

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

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-N040-2011-0083-EA

CASEFILE NUMBER: Federal Lease COC65516

PROJECT NAME: Proposal by Williams Production RMT Company LLC to construct an access road, install a buried gas pipeline, and drill up to 22 Federal wells from proposed well pad CMU 22-7, located on BLM land in the Center Mountain Area approximately 7 miles southeast of New Castle, Garfield County, Colorado.

LOCATION: Township 7 South (T7S), Range 90 West (R90W), Section 7, SE¼ NW ¼, Sixth Principal Meridian (Figures 1 and 2). Pad elevation is 7,614 feet above mean sea level (MSL).

LEGAL DESCRIPTIONS: Surface and bottomhole locations of the proposed Federal well addressed in this Environmental Assessment (EA) are listed in Table 1.

Table 1. Surface and Bottomhole Location of Proposed Well		
<i>Proposed Well</i>	<i>Surface Location (Section 7, T7S, R90W)</i>	<i>Bottomhole Location (Section 7, T7S, R90W)</i>
Federal CMU 22-7	2,355 feet FNL 1,405 feet FWL	1,469 feet FNL 1,887 feet FWL

APPLICANT: Williams Production RMT Company LLC. Contact: Greg Davis, 1515 Arapaho Street, Tower 3, Suite 1000, Denver, Colorado 80202.

PROPOSED ACTION

Williams Production RMT Company LLC (“Williams”) proposes to construct one new well pad (CMU 22-7), associated access road, and gas-gathering pipeline in order to drill one exploratory well into Federal oil and gas lease COC65516. If the initial well is successful, the pad would be expanded and fully developed with at least 21 additional wells and associated production equipment. In addition to the new access road, minor improvements to County Road (CR) 328 (Baldy Creek Road) are proposed to accommodate heavy vehicular traffic. This EA addresses the potential 22 total wells, although only the initial exploratory well is a certainty, and only one Application for Permit to Drill (APD) has currently been submitted to the BLM Colorado River Valley Field Office (CRVFO).

The CMU 22-7 pad would be constructed on Federal land managed by the CRVFO (formerly called the Glenwood Springs Field Office [GSFO]). The pad would be located on the toe of the southwest-facing slope of Center Mountain. The access road, well pad, and gas pipeline corridor would be sited within dense mountain brush vegetation (serviceberry and oakbrush) and clumps of spruce-fir on the toe of the southwest-facing slope of Center Mountain. The well would be drilled directionally to access portions of the lease underlying steeper topography. Construction, maintenance, and reclamation would conform to guidelines established in the BLM Gold Book, *Surface Operating Standards for Oil and Gas Exploration and Development (USDI and USDA 2007)*. Surface and subsoil materials within the proposed

construction areas would be used. Additional gravel would be obtained primarily from the Una gravel pit located in the NW $\frac{1}{4}$, section 34, T6S, R96W or the Latham-Burkett gravel pit located in the SW $\frac{1}{4}$, section 27, T8S, R97W, and secondarily from the Mamm Creek gravel pit located in the SE $\frac{1}{4}$, section 11, T6S, R93W. Other gravel pits may also be used depending on material availability.

The pad would be less than 1 acre (approximate dimensions of 190 feet in width and 180 feet in length) for the first exploratory well (Figure 1). If full development occurs, the pad would be expanded to about 2 acres in size (approximate dimensions of 290 feet in width and 275 feet in length), with 8.9 acres or total surface disturbance (Figure 2 and 3). Interim reclamation would reduce the pad size through standard earthwork and reclamation practices to a footprint expected to be less than 1 acre during long-term production of wells on the pad (Figure 3). Topsoil conservation practices would be implemented during pad construction to salvage as much suitable growth medium as practicable and to segregate the topsoil and suitable subsoil media around the pad perimeter, where topography allows, in a windrow. Windrowing of topsoil is intended to enhance viability of the soil during storage by facilitating the infiltration of moisture and maintaining an aerobic condition. The windrow would also serve as stormwater retention structure for the pad.

All of the production equipment would be located on the pad for the initial exploratory well, including a 4-foot by 8-foot wellhead compressor. The gas-gathering pipeline extend run from the pad parallel to the access road until it meets CR 328, where it would then parallel the county road to a tie-in with an existing third-party pipeline owned by ETC Canyon Pipeline, LLC (“ETC”). The meter for the pipeline would be located north of the existing fenceline and west of CR 328. From the meter, a 30-to 40-foot-long pipeline would be installed by ETC to tie into their existing pipeline.

For full development, two 4-inch-diameter water and condensate flow lines would convey liquids from the separators on the pad to a production equipment area (approximate footprint of 500 feet in width and 60 feet in length) oriented parallel to CR 328. A new 8-inch-diameter gas-gathering pipeline approximately 2,225 feet in length would be installed from the separators, along CR 328, and to a tie-in with the existing ETC pipeline (Figure 4).

For use in drilling, water would be transported by trucks from commercial sources using existing county, state, and/or lease roads. For completions, fracture stimulation (“fracing”) would occur onsite. Water used for fracing would be recycled and transported by truck from existing facilities located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, section 16, T6S, R91W, and the SE $\frac{1}{4}$ SE $\frac{1}{4}$, section 20, T6S, R91W, both sites being on private surface. For full development, completions would be conducted simultaneously with drilling operations and remotely from an offsite location to be determined.

Cuttings generated during drilling would be managed on the surface of the pad in the COGCC (Colorado Oil and Gas Conservation Commission)-permitted cuttings trench area along the northeastern edge of the pad (Figure 2). In cases where emergencies such as weather conditions, safety concerns, or operational constraints exist, cuttings may be temporarily stored at another location in accordance with COGCC waste management and CDPHE (Colorado Department of Public Health and Environment) stormwater regulations. Produced wastewater would be transported to an existing centralized tank facility on the KP 24-23 pad. Drilling fluids would be recycled. The site would be kept free of trash and debris at all times.

To accommodate access to the pad from CR 328, an access road would be constructed that traverses the toe of the southwest-facing slope of Center Mountain. The route would be approximately 1,300 feet (0.25 mile) in length and would result in approximately 1.4 acres of disturbance with the planned 24-foot-wide running surface (two lanes) (Figure 5). The standard maximum grade would be 12% for a short distance but generally 10% or less. State and County 2% crown design criteria would be met. The recommended 90° safety and visibility criteria would be met with a 100-foot width at intersection turnouts.

