish outside of the worksite. Presumably an electroshocked would be used to capture the fish; the biologist must also have experience and training to properly operate an electro shocker. Within 10 days of moving the fish out of harm's way a report on fish relocation must be submitted to the BLM and USFWS. The report should contain at a minimum the identification and number of fish moved, and if any fish were injured in the process, and recommendations for fish protection for future projects of a similar nature. The report can be transmitted via email.

Reclamation. Restoration of disturbed vegetation shall be directed by the site-specific Revegetation Plan (WWE 2104). The operator shall certify to BLM that a Surface Use Agreement has been reached with the private landowners allowing reclamation as per the site-specific Revegetation Plan prior to any surface disturbance or construction on the location. Reclamation shall also incorporate any additional requirements for restoration specified by the USACE as part of the permitting process under Section 404 of the Clean Water Act.

FONSI

DOI-BLM-CO-N040-2013-0119-EA

The Environmental Assessment (EA) analyzing the environmental effects of the Proposed Action has been reviewed. The project design and approved mitigation measures result in a Finding of No Significant Impact (FONSI) on the environmental elements analyzed in this EA. Therefore, an Environmental Impact Statement (EIS) is not necessary to analyze further the environmental effects of the Proposed Action.

DECISION RECORD

DECISION: It is my decision to approve the Proposed Action of the Encana 12-inch water pipeline project.

RATIONALE:

1. This decision will provide for the orderly, economical, and environmentally sound gathering and conveyance of natural gas resources from valid Federal oil and gas leases. It will also improve operational efficiency by improving the management of treated and produced water and other fluids used in the production of natural gas.
2. The project alignment will follow existing pipeline corridors and roads.
3. This decision does not authorize the initiation of construction activities on BLM lands. Such activities will be authorized only upon issuance by BLM of a right-of-way (ROW) grant and Temporary Use Permit (TUP) for portions of the buried pipeline on BLM lands.

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

- Construction of the pipeline along an existing pipeline corridor and roads to the extent practicable.
- A variety of additional restrictions attached as stipulations to the BLM ROW grant and Temporary Use Permit (TUP).

Copies of the Encana Oil & Gas (USA) Inc.12-inch Water Pipeline EA are available for review at the BLM Colorado River Valley Field Office located at 2300 River Frontage Road in Silt, Colorado 81625.

NAME OF PREPARER: Julie McGrew, Natural Resource Specialist

SIGNATURE OF AUTHORIZED OFFICIAL:

Allen B. Crockett, Ph.D., J.D.
Supervisory Natural Resource Specialist

DATE: July 2, 2014