

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

ENVIRONMENTAL ASSESSMENT

NUMBER

DOI-BLM-CO-N040-2013-0046-EA

CASEFILE NUMBER

Federal Right-of-Way COC76067, Temporary Use Permit COC76067T

PROJECT NAME

Proposal to Construct the High Mesa Water Pipelines across BLM and Private Lands to Serve Nearby Existing Federal and Private Well Pads South of Parachute, Garfield County, Colorado.

PAD LOCATION

Township 7 South (T7S), Range 95 West (R95W), Sections 14, 15, 16, 21, 28, 29, 30, and 31, Sixth Principal Meridian.

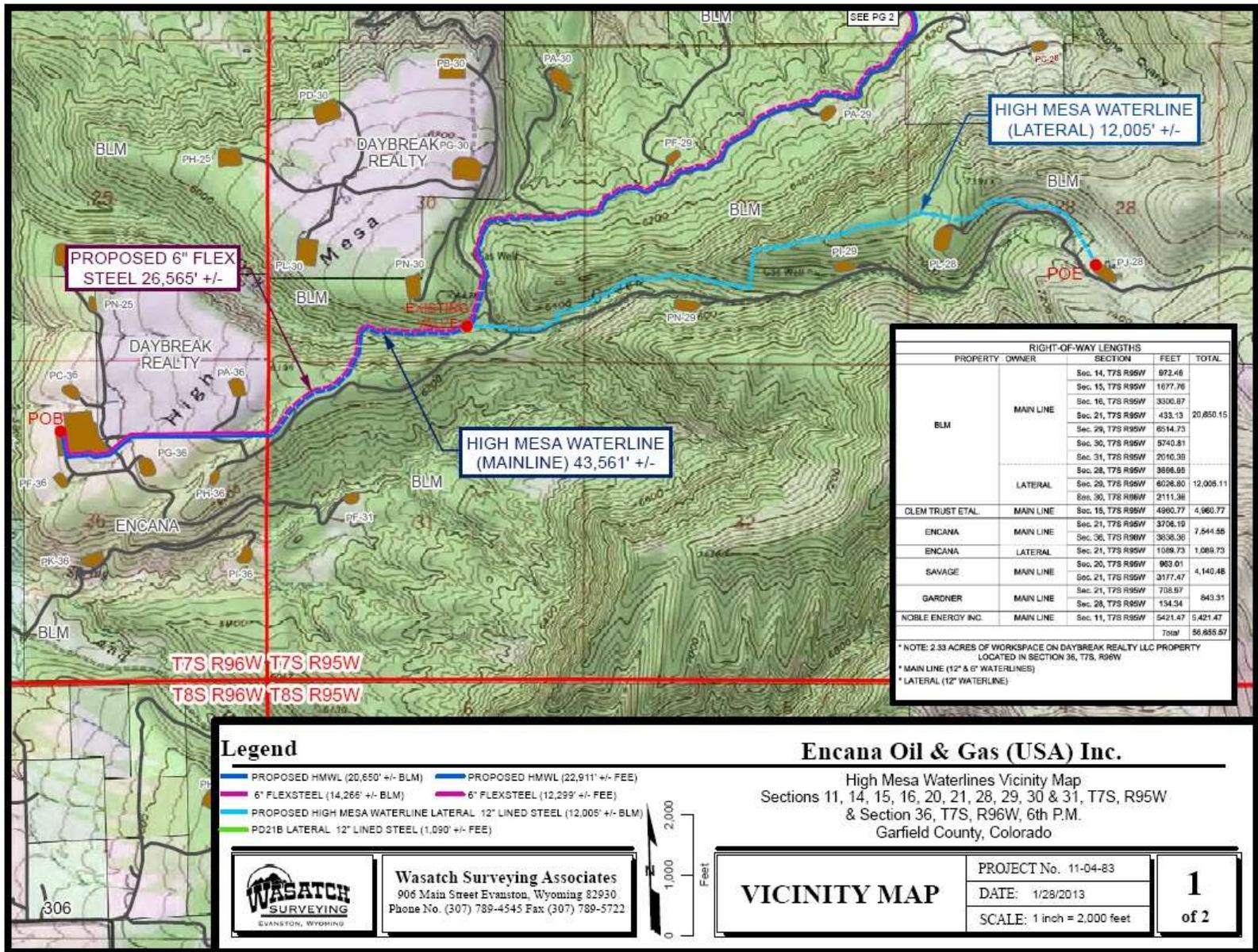
APPLICANT

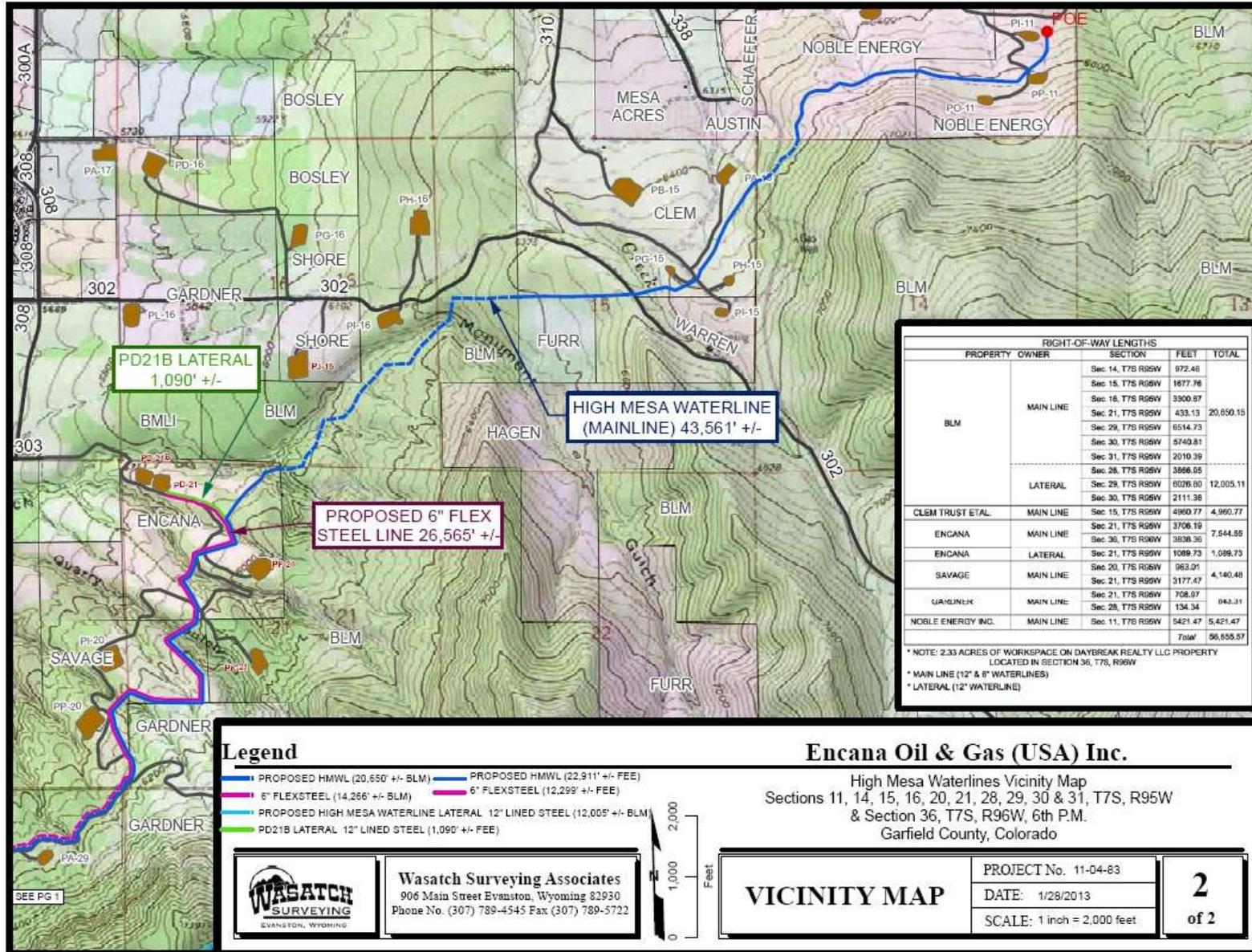
Encana Oil and Gas Inc. Contact: Renata Busch, 143 Diamond Avenue, Parachute, CO 81635.

PROPOSED ACTION

Encana Oil and Gas Inc. (“Encana”) proposes to construct a 12-inch diameter and a 6-inch diameter main line, and a 12-inch diameter lateral line. All proposed lines would be buried steel water lines. The pipelines would be constructed across 32,655 feet of BLM-administered land and 23,190 feet of private lands (Figures 1 and 2). The lines would be used to move treated and produced water between the existing Encana High Mesa Water Treatment Facility and Encana oil and gas well pads. The water lines decrease truck traffic associated with transporting water. The 12-inch and 6-inch main pipelines would be installed concurrently in the same trench, terminating at a tie-in to an existing line near the PI-11 well pad. The 12-inch lateral line would be installed in a separate trench from where it branches off the main line at an existing valve to the existing PJ-28 well pad. The proposed trench alignments would parallel existing pipeline right-of-ways and access roads (Figures 1 and 2).

The two pipeline alignments would be installed within or adjacent to existing disturbed areas, including roads and previously installed/reclaimed pipelines, to the extent feasible. With a typical 75-foot-wide temporary disturbance corridor—30 feet of permanent right-of-way (ROW) and 45 feet of temporary work space—surface disturbance along a combined length of 55,845 feet would be approximately 77.6 acres total, with 36.0 acres (46%) on BLM land. Of these amounts, 52.8 acres total and 25.1 acres on BLM land would be in areas not previously disturbed. The remainder would incorporate existing infrastructure such as roads and other pipelines previously installed and reclaimed (Table 1).





RIGHT-OF-WAY LENGTHS				
PROPERTY OWNER	SECTION	FEET	TOTAL	
BLM	MAIN LINE	Sec 14, T7S R96W	972.46	
		Sec 15, T7S R96W	1877.76	
		Sec 16, T7S R96W	3300.87	
		Sec 21, T7S R96W	433.13	
		Sec 29, T7S R96W	6514.73	
		Sec 30, T7S R96W	5740.81	
	LATERAL	Sec 31, T7S R96W	2010.39	
		Sec 28, T7S R96W	3866.05	
		Sec 29, T7S R96W	8026.00	
CLEM TRUST ETAL.	MAIN LINE	Sec 15, T7S R96W	4960.77	4,960.77
ENCANA	MAIN LINE	Sec 21, T7S R96W	3706.19	
		Sec 36, T7S R96W	3836.36	7,544.55
ENCANA	LATERAL	Sec 21, T7S R96W	1089.73	1,089.73
SAVAGE	MAIN LINE	Sec 20, T7S R96W	963.01	
		Sec 21, T7S R96W	3177.47	4,140.48
GARDNER	MAIN LINE	Sec 21, T7S R96W	708.97	
		Sec 28, T7S R96W	134.34	843.31
NOBLE ENERGY INC.	MAIN LINE	Sec 11, T7S R96W	5421.47	5,421.47
		TOTAL		56,655.57

* NOTE: 2.33 ACRES OF WORKSPACE ON DAYBREAK REALTY LLC PROPERTY LOCATED IN SECTION 36, T7S, R96W
 * MAIN LINE (12" & 8" WATERLINES)
 * LATERAL (12" WATERLINE)

- Legend**
- PROPOSED HMWL (20,650' +/- BLM)
 - PROPOSED HMWL (22,911' +/- FEE)
 - 6" FLEXSTEEL (14,266' +/- BLM)
 - 6" FLEXSTEEL (12,299' +/- FEE)
 - PROPOSED HIGH MESA WATERLINE LATERAL 12" LINED STEEL (12,005' +/- BLM)
 - PD21B LATERAL 12" LINED STEEL (1,090' +/- FEE)

Wasatch Surveying Associates
 906 Main Street Evanston, Wyoming 82930
 Phone No. (307) 789-4545 Fax (307) 789-5722

Encana Oil & Gas (USA) Inc.
 High Mesa Waterlines Vicinity Map
 Sections 11, 14, 15, 16, 20, 21, 28, 29, 30 & 31, T7S, R96W
 & Section 36, T7S, R96W, 6th P.M.
 Garfield County, Colorado

VICINITY MAP	PROJECT No. 11-04-83	2 of 2
	DATE: 1/29/2013	
	SCALE: 1 inch = 2,000 feet	

Table 1. New and Total Disturbance within Pipeline Right-of-Way (acres)			
<i>Surface Owner</i>	<i>Total Workspace</i>	<i>Previously Disturbed</i>	<i>New Disturbed</i>
BLM	36.0	10.9	25.1
Private	41.6	13.9	27.7
Combined	77.6	24.8	52.8

Construction would conform to the guidelines established in the BLM Gold Book, *Surface Operating Standards for Oil and Gas Exploration and Development* (USDI and USDA 2007) and promptly reclaimed. The project would be implemented with issuance of BLM Right-of-Way Grant COC76067 and Temporary Use Permit COC76067T) pursuant to Title V of the Federal Land Policy and Management Act (FLPMA) of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761). Appendix A lists the Surface-Use Terms and Conditions, or Conditions of Approval (COAs), to be applied and enforced as for the project. The operator would be responsible for continuous inspection and maintenance of the pipelines.