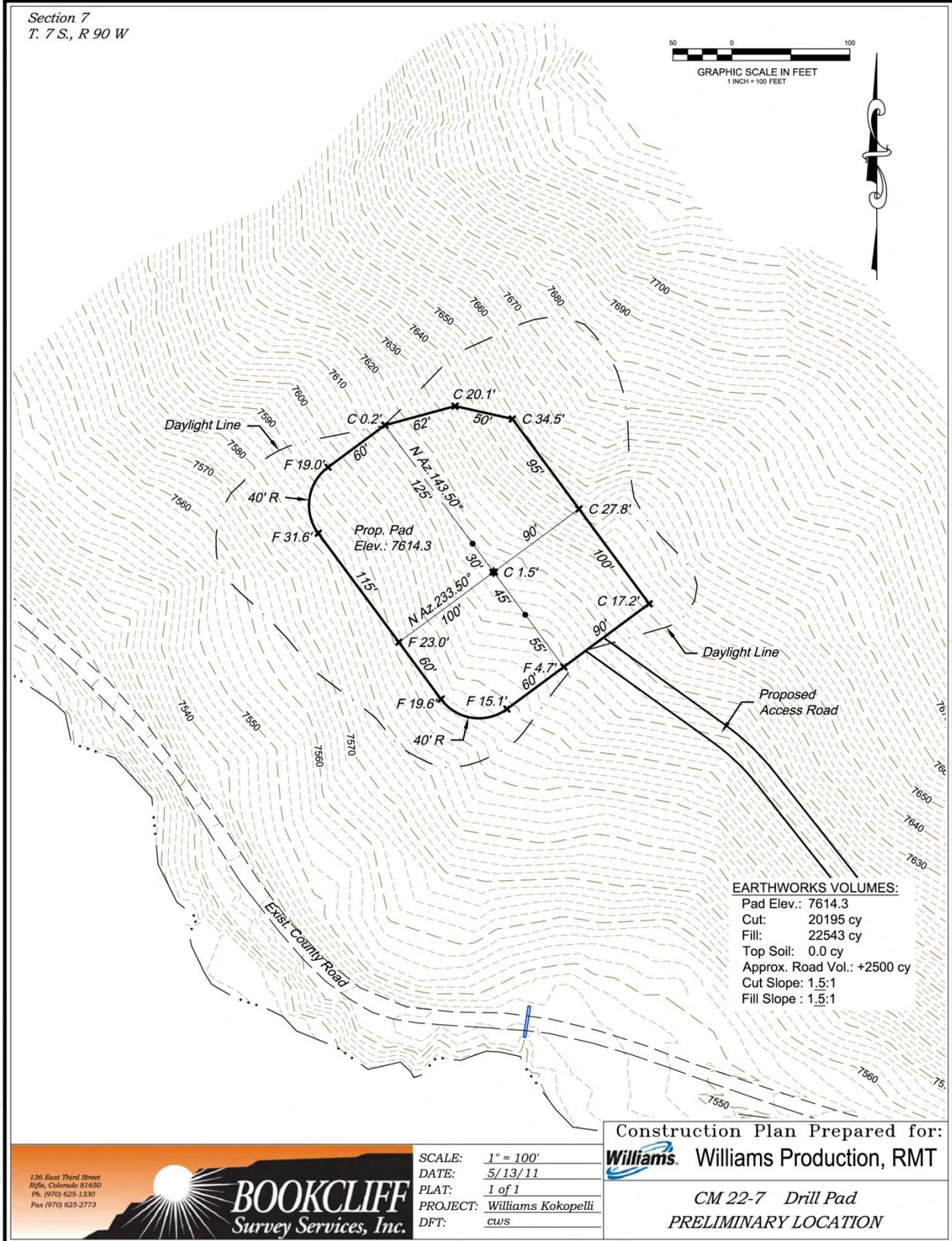


Figure 1. CMU 22-7 Construction Layout for the One Exploratory Well

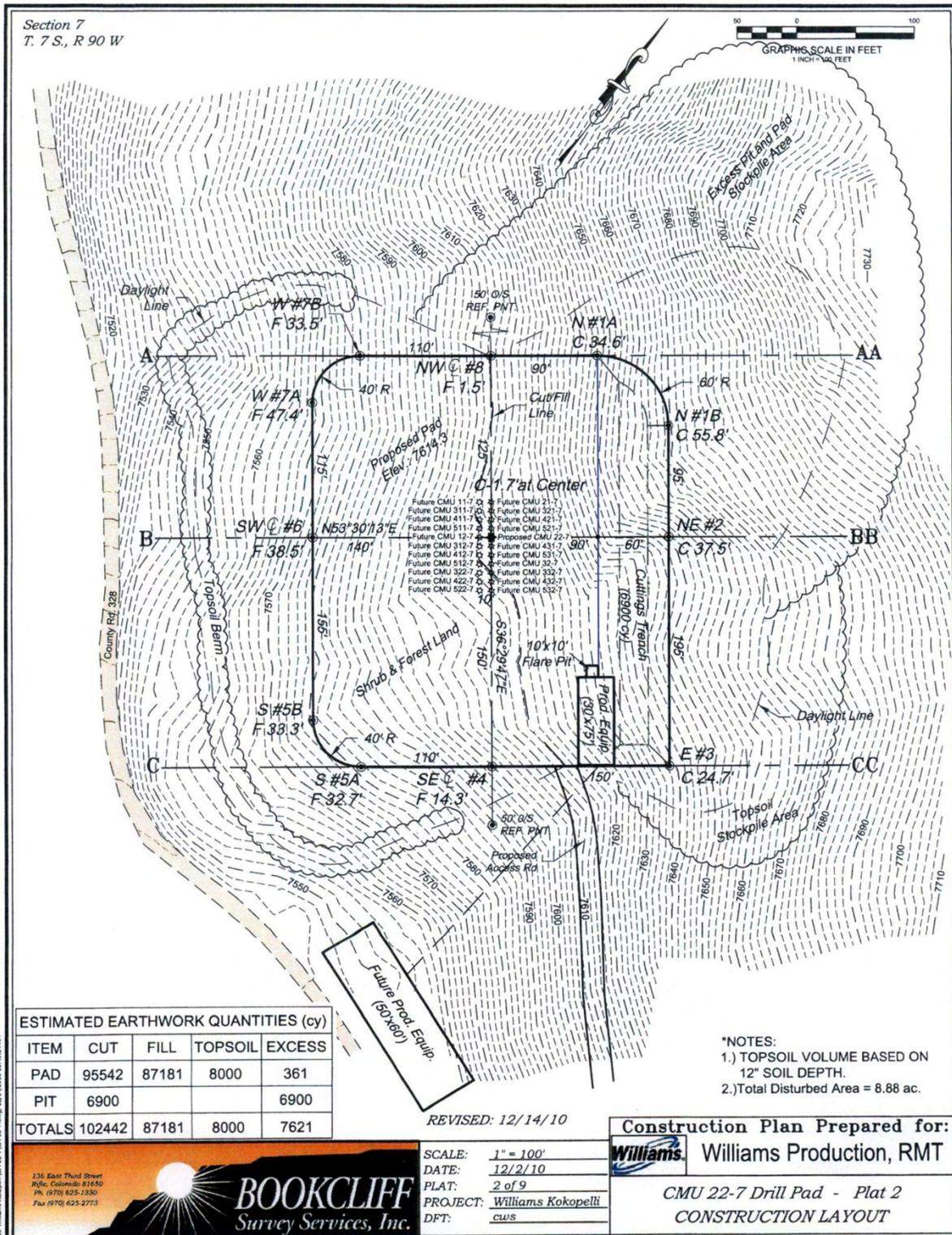


Figure 2. CMU 22-7 Construction Layout for Full Development

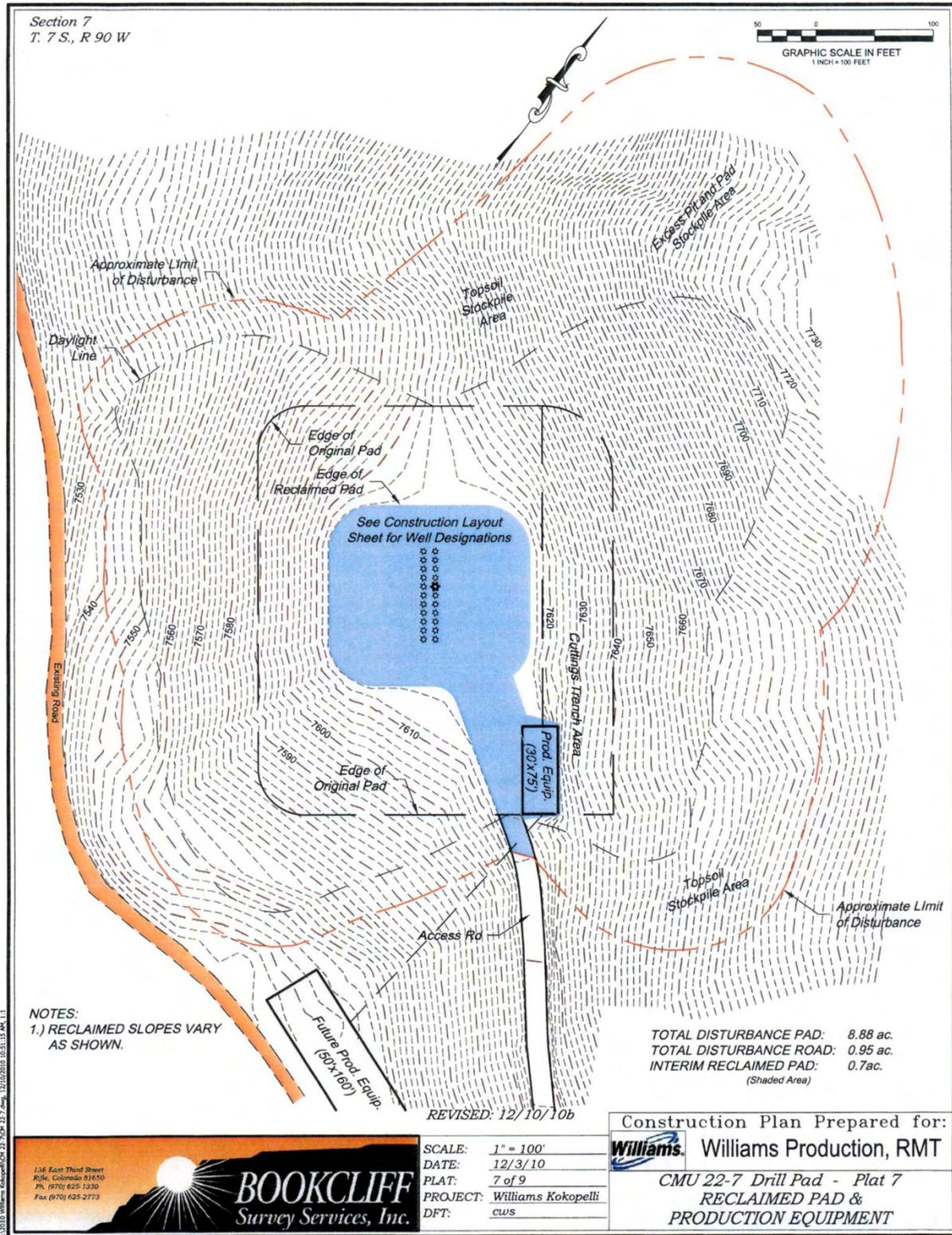


Figure 3. CMU 22-7 Reclaimed Pad and Production Equipment

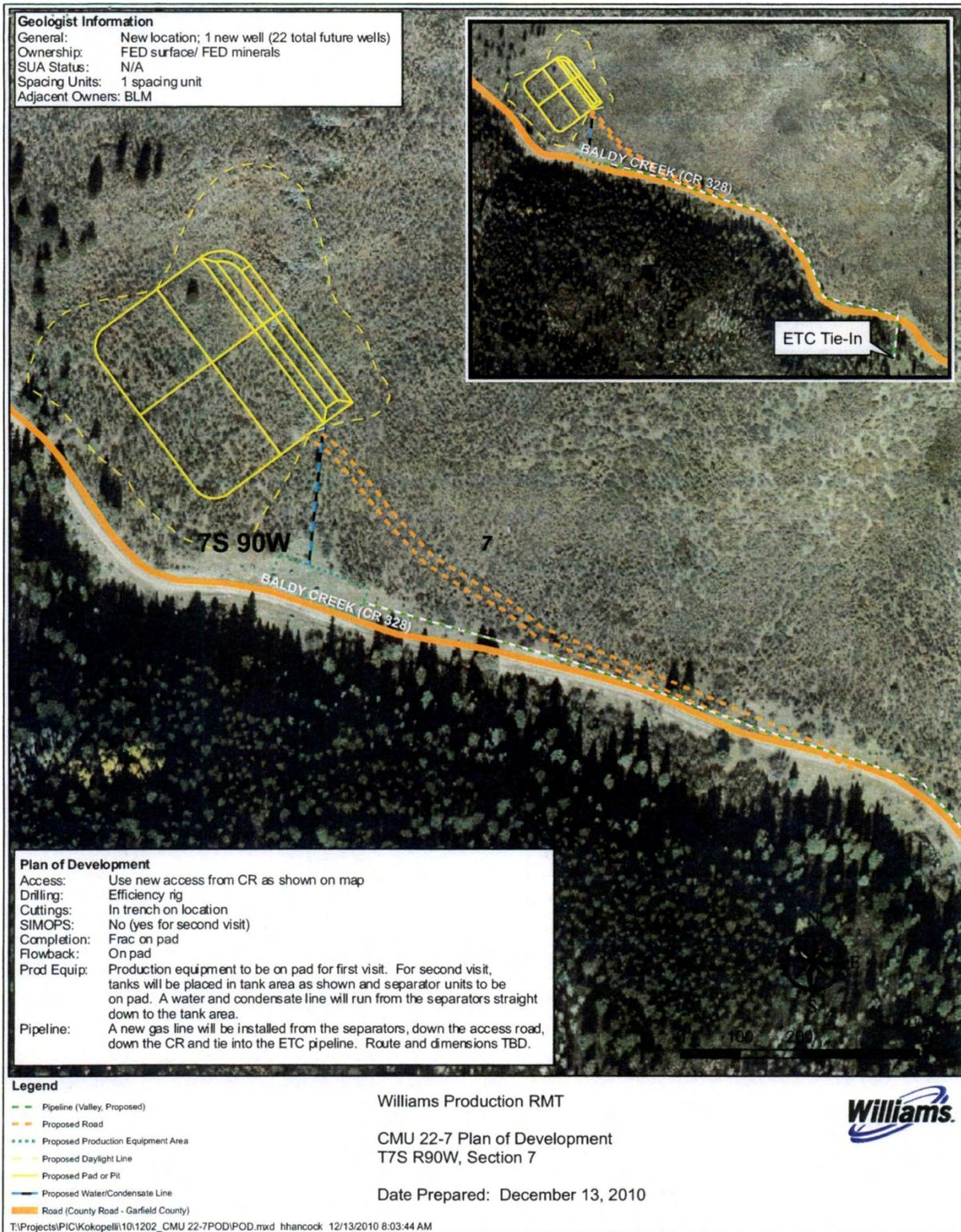


Figure 4. CMU 22-7 Plan of Development

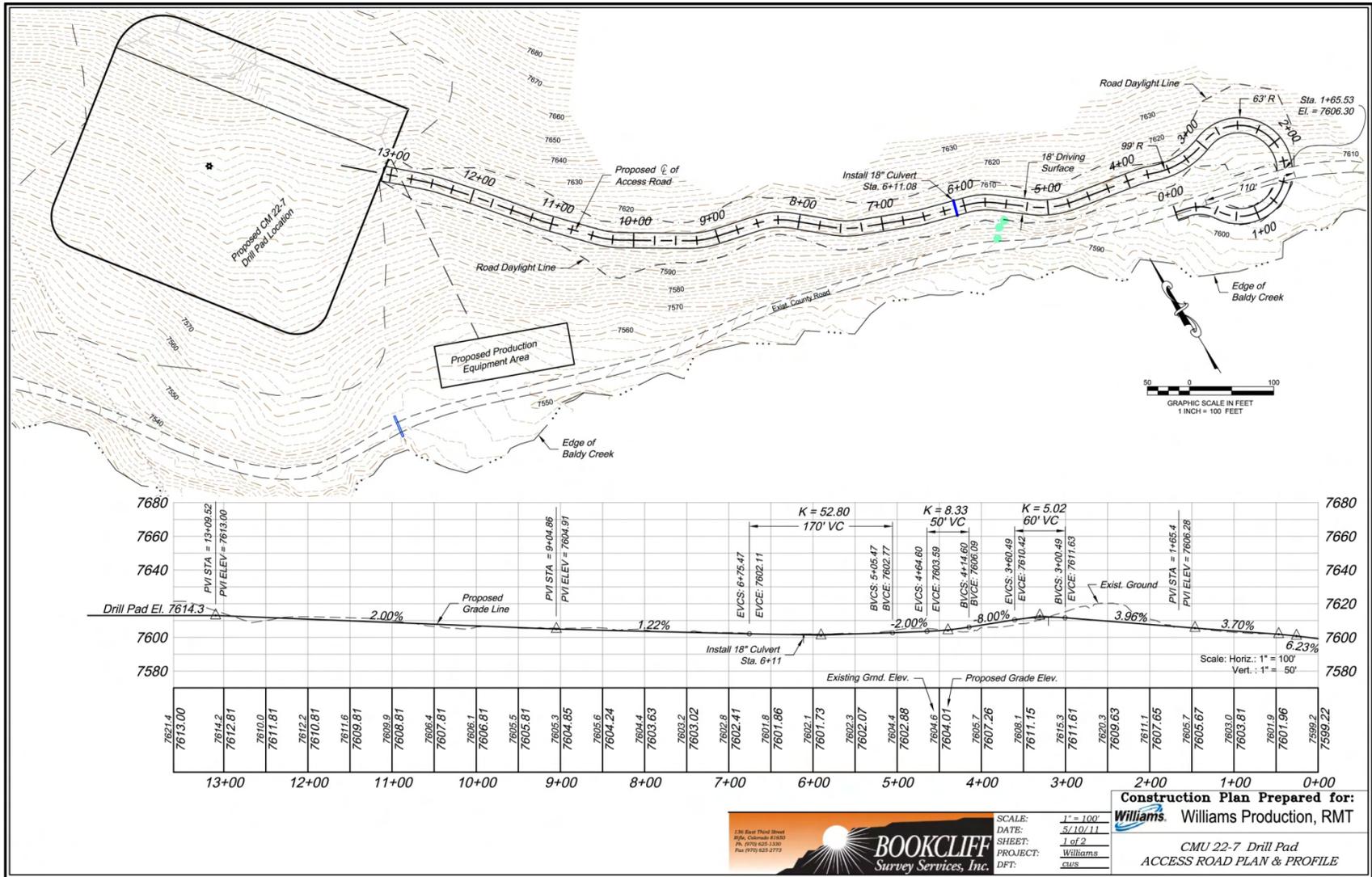


Figure 5. CMU 22-7 Access Road Plan and Profile

Drainage and ditch designs are modeled at 2 feet wide by 6 feet deep. Onsite and offsite erosion control, revegetation of disturbed areas, and source and storage of topsoil would be handled per operator stormwater and reclamation best management practices. BLM requirements for 18 inches or more for all culverts and/or bridges would be met. Major cuts and fills would be at 1.5:1 or 2.5:1 (horizontal to vertical). Surface materials would be gravel roadbase. In the area where the access road meets CR 328, the county road would be moved slightly west to accommodate the larger turn radii of heavy equipment. Following shifting of the CR 328 alignment, the abandoned segment would be reclaimed. Table 2 provides a summary of surface disturbance associated with the Proposed Action.

Table 2. Disturbance Area (acres)		
<i>Project Component</i>	<i>Total Federal Surface Disturbance</i>	
	<i>Short-term</i>	<i>Long-term*</i>
CMU 22-7 Pad (290 feet x 275 feet + cut/fill)	8.9	0.7
CMU 22-7 Access Road (1,300 feet x 24 feet running surface + cut/fill)	1.4	0.7
CMU 22-7 Production Equipment Area (50 feet x 160 feet + cut/fill)	0.25	0.25
CMU 22-7 Pipelines (2,225 feet x 30 feet, including CR 328 + cut/fill)	1.5	0
Project Totals	12.05	1.65

* Following interim reclamation of pad and of temporary disturbance areas for road and pipelines.

The operator would be responsible for continuous inspection and maintenance of the access road. The operator would conform to a schedule of preventive maintenance on a biannual basis including road surface grading; relief ditch, culvert cleaning and cattle guard cleaning; erosion control measures for all disturbed areas; road closures during periods of excessive soil moisture; and road and slope stabilization.

The Proposed Action would include drilling and completion operations, production of natural gas and associated liquid condensate, proper handling and disposal of produced water, and intermediate and final reclamation. The Proposed Action would be implemented consistent with Federal oil and gas lease, Federal regulations (43 CFR 3100), and the operational measures to be included in each APD. Appendix A lists the specific Surface Use Conditions of Approval (COAs) that would be implemented as mitigation measures for this project. The operator would be responsible for continuous inspection and maintenance of the pad, access road, and pipeline.

NO ACTION ALTERNATIVE

The Proposed Action involves Federal subsurface minerals encumbered with Federal oil and gas leases that grant the lessee a right to explore and develop the leases. Although BLM cannot deny the right to drill and develop the leasehold, individual APDs can be denied to prevent unnecessary and undue degradation. The No Action Alternative constitutes denial of the APD associated with the Proposed Action. Under the No Action Alternative, the Federal well proposed and described in the Proposed Action would not be drilled.

PURPOSE AND NEED FOR THE ACTION

The purpose of the action is to develop oil and gas resources on Federal lease COC65516 consistent with existing Federal lease rights. The action is needed to increase the development of oil and gas resources for commercial marketing to the public.

SUMMARY OF LEASE STIPULATIONS

The CMU 22-7 pad overlies Federal lease COC65516, into which the exploratory well would be drilled. Williams would apply for and obtain a BLM right-of-way (ROW) to construct, use, and maintain portions of the access road and pipeline on BLM lands outside the lease (Figure 6).

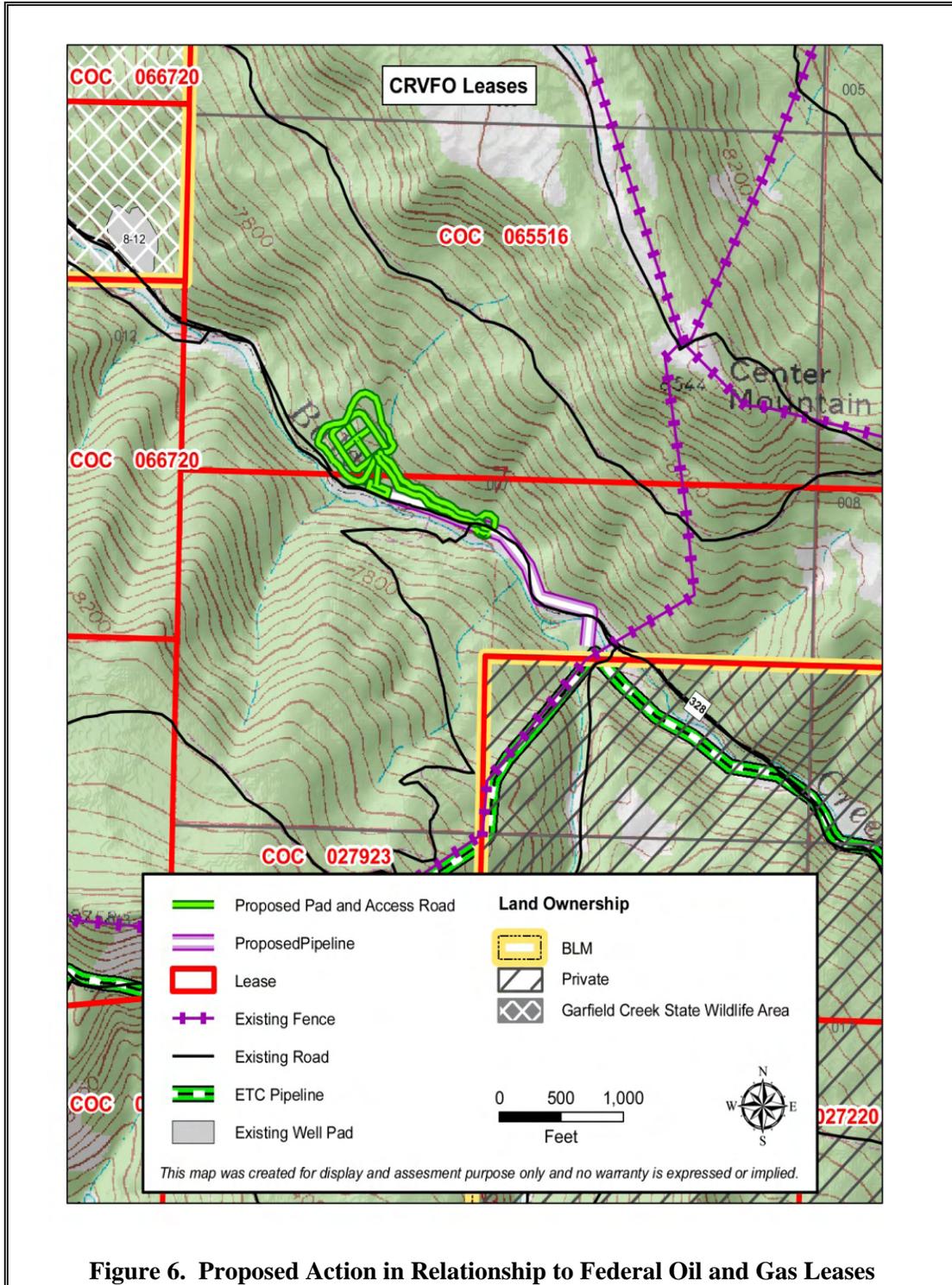


Figure 6. Proposed Action in Relationship to Federal Oil and Gas Leases

Table 3 provides a summary of the applicable stipulations attached to Federal lease COC65516. Appendix A lists site-specific conditions of approval (COAs) developed during the APD/EA review and onsite field consultation that would be attached to the Federal APDs and the related BLM ROWs.