NO ACTION ALTERNATIVE

The No Action Alternative would consist of denial by the BLM of the ROW application for the use of Federally administered lands, and therefore construction of the pipelines would not occur on BLM land. However, Encana could install the pipelines entirely across private lands, although the routes would be considerably longer and more expensive. In addition, routes that occur entirely on private lands would be unable to serve the existing well pads on BLM land. Therefore, truck traffic associated with delivering water to the well pads on BLM land would not be reduced. As a result, the No Action Alternative would result in more surface disturbance and presumably greater resource impacts, and greater impacts from truck traffic, than associated with the Proposed Action.

PURPOSE AND NEED FOR THE ACTION

The purpose of the Proposed Action is to allow the installation of buried pipelines serving existing and proposed well pads on BLM and private lands. The issuance of the pipeline ROW would be a discretionary action subject to terms of the current BLM land use plan (BLM 1999a). The action is needed to increase the development of oil and gas resources for commercial marketing to the public.

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 & 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 to Encana. That decision recognized the need for ancillary facilities such as access roads, natural gas, and water pipelines.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

During its internal scoping process for this Environmental Assessment (EA), pursuant to the National Environmental Policy Act (NEPA), BLM resource specialists identified the following elements of the natural and human environment as present in the project vicinity and potentially affected by the project:

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

Access and Transportation

Affected Environment

The project area is located approximately 3.9 miles southwest of Parachute, Garfield County, Colorado. The primary vehicle access is as follows: From the town of Parachute, proceed southwesterly on First Street (becomes U.S. Highway 6) approximately 4.4 miles to the junction with Stone Quarry Road. Turn left on Stone Quarry Road and travel in a southerly and then easterly direction approximately 2.2 miles to the intersection of Stone Quarry Road and Richardson Road. Turn right on Richardson Road and proceed easterly, then southerly, then easterly, and then northerly approximately 3.1 miles to the existing Encana High Mesa Water Treatment Facility, the point of entry for the proposed pipelines.

Existing access roads and facilities would be utilized in the construction of the proposed water lines. No new access road is required, and no improvements or modifications are proposed for the existing access road.

Environmental Consequences

Proposed Action

The primary traffic impact associated with the pipeline project would be the mobilization of construction equipment and pipe deliveries. The increase in truck traffic would be minor as the project is directly accessed by existing access roads, facilities, and pipeline corridors. Construction activities on the pipeline are anticipated to begin in late spring 2013 and occur over a period of 15-20 weeks. No more than seven pieces of excavation equipment would be forecast to complete the pipeline installation. The construction crew would be composed of approximately 15 crew members using eight pieces of equipment (one dozer, two trackhoes, two sidebooms, one semi-trailer haul truck, one fuel truck, and one 2-ton truck).

Degradation of field development roads may occur due to heavy equipment travel and fugitive dust and noise would be created. Mitigation measures (Appendix A) would be applied and enforced as COAs to ensure adequate dust abatement and road maintenance.

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 in order to access the wells on private surface and would continue to haul water using water trucks to the existing pads on BLM land. This would result in more surface disturbance and air quality impacts than associated with the Proposed Action.

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 (NO₂), sulfur dioxide (SO₂), ozone (O₃), particulate matter less than 10 microns (µ) in diameter (PM₁₀), 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 Colorado Department of Public Health and Environment (CDPHE).

Federal air quality regulations adopted and enforced by 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).

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 buried steel water lines. The air quality would decrease during construction of the pipeline. The total disturbance area would be 77.6 acres, with 36.0 acres on BLM land. Of these amounts, 52.8 acres total and 25.1 acres on BLM land would be in areas not previously disturbed. The remainder would incorporate existing infrastructure such as roads and other pipelines previously installed and reclaimed (Table 1).

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 (PM₁₀ 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, NO₂, SO₂, ozone, PM₁₀, 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 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 in order to access the wells on private surface, and would continue to haul water using water trucks to the existing pads on BLM land. This would result in more surface disturbance and air quality impacts than associated with the Proposed Action.

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.

Over 20 Class III cultural resource inventories have been conducted along or in the vicinity of the proposed water line routes. The majority of these previous inventories were performed for other oil and gas related pipeline or well pad access routes while the most recent inventory (CRVFO# 1113-11) was undertaken 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 31 cultural resources in the immediate project vicinity, 15 of which are in the proposed project ROW. Although four sites (5GF.1057, 5GF.447, 5GF.3373 and 5GF.3631.1) are eligible or potentially eligible to the National Register of Historic Places (NRHP) and are located in the project area, none are anticipated to be affected by the construction of the proposed waterlines due to either being avoided by the pipeline construction, or the pipeline alignments following within existing disturbed corridors. The remaining six cultural resources within the project ROW are isolated finds, which by definition are not eligible to the NRHP. 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

The project’s proposed linear route follows an existing pipeline corridor where it crosses the “Cow Camp” site (5GF447) through a disturbed and non-supporting portion of the site. Site 5GF1057 will be avoided by the pipeline construction. As for Site 5GF3373, the project will have no effect on the main cluster of historic buildings and will follow an existing pipeline corridor. The final site (5GF3631.1) in the project area is a historic ditch segment that is crossed twice at previously disturbed locations where the proposed pipelines follow existing corridors. Therefore, the BLM made a determination of “**No Historic Properties Affected**”, as the proposed routes for the project pipelines would cause no new disturbance. This determination was made in accordance with the 2001 revised regulations [36CFR 800.4(d)(1)] for Section 106 of the National Historic Preservation Act (16U.S.C 470f), the BLM/State Historic Preservation Officer (SHPO) Programmatic Agreement and Colorado Protocol]. As the BLM has determined that the Proposed Action would have no direct impacts to known “historic properties,” no formal consultation was initiated with the SHPO.

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. A standard 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 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 in order to access the wells on private surface, and would continue to haul water using water trucks to the existing pads on BLM land. This would result in more surface disturbance and potential impacts to cultural resources than those associated with the Proposed Action.

Fossil Resources

Affected Environment

The predominant bedrock formation present at or near the surface within the project area is the Shire member of the Wasatch Formation. This formation is overlain by areas of Quaternary aged sediment gravels and alluvial sands and muds. 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.

The Wasatch Formation is considered a BLM Condition 4 formation, 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.

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).

Environmental Consequences

Proposed Action

The Wasatch is mapped as the predominant surface formation of the project area, field inspection and geologic map analysis revealed the Wasatch exposed in varying degrees along the proposed pipeline

route, with sections 29 and 31 having the largest extent of outcrop exposure. In many areas, the Wasatch is overlain by Quaternary aged pediment, colluvial and alluvial deposits, 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 Green Formation. 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 no fossil localities within a 1-mile radius of the proposed well sites. 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 Formation bedrock surface exposures on Federal lands. Application of the CRVFO's standard COA for the protection of paleontological resources will be attached to the APDs and is detailed in Appendix A.

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. This would lessen the potential to expose buried fossil resources on public lands as well as lessen the potential for indirect effects from illicit collection or vandalism as well as reduce the cumulative impacts on fossil resources. However, Encana could install longer pipelines entirely across private lands, resulting in more surface disturbance and potential impacts to fossil resources than associated with the Proposed Action.

Invasive Non-Native Plants

Affected Environment

The vegetation communities through which the project area passes are a mixture of pinyon-juniper woodlands, sagebrush shrublands, and mixed mountain shrublands. A large portion of the area burned in a wildfire in 1976, and is now regenerating into pinyon-juniper woodlands and mixed mountain shrublands. Previous disturbances also include roads and previously installed pipelines.

The project area is heavily infested with noxious weeds and other nonnative invasive plant species. These include ten State B List noxious weeds, bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), houndstongue (*Cynoglossum officinale*), jointed goatgrass (*Aegilops cylindrica*), musk thistle (*Carduus nutans*), plumeless thistle (*Carduus acanthoides*), Russian knapweed (*Acroptilon repens*), Russian-olive (*Elaeagnus angustifolia*), and tamarisk (*Tamarix* sp.). State B List weeds are those for which noxious weed management plans are designed to stop the continued spread of these species.

Six State C List noxious weeds also occur within the project area, cheatgrass (*Bromus tectorum*), common burdock (*Arctium minus*), common mullein (*Verbascum thapsus*), field bindweed (*Convolvulus arvensis*), halogeton (*Halogeton glomeratus*), and redstem filaree (*Erodium cicutarium*). State C List noxious weeds are those for which noxious weed management plans are designed to support more effective integrated weed management on public and private lands, without the goal of containment (CDA 2013). Of these species, cheatgrass, common mullein, field bindweed, halogeton, houndstongue, musk thistle, plumeless thistle, and redstem filaree are the most widespread across the project area. Common burdock and tamarisk are restricted to drainage crossings, and Russian knapweed is present only at a few locations

within the burned area. The remaining noxious weed species are limited to only a single site or a few locations within the project area.

Several other nonnative invasive species are also prevalent within the project area, including bur buttercup (*Ranunculus testiculata*), common plantain (*Plantago major*), curly dock (*Rumex crispus*), kochia (*Bassia scoparia*), prostrate knotweed (*Polygonum aviculare*), Russian-thistle (*Salsola tragus*), and tall tumble-mustard (*Sisymbrium altissimum*).

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of 77.6 acres of new ground disturbance would occur for pipeline installation. Of this total, 25.1 acres of disturbance would occur on BLM land, with the remaining 27.7 acres of disturbance on private lands. 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 invasion and establishment are multi-fold. Removal of native vegetation removes the competition from native plants for resources, including sunlight, water and soil nutrients, creating niches for invasive species (Parendes and Jones 2000). Linear disturbances, such as roads and pipelines, provide corridors of connected habitat along which invasive plants can easily spread (Gelbard and Belnap 2003). Construction activities require heavy equipment and motorized vehicles, which often transport invasive plant seeds either alone or in mud clods on the undercarriage and tires or tracks and deposit them in disturbed habitats along access roads and at well pad sites (Schmidt 1989, Zwaenepoel et. al. 2006).

Noxious weeds and other invasive species are well-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, Vogelsang and Bever 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 difficult to eliminate.

Because of previous disturbance along the existing adjacent pipeline and roads, numerous noxious weeds and other invasive non-native plant species have become established within the proposed project area. The 1976 wildfire which burned through a portion of the project area also created an environment conducive to weed establishment. With new disturbance from the proposed project, the potential for increased establishment of these undesirable plants following construction activities is high. 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 this invasive species risk, the standard weed control COA would be attached to APDs to require periodic monitoring and weed control practices to ensure that these weedy plants are controlled (Appendix A). Establishment of native plant species is also important in preventing invasive non-native plant species establishment and spread. Therefore, the standard reclamation COAs would also be attached to APDs to require seeding and monitoring of reclamation seeding results, with recommendations for an appropriate native seed mix (Appendix A). However, portions of the pipeline corridor cross areas of private lands ownership. In these areas the reclamation seed mix would be at the landowner's discretion and would not be restricted to native plant species.

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, and the risk of invasive plants would remain the same as the current risk. However, Encana could install longer pipelines entirely across private lands in order to access the wells on private surface, and an increased risk in invasive plant establishment on the nearby private lands.

Native American Religious Concerns

Affected Environment

The Proposed Action is located 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 Proposed Action's vicinity to determine if any areas were known to be culturally sensitive to Native Americans. No sensitive areas are known or expected in the project area.

Environmental Consequences

Proposed Action

At present, no Native American concerns are known within the project area and none were identified during the inventories. The Ute Tribe of the Uintah and Ouray Bands, Southern Ute, and Ute Mountain Ute Tribes were notified of the proposed High Mesa Waterline Project on May 30th, 2013. No responses, questions, or requests for additional information have been received as of June 30th, 2013. 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 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 in order to access the wells on private surface, and would continue to haul water using water trucks to the existing pads on BLM land. This would result in more surface disturbance and potential impacts to cultural resources than the Proposed Action.

Noise

Affected Environment

The project area would be located approximately 3.9 miles southwest of Parachute, Garfield County, Colorado. The primary vehicle access is from Stone Quarry Road. The Proposed Action involves constructing the installation of a twelve-inch diameter and a six-inch diameter main line, and a twelve-inch diameter lateral line. All proposed lines would be steel buried water lines. The Proposed Action would lie within a rural setting characterized by oil and gas development activities. Noise levels in the area are presently created by traffic on access roads serving existing wells and ongoing drilling and completion activities. The proposed construction activities would be located more than a mile away from the nearest residence.