Table 3. Stipulations on Federal Lease COC65516 in the Project Area	
<i>Lands Where Applied T7S, R90W</i>	<i>Lease Stipulation</i>
<p>Sec. 7: Lot 1, 2; Sec. 7: NE, E2NW;</p>	<p>No Surface Occupancy GS-NSO-15: Protection of Steep Slopes. To maintain site stability and site productivity, on slopes greater than 50 percent. This NSO does not apply to pipelines.</p> <p><i>Exception Criteria:</i> Exceptions may be granted by the BLM, if the lessee demonstrates that operations can be conducted without causing unacceptable impacts and that less restrictive measures would protect the public interest. A request for an exception must include an engineering and reclamation plan consistent with the objectives of the Glenwood Springs Resource Area Reclamation Policy. In addition, all elements of GS-CSU-04 would apply (see below).</p>
<p>Sec. 3: Lot 1; Sec. 3: SENE, SE; Sec. 4: Lot 1-4; Sec. 4: NESW, S2SW, SE; Sec. 5: Lot 3, 4; Sec. 5: SW, W2SE, SESE; Sec. 8: N2, SE;</p>	<p>Timing Limitation GS-TL-01: Protection of Big Game Winter Habitat. No surface use is allowed from December 1 to April 30 for Big Game Winter Habitat, which includes severe big game winter range and other high value winter habitat as mapped by the Colorado Division of Wildlife. This stipulation does not apply to operation and maintenance of production facilities.</p>
<p>Sec. 7: Lot 1, 2 Sec. 7: NE, E2NW;</p>	<p>Timing Limitation Stipulation GS-TL-02: Protection of Elk Calving Areas. No surface use is allowed from April 16 to June 30 for Protecting Elk Calving Areas. This stipulation does not apply to operation and maintenance of production facilities.</p> <p><i>Exception Criteria:</i> When it is determined through a site-specific environmental analysis that actions would not interfere with critical habitat function nor compromise animal condition within the project vicinity, the restriction may be altered or removed.</p>
<p>Sec. 7: Lot 1,2; Sec. 7: SENW;</p>	<p>Controlled Surface Use GS-CSU-02: Protection of Riparian and Wetland Zones. Within 500 feet of the outer edge of the riparian or wetland vegetation, activities associated with oil and gas exploration and development, including roads, pipelines and well pads, may require special design, construction, and implementation measures, including relocation of operations beyond 200 meters, in order to protect the values and functions of the riparian and wetland zones. Such measures will be based on the nature; extent and value of the riparian vegetation are most important to the function of the riparian zone and will be avoided.</p>
<p>Sec. 7: Lot 2; Sec. 7: SENE;</p>	<p>Controlled Surface Use GS-CSU-04: Protection of Erosive Soils and Slopes Greater than 30 Percent. Special design, construction, and operation and reclamation measures will be required to limit the amount of surface disturbance, to reduce erosion potential, to maintain site stability and productivity, and to insure successful reclamation in identified areas of highly erosive soils and of slopes greater than 30 percent. Highly erosive soils are soils in the “severe” and “very severe” erosion classes based on NARCS Erosion Condition mapping. Areas identified in the RMP as Erosion Hazard Areas and Water Quality Management Areas are included in this stipulation. Implementation may include relocation of operations beyond 200 meters.</p>

PLAN CONFORMANCE REVIEW

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

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

Dates Amended: November 1991 – Oil and Gas Plan Amendment (BLM 1991); March 1999 – Oil & Gas Leasing & Development Record of Decision and Resource Management Plan Amendment (BLM 1999b).

Decision Number/Page/Language: Record of Decision, Glenwood Springs Resource Management Plan Amendment, November 1991, page 3: “697,720 acres of BLM-administrated mineral estate within the Glenwood Springs Resource Area are open to oil and gas leasing and development, subject to lease terms and (as applicable) lease stipulations.” This decision was carried forward unchanged into the 1999 RMP amendment (BLM 1999b).

Discussion: The Proposed Action is in conformance with the 1991 and 1999 oil and gas RMP amendments because the Federal mineral estate proposed for development was open for oil and gas leasing and development and because lease stipulations identified in those RMP amendments were attached to the Federal mineral estate proposed for development under the Proposed Action.

STANDARDS FOR PUBLIC LAND HEALTH

In January 1997, Colorado BLM approved the Standards for Public Land Health. The five standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. The environmental analysis must address whether impacts resulting from the Proposed Action or alternatives being analyzed would maintain, improve, or deteriorate land health conditions relative to these resources. These analyses are conducted in relation to baseline conditions described in land health assessments (LHAs) completed by the BLM. The Proposed Action would be located in an area that was included in the Divide Creek Land Health Assessment (LHA) (BLM 2009).

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	Recreation
Air Quality	Riparian and Wetland Areas
Cultural Resources	Socio-Economics
Fossil Resources	Soils
Geology and Minerals	Special Status Species
Invasive Non-Native Plants	Vegetation
Migratory Birds	Visual Resources
Native American Religious Concerns	Wastes, Hazardous and Solid
Noise	Water Quality, Surface and Ground
Range Management	Wetlands and Riparian Zones
Realty Authorizations	Wildlife, Aquatic and Terrestrial

Access and Transportation

Affected Environment

The project area is accessed from the town of Silt by exiting I-70 (Exit 97), then turning south onto 9th Street, across I-70, to River Frontage Road; thence east on River Frontage Road to CR 311 (Divide Creek Road); then south/southeast along CR 311 for 2 miles to CR 335; thence east on CR 335 (Colorado River Road) for 3.8 miles to CR 312 (Garfield Creek Road); thence south on CR 312 for 5.1 miles to CR 328; thence south on CR 328 (Baldy Creek Road) for 5.2 miles to the CMU 22-7 pad location (Figure 7). Near the turnout where the proposed access road would meet CR 328 is BLM Road 8217A, which begins at county road, crosses Baldy Creek, and continues south over the highland area directly southwest of the project location. This road is currently an ATV trail, 50 inches or less wide.

Environmental Consequences

Proposed Action

Public access to the project area is available along the county roads listed above. To support the development of the new pad, approximately 1,300 feet of new road is proposed from CR 328 to the pad. In addition to the new access road, minor improvements to CR 328 are proposed to accommodate safety requirements for heavy equipment travel. A cattle guard would be replaced, vegetation would be trimmed back from the road, and the turnout to the access road would be constructed to provide safe turning radii.

CR 328 is a gravel surface road that provides public motorized access to the base of Center Mountain from CR 312. Both roads pass through Garfield Creek State Wildlife Area. The Proposed Action would result in an increase in truck traffic on both county roads. The largest increase would be during rig-up, drilling, and completion activities. An estimated 1,160 truck trips over a 30-day period would be required to support the drilling and completion of each well (Table 4). Once the well is in production, traffic would decrease to occasional visits for monitoring or maintenance activities. The well is assumed to require recompletion once per year. Each recompletion would require three to five truck trips per day for approximately 7 days. Fluids generated during the life of the well would be stored in tanks onsite, increases the number of water and oil truck traffic related to haulage of fluids.

<i>Vehicle Class</i>	<i>Number of Trips per Well</i>	<i>Percentage of Total</i>
16-wheel tractor trailers	88	7.6%
10-wheel trucks	216	18.6%
6-wheel trucks	452	39.0%
Pickup trucks	404	34.8%
Total	1,160	100.0%

Source: BLM 2006. Note: Trips by different vehicle types are not necessarily distributed evenly during the drilling process. Drilling and completion period is approximately 30 days per well.

Degradation of CR 328 and the access road to the pad may occur due to heavy equipment travel and fugitive dust and noise would also be created. Access to BLM Road 8217A could also be affected during construction activities. CR 328 would need to remain open and safe to the public during construction activities. Mitigation measures to be applied as COAs (Appendix A) would be required to ensure adequate safety for users in the area, dust abatement, road maintenance, and access to occur.