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 typically 30 to 40 dBA (USEPA 1974, Harris 1991). As a basis for comparison, the noise level is approximately 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 of the buried water lines. The noise would be most noticeable along the roads used to haul equipment and along the proposed ROW corridor. 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 are subject to the maximum permissible noise levels for industrial zones. The 2006 revised 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 2) at a distance of 350 feet.

Table 2. Noise Standards for Light industrial, Residential/Agriculture/Rural		
<i>Zone</i>	<i>7:00 A.M. to 7:00 P.M</i>	<i>7:00 P.M. to 7:00 A.M</i>
Light Industrial	70 dBA	65 dBA
Residential/Agricultural/Rural	55 dBA	50 dBA

Given the remote locations of the proposed project activities, with no reasonably close occupied structure or designated recreational area, the light industrial standard is applicable. The allowable noise level for periodic impulsive or shrill noises is reduced by 5 dBA from the levels shown (COGCC 2010).

Short-term (7- to 14-day) increases in nearby noise levels would characterize pipeline construction and installation. Based on the Inverse Square Law of Noise Propagation (Harris 1991) and an average typical noise level for construction sites of 65 dBA at 500 feet (Table 3), project-related noise levels would be approximately 59 dBA at a distance of 1,000 feet, approximating active commercial areas (US EPA 1974).

Traffic noise would also be elevated as a consequence of the Proposed Action. The greatest increase would be along access roads and pipeline ROW's during construction and installation of the pipelines. Based on the La Plata County data presented in Table 3 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 construction and installation of the pipelines.

<i>Equipment</i>	<i>Noise Level (dBA)</i>		
	<i>50 feet</i>	<i>500 feet</i>	<i>1,000 feet</i>
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
Tractor, Vibrator/Roller	80	60	54

Sources: BLM (1999a), La Plata County (2002)

Upon completion and initiation of operation of the proposed water lines, noise impacts related to truck traffic along the access roads would decrease because the pipelines would be used to transport water to and from the wells along the pipeline routes, and the need for trucks to haul water to and from these locations would decrease as a result.

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 noise impacts than that associated with the Proposed Action.

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 (I-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 4 lists the top 10 industries in Garfield County for the fourth quarter of 2011 (CDLE 2013).

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 2007). 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 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 increased impacts to socio-economic conditions.

Soils

Affected Environment

The High Mesa water lines project is covered by the *Soil Survey of Rifle Area, Colorado* (NRCS 2010, USDA 1985) and would include surface-disturbing activities on several soil complexes. The route of the pipelines lies within Bucklon-Inchau loams, Ildefonso stony loams, Villa Grove-Zoltay loam, Torriorthents-Rock outcrop complex, Potts loam, and Potts-Ildefonso complex.

Bucklon-Inchau loams are well-drained, moderately sloping (25 to 50% slopes) soils on ridges and mountainsides from 7,000 to 9,500 feet. Surface layer is loam 3 to 5 inches thick; upper subsoil, where present, is brown clay loam about 15 inches thick. The permeability is slow to moderate, runoff is rapid and erosion hazard is severe. This soil is generally used for irrigated pasture, hay, and grazing.

Ildefonso stony loams are well-drained, slightly to moderately sloping (6 to 45% slopes) soils on benches, mesas, valley sides, alluvial fans, and breaks from 5,000 to 6,500 feet. Surface layer is stony loam 0 to 8 inches thick. The permeability is moderately rapid, runoff is low to medium and erosion hazard is moderate. This soil is generally used for grazing (rangeland).

Villa Grove-Zoltay loam is well-drained, moderately sloping (15 to 30% slopes) soil on mountainsides and alluvial fans from 7,500 to 7,600 feet. Surface layer is dark grayish brown loam 0 to 4 inches thick; upper subsoil, where present, is clay loam about 11 inches thick. The permeability is very slow to moderately rapid, runoff is medium and erosion hazard is moderate. This soil is generally used for grazing, wildlife habitat, and some irrigated pasture.

Torriorthents-Rock outcrop complex are well-drained, moderately to strongly sloping (15 to 70% slopes) soils on mountainsides from 5,800 to 8,500 feet. The surface layer is variable; upper subsoil, where present, is fine sandy loam about 26 inches thick. This soil is generally used for limited grazing, wildlife habitat, and recreation.

Potts loam is well-drained, moderately sloping (6 to 12% slopes) soil on mesas, benches, and valley sides from 5,000 to 7,000 feet. Surface layer is brown loam approximately 4 inches thick; upper subsoil, where present, is reddish brown clay loam about 24 inches thick. The permeability is moderate, runoff is medium and erosion hazard is severe. This soil is generally used for grazing, wildlife habitat, and some dryland farming.

Potts-Ildefonso complex are well-drained, strongly sloping to hilly (12 to 25% slopes) soils on mesas, alluvial fans, and valley sides from 5,000 to 6,500 feet. Surface layer is brown loam about 4 inches thick; upper subsoil, where present, is reddish brown clay loam about 24 inches thick. The permeability is moderate, runoff is medium and erosion hazard is moderate. This soil is generally used for limited grazing and wildlife habitat.

Environmental Consequences

The Proposed Action would involve surface disturbance to construct and install water pipelines on BLM and private surface. The Proposed Action would result in approximately 36.0 acres of temporary disturbance (25.1 acres of new disturbance) on BLM land, including vegetation loss and soil compaction and displacement. Over the long-term, potential for soil loss would be somewhat greater under the cover of perennial grasses than the pre-existing shrub community. Areas susceptible to erosion or slope instability would require proper erosion control and construction techniques (Appendix A). In addition, construction activities would cause mixing of soil horizons, slight to moderate increases in local soil loss, loss of soil productivity, and sediment available for transport to surface waters. Noxious weed infestation resulting from disturbance would impact soil productivity. Potential for soil loss and transport would increase as a function of slope, feature (pipeline route) to be constructed, and proximity to streams.

Throughout the affected area, the potential would also exist for accidental spills or leaks of petroleum products and hazardous materials during construction and long-term operations for the life of the pipelines. These events would cause soil contamination and may decrease the soil fertility and revegetation potential.

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 and soil impacts than associated with the Proposed Action.

Special Status Species – Plants

Federally Listed, Proposed, or Candidate Species

Affected Environment

Four Federally listed plant species may occur within or be impacted by actions occurring in Garfield County. Table 5 lists these species and presents information relative to the project.

Table 5. Potential for Occurrence of Threatened or Endangered Plant Species				
<i>Species and Status</i>	<i>Occurrence</i>	<i>Habitat Association</i>	<i>Range or Habitat in Vicinity?</i>	<i>Potentially Affected?</i>
Ute lady's-tresses orchid (<i>Spiranthes diluvialis</i>) – Threatened	Subirrigated alluvial soils along streams and in open meadows in floodplains; 4,500 to 7,200 feet	Box-elders, cottonwoods, willows, scouring rushes, and riparian grasses, sedges, and forbs	Yes	No
Parachute penstemon (<i>Penstemon debilis</i>) -- Threatened	Sparsely vegetated, south-facing, steep, white shale talus, Parachute Creek Member of 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 5. Potential for Occurrence of Threatened or Endangered Plant Species				
<i>Species and Status</i>	<i>Occurrence</i>	<i>Habitat Association</i>	<i>Range or Habitat in Vicinity?</i>	<i>Potentially Affected?</i>
DeBeque phacelia (<i>Phacelia submutica</i>) – 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	Yes	No
Colorado hookless cactus (<i>Sclerocactus glaucus</i>) – 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

Botanical surveys were conducted by WestWater Engineering in June and July 2012 and April 2013 (WWE 2013). Because the Green River shale formation does not crop out in or near the project area, no suitable habitat is present for Parachute penstemon. The project is located within the range for DeBeque phacelia, but botanical surveys found no suitable habitat for this species based on habitat delineation guidelines issued by the USFWS (2013). Suitable habitat for Colorado hookless cactus is present within the project area, but intensive surveys of this habitat found no plants present. Minor drainages crossed by the proposed pipelines lack perennial flows, a requirement for Ute lady’s-tresses orchid. Battlement Creek is a perennial stream but is incised, with basalt boulders in the narrow stream channel and along its steeply sloping banks, and therefore lacks suitable habitat for Ute lady’s-tresses.

Environmental Consequences

Proposed Action

Because no occurrences of any Federally listed plant species are known or expected or within or adjacent to the proposed project, the Proposed Action would have “**No Effect**” on these species.

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 plant species would not be expected, however, since a large portion of the nearby private lands was included in the biological surveys and not found to contain the plants or suitable habitat.

BLM Sensitive Plant Species

Affected Environment

BLM sensitive plant species with habitat and/or occurrences in Garfield County are listed in Table 6. Note from Table 6 that three BLM sensitive plant species have the potential to occur within or adjacent to the project area: DeBeque milkvetch, Naturita milkvetch, and Harrington’s penstemon. Botanical surveys were conducted by WestWater Engineering in June and July 2012 and in April 2013 (WWE 2013). Suitable habitat for DeBeque milkvetch and Naturita milkvetch were found within sections of the project area, but no plants were found. No suitable habitat was found for Harrington’s penstemon.

Table 6. Potential for Occurrence of BLM Sensitive Plant Species				
<i>Species</i>	<i>Occurrence</i>	<i>Habitat Association</i>	<i>Range or Habitat in Vicinity?</i>	<i>Potentially Affected?</i>
DeBeque milkvetch (<i>Astragalus debequaeus</i>)	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 (<i>Astragalus naturitensis</i>)	Sandstone mesas, ledges, crevices and slopes in pinyon/juniper woodlands; 5,000 to 7,000 feet	Pinyon-juniper woodlands	Yes	No
Piceance bladderpod (<i>Lesquerella parviflora</i>)	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 (<i>Mentzelia rhizomata</i>)	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 (<i>Penstemon harringtonii</i>)	Flats to hillsides with rocky loam and rocky clay loam soils derived from coarse calcareous parent materials or basalt; 6,200 to 9,200 feet	Sagebrush shrublands, typically with scattered pinyon-juniper	Yes	No
Cathedral Bluffs meadow-rue (<i>Thalictrum heliophilum</i>)	Endemic on sparsely vegetated, steep shale talus slopes of the Green River Formation; 6,300 to 8,800 feet	Pinyon-juniper woodlands and shrublands; often with other oil shale endemics, sometimes with rabbitbrush or snowberry	No	No

Environmental Consequences

Proposed Action

No occurrences of BLM sensitive plants are known to occur within or adjacent to the project area. Therefore, the project would have no impact on BLM sensitive plants.

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 plant and animal species would not be expected, however, since a large portion of the nearby private lands was included in the biological surveys and not found to support the plants or their habitat.

Special Status Species – Animals

Federally Listed, Proposed, or Candidate Species

Affected Environment

Eight species of Federally listed, proposed, or candidate threatened or endangered vertebrate species occur within Garfield County or may be affected by projects within the County. These species, their status, and their distributions and habitat associations in the region are listed in Table 7.

Table 7. 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 (<i>Lynx canadensis</i>) – 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
Yellow-billed cuckoo (<i>Coccyzus americanus</i>) – 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 (<i>Strix occidentalis lucida</i>) – 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 (<i>Xyrauchen texanus</i>) – 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	Yes
Colorado pikeminnow (<i>Ptychocheilus lucius</i>) – Endangered			No	Yes
Humpback chub (<i>Gila cypha</i>) -- 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 (<i>Gila elegans</i>) – Endangered			No	Yes
“Lineage GB” cutthroat trout (<i>Oncorhynchus clarki</i> 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.	No	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 Sunnyside 16-inch natural gas pipeline 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 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.

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 8. Species indicated in the table as present or possibly present in the project vicinity are described more fully following the table.