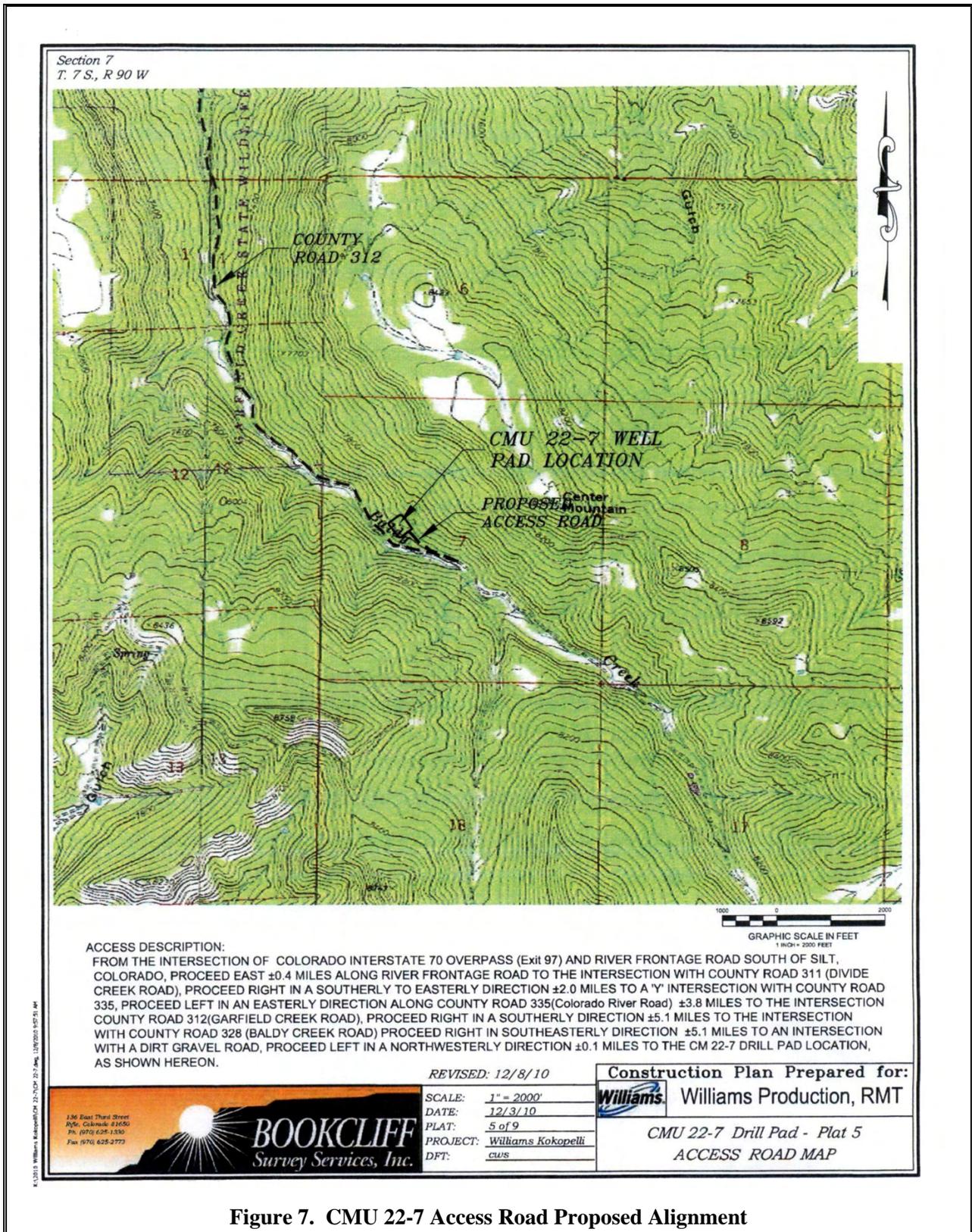


Figure 7. CMU 22-7 Access Road Proposed Alignment

No Action Alternative

The No Action Alternative would not affect access or transportation, because the development described above for the Proposed Action would not occur.

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), ozone (O₃), particulate matter less than 10 microns (µ) in diameter (PM₁₀) and less than 2.5 µ in diameter (PM_{2.5}), and sulfur dioxide (SO₂).

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. As shown in Table 5, regional background values are well below established standards, and all areas within the cumulative study area are designated as attainment for all criteria pollutants. Federal air quality regulations are enforced by the Colorado Department of Public Health and Environment (CDPHE). The Prevention of Significant Deterioration (PSD) Program within CDPHE is designed to limit incremental increases for specific air pollutant concentrations above a legally defined baseline level based on an area's air quality classification. Incremental increases in PSD Class I areas are strictly limited.

Table 5. Air Pollutant Background Concentrations, Colorado and National Ambient Air Quality Standards, and Prevention of Significant Deterioration Increments.					
<i>Pollutant/Averaging Time</i>		<i>Measured Background</i>	<i>CAAQS and/or NAAQS</i>	<i>Incremental Increase Above Legal Baseline</i>	
Carbon Monoxide (CO) ¹	1-hour	1,160 µg/m ³	40,000 µg/m ³ (35 ppm)	n/a	n/a
	8-hour	1,160 µg/m ³	10,000 µg/m ³ (9 ppm)	n/a	n/a
Nitrogen Dioxide (NO ₂) ²	Annual Arithmetic Mean	10 µg/m ³	100 µg/m ³ (0.053 ppm)	2.5 µg/m ³	25 µg/m ³
Ozone ³	8-hour	0.076 ppm (highest)	0.075 ppm	n/a	n/a
Particulate Matter (PM ₁₀) ¹	24-hour	114 µg/m ³ (highest)	150 µg/m ³	8 µg/m ³	30 µg/m ³
Particulate Matter (PM _{2.5}) ⁴	24-hour	40 µg/m ³ (highest)	35 µg/m ³	n/a	n/a
	Annual	11.2 µg/m ³	15 µg/m ³	n/a	n/a
Sulfur Dioxide (SO ₂) ^{5,6}	3-hour	24 µg/m ³	1,300 µg/m ³ (0.5 ppm)	25 µg/m ³	512 µg/m ³
	24-hour	13 µg/m ³	365 µg/m ³ (0.14 ppm)	5 µg/m ³	91 µg/m ³
	Annual	5 µg/m ³	80 µg/m ³ (0.03 ppm)	2 µg/m ³	20 µg/m ³
Background data collected in Rifle, 2008; highest levels recorded in April (Air Resource Specialists 2009).					
Background data collected by Encana at site north of Parachute, 2007 (CDPHE 2008).					
Background data collected in Rifle, 2008; highest levels recorded in July (Air Resource Specialists 2009).					
Background data collected in Rifle, September – December 2008; highest levels recorded in December (Air Resource Specialists 2009).					
Background data collected at Unocal site, 1983-1984 (CDPHE 2008).					
⁵ Colorado 3-hour AAQS = 700 µg/m ³ .					

Air pollutants measured in the region for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter less than 10 microns (μ) in diameter (PM₁₀) and less than 2.5 μ in diameter (PM_{2.5}), and sulfur dioxide (SO₂). Federal air quality regulations adopted and enforced by CDPHE limit incremental emissions increases to specific levels defined by the classification of air quality in an area. The Prevention of Significant Deterioration (PSD) Program is designed to limit the incremental increase of specific air pollutant concentrations above a legally defined baseline level. 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. The 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 Monument (approximately 65 miles south), and Eagles Nest Wilderness (approximately 60 miles east). Dinosaur National Monument (approximately 80 miles northwest) is listed as a Federal Class II area but is regulated as a Class I area for SO₂ by CDPHE. Regional background pollutant concentrations and applicable standards or limits are listed in Table 5.

Environmental Consequences

Proposed Action

The CDPHE, under its EPA (U.S. Environmental Protection Agency)-approved State Implementation Plan (SIP), is the primary air quality regulatory agency responsible for determining potential impacts once detailed industrial development plans have been made; those development plans are subject to applicable air quality laws, regulations, standards, control measures, and management practices. CDPHE has the ultimate responsibility for reviewing and permitting any project's air quality impacts prior to its operation. Unlike the conceptual "reasonable but conservative" engineering designs used in NEPA analyses, any CDPHE air quality preconstruction permitting required would be based on site-specific, detailed engineering values, which would be assessed in CDPHE's review of the permit application.

Project Emissions

Air quality would decrease during construction of the access road, pad, well(s), and pipeline. Pollutants generated during these activities would include combustion emissions and fugitive dust associated with construction equipment and vehicles. Construction activities for the well pad, access road, and pipeline would occur between the hours of 7:00 a.m. and 6:00 p.m. each day. Once construction activities are complete, air quality impacts associated with these activities would also cease. Fugitive dust from mobilization and rigging up the drill rig would also occur however impacts associated would be minor and short lived.

Emissions of volatile organic compounds (VOCs) are dependent on the characteristics of the condensate, tank operations, and production. The air impacts associated with the condensate tanks are anticipated to be minor, but VOC emissions would be controlled under CDPHE Regulation 7. This includes capture and thermal disruption of VOCs from condensate tanks.

To mitigate dust generated by construction and vehicular travel on unpaved access roads, the operator would be required to implement dust abatement strategies as needed by watering the access road and construction areas and/or by applying a surfactant approved by the BLM (Appendix A). Additionally, the operator would be required to apply gravel to the access road to a compacted depth of 6 inches, further reducing fugitive dust emissions (Appendix A).

Air Impact Analysis

The Roan Plateau RMPA/EIS describes potential effects from oil and gas development (BLM 2006:4-26 to 4-37). Although the project area is not within the Roan Plateau planning area, it is within the same airshed, consisting of the Colorado River valley floor and sideslopes extending between approximately the towns of New Castle and De Beque, Colorado. Therefore, the BLM has concluded that the Roan air quality modeling is applicable to other oil and gas projects within the airshed, including the current project.

For the Roan modeling, an analysis was completed with regard to greenhouse gas emissions, a near-field and far-field analysis for “criteria pollutants” (particulate matter [PM₁₀ and PM_{2.5}], carbon monoxide, sulfur dioxide, and nitrogen oxides) and hazardous air pollutants (HAPs, including benzene, ethylbenzene, formaldehyde, hydrogen sulfide, toluene, and xylenes). Sulfur and nitrogen deposition, acid neutralizing capacity were also evaluated in the Roan modeling. None of these pollutants was modeled as exceeding State or Federal air quality standards or representing a significant risk to human health and the environment.

A visibility screening analysis for the Roan modeling indicated potential impacts at one or more Class I areas. Consequently, as is standard methodology when a screening analysis indicates potential impacts, a refined visibility analysis was conducted using more specific instead assumptions about potential emissions. The refined analysis indicated an impact on visibility of 1 deciview, representing a “just noticeable” change for one day annually at two Class I areas, Black Canyon of the Gunnison National Park and the Mt. Zirkel Wilderness. The one day of “just noticeable” change in visibility is in comparison to all other emission sources modeled, but excluding emissions associated projected oil and gas activities.

At present, the CRVFO has approved fewer APDs than the number of new Federal wells used in the Roan air modeling. New air modeling currently being finalized by the BLM has assumed a larger number of wells, reflecting the continued and projected future development of oil and gas resources within the CRVFO area. To avoid exceeding the number of new wells analyzed in the Roan modeling, the CRVFO is currently approving only time-critical APDs on a case-by-case basis and deferring other APDs during the interim until the new modeling results are available for use.

Climate Change

Since the current land use plan was approved, ongoing scientific research has identified the potential impacts of “greenhouse gases” (GHGs) and their effects on global atmospheric conditions. These GHGs include carbon dioxide, methane, nitrous oxide, water vapor, and several trace gases. Through complex interactions on a global scale, these GHG emissions are believed by many experts to cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the Earth back into space.

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

The assessment of GHG emissions and climate change remains in its formative phase. Therefore, it is not yet possible to know with certainty the net impact to climate from GHGs produced globally over the last century or from those produced today. The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of climate change on the specific area of the Proposed Action. While any oil and gas development project may contribute GHGs to the atmosphere, these contributions would not have a significant effect on a phenomenon occurring at the global scale believed by some to be due to more than a century of human activities.

No Action Alternative

Under the No Action Alternative, the proposed well pad, Federal oil and gas wells, and ancillary facilities would not be developed, and emissions of pollutants associated with the Proposed Action would not occur.