Table 8. BLM Sensitive Vertebrate Species Present or Potentially Present in the Project Area		
<i>Common Name</i>	<i>Habitat</i>	<i>Potential for Occurrence</i>
Fringed myotis (<i>Myotis thysanodes</i>)	Roosting: Caves, trees, mines, and buildings. Foraging: Pinyon-juniper, montane conifers, and semi-desert shrubs.	Possible
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)		
Northern goshawk (<i>Accipiter gentilis</i>)	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 (<i>Haliaeetus leucocephalus</i>)	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.	Nests and roosts along Colorado River
Peregrine falcon (<i>Falco peregrinus</i>)	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 (<i>Spizella breweri</i>)	Extensive stands of sagebrush, primarily Wyoming sagebrush on level or undulating terrain.	Possible – habitat marginal
Midget faded rattlesnake (<i>Crotalus oreganus concolor</i>)	Cold desert of NW Colorado, SW Wyoming, and NE Utah, primarily in sagebrush with rock outcrops and exposed canyon walls.	Possible – habitat marginal
Great Basin spadefoot (<i>Spea intermontana</i>)	Permanent or seasonal ponds and slow-flowing streams in pinyon-juniper woodlands and semi-desert shrublands.	No suitable habitat
Northern leopard frog (<i>Lithobates pipiens</i>)	Clean, perennial waters in slow-flowing streams, wet meadows, marshes, and shallows of clean ponds and lakes.	Possible – habitat marginal
Bluehead sucker (<i>Catostomus latipinnis</i>)	Primarily smaller streams with a rock substrate and mid to fast-moving waters; also shallows of larger rivers.	Not present
Flannelmouth sucker (<i>Catostomus discobolus</i>)	Runs, riffles, eddies, and backwaters in large rivers.	Present in Colorado River
Roundtail chub (<i>Gila robusta</i>)	Slow-moving waters adjacent to fast waters in large rivers.	
"Lineage CR" cutthroat trout (<i>Oncorhynchus clarki</i> ssp.)	Headwaters streams and ponds with cool, clear waters isolated from populations of non-native cutthroats and rainbow trout.	Present in Battlement Creek

Environmental Consequences

Proposed Action

Fringed Myotis and Townsend's Big-eared Bat – No caves or other suitable roosting sites occur in the project area. Loss of large trees, potentially also used for roosting, would be negligible. No new loss of habitat above which the bats could search for aerial prey would occur, and the area they might avoid during nighttime drilling and completion 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.).

Bald Eagle – Formerly listed as endangered, then downlisted to threatened, and eventually removed from the list of threatened or endangered species, the bald eagle remains protected by the Bald and Golden Eagle Protection Act (BGEPA) as well as the MBTA. Bald eagles nest and roost along the Colorado and most likely occasionally venture into the Parachute Creek drainage for hunting activities. Bald eagles hunt primarily for fish and waterfowl but secondarily for rabbits, ground squirrels, or other upland prey, especially in winter.

Peregrine Falcon – Also formerly listed as endangered, then downlisted to threatened, and eventually removed from the list of threatened or endangered species, the peregrine falcon nests along the Roan Cliffs in the general project vicinity and hunts primarily for waterfowl along the Colorado River or upland fowl and other birds on nearby sagebrush-covered plateaus. No peregrine nests are known or expected in the project area. Transient peregrines could hunt for small birds in grassland, sagebrush, and open pinyon-juniper habitats in the project area for hunting small birds, but any such use would be infrequent.

Brewer's Sparrow – This species is a near-obligate on sagebrush and is mostly limited to extensive stands and lower and middle elevations, especially those dominated by Wyoming big sagebrush on level to rolling or undulating terrain. Smaller stands or those on steep mountainsides may also be used, and the species occasionally nests in stands of short willows near timberline. The sagebrush habitat in the project area is marginally suitable for nesting by this Neotropical migrant.

Midget Faded Rattlesnake – This species is mostly limited to areas with rock outcrops that provide escape cover, thermal cover, and especially hibernacula. These are crucial components for reproduction and survival and are uncommon in the project vicinity. The midget faded rattlesnake is known to occur in northwestern Colorado in a variety of habitats, including pinyon and juniper woodlands and shrublands, such as are found in the project area.

Great Basin Spadefoot – This species is typically found slightly west of the project area, but the area does provide suitable habitat within rocky canyons and broad dry basins. Threats include direct mortality from vehicles traveling on roads within the project area. As more vegetation is cleared predation can increase because of the greater ease of detection by predators.

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.

Lineage CR Cutthroat Trout – The presence of a genetically pure strain of native cutthroat trout in Battlement Creek has long been recognized by Colorado Parks and Wildlife (CPW). However, more recent genetics studies have indicated that three distinct strains of native trout historically occupied waters of the Colorado River drainage basin in Colorado (Metcalf et al 2012). One of these, currently referred to as Lineage CR cutthroat trout, is the variety to which the Battlement Creek population has been ascribed. While the initial results of the DNA-based genetic study of native cutthroat in Colorado are reevaluated and potentially as a basis for redefining taxonomic status of the various subspecies or strains, the BLM is managing Lineage CR cutthroats as a sensitive species.

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 of these species. 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 project area ranges in elevation from 5,600 to 7,280 feet. At lower elevations the vegetation is a mix of sagebrush shrublands and pinyon-juniper woodlands. Common native woody plant species here are pinyon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), shadscale saltbush (*Atriplex confertifolia*), and fourwing saltbush (*Atriplex canescens*). Claret cup cactus (*Echinocereus triglochidiatus*) and prickly-pear cactus (*Opuntia polyacantha*) are also common, as are native forbs such as common sunflower (*Helianthus annuus*), Gray's biscuitroot (*Lomatium grayi*), hairy golden-aster (*Heterotheca villosa*), scarlet globe mallow (*Sphaeralcea coccinea*), and spiny phlox (*Phlox hoodii*) and native perennial grasses such as bluebunch wheatgrass (*Pseudoroegneria spicata*) and Indian ricegrass (*Achnatherum hymenoides*). Non-native grasses are also common here, including crested wheatgrass

(*Agropyron cristatum*), cheatgrass (*Bromus tectorum*), smooth brome (*Bromus inermis*), and tall wheatgrass (*Thinopyrum ponticum*). Noxious weeds and nonnative invasive species are common and widespread.

At higher elevations, the pipeline corridor moves into mountain shrub vegetation. Common species here are Gambel oak (*Quercus gambelii*), mountain mahogany (*Cercocarpus montanus*), Saskatoon serviceberry (*Amelanchier alnifolia*), and snowberry (*Symphoricarpos albus*). Narrowleaf cottonwood (*Populus angustifolia*) occurs along streams.

The central portion of the proposed pipeline passes through an area burned by wildfire in 1976. Vegetation within the burned area is in the process of recovery, returning to pinyon-juniper woodlands and mixed mountain shrub communities.

The proposed pipeline parallels an existing pipeline corridor, where native vegetation has been previously disturbed. Vegetation along this existing corridor is dominated by seeded reclamation grasses, nonnative grasses and forbs, and noxious weeds.

Environmental Consequences

Proposed Action

Under the Proposed Action, a total of 77.6 acres would be disturbed, including 25.1 acres on BLM land and 27.7 acres on private lands consisting of plant communities not previously disturbed during construction of existing roads and pipelines. Affected communities include pinyon-juniper woodland, sagebrush shrubland, and mountain shrubland/riparian shrubland. On BLM land, reclamation seedings would consist of native plant species of predominantly or exclusively perennial grasses, while on the private lands areas the reclamation seed mix would be at the discretion of the landowner.

Native vegetation surrounding the project area would not be directly impacted, but could be indirectly impacted by dust. Dust can negatively impact plants by clogging stomatal openings in the leaves, impeding gas exchange in the leaves and reducing the ability of plants to take in carbon dioxide (Sharifi et. al. 1997). Dust on the leaf surface can also effectively reduce light availability at the leaf surface (Thompson et. al. 1984). Light and carbon dioxide are both critical for plants to conduct photosynthesis, and reductions in either can reduce the quantity of carbohydrates plants can produce through photosynthesis, and thereby reduce plant growth and seed production (Wijayratne et. al. 2009). Dust levels could be expected to increase above ambient levels in the short term from pad construction and drilling, and in the long term from the exposed bare ground surface of the working pad and vehicle traffic associated with well operation. Increased dust could reduce growth rates and seed production in neighboring plants.

Neighboring vegetation would also become more vulnerable to invasion by noxious weeds and other non-native invasive plant species. Ground disturbance provides excellent habitat for invasive species, particularly when these species are already present on the site as is the case for this project. Construction equipment and vehicles entering the site from elsewhere also provide potential vectors for introducing new invasive species. Because of the previous disturbance history and establishment of noxious weeds and other nonnative invasive species in the adjacent vegetation, the new disturbance area would be particularly vulnerable to noxious weed infestations. Implementation of standard COAs for noxious weeds and reclamation (Appendix A) would reduce the risk of noxious weed and invasive species establishment and spread, but non-native species could be expected to persist on this site due to their current widespread establishment here combined with the new disturbance to the existing vegetation. In

this case, they could move beyond the disturbance area to neighboring undisturbed vegetation where bare ground habitat is available.

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 and vegetation impacts than associated with the Proposed Action.

Visual Resources

Affected Environment

The Proposed Action would occur on private lands and BLM land approximately 3 miles southeast of Parachute. The BLM land is classified as visual resource management (VRM) Class II, III, and IV as identified by the 1984 Glenwood Springs Resource Management Plan (Figure 3). The objectives for VRM Class II, III, and IV, as defined by the BLM's Manual H-8410-1 – Visual Resource Inventory (BLM 1986), are described below.

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

The Proposed Action would occur on BLM land in Visual Resource Inventory Class 2, 3, and 4; Scenic Quality B and C, Sensitivity Medium and High, and within the Foreground/middle ground, Background, and Seldom Seen Distance Zones. VRM objectives do not apply to non-BLM land, and visual values for those lands are protected by landowner discretion. The BLM can only make recommendations to mitigate impacts to scenic values.

The project area consists of narrow mesas gently sloping upward towards the south/southeast from the Colorado River valley floor. The mesa slopes are dissected by drainages and terminate at the toe of Battlement Mesa and Doghead Mountain ridgeline slopes. The area is characteristic of rural ranching land, scattered rural residences, the residential community of Battlement Mesa, and oil and gas development. The Proposed Action would predominantly occur along the toe of the ridgelines that descend from Battlement Mesa and Doghead Mountain. A smaller portion of the Proposed Action would occur behind one of the Battlement Mesa ridges. Vegetation consists of pinyon-juniper woodlands,

sagebrush shrublands, mixed mountain shrublands, and a partially burned pinyon-juniper woodland/sagebrush shrubland. A large portion of the project area burned in a wildfire in 1976.

The visual resource analysis area includes I-70, Battlement Mesa, Morrisania Mesa, and the town of Parachute. The portion of the Proposed Action that has the highest level of sensitivity to landscape modifications occurs on the slopes that face I-70 and nearby residential areas. BLM guidance states that lands with high visual sensitivity are those within 5 miles of a primary travel corridor and of moderate to very high visual exposure, where details of vegetation and landform are readily discernible and changes in visual contrast are easily noticed by the casual observer.

The visual analysis for the project is based on the views from three Key Observation Points (KOPs) representing three linear viewing locations representing the viewing angle and direction with the highest frequency of viewers. The three KOPs are depicted in Figures 3 through 5. Figure 6 shows the locations of the KOPs in relation to the VRM class designations, the community of Battlement Mesa, and the pipeline alignment. Although portions of the project area are visible from I-70 and the town of Parachute, the much greater distances would make project components less discernible.

KOP 1 (Figure 3) is located on County Road 300 (CR 300)(Old Stone Quarry Road). KOP 1 represents the typical view that a casual observer would have from the community of Battlement Mesa. The viewer would be lower than the Proposed Action. Most of the pipeline alignment would be screened from view by existing vegetation, topography and because of the angle of view. The pipeline alignment would follow an existing road and would be visually screened by the pinyon-juniper woodland in which it traverses. This KOP represents the largest proportion of the Proposed Action that would occur on BLM land. Note that the 12-inch PJ28 lateral line follows a portion of the ridgeline with the remainder of the lateral being behind the ridge. The PJ28 12-inch lateral line would not be visible from KOP 1.

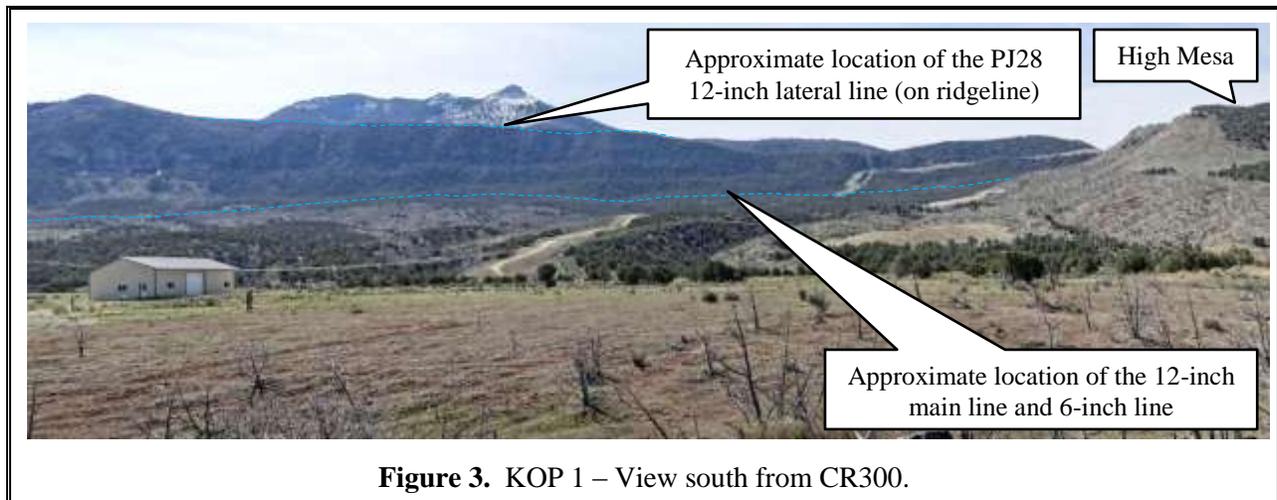


Figure 3. KOP 1 – View south from CR300.

KOP 2 (Figure 4A, 4B, and 4C), near the corner of CR 303 (Gardner Lane) and CR 308 (4 Corners Road), represents the typical view of a casual observer from the community of Battlement Mesa. The viewer would be lower than the Proposed Action. Although KOP 2 provides the best overall view of the Proposed Action, the alignment would be visually screened by pinyon-juniper woodland, similar to KOP 1. The 12-inch PJ28 lateral line follows a portion of the ridgeline, with the remainder behind the ridge, and would not be visible because of its location and the viewing angle.

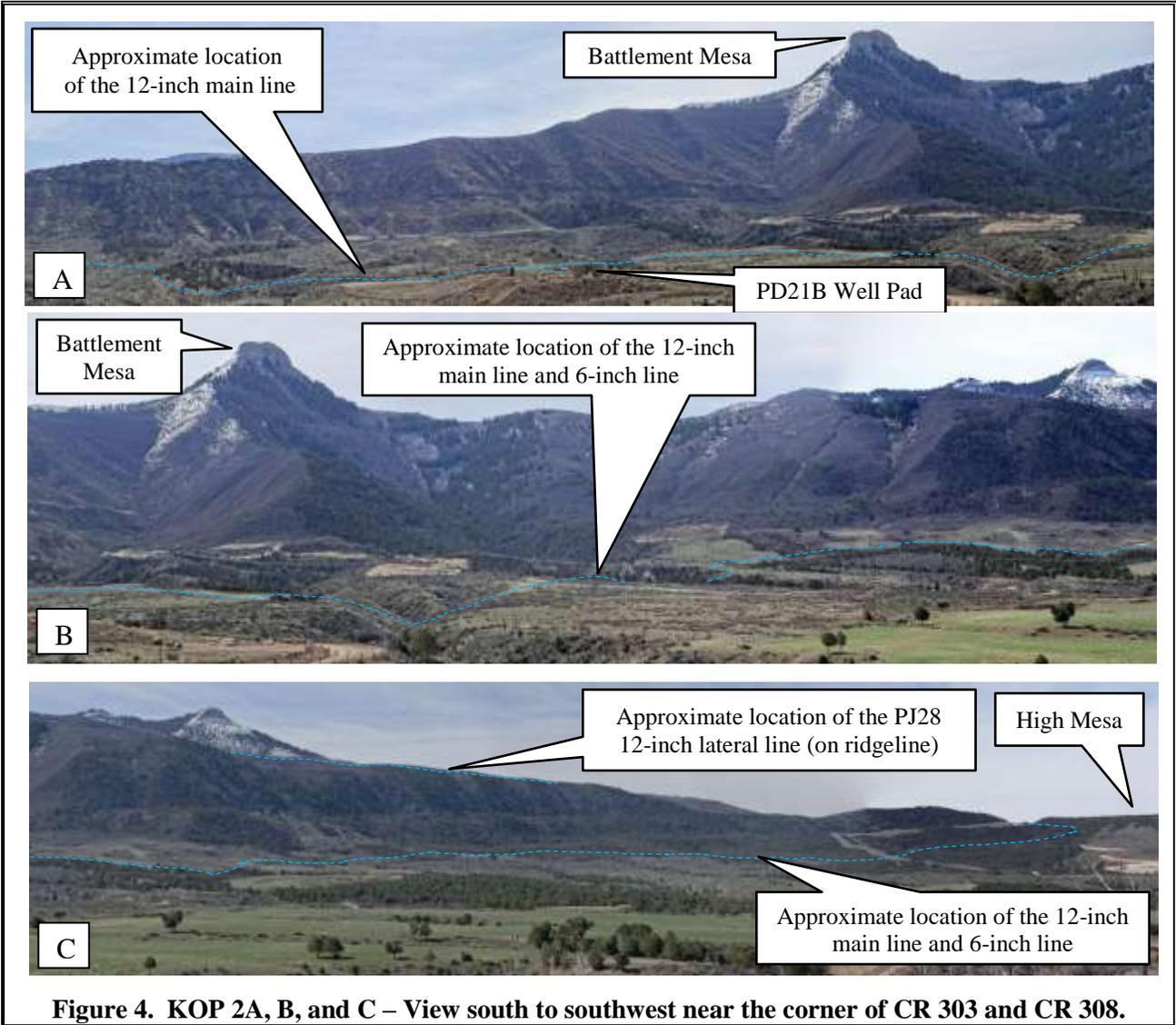


Figure 4. KOP 2A, B, and C – View south to southwest near the corner of CR 303 and CR 308.

KOP 3 (Figure 5) on County Road 310 represents the typical view from Morrisania Mesa. Similar to KOPs 1 and 2, the typical observer would be lower than the Proposed Action, and most of the pipeline alignment would be screened from view. A portion of the alignment would follow an existing corridor.

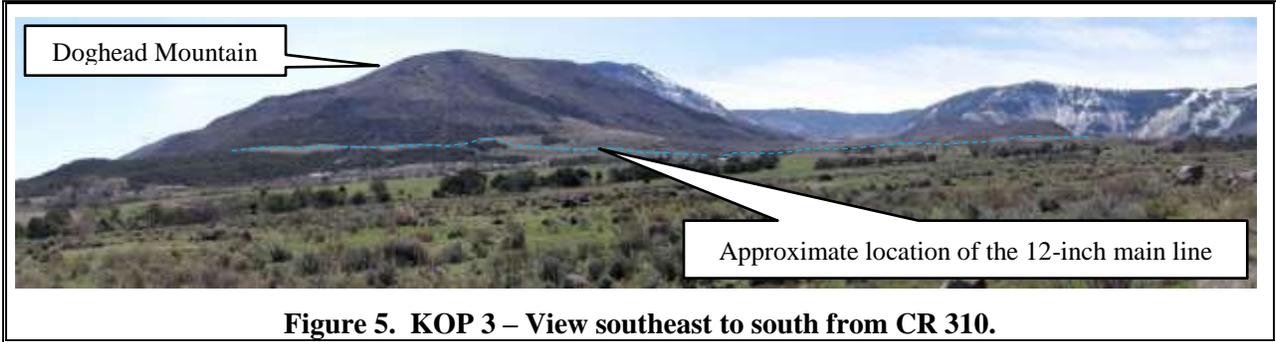


Figure 5. KOP 3 – View southeast to south from CR 310.

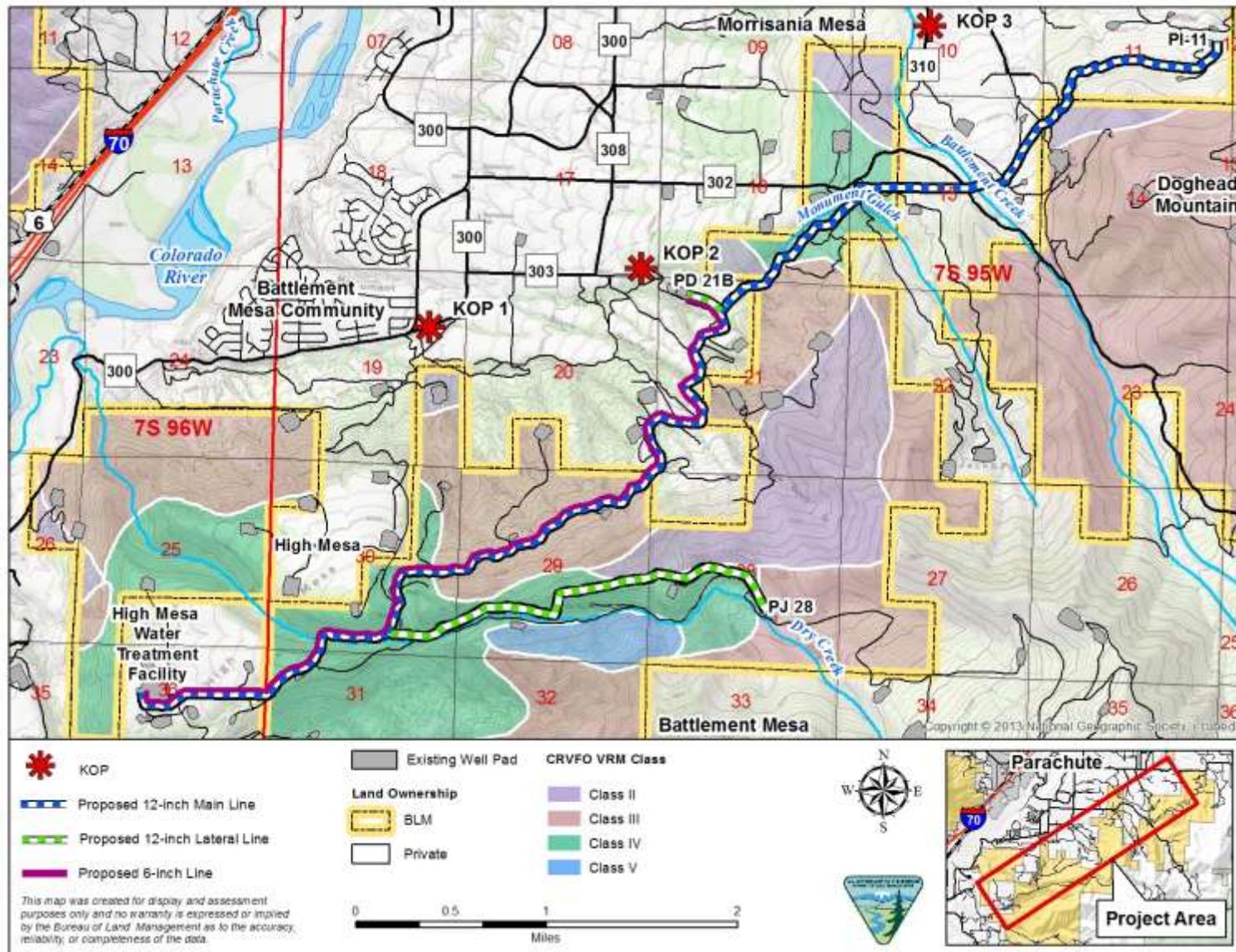


Figure 3. Proposed Action Relationship to VRM Class Designations

Environmental Consequences

Proposed Action

To avoid or minimize impacts to visual resources, the proposed route would run parallel to existing roads and existing ROWs as much as possible. Access and staging areas for construction equipment and personnel would be from existing roads and previously permitted pad and facility locations.

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 pipelines would increase the presence of heavy equipment and vehicular traffic with an associated increase in dust and light pollution. The Proposed Action would create 77.6 acres of new disturbance, with 25.1 acres on BLM land and 27.7 acres on private lands. Once the pipelines are installed, the disturbance corridor would be recontoured and seeded with native perennial grasses and forbs. Conversion of much of the alignment from pinyon-juniper woodland, sagebrush shrubland, and mountain shrubland to perennial grasses and forbs would represent a change in landscape character, although not unique to the project vicinity due to existing roads, pipelines, and utility corridors.

Visual mitigation would be implemented to reduce the visual impact of the Proposed Action on I-70 and nearby community viewsheds (see Appendix A).

No Action Alternative

Under the No Action Alternative, the Federal ROW grant authorizing installation of the pipelines would be denied. No new surface disturbance would occur on BLM land. However, Encana could install the pipelines entirely across private lands, resulting in more surface disturbance and visual impacts than associated with the Proposed Action.

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 waterbodies, 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 NEPA documents list and describe any hazardous and/or extremely hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project. 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 commonly used for oil and gas projects and a description of common industry practices for use of these materials and disposal of waste products. These practices are dictated by various Federal and State laws and regulations, and BLM standard lease terms and stipulations that would accompany any authorization resulting from this analysis. The most pertinent of Federal laws dealing with hazardous materials are:

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

Emergency response to hazardous materials or petroleum products on BLM land 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 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.

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

No Action Alternative

Under the No Action Alternative, the 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 and impacts from hazardous and/or solid wastes than associated with the Proposed Action.

Water Quality, Surface

Surface Water

Affected Environment

The pipelines would be constructed across 32,655 feet of public land and 23,190 feet of private lands, including crossings of seven drainages (Table 9).