Cultural Resources (Archaeology)

Affected Environment

Two Class III cultural resource inventories (CRVFO #1111-28 and 1111-32) were conducted specifically for the CMU 22-7 project. Several additional oil and gas related inventories were previously conducted in the area. The inventory and pre-field file searches of the Colorado SHPO database and BLM Colorado River Valley Field Office cultural records identified one prehistoric isolated find in the general vicinity of CMU 22-7 well pad. Isolated finds are by definition not eligible to the National Register of Historic Places (NRHP). Therefore, no “historic properties” were identified as being within the area of the Proposed Action. “Historic properties” are cultural resources that are eligible or potentially eligible for inclusion on the NRHP.

Environmental Consequences

Proposed Action

The implementation of the Proposed Action would have no direct impacts to known “historic properties”, as cultural inventories have determined that there are no known cultural resources within the project area.

Therefore, the BLM made a determination of “**No Historic Properties Affected.**” 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 (1997) and Colorado Protocol (1998)]. 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.

A standard Education/Discovery COA for cultural resource protection would be attached to APDs for any surface disturbance or drilling of wells pursuant to this 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.

Indirect, long-term cumulative impacts 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 include accidental damage, vandalism, or illegal collection and excavation.

No Action Alternative

Under the No Action Alternative, the Federal well, pipelines, and access road proposed and described in the Proposed Action would not be drilled. Therefore, no direct or indirect impacts to known or unknown cultural resources would occur.

Fossil Resources (Paleontology)

Affected Environment

The current classification system utilized by the BLM for assessing impacts to fossil resources is the Potential Fossil Yield Classification System (PFYC). This system classifies geologic units based on the relative abundance of vertebrate fossils or scientifically important invertebrate and plant fossils and their sensitivity to adverse impacts. This classification is applied to a geologic formation, member, or other distinguishable unit. This classification system recognizes that although significant fossil localities may occasionally occur in a geologic unit, a few widely spaced localities do not necessarily indicate a higher class. The primary purpose of the PFYC is to assess the possible impacts from surface disturbing activities and help determine the need for pre-disturbance surveys and monitoring during construction.

The predominant surface formation found within the lease parcel, as well as the area directly underlying the parcel is the Tertiary Wasatch Formation (Tw). The Wasatch Formation is ranked under the PFYC system as a Class 4/5 formation, and is mapped within the project area. The probability of finding fossils within the Wasatch Formation is rated *high* and *very high*, respectively. In Class 4 units, vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur, but may vary in occurrence and predictability. Class 5 units predictably and consistently produce significant fossils. Although the Wasatch Formation is ranked high under the PFYC system, 4 and 5 out of 5 classes, lack of bedrock exposure lowers the risk of human-caused adverse impacts and natural degradation within the proposed new well pad area.

Proposed Action

Environmental Consequences

Construction and development of a well pad, access road and a pipeline has the potential to adversely affect scientifically important fossils. Both surface and subsurface fossils could be damaged or destroyed. The greatest potential for impacts is associated with excavation of surficial materials and shallow bedrock.

The results of a review of USGS geologic maps, topographic quadrangles and onsite field evaluations demonstrate that the project area is heavily vegetated in grasses, scrub oak and non-contiguous pine; furthermore, the lease parcel is covered with thick earth flow deposits. An examination of the BLM paleontology database indicate that there are known fossil deposits in this area. A field survey could provide additional information if outcrops free of soil and vegetation are identified. It is recommended that a paleontological survey be performed if at any time during construction bedrock outcroppings are apparent within 200 feet of proposed project disturbed area. The standard paleontological condition of approval would be attached to well permits.

No Action Alternative

Under this alternative, impacts potentially associated with the Proposed Action would not occur.

Geology and Minerals

Affected Environment

The Center Mountain Area is located approximately 1 mile west of the of the Grand Hogback homoclinal ridge within the Piceance Basin. The Piceance Basin contains stratified sediments ranging in age from Cambrian through middle Tertiary up to 20,000 feet thick. The basin lies between the White River uplift to the northeast, the Gunnison uplift to the south, and the Uncompahgre swell to the west (George 1927, Weiner and Haun 1960). In the proposed development area, the Wasatch Formation is mantled by unconsolidated surface deposits of Quaternary age in the form of colluvium and earth flow deposits. The thickness of these unconsolidated sediments is uncertain, but the depth to the underlying Wasatch Formation may be determined during construction excavation. Table 6 lists the geologic formations present within the proposed project area.

Table 6. Geologic Formations within the Study Area				
<i>Map Symbol</i>	<i>Formation Name</i>	<i>Age</i>	<i>Characteristics</i>	<i>Location</i>
Qlsr	Recent earth flow deposits	Holocene	Boulders, cobbles, pebble gravels.	Base of slopes and valleys.
Qbc	Basaltic colluvium	Pleistocene	Matrix-supported boulders, cobbles, and pebbles.	Mountain slopes and fans.
Qls	Earth flow deposits	Pleistocene	Boulders, cobble and pebble gravels.	Base of slopes and valleys.
Tw	Wasatch Formation	Eocene	Yellow to reddish brown claystone, sandstone, and siltstone.	Mesas and cliffs.

Source: Carroll et al 1996.

The Mesaverde Group is the target zone of the proposed drilling program. Made up of the Williams Fork and Iles Formations, sediments of the Mesaverde Group are composed of marine sandstones and transitional to non-marine beds of coal, shale, and sandstone. These sediments were deposited marginal to the great Cretaceous seaway. The oscillating shoreline of this sea, due to the rise and fall of sea level, left behind a complex of transgressive and regressive sedimentary sequences of nearshore and offshore sediments that define the Mesaverde Group.

Production is derived from three reservoir intervals, which include the Wasatch Formation, the Williams Fork and Iles Formations. The latter two make up the Upper Cretaceous Mesaverde Group. The proposed drilling program would target the sandstone sequences of the Upper Williams Fork Formation, which provide most of the oil and gas production volumes (Lorenz 1989). The upper portions of the Williams Fork include fluvial point bar, floodplain, and swamp deposits. The Lower Williams Fork Formation includes delta front, distributary channel, strandplain, lake, and swamp environments (Hemborg 2000), while the sandstones and coalbeds of the Iles Formation were deposited in a wave-dominated coastal setting (Johnson 1989, Lorenz, 1989). The source rocks are interbedded and thermally mature gas-prone shales, mudstones, siltstones, and coals. The reservoir rocks are the fine to medium-grained Williams Fork sandstones, varying in thickness from less than 10 feet to more than 50 feet (Spencer 1988), creating an interbedded relationship between source and reservoir. The trapping mechanism of the oil and gas is both stratigraphic and diagenetic.

Environmental Consequences

Proposed Action

If the proposed wells are proven to be feasible, initial production rates would be expected to be highest during the first few years of production, then decline during the remainder of the economic lives of the wells. Substantial reserves have been known to be trapped within the tight sands of these reservoirs since the late 1950s, but only within the last decade, and particularly within the last few years, has the integrated application of new technologies turned the tight gas sands of the Mesaverde Group into a profitable play (Kuuskraa 1997). Natural fracture detection, advanced log analysis, more rigorous well completions and recompletions, and denser spacing have increased the amount of recoverable gas within these reservoirs.

Production of oil and gas from the proposed wells would contribute to the draining of hydrocarbon-bearing reservoirs within the Mesaverde Group in this area, an action that would be consistent with BLM objectives for mineral production. Hydraulic fracturing or “fracing” would be utilized to create fractures within the formation to allow gas production from the wells. Tight gas sands refer to low permeability sandstone reservoirs that produce primarily dry natural gas. Typically, these reservoirs cannot be produced at economic flow rates or volumes unless the well is stimulated by hydraulic fracture treatment (Holditch 2006). The amount of natural gas potentially produced can only be estimated based on production rates from nearby wells and adjacent fields. Reserves have been estimated to approach 2 billion cubic feet (bcf) of natural gas per well (Vargas 2006).

Casing programs are designed to specifically prevent hydrocarbon migration from gas-producing strata penetrated by the wellbore during drilling, initial production and after completion of the well. Identification of potential freshwater-bearing zones, aquifers, gas-producing zones, and over- and under-pressured zones are incorporated into drilling scenarios for the proposed wells. Estimates of the depths at which these zones would be encountered are used to determine drilling fluids, fluid densities, surface casing depths, and production planning. If one of these identified zones is encountered during drilling, cement volumes would be adjusted to isolate that zone. This is designed to prevent accidental contamination or leakage of hydrocarbons or fracturing fluids into other productive zones within the wellbore.

No Action Alternative

Under this alternative, impacts potentially associated with the Proposed Action would not occur.

Invasive Non-Native Species

Affected Environment

The project area is relatively free of invasive non-native species, with the exception of the weedy forbs in the CR 328 road corridor. Whitetop (hoary cress) (*Cardaria draba*) was found growing on both sides of the road corridor. Poison hemlock (*Conium maculatum*) was beginning to germinate along the north side of the road corridor in open areas with moist soils. Houndstongue (*Cynoglossum officinale*) and mullein (*Verbascum thapsus*) were scattered along the roadside in openings, most likely brought in with cattle grazing. A small patch of bull thistle (*Cirsium vulgare*) was also observed.

Environmental Consequences

Proposed Action

Surface-disturbing activities provide a niche for the invasion and establishment of invasive non-native species, particularly when these species are already present in the surrounding area. Because numerous invasive, non-native species are present along the roadside corridor, the potential for invasion into the surrounding area following construction activities is high. Adherence to standard surface use COAs (Appendix A) would minimize the spread of invasive non-native species and reduce impacts from these species on other natural resources.

No Action Alternative

Under the No Action Alternative, none of the proposed ground disturbance would occur. Therefore, the potential for weed invasion and expansion would be less than under the Proposed Action.

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 migrant and resident species, nesting habitat is of special importance because it is critical for supporting reproduction in terms of both nesting sites and food. In addition, 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.

Numerous migratory bird species occupy, or have the potential to occupy, the project area. Migratory bird species that are Federally listed under the Endangered Species Act of 1973, as amended, or classified by the BLM as sensitive species, are addressed under the section on Special Status Species. The current section addresses migratory birds that may inhabit the proposed project area. Emphasizing the need to conserve declining species, the U.S. Fish and Wildlife Service (USFWS) has published a list of more than 100 Birds of Conservation Concern (BCC) that deserve prompt conservation attention to stabilize or increase populations or to secure threatened habitats (USFWS 2008). Therefore, this analysis focuses on BCC species, as well as two other groups--raptors and non-BCC neotropical (long-distance) migrants—that are particularly vulnerable to habitat loss or modification on their breeding grounds.