Table 9. Sixth Hydrologic Watersheds in which Construction Will Occur		
<i>Watershed</i>	<i>Segment: Classifications</i>	<i>Drainage Crossings</i>
Pete and Bill Creek	4a: aquatic life cold 2, recreation N, water supply, and agriculture	Ephemeral tributaries to Pete and Bill
Dry Creek	4f: aquatic life cold 1, recreation N and agriculture	Dry Creek
Colorado River below Rifle Creek	4a: aquatic life cold 2, recreation N, water supply, and agriculture	Ephemeral tributaries flowing directly to Colorado River
Monument Gulch	4a: aquatic life cold 2, recreation N, water supply, and agriculture	Mainstem and ephemeral tributaries to Monument Gulch
Battlement Creek	9c: aquatic life cold 2, recreation E, water supply, and agriculture	Mainstem and ephemeral tributaries to Battlement Creek
Colorado River below Rifle Creek	4a: aquatic life cold 2, recreation N, water supply, and agriculture	Ephemeral tributaries flowing directly to Colorado River
Cottonwood Creek	4a: aquatic life cold 2, recreation N, water supply, and agriculture	Ephemeral tributaries to Cottonwood Creek

Terrain along the alignment varies from nearly flat mesas and benches to steep hillsides within a total elevational range from about 5,800 feet to about 7,200 feet above mean sea level. The southwestern portion of the pipeline would be constructed within the Pete and Bill Creek subwatershed and would cross ephemeral drainages that drain to the Pete and Bill Creek. Following along the pipeline to the northeast, the section which the proposed lateral joins the proposed main High Mesa Water Line would be constructed in the Dry Creek watershed. The main pipeline alignment crosses Dry Creek, and the lateral would parallel the road and creek, terminating within the watershed. The 12-inch mainline would be constructed to the north, crossing unmade intermittent and ephemeral drainages that flow directly to the Colorado River. The mainline would continue eastward into the Monument Gulch watershed and cross Battlement Creek approximately 0.5 mile east of the Monument Creek crossing. The northeastern section of the alignment crosses unnamed ephemeral drainages that flow directly to the Colorado River and Cottonwood Creek.

According to the *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission [WQCC] Regulation No. 37) (CDPHE 2007), unnamed ephemeral drainages that drain most of the project vicinity are within segment numbers 4a, 4f, and 9c. The description of the classification associated with each stream segment is presented in Table 9. 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 not intended to become suitable for primary contact recreation. Recreation class e refers to surface waters are used for primary contact recreation. This segment is suitable or intended to become suitable for potable water supplies and agricultural purposes that include irrigation and livestock use.

The segment of the Colorado River to which the project drains is on Colorado’s *303(d) List of Impaired Waters and Monitoring and Evaluation List* (CDPHE, WQCC Regulation No. 93) (CDPHE 2010) for naturally high levels of selenium; however no streams within segment 4e are on this list. *Colorado’s Monitoring and Evaluation List* identifies waterbodies where there is reason to suspect water quality problems, but uncertainty also exists regarding one or more factors. The USGS collected from the Colorado River below the project area near Rulison in 1977 and 1978 (Table 20).

Parameter	Colorado River below Rulison CO, USGS Site #09092570 01/18/1978	Colorado River below Rulison CO, USGS Site #09092570 4/8/1977
Instantaneous discharge (cfs)	1,500	1560
Temperature, water (°C)	2.5	11
Field pH (standard units)	7.9	8.1
Specific conductance (µS/cm/cm at 25°C)	1,320	1,200
Total Dissolved Solids (mg/L)	756	733
Hardness as CaCO3 (mg/L)	280	250
Chloride (mg/L)	230	230
Selenium (µg/L)	2	1
Dissolved oxygen (mg/L)	11.2	10
Note: NA = data not available		
Source: USGS 2007.		

No sediment measuring stations are present on the Colorado River or its tributaries near the pad location. The closest downstream station on the Colorado River is near DeBeque, Colorado. A summary of USGS data collected at this station indicates that the mean sediment load was 1,817 tons per day during the period of 1974 to 1976. The maximum and minimum for this location during the same period was 41,300 and 8 tons/day respectively (USGS 2007).

Proposed Action

The Proposed Action would result in 25.1 acres of temporary surface disturbance and long-term habitat modification on BLM land not previously impacted by road and pipeline construction. Potential impacts to surface water associated with the Proposed Action occur from surface-disturbing activities, traffic,

waste management, and the use, storage and transportation of fluids (i.e., chemicals, condensate, and produced water). Surface-disturbing activities associated with pipelines cause loss of vegetation cover, soil compaction and displacement, increased volume and velocity of runoff, and increased sedimentation and salinity in surface waters. Impacts can be minimized by stormwater management, stockpiling topsoil, controlling erosion, rehabilitation of disturbed surfaces quickly. Long-term soil protection could be achieved by continued road and pad maintenance to reduce erosion, remediation of contaminated soils and minimizing the size of the long-term pad footprint through interim reclamation measures. As proposed, these measures would include limiting cut slope steepness, step-cutting, crowning road surfaces, installing culverts and drainage systems, and applying gravel to all upgraded BLM roads in the project area to a compacted thickness of 6 inches (Appendix A).

Oil and gas waste management practices have the potential to contaminate soils and surface water. Contamination of soils could cause long-term reduction in site productivity resulting in increased erosion and potential sediment and contaminant delivery to nearby waterways during runoff. Use, storage, and transportation of fluids such as produced water, hydraulic fracturing fluids, and condensate have the possibility of spills that could migrate to surface or groundwater. Elements of the Proposed Action are designed to mitigate risks to surface waters associated with the release and migration of drilling fluids, produced water, and condensate. A closed-loop drilling system would be implemented which recycles drilling fluids; cuttings would be dried through the use of a shaker system, decontaminated to COGCC standards and be stacked against the cutslope on the pad. A traditional reserve pit would not be constructed. Completions may be conducted either onsite or remotely and fluids may be stored in surface containment or a pit. An on or offsite engineered completions pit may be constructed to store water for hydraulic fracturing and recycle flowback water. These pits are engineered with double lining and leak detection systems. To achieve successful closure of the pit the soils below the lining must pass COGCC standards and the hole must be backfilled with decontaminated cuttings and/ or clean fill.

In addition to individual containment measures, the entire pad is bermed to contain an accidental release on the pad. In the event of an accidental release, produced water and condensate would be confined for cleanup in a containment area and would not migrate to surrounding soils or surface waters. Pipelines associated with the transport of these liquids would be pressure tested to detect leakage prior to use. Implementation of the standard COAs for mitigating impacts to surface waters (Appendix A) would minimize risks of adverse impacts associated with construction and ongoing production activities.

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 and water quality impacts than associated with the Proposed Action.

Waters of the U.S.

Affected Environment

Waters of the U.S. located in the project vicinity include the mainstem and tributaries of the Pete and Bill Creek, Dry Creek, Monument Gulch, Battlement Creek, Cottonwood Creek, and the Colorado River. 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 dredged or fill material into waters of the U.S. as defined by 33 CFR Part 328. A permit is required for both permanent and temporary discharges into waters of

the United States; larger discharges require an individual permit, while smaller discharges may be granted a Nationwide Permit (NWP).

The proposed pipeline route would cross 27 potential jurisdictional Waters of the U.S., two of which are manmade ditches. One of these crossings is Battlement Creek, which has an associated riparian fringe wetland. Any wetlands will be avoided or the impacts will be mitigated by rehabilitating the impacted areas after construction.

Environmental Consequences

Proposed Action

The construction of the pipeline at the crossing of Battlement Creek and placement of excess fill material could discharge fill into Waters of the U.S. requires authorization from USACE under a Nationwide Permit. A COA listed in Appendix B requires the operator to obtain a formal jurisdictional determination by USACE prior to any construction that could affect Waters of the U.S.

Wildlife – Aquatic Species

Affected Environment

The project area includes two crossings of ephemeral drainages (Monument Gulch and Quarry Gulch) and one crossing of a perennial stream that is tributary to the Colorado River. A native trout subspecies, currently referred to as Lineage CR cutthroat trout, occurs in Battlement Creek (see section on Special Status Species). This subspecies is listed as sensitive by the BLM. Fish surveys by CPW and the U.S. Forest Service (USFS) have documented the presence of a different strain of native trout, currently referred to as Lineage GM, being managed by CPW and the USFWS as a Federally listed threatened species. Cache Creek is located two drainages east of Battlement Creek. Continuing DNA research is expected to further clarify the genetic and taxonomic relationship of these and other strains of cutthroat trout in Colorado.

Aquatic macroinvertebrates living in perennial streams such as Battlement Creek during a portion of their lifecycles include larvae of stoneflies, mayflies, and some caddisflies in fast-flowing reaches with rocky or detrital substrates. Both the aquatic larvae and winged adults of stoneflies, mayflies, and caddisflies are probably the main prey for trout in Battlement Creek, along with terrestrial invertebrates that land or fall onto the surface or are carried into the stream in runoff from adjacent uplands. In slow-flowing portions of Battlement Creek 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

Pipeline crossings of streams and small ephemeral drainages could result in soil degradation, including erosion and channel degradation. This could potentially supply sediment to Battlement Creek and to the Colorado River approximately 3 miles to the north. However, surface-use COAs (Appendix A) would be implemented to protect Smith Gulch, the Colorado River, and any other waters of the U.S. from inflow of sediments.

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 and thereby slightly increasing potential impacts to Aquatic Wildlife than associated with the Proposed Action.

Wildlife - Migratory Birds

Affected Environment

The Migratory Bird Treaty Act (MBTA) includes 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 virtually all native bird species. For most bird species, nesting habitat is of special importance because it is critical for supporting reproduction in terms of nesting and foraging sites. Because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

Emphasizing the need to conserve declining migratory bird species, the U.S. Fish and Wildlife Service (USFWS 2008) has published a list of Birds of Conservation Concern (BCC). This section focuses on BCC species, non-BCC species that are Neotropical (long-distance) migrants, and raptors—three groups especially vulnerable to habitat loss or modification on their breeding grounds. Species protected under the Endangered Species Act or classified by the BLM as sensitive species are addressed in the section on Special Status Species.

The current BCC list includes 12 species potentially present in or near the project area: the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), flammulated owl (*Otus flammeolus*), yellow-billed cuckoo (*Coccyzus americanus*), Lewis’s woodpecker (*Melanerpes lewis*), willow flycatcher (*Empidonax traillii*), gray vireo (*Vireo vicinior*), pinyon jay (*Gymnorhinus cyanocephalus*), juniper titmouse (*Baeolophus griseus*), Brewer’s sparrow (*Spizella breweri*), and Cassin’s finch (*Haemorhous cassinii*). The Brewer’s sparrow is also listed as a BLM sensitive species and addressed in the section on Special Status Species.

Pinyon-juniper habitat provides potential nesting sites for the pinyon jay, juniper titmouse, and (less likely based on range) the gray vireo. Cassin’s finch nests at higher elevations in montane and subalpine conifers but may move into pinyon-juniper in winter. Non-BCC species potentially nesting in pinyon-juniper in the project area include Neotropical migrants such as the black-chinned hummingbird (*Archilochus alexandri*), western kingbird (*Tyrannus verticalis*), Say’s phoebe (*Sayornis saya*), dusky flycatcher (*Empidonax oberholseri*), mountain bluebird (*Sialis currucoides*), western bluebird (*S. mexicana*), blue-gray gnatcatcher (*Polioptila caerulea*), plumbeous vireo (*Vireo plumbeus*), black-throated gray warbler (*Dendroica nigrescens*), and chipping sparrow (*Spizella passerina*).

Sagebrush shrublands in the project area provide marginal habitat for the Brewer’s sparrow, a near-obligate in sagebrush shrublands. Non-BCC species associated with sagebrush shrublands include the western meadowlark (*Sturnella neglecta*) and three species of Neotropical migrants—the western kingbird, vesper sparrow (*Pooecetes gramineus*), and lark sparrow (*Chondestes grammacus*).

Tall mountain brush communities and the riparian corridor including aspen and narrowleaf cottonwoods along Battlement Creek, provide habitat for additional non-BCC species such as the northern flicker (*Colaptes auratus*), broad-tailed hummingbird (*Selasphorus platycercus*), cordilleran flycatcher (*Empidonax difficilis*), western scrub-jay (*Aphelocoma coerulescens*), black-capped chickadee (*Poecile atricapillus*), plumbeous vireo (*Vireo plumbeus*), warbling vireo (*Vireo gilvus*), MacGillivray's warbler (*Geothlypis tolmiei*), Virginia's warbler (*Oreothlypis virginiae*), spotted towhee (*Pipilo maculatus*), black-headed grosbeak (*Pheucticus melanocephalus*), and lazuli bunting (*Passerina amoena*). Because of its limited extent within the project area, this habitat is marginally suitable for nesting or foraging by the flammulated owl, and the type of willow habitat preferred by the willow flycatcher is lacking.