Species on the BCC list that are potentially present in the portion of the CRVFO area that includes the project area, based on habitat preferences and known geographic ranges, include the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), golden peregrine falcon (*Falco peregrinus*), prairie falcon (*F. mexicanus*), yellow-billed cuckoo (*Coccyzus americanus*), flammulated owl (*Otus flammeolus*), Lewis's woodpecker (*Melanerpes lewis*), willow flycatcher (*Empidonax traillii*), pinyon jay (*Gymnorhinus cyanocephalus*), juniper titmouse (*Baeolophus ridgwayi*), Brewer's sparrow (*Spizella breweri*), and Cassin's finch (*Carpodacus cassinii*). Among these, the bald eagle, ferruginous hawk, peregrine falcon, burrowing owl, and Brewer's sparrow are also listed as BLM sensitive species in Colorado.

Based on the habitats present in the project area, the only BCC species reasonably likely to occur are the flammulated owl, willow flycatcher, and Cassin's finch. This determination is based on the presence of riparian shrubs, tall mountain brush, quaking aspen, and conifers in the project area and vicinity (see section on Vegetation). The flammulated owl nests in montane and subalpine woodlands, generally using natural cavities or abandoned woodpecker holes, and feeds in the same habitats and nearby riparian shrublands or mixed mountain brush for large insects, small rodents, or small songbirds. The willow flycatcher is restricted to dense riparian shrublands, particularly those dominated by tall willows. Cassin's finch nests in montane or subalpine coniferous forests such as found near the site.

Non-BCC perching-bird species likely to occur in the project area or vicinity include several Neotropical migrants associated with riparian shrubland, mixed mountain shrubland, and aspen-conifer habitats. These include the broad-tailed hummingbird (*Selasphorus platycercus*), cordilleran flycatcher (*Empidonax difficilis*), western wood-pewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), house wren (*Troglodytes aedon*), warbling vireo (*Vireo gilvus*), yellow warbler (*Dendroica petechia*), Virginia's warbler (*Oreothlypis virginiae*), orange-crowned warbler (*O. celata*), MacGillivray's warbler (*Oporornis tolmiei*), Wilson's warbler (*Wilsonia pusilla*), western tanager (*Piranga ludoviciana*), song sparrow (*Melospiza melodia*), fox sparrow (*Passerella iliaca*), chipping sparrow (*Spizella passerina*), lazuli bunting (*Passerina amoena*), black-headed grosbeak (*Pheucticus melanocephalus*), and spotted towhee (*Pipilo maculata*). Resident or short-distance migrants potentially present include the northern flicker (*Colaptes auratus*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*P. villosus*), red-naped sapsucker (*Sphyrapicus nuchalis*), Steller's jay (*Cyanocitta stelleri*), mountain chickadee (*Poecile gambeli*), black-capped chickadee (*P. atricapillus*), white-breasted nuthatch (*Sitta carolinensis*), and American robin (*Turdus migratorius*), among others.

Raptors potentially nesting in proximity to the project vicinity include the northern goshawk (*Accipiter gentilis*), a BLM sensitive species, as well as the Cooper's hawk (*A. cooperii*), red-tailed hawk (*Buteo jamaicensis*), northern pygmy-owl (*Glaucidium gnoma*), northern saw-whet owl (*Aegolius acadicus*), and great horned owl (*Bubo virginianus*). A survey for biological resources in the project area and surrounding environments, including a raptor nest survey, was conducted in 2011 by a Williams consultant, with no active nests being found (WWE 2011). However, two inactive nests were located within a larger survey boundary. Observations of individual raptors included red-tailed hawks soaring on two separate occasions east of Baldy Creek above the slopes of Center Mountain, a pair of Cooper's hawks flying over CR 328, and a northern saw-whet owl (*Aegolius acadicus*) that responded to vocalization playbacks. These observations indicate that the species probably occur in the general vicinity and may use the area for hunting although apparently nesting farther away. Thus, the project vicinity could represent a portion of the overall home ranges of these or other raptors nesting outside the survey area.

Environmental Consequences

Proposed Action

Direct impacts to migratory birds from the Proposed Action include the loss of approximately 12 acres of feeding and nesting habitat. It is unlikely that the Proposed Action would directly affect vegetation suitable for nesting raptors. While habitat loss and associated habitat fragmentation may affect a small number of individual migratory or resident birds, excluding raptors, these impacts would be insignificant at the population or species levels.

If construction, drilling, or completion activities occur during the late winter to mid-summer nesting season, visual and noise disturbance near active nests could cause nest abandonment, nest failure, or reduced productivity. Construction activities during the nesting season could also result in the destruction

of active nests, including any eggs or young within the nests. To reduce these potential impacts, a 60-day timing limitation (TL) from May 1 through June 30 would be applied as a COA to prohibit the removal of vegetation or initiation of surface-disturbing activities during the TL period for activities on BLM lands overlying Federal lease COC65516 in the vicinity of the CMU 22-7 pad.

No Action Alternative

The No Action Alternative constitutes denial of the well pad, any Federal APDs on the pad, and ancillary facilities. The impacts to migratory birds analyzed for the Proposed Action would not occur.

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. Several Class III cultural resource inventories (see section on Cultural Resources) were conducted for this specific project, and a number of additional inventories were done for a variety of other oil & gas projects in the general vicinity to determine if any areas were known to be culturally sensitive to Native Americans. No sensitive areas were identified or are currently known in the proposed project area.

Environmental Consequences

Proposed Action

At present, no Native American concerns are known within the project area, and none was identified during the inventories. The Ute Tribe of the Uintah and Ouray Bands, the primary Native American tribe in this area of the CRVFO, have indicated that they do not wish to be consulted for small projects or projects where no Native American areas of concern have been identified either through survey or past consultations. Therefore, formal consultation was not undertaken. If new data are disclosed, new terms and conditions may have to be negotiated to accommodate their concerns.

Indirect, long-term cumulative impacts 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 could range from accidental damage or vandalism to illegal collection and excavation.

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 BLM 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 BLM, 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. Williams Production RMT Company 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 permit. The importance of these COAs should 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 should also be aware of requirements under the NAGPRA.

No Action Alternative

Under this alternative, the new pad, Federal oil and gas wells, and ancillary surface facilities would not be developed, and project-related impacts affecting Native American concerns would not occur.

Noise

Affected Environment

Noise is generally described as unwanted sound, weighted and noise intensity (or loudness) is measured as sound pressure in units of 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 in the decibel scale increases the sound loudness by a factor of 10.

Sound levels have been calculated for areas that exhibit typical land uses and population densities. In rural recreational areas, ambient sound levels are expected to be approximately 30 to 40 dBA (EPA 1974, Harris 1991). As a basis for comparison, the noise level during normal conversation of two people 5 feet apart is 60 dBA. The project would be located in a rural, unpopulated area with few potential noise sources. Noise levels from human activity in the project vicinity are mostly mechanical, consisting mainly of traffic on the county Road, new oil and gas exploration activities, and ranching/farming operations. Traffic and human noise increases seasonally due to recreation in the area such as camping and hunting.

Environmental Consequences

Proposed Action

The project would result in increased levels of noise during construction, drilling, and completion. The noise would be most noticeable along the roads used to haul equipment and at the pad location. Drilling activities are subject to noise abatement procedures as defined in the COGCC Rules and Regulations (Aesthetic & Noise Control Regulations). Operations involving pipeline or gas facility installation or maintenance, compressors, the use of a drilling rig, completion rig, workover rig, or stimulation are subject to the maximum permissible noise levels for industrial zones.

The 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 7) at a distance of 350 feet. Periodically, the noise level may increase to 10 dBA above levels in Table 7 for no more than 15 minutes in a 1-hour period. Operations involving pipeline or gas facility installation or maintenance, use of a drilling, completion, or workover rig, or fracing are subject to the maximum permissible noise levels for industrial zones. 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 2006).

Table 7. 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

Short-term (7- to 14-day) increases in nearby noise levels would characterize road and well pad construction while the existing cuttings pit is re-opened. Based on the Inverse Square Law of Noise Propagation (Harris 1991) and an typical noise level for construction sites of 65 dBA at 500 feet (Table 8), project-related noise levels would be approximately 59 dBA at a distance of 1,000 feet, approximating active commercial areas (EPA 1974). Noise impacts from drilling and completion activities would last approximately 45 to 60 days at each well. Noise would occur continuously, 24 hours per day, during drilling and completion. Based on a measured noise level of 68 dBA at 500 feet, actions associated with drilling and completion would generate approximately 62 dBA at 1,000 feet. This level of noise approximates that associated with light industrial activities (EPA 1974).

Table 8. Noise Levels at Typical Construction Sites and along Access Roads			
<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	83	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)			

Traffic noise would also be elevated as a consequence of the Proposed Action. The greatest increase would be along access roads during the drilling and completion phases. Based on the La Plata County data presented in Table 8, approximately 68 dBA of noise (at 500 feet) would be created by each fuel and water truck that travels these roads. Less noise would be created by smaller trucks and passenger vehicles such as pickup trucks and sport utility vehicles. Although the duration of increased noise from this source would be short, it would occur repeatedly during the drilling and completion phases.

Noise impacts would decrease during the production phase but would remain background noise levels. During maintenance and well workover operations, noise levels would temporarily increase above those associated with routine well production. These increased noise levels would be in addition to levels of noise that are already above background levels due to current oil and gas developments in the area. Traffic noise levels would affect residences along County roads that provide primary access into the area. While exposure to these levels is unlikely to be harmful, it is likely to be annoying to recreational users.

No Action Alternative

Under this alternative, impacts of the Proposed Action on soil resources would not occur.

Range Management

Affected Environment

The proposed Williams CMU 22-7 well pad and access road would be located on public land within the Upper Garfield Common Allotment #08222. Table 9 summarizes permitted grazing use on the allotment.

Table 9. Grazing Allotment					
Allotment	Authorization Number	Livestock and Number	Season of Use	% Public Land	Animal-Unit Months
Upper Garfield Common #08222	0507713	Cattle: 181	Jun 1 – Oct 10	100	785

The allotment is operated on a five-pasture rotational system. Typically, the cattle would be in the project area in the fall, but this could vary depending on the rotation. Some cattle may also be in the project area that are “out of season” due to trespass from other areas. An existing trailing permit that allows cattle to be trailed through the project area is valid for another four years. Cattle are trailed through the project area along CR 328 from the portion of the Garfield Creek State Wildlife Area (GCSWA) north of the project area (between May 15 and May 30) to the portion of the GCSWA south of the project area. The cattle are trailed in the reverse direction along the same route between September 15 and September 30).

Environmental Consequences

Proposed Action

Oil and gas development within the project area would result in approximately 12 acres of total short-term disturbance. This disturbance and resulting loss of vegetation would last for approximately 3 to 5 years or until grasses and forbs seeded during interim reclamation become productive. Rehabilitation of the short-term disturbance areas would replace some of the livestock forage. Long-term loss of vegetation from the working areas of the well pad, access road, and pipeline, amounting to approximately 2 acres, would be expected to last 20 to 30 years until the wells lose their productivity. With final reclamation of the wells sites and access roads, full productivity of the rangeland would be reestablished.