Two BCC raptors, the golden eagle and prairie falcon, could nest on cliff bands in the project vicinity and fly across the pipeline corridor while foraging. However, any such use with an area as narrow as the pipeline corridor would be infrequent and transitory on a statistical probability basis, given the large home ranges within which they hunt. Raptors more likely to nest and forage in or near the project area include non-BCC species such as the American kestrel (*Falco sparverius*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*A. striatus*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*B. swainsoni*), northern harrier (*Circus cyaneus*), great horned owl (*Bubo virginiana*), and long-eared owl (*Asio otus*). Three potential raptor nests were documented during surveys conducted in April 2013. One of these nests was occupied by red-tailed hawks, another was occupied by sharp-shinned hawks, and the third was unoccupied at the time of the survey.

Environmental Consequences

Proposed Action

The Proposed Action would result in the conversion of 25.1 acres of primarily sagebrush and pinyon-juniper habitat on BLM land to a grass/forb community along the pipeline corridor. The zone of reduced habitat use along the construction route during construction would vary depending on the avian species, season, type of construction activity, and amount of screening provided by the habitat but could extend more than 300 feet away from the construction zone. If construction occurs outside the nesting season as planned, this displacement would be temporary, with use by birds recovering rather quickly as the construction activities move past an area. However, if construction were to occur during the nesting season, the zone of reduced use would have a longer effect, because some or most of the birds that might otherwise nest nearby would instead nest elsewhere—potentially including less suitable habitats that result in fewer or no fledged offspring—or fail to nest at all that year.

A stipulation attached to ROW grants issued by the BLM under the Proposed Action would minimize construction-related effects by prohibiting removal of vegetation during the 60-day period May 1 to July 1 (see Appendix A). An exception to this stipulation would be granted if a nesting survey conducted by a qualified biologist results in finding no active nests of a BCC species within 100 feet of the pipeline alignment. If such a nest is found, construction within 300 feet of the nest would be delayed until successful fledging or failure due to natural causes.

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

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

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

The operator remains subject to the MBTA, administered by the USFWS, which precludes the “take” of any raptor or most other native species. Under the Act, the term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The USFWS interprets “harm” and “kill” to include loss of eggs or nestlings due to abandonment or reduced attentiveness by one or both adults as a result of disturbance by human activity, as well as physical destruction of an occupied nest.

Two occupied raptor nests were observed within 0.25 mile of the proposed pipeline alignment during project-specific surveys, therefore a raptor nesting timing limitation (TL) is required. Specific dates of the 60-day TL are April 1 to May 31. To reduce adverse impacts to other migratory birds, including BCC species found to nest in the area, a separate TL would be applied from May 1 to July 1 to prohibit removal of vegetation throughout the project area. Appendix A provides details of these COAs and describes potential bases for the granting of an exception to the TLs.

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 and thereby slightly increasing potential impacts to Terrestrial Wildlife than associated with the Proposed Action.

Wildlife – Other Terrestrial Species

Affected Environment

Mammals

The site is located within winter range, severe winter range, and winter concentration area for mule deer (*Odocoileus hemionus*) and winter range and winter concentration area for Rocky Mountain elk (*Cervus elaphus nelsonii*) as mapped by CPW (2010). Winter range is that part of the overall range of a species

where 90% of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site-specific period of winter as defined for each data analysis unit (CPW 2011). Severe winter range is that part of the overall range where 90% of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten (CPW 2010). Winter Concentration areas are that part of the winter range where densities are at least 200% greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten (CPW 2010). Field surveys indicate that the project area is occupied winter range for elk and that mule deer occupy the proposed project area on a year-round basis.

Large carnivores present in the project area include the mountain lion (*Puma concolor*) and black bear (*Ursus americanus*). Mountain lions move seasonally to generally follow migrations of their preferred prey, mule deer. Two medium-sized carnivores, the coyote (*Canis latrans*) and bobcat (*Lynx rufus*), are also present in the region in open habitats and broken or wooded terrain, respectively, where they hunt for small mammals, reptiles, and ground-dwelling birds. Smaller carnivores in habitats similar to those near the project site include the ringtail (*Bassariscus astutus*) and spotted skunk (*Spilogale gracilis*).

Small mammals present within the project area include rodents such as the rock squirrel (*Spermophilus variegatus*), golden-mantled squirrel (*Callospermophilus lateralis*), least chipmunk (*Neotamias minimus*), and packrat (bushy-tailed woodrat) (*Neotoma cinerea*), as well as the desert cottontail (*Sylvilagus audubonii*). Rodents and, to a lesser extent rabbits, are the primary prey base for a variety of avian and mammalian predators.

Birds

The wild turkey (*Meleagris gallopavo*) is native to North America and is the largest upland gamebird. Wild turkeys are omnivorous, foraging on the ground or climbing shrubs and small trees to feed. They prefer eating hard mast such as acorns, nuts, and various trees, including pinyon pine as well as various seeds, berries such as juniper and bearberry, roots and insects. Wild turkeys often feed in cow pastures and are also known to eat a wide variety of grasses. The northern portion of the project area is mapped as wild turkey overall range. See the sections on Migratory Birds and Special Status Species for discussions of other birds in the area.

Reptiles and Amphibians

Species most likely to occur include the western fence lizard (*Sceloporus undulatus*), plateau striped whiptail (*Cnemidophorus velox*), gopher snake (bullsnake) (*Pituophis catenifer*), and yellow-bellied racer (*Coluber constrictor*), all of which may be found in sagebrush shrublands, pinyon-juniper woodlands, and degraded pastures such as occur in the project vicinity. Species potentially present along Battlement Creek include the smooth green snake (*Opheodrys vernalis*) and milk snake (*Lampropeltis triangulum*).

Although the project area does not contain any suitable habitat, the surrounding vicinity provides potentially suitable habitat for the northern leopard frog (see the section on Special Status Species) and two additional amphibians, the Woodhouse's toad (*Bufo woodhousii*), and western chorus frog (*Pseudacris triseriata*). Within the CRVFO and vicinity, the spadefoot toad and Woodhouse's toad occur primarily along ephemeral washes that do not support fish and contain pools of water for a period of at least a few weeks every spring. The chorus frog occurs primarily in cattail and bulrush wetlands and along the vegetated margins of seasonal or perennial ponds and slow-flowing streams. Some existing stock ponds and slow-flowing portions of the drainages are potentially suitable for the northern leopard frog, though none have been documented.

Environmental Consequences

Proposed Action

Under the Proposed Action, pipeline installation would result in approximately 25.1 acres of vegetation removal and soil disturbance within juniper woodland, sagebrush shrubland, and mountain/riparian shrubland habitats in addition to redisturbance of previously constructed and reclaimed pipeline corridors. Through time, other herbaceous and, more slowly, woody plants could colonize the reclaimed areas from nearby undisturbed areas. However, the process of succession from seeded grasses to native forbs and shrubs would require many years or decades. Initially, the process could be impeded by periodic treatment for weeds, which also would kill or injure any colonizing native forbs and shrub seedlings. Over the long term, colonizing forbs and shrubs would also be likely to be removed for periodic maintenance or updating of the pipeline or the addition of another adjacent line.

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

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

Impacts from disturbance associated with human activity and operation of vehicles and heavy equipment during construction would create a temporary zone of reduced use along the corridor. This zone would vary in width depending on the particular habitat type (and associated density of screening), the sensitivity of the particular species, and the season. Overall, however, the zone of reduced use would remain in a given area for a relatively short time, because construction would progress along the entire length of the pipeline in a few weeks.

Application of a big game winter timing limitation (TL) stipulation for the period December 1 through April 30 (Appendix A) would prohibit construction during the period of winter habitat use by the two recreationally important big game ungulates. Construction outside the big game winter TL would also minimize the potential for disturbance-related impacts to nesting raptors. Additionally, construction would have to be delayed or suspended until completion of nesting by any raptors that may begin to nest within or near the corridor (see Appendix A).

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 and thereby slightly increasing potential impacts to Terrestrial Wildlife than associated with the Proposed Action.

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 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 accelerated the accumulation of impacts in the area. Cumulative impacts have included (1) direct habitat loss or modification, 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 primary bases for this assessment are twofold: First, although the rate of development, including oil and gas development, has slowed in recent years due to the general economic downturn and depressed natural gas prices, some development continues to occur, adding to the previous residential, commercial, and industrial growth, the previous habitat loss, modification, and fragmentation, and the amount of vehicular traffic and equipment operations associated with long-term production and maintenance. Second, most of the oil and gas development has occurred on private lands where mitigation measures designed to protect and conserve resources may not be in effect to the same extent as on BLM land. However, COGCC regulations enacted in recent years have closed considerably the former gap between the potential environmental impacts associated with development of private versus Federal fluid mineral resources.

The Proposed Action would contribute to the collective adverse impact for some resources. Although the contribution would be minor, the Proposed Action would add incrementally to the collective impacts to air quality, vegetation, migratory birds, aquatic and terrestrial wildlife, visual resources, and other resources and resource uses.

PERSONS AND AGENCIES CONSULTED

Encana Oil & Gas (USA) Inc. – Renata Busch

INTERDISCIPLINARY REVIEW

BLM staff from the CRVFO who participated in the 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 21.

Table 21. BLM Interdisciplinary Team Authors and Reviewers

<i>Name</i>	<i>Title</i>	<i>Areas of Participation</i>
John Brogan	Archaeologist	Cultural Resources, Native American Religious Concerns
Christine Cimiluca	Natural Resource Specialist	EA Project Lead, Access & Transportation, Socioeconomics
Allen Crockett, Ph.D., J.D.	Supervisory Natural Resource Specialist	Technical Review, NEPA Review
Shauna Kocman, Ph.D., P.E.	Petroleum Engineer	Air Quality, Noise, Soils, Surface Water
Julie McGrew	Natural Resource Specialist	Visual Resources
Judy Perkins, Ph.D.	Botanist	Invasive Non-native Species, Special Status Plants, Vegetation
Sylvia Ringer	Wildlife Biologist	Migratory Birds, Special Status Species Animals, Aquatic and Terrestrial Wildlife
D.J. Beaupeurt	Realty Specialist	Rights-of-Way
Todd Sieber	Geologist	Fossil Resources

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APPENDIX A

Surface-Use Terms and Conditions for Right-of-Way Grant

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SURFACE-USE TERMS AND CONDITIONS

BLM Right-of-Way Grant COC76067 and TUP COC76067T

These Terms and Conditions are applicable to all activities within Encana's buried water pipelines (COC76067 and COC760670Y), unless otherwise specified. Wording and numbering of these Terms and Conditions may differ from those included in the Environmental Assessment (EA) (BLM-DOI-CONO40-2013-0046). In cases of discrepancies, the following COAs 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 BLM prior to commencing any surface disturbing activities.
2. Copies of Grant(s) Onsite. Copies of the ROW grant/TUP with the stipulations shall be kept on site during construction and maintenance activities. All construction personnel shall review the grant and stipulations before working on the ROW/TUP.
3. Pipeline Construction and Maintenance. 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 to a minimum depth of 48 inches from the top of the pipe to the surface. Overall construction width shall not exceed 35 feet.

The centerline of the ROW and the exterior limits shall be clearly flagged prior to any construction activity. The disturbance limits of the pipelines shall be staked and /or flagged prior to any commencement of operations. No equipment or vehicle use shall be allowed outside the staked disturbance corridor of the pipeline ROW unless authorized by BLM personnel.

4. Saturated Soils Conditions. When saturated soil conditions exist on or along the proposed ROW prior to removal of vegetation or stripping of topsoil in an area, construction in that areas shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils.
5. Utilities Locations. 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.
6. Pipeline Warning Signs. Pipeline warning signs shall be installed within 5 days of completion of construction and prior to use of the pipeline for transportation of product. Pipeline warning shall be installed at all road crossings and shall be visible from sign to sign along the ROW. For safety purposes each sign shall be permanently marked with the operator's name and shall clearly identify the owner (emergency contact) and purpose (product) of the pipeline.
7. Sanitary Site Conditions. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse,

oil drums, petroleum products, ashes, and equipment. Disposal of all liquid and solid wastes produced during construction or operation of the pipeline shall be in an approved manner so as to not adversely affect the air, soil, water, vegetation, or wildlife.

8. Other Required Approvals and Permits. This authorization is contingent upon receipt of and compliance with all appropriate Federal, state, county and local, permits. The operator shall be responsible for obtaining all necessary environmental clearances and permits from all agencies (U.S. Army Corps of Engineers, Colorado Parks and Wildlife, U.S. Fish and Wildlife Service, Colorado Department of Transportation, Colorado Department of Public Health and Environment, Garfield County Road and Bridge, and City of Parachute) before commencing any work under this permit. Without all clearances and permits, this permit shall be not in effect. Operator shall assume all responsibility and liability related to potential environmental hazards encountered in connection with work under this permit.
9. Compliance with Federal Regulations. This grant amendment is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations parts 2800 and 2880.
10. Reporting of Undesirable Events. Encana agrees to comply with, and be bound by, the terms and conditions of 43 CFR 2880 Mineral Leasing Act, Part 2885.11, concerning the reporting of undesirable events. (Reference: Colorado NTL-3A, issued pursuant to the authority prescribed in Title 30 CFR 221.5, 221.7, and 221.36.)
11. Compliance with Laws. The operator shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the operator shall comply with the Toxic Substances Control Act of 1976 (TSCA), as amended (15 U.S.C. 2601 *et seq.*) with regard to any toxic substances that are used, generated by, or stored on the ROW or on facilities authorized under this ROW grant (40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 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 concurrently with the filing of the reports to the involved Federal agency or State government.
12. 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 (CERCLA), 42 U.S.C. 9601 *et seq.* or the Resource Conservation and Recovery Act (RCRA), 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.
13. Paint Color. All above ground structures not subject to safety requirements shall be painted **Shadow Gray** by the operator in order to meet the Visual Resource Management (VRM) requirements for the area.
14. 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 BLM within 2 months of completion of the project.

15. Open Trenches. All open trenches shall be maintained in a safe condition to ensure no side-wall collapsing occurs and that all personnel, livestock, and wildlife are safe from falling into an open trench or being trapped or injured within the trenches. Some protective systems may include (*Reference: OSHA 29 CFR 1926.650*):

- Shoring by installing supports to prevent soil movement for trenches that do not exceed 20 feet in depth.
- Shielding to protect workers by using trench boxes or other types of supports to prevent soil cave-ins.
- Always provide a way to exit a trench, such as a ladder or ramp, no more than 25 feet of lateral travel for personnel, livestock, or wildlife in the trench.
- Keep spoils at least 2 feet back from the edge of a trench.
- Make sure that trenches are inspected by competent personnel prior to entry and after any hazard-increasing event such as a rainstorm, etc.

Trenches adjacent to access roads and/or public or private dwellings shall be covered and/or warning barriers erected upon completion of daily construction or at any time personnel are not present on the construction site.

16. Welding of Pipeline. A minimum of 10% of all welds shall be X-rayed. Visual inspections shall be performed on 100% of all pipeline welds. Any pipeline occurring within the Parachute Municipal Watershed Area and/or within 100 feet of any perennial or intermittent stream crossing, shall have all welds X-rayed. Area All bored areas shall have 100% X-rays of all pipeline welds. (Ref. 49 CFR 192.225 Welding procedures) All welders shall be appropriately certified. (Ref. 49 CFR 192.227 Qualification of welders). (NOTE: 49 CFR Subpart F—Joining of Materials Other than by Welding (192.281 includes plastic pipe).)

17. Fire Suppression. Welding or other use of acetylene or other torch with open flame shall be operated in an area barren or cleared of all flammable materials at least 10 feet on all sides of equipment. Internal combustion engines must be equipped with approved spark arrestors which meet either (a) the USDA Forest Service Standard 5100-1a or (b) Society of Automotive Engineers (SAE) recommended practices J335(b) and J350(a).

18. Pipeline Testing. The entire pipeline shall be tested in compliance with DOT regulations (49 CFR Part 192) and/or COGCC regulations, whichever are applicable. Incremental segments of the pipeline shall be filled to the desired maximum pressure and held for the duration of the test (8 hours minimum). (Ref. 49 CFR 192.503.c).

Notification to all nearby residents as well as the appropriate County Dispatch Center shall be made no less than 24 hours prior to the pressure test and blow down. All necessary and reasonable precautions shall be taken to ensure the safety of the employees and the general public, the lands, domestic animals and wildlife, etc. This may include, but not be limited to, restriction of access to the pipe being tested, temporary warning signs installed in appropriate locations, effective communication.

19. Notification of Other ROW Holders. The holder shall notify all existing ROW holders in the project area prior to beginning any surface disturbance or construction activities. It is the holder's responsibility to coordinate with all other ROW holders and resolve any conflicts.

20. Restrictions on Onsite Materials Storage. 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 waterbodies 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), it must be placed within a secondary containment structure that is capable of containing 110 percent of the volume of the stored material.
21. Traffic Control. Appropriate precautions for traffic control on public lands shall be in place and conform to the guidelines of the “Manual on Uniform Traffic Control Devices (MUTCD): Temporary Traffic Control Elements”. A copy of the traffic control plan, if requested by the Authorized Officer, shall remain on site at all times during construction activities.
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 Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (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 Bureau of Land Management right-of-way monuments or references are obliterated during operations, the holder shall secure the services of a registered land surveyor or a Bureau 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. If the Bureau Cadastral Surveyors or other Federal surveys are used to restore the disturbed survey monument, the holder shall be responsible for the survey cost. Reference 43 CFR 9185.4-1(a).
23. 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.
24. 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. (See COA #35 for special revegetation requirements applicable to the crossing of Battlement Creek.)
 - 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 plans, which include contours and indicate irregular rather than smooth contours as appropriate for visual and ecological benefit; 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 Visual Resource Management (VRM) area.

- b. Deadline for Reclamation Earthwork and Seeding. 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 pipeline construction occurs discontinuously 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, individual reclamation requirements for sensitive areas including sensitive plant species or ecological sites, and the amount of work remaining on the entirety of the road or pipeline when the 30-day period has expired.

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations (TLs), 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 pipelines, access 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. A seed mix consistent with BLM standards in terms of species and seeding rate for the specific habitat type shall be used on all BLM land affected by the project (see 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. Hydroseeding and hydromulching shall be conducted in two separate applications to ensure adequate contact of seeds with the soil.

If interim revegetation is unsuccessful, the operator shall implement subsequent 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 straw or certified weed-free native grass hay 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 summary of the monitoring methodology utilized, 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.

25. 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. 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) shall be submitted to BLM by **December 1**.
26. Big Game Winter Range. In conformance with the current land use plan that governs ROW actions, all activities related to pipeline construction on the Federal portion of the pipeline route are prohibited from **December 1 to April 30**.
27. 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 construction 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).
28. Raptor Nesting. Raptor nest surveys in the project vicinity resulted in the location of a raptor nest structure in proximity to the proposed pipeline. To protect nesting raptors, a 60-day TL shall be applied to initiation of construction activities within 0.25 mile of the nest during the nesting period of **March 1 to May 1**. An exception to this TL may be granted for any year in which a subsequent survey determines one of the following: (a) the nest is in a severely dilapidated condition or has been destroyed due to natural causes, (b) the nest is not occupied during the normal nesting period for that species, (c) the nest was occupied but subsequently failed due to natural causes, or (d) the nest was occupied, but the nestlings have fledged and dispersed from the nest. If project-related activities are initiated within the specified buffer distance of any active nest, even if outside the 60-day TL period, the operator remains responsible for compliance with the Migratory Bird Treaty Act (MBTA) with respect to a “take” of birds or of active nests (those containing eggs or young), including nest failure caused by human activity (see COA 29).
29. Birds of Conservation Concern. Pursuant to BLM Instruction Memorandum 2008-050, all surface-disturbing activities are prohibited within potential habitat for nesting BCC species from **May 1 to July 1** to reduce impacts to Birds of Conservation Concern (BCC). An exception to this TL will 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 aural survey for diagnostic vocalizations in

conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under favorable conditions for detecting and identifying a BCC species. This provision does not apply construction activities that are initiated prior to May 1 and continue into the 60-day period at the same location.

30. Migratory Birds. It shall be the responsibility of the operator to comply with the Migratory Bird Treaty Act (MBTA) with respect to “take” of migratory bird species, which includes injury and direct mortality resulting from human actions not intended to have such result. All mortality or injury to birds shall be reported immediately to the BLM project lead and to the USFWS representative to the BLM Field Office at 970-243-2778 x28 and visit <http://www.fws.gov/mountain-prairie/contaminants/oilpits.htm>.
31. 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 cattle guard with associated bypass gate shall be installed across the roadway to control grazing livestock.
32. 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.

33. 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).

34. Visual Resources. Existing vegetation outside of the ROW corridor shall be preserved when clearing and grading for the pipeline corridor. The BLM may direct that cleared trees and rocks be salvaged and redistributed 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. 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.

To assist with revegetation, root systems shall be left in place where feasible. Existing plant cover shall be maintained to the extent practicable where blading of the surface is not necessary.

Site-Specific COA for Pipeline Crossing of Battlement Creek

35. Restoration of Riparian Habitat and Protection of Aquatic Habitat for Lineage CR Cutthroat Trout)
- a. A USACE jurisdictional wetland determination and delineation of the proposed Battlement Creek crossing shall be completed at least 30 days prior to any ground-disturbing work occurs within 100 meters on either side of the creek.
 - b. No construction shall take place that affects Battlement Creek during the period **June 8 to August 31** to minimize impacts to cutthroat trout eggs and larvae.

- c. Whirling disease is a concern in any trout stream in western Colorado. To minimize the risk of infecting the stream, the Operator shall disinfect all heavy equipment, hand tools, boots, and any other equipment previously used in a river, stream, lake, pond, or wetland prior to moving the equipment to the Battlement Creek crossing. Disinfection shall be performed by removing mud and debris followed by one of the following practices:
- ✓ Spray/soak equipment with a disinfectant solution capable of killing whirling disease spores.
 - ✓ Spray/soak equipment with water greater than 140°F for at least 10 minutes.
 - ✓ Sanitize water suction hoses and water transportation tanks (using methods described above) and discard rinse water at an appropriately permitted disposal facility.
- d. The entire pipeline corridor width (= stream channel length) adjacent to the stream, including the proposed new pipeline and two existing pipelines and estimated at a combined 160 linear feet, shall be rehabilitated with shrub plantings in addition to seeding of native perennial grasses and forbs. Long-term enhancement of currently denuded pipeline rights-of-way is intended to help offset the short- to mid-term loss of habitat associated with the Proposed Action. The three pipeline widths together represent a substantial loss of riparian habitat potentially affecting movement and use by Lineage CR cutthroat trout, a subspecies managed by BLM as a sensitive species. Rehabilitation of the combined ROW widths shall proceed as described below:

Containerized nursery stock of riparian or riparian-margin shrubs (5-gallon size or alternative size approved by the BLM) shall be installed at the edge of the channel, at locations where holes dug for planting reach moist soil during “normal” flow conditions at the time of planting. Species and numbers shall include the following:

- ✓ At least three species of tall riparian or riparian-margin shrubs selected from among the following: Gambel’s oak, mountain maple, common chokecherry, silver buffaloberry, and skunkbrush sumac. Total number = 20 to 40, depending on as-built disturbance width and size of the containerized plant materials.
- ✓ Two short riparian/riparian-margin shrubs—golden currant and gooseberry currant—shall also be planted as described above. Total number = 20 to 40, depending on as-built disturbance width and size of the containerized plant materials.
- ✓ In addition, two short upland shrubs—tall western sagebrush and tall green rabbitbrush—shall be planted on the outside (“drier”) edge of the riparian shrubs or where suitably moist sites are not available for riparian species along the channel. Total number = 20 to 40, depending on as-built disturbance width and size of the containerized plant materials.

Within 30 days after issuance of the ROW grant and at least 30 days prior to constructing the stream crossing, the Operator shall submit a planting plan consistent with the above and specifying use of a root stimulant at planting and a method of watering-in at the time of planting and periodic as-needed supplemental watering during the first growing season.

FONSI
DOI-BLM-CO-N040-2013-0046-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 human environment. Therefore, an Environmental Impact Statement (EIS) is not necessary to further analyze the environmental effects of the Proposed Action.

DECISION RECORD

DECISION: It is my decision to approve the Proposed Action of the Encana High Mesa Water Pipelines 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. Segments where new corridors must be constructed have been located and designed to minimize adverse environmental consequences.
3. This decision does not authorize the initiation of construction activities on BLM land. Construction 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 pipelines and a Sundry Notice for the portions of the temporary surface water line on BLM land.

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

- Construction of the pipeline along an existing pipeline corridor to the extent practicable.
- Timing limitations to prohibit construction from December 1 through April 30 to protect wintering big game.
- A variety of additional restrictions applied as stipulations to the BLM ROW Grant, Temporary Use Permit and Sundry Notice.

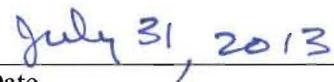
Copies of the Encana High Mesa Water Pipelines EA are available for review at the BLM Colorado River Valley Field Office located at 2300 River Frontage Road, Silt, Colorado 81652.

NAME OF PREPARER: Christine Cimiluca, Natural Resource Specialist

SIGNATURE OF AUTHORIZED OFFICIAL:



Authorized Officer



Date