Production of grasses and forbs on successfully rehabilitated sites is often greater than occurred prior to disturbance; this would mitigate some of the initial loss of forage. Since the oil and gas development would take place over time, the reduction in available livestock forage at any one time would be less than the total reduction in forage if the Proposed Action were to be implemented all at once.

Additional effects from oil and gas development on livestock grazing could include increased human activity, spread of noxious weeds, and livestock mortality as a result of collisions with vehicles. Biological stress could be induced on the grazing cattle from the increased development activities and result in changes in use patterns and trailing routes.

An increase in human activity related to development and maintenance of the development would cause cattle to avoid certain areas of the allotment. However, livestock may also benefit from improved access. New roads and pipelines would open access to areas of the allotments that are difficult for livestock to access because of thick brush cover. Improvement in livestock distribution could improve forage utilization throughout the allotment.

Effects from increased human activity also could include the introduction and spread of noxious weeds and the subsequent degradation of rangeland health. The section on Invasive Non-native Species describes in detail the effects of invasive species and lists mitigation measures related to the Proposed Action.

It is not anticipated that impacts from implementation of the Proposed Action would require adjustments to the livestock stocking rate. The level of forage utilization would be monitored on the allotment and, if necessary, adjustments in livestock use would be made to protect land health.

Range improvements (fences, gates, reservoirs, pipelines, etc.) would be avoided during development of oil and gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator would be responsible for repairing or replacing the damaged range improvements (Appendix A).

Fencing the perimeter of the area of disturbance for the pad should be required to deter grazing impacts to the project area before construction begins. The pipeline corridor and pipeline valves should also be fenced to keep the cattle out. Associated oil and gas activity should be limited during those times when cattle may be within the project area due to pasturing or trailing through the area.

No Action Alternative

Under the No Action Alternative, none of the project-related impacts on the Federal grazing program analyzed for the Proposed Action would occur.

Realty Authorizations

Affected Environment

No existing realty authorizations exist for the immediate vicinity of the project area. The Federal lease gives Williams the right to explore and develop the Federal fluid mineral resource. Components of the Proposed Action that would require crossing BLM lands would require BLM right-of-way grants

Environmental Consequences

Proposed Action

Development of Federal lease COC65516 under the Proposed Action would require issuance by the BLM of right-of-way grants for portions of the access road and pipelines that would cross other BLM lands. These grants would include a permanent (30-year) right-of-way and an adjacent Temporary Use Permit (TUP) with a duration of 1 year to provide construction workspace.

No Action Alternative

Under this alternative, the proposed CMU 22-7 pad and associated facilities would not be constructed, resulting in no requirement for issuance to Williams of right-of-way grants for the access road and pipelines.

Recreation

Affected Environment

The area is not managed specifically for recreation. Instead, recreational opportunities and outcomes are shaped by other land uses and management actions. However, protections for sensitive ecological and visual resources would tend to preserve existing recreational uses in most of the area.

The project area is located within the Roaded Natural Recreation Opportunity Spectrum (ROS) class, which is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and use practices are evident but harmonize with the natural environment and provide opportunities for (1) either affiliation with other user groups or isolation from

the sights and sounds of man, (2) a high degree of interaction with the natural environment, (3) practicing outdoor skills, and (4) both motorized and non-motorized recreation.

The landscape of the area appears generally natural despite existing vehicle routes. The area contains no developed facilities, and the level of visitor management and regulation is low. Dispersed camping, OHV/ATV riding, and snowmobiling all occur in the area. Big-game hunting is the most popular activity. As a dispersed recreational activity, hunting is not limited to specific areas. Traditional or hardened campsites exist along CR 328 within the project area. No developed recreational facilities such as campgrounds, picnic areas, and maintained hiking/biking trails are located within the project area. Off-highway vehicle use is limited to existing roads and trails year round; except for snowmobiles operating on snow.

The project area lies within CDOW game management unit (GMU) 42 for big-game species. One outfitter—Silver Spur Outfitters LLC—currently holds a BLM permit to provide guide and outfitting services in the Center Mountain area.

Environmental Consequences

Proposed Action

The Proposed Action could shift visitor use patterns, particularly use by big game hunters. Because of a lease stipulation precluding construction, drilling, or completion activities during the periods of winter range use by big game and calving by elk, much of the development activity would be pushed into the late summer and fall hunting seasons. Therefore, the construction, drilling, and completion phases of the exploratory well and any subsequent wells, and the associated traffic, noise, and dust along the access route, could make the area less attractive, or unattractive, to hunters. The existing permitted outfitter could potentially suffer a loss of business, although the total size of the project is relatively small compared to the overall area that would remain available for guided hunting. Regardless of the number of wells drilled on the pad, the total duration would be relatively short, affecting only one hunting period during the exploratory phase. The duration of the subsequent development phase, if it occurs, is currently unknown, but the additional 21 wells mentioned by Williams could normally be completed within a year.

In order to minimize impacts to visitors, public notices would be posted by the operator at all main access and entry areas. Notices would include when the project is occurring (starting and end date), why the project is being done, who is doing it, where (map), and what is being done. When practicable, construction activities would be scheduled to avoid high-use seasons, such as the fall big game hunting season. Special Recreation Permit (SRP) holders for the Center Mountain area would be notified of the project. Traffic control would be implemented as necessary.

No Action Alternative

This alternative would result in no changes to recreational opportunities.

Riparian and Wetland Areas (includes an analysis on Public Land Health Standard 2)

Affected Environment

Low-lying areas adjacent to Baldy Creek are characterized by shallow groundwater and occasional flood during snowmelt and major rainfall events. In addition, surface runoff collects and settles in depressions along the bank. Narrow bands of riparian vegetation occur along the creek, which runs south of and parallel to CR 328. Riparian species include cottonwoods, willows, young aspen,

dogwood, and alder. Mature blue spruces are also found in this area. Although the buffer width incorporated into lease stipulation GS-CSU-2 includes the proposed pad location, no physical disturbance would occur within the CSU area. Instead, the pad would be located entirely within upland habitat separated from the outer edge of riparian vegetation by a minimum of 150 feet and, especially, by the existing CR 328 roadway and adjacent drainage.

Future facilities could be located on a seep area directly adjacent to and north of CR 328. This area appears to be only seasonally wet since it is lacking obligate wetland vegetation, although it contains the facultative wetland species Baltic rush (*Juncus balticus*) and poison hemlock. The seep area also contains smooth brome (*Bromus inermis*), a non-native perennial grass that is not a wetland indicator species and appears to have been seeded. This area, which may have been excavated during road construction, is functioning to filter stormwater runoff from the hillside and road.

Environmental Consequences

Proposed Action

Although proposed surface-disturbing activities would include portions of the area along Baldy Creek protected by lease stipulation GS-CSU-2, direct impacts to riparian or wetland areas would not occur due to the location of the pad in upland habitat and separated from the creek by CR 328.

Potential indirect impacts associated with the Proposed Action could result from surface-disturbing activities associated with pad construction and from increased traffic on the nearby road. Short-term impacts would be minimized by managing stormwater, stockpiling topsoil, controlling erosion, and promptly rehabilitating disturbed surfaces, as required by the COAs included in Appendix A. Long-term protections would be achieved by a reduction in pad size during interim reclamation, ongoing road and pad maintenance to reduce erosion, and remediation of any media contaminated by accidental spills or releases of chemical pollutants.

Potential adverse impacts from increased transport of sediments by runoff or aerial deposition of airborne dust from CR 328 would be minimized by BLM's requirement for application and maintenance of a minimum 6-inch gravel surface and periodic dust abatement using fresh water.

No Action Alternative

Under the No Action Alternative, none of the proposed development would occur. Consequently, no new project-related impacts to wetlands or riparian vegetation are anticipated.

Analysis on Public Land Health Standard 2 for Riparian Systems

The Divide Creek LHA conducted in 2009 determined that all 19 lotic areas assessed were meeting Standard 2 for healthy riparian areas, including the upper and lower reaches of Baldy Creek. Since the project would not directly affect Baldy Creek, it would not contribute to the failure of the area to meet Standard 2.

Socio-Economics

Affected Environment

The project area is located within Garfield County, Colorado. The population of Garfield County grew by an average of approximately 3% per year from 2000 to 2005, resulting in an increase from 44,236 to

50,379 residents (DOLA 2010). Population growth in Garfield County is expected to more than double over the next 20 years from over 50,000 in 2005 to 106,549 in 2025 (DOLA 2010).

In the year 2009, industry groups in Garfield County with the highest percentage of total employment were construction 15%, tourism 12%, retail trade 13%, and education and health 20 % (Colorado Department of Labor and Employment 2010). An estimated 13.3% of the population was retired in the year 2000 and did not earn wages (Garfield County 2000). Employment in agriculture, forestry, hunting, and mining accounted for 8% of total employment.

Personal income in Garfield County has also risen, growing from \$504 million in 1990 to \$2.2 billion in 2008 (US Department of Commerce 2008). Annual per capita income has grown in the same period; from about \$19,354 to \$40,166 (US Department of Commerce 2008), and the average earnings per job in 2005 was approximately \$37,500 (Garfield County 2007). The communities of Parachute, Silt, and Rifle are the most affordable for housing, while Battlement Mesa, New Castle, and Glenwood Springs are the least affordable, with the cost to rent or own similar housing 50% higher or more (BLM 2006).

Activities on public lands 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. Big-game hunting, in particular, is viewed as critical to Garfield County, and especially the local community economies that depend on BLM and Forest Service public lands where most hunting occurs (BLM 2006). Expenditures by hunters in the Roan Plateau Planning Area have been estimated to be as much as \$1 million annually, with perhaps an additional \$1 million annually of indirect and local expenditures (CDOW 1995, cited in BLM 2006).

The growth of the oil and gas industry has been increasingly important to local economies (BLM 2006). Production of natural gas in Garfield County has increased tremendously during from 70,309,038 (MCF) in 2000 to 575,697,025 (MCF) in 2009 (COGCC 2010). In addition, Garfield County is experiencing the fastest oil and gas development in Colorado, with more than 2,000 drilling permits, including both Federal and private wells, approved between July 2009 and September 2010 (COGCC 2010). While the number of workers employed in the mining and extraction industry in Garfield County is only about 1.7% of the total workforce, this number is misleading because some oil and gas employment has been incorporated as part of the construction sector statistics instead (BLM 2006). For example, in the year 2005, an estimated 4,000 persons were directly employed by oil and gas development companies and their subcontractors in Garfield County (Garfield County 2009).

The Federal government makes “Payments in Lieu of Taxes” (PILT) to County governments to help offset property tax revenue lost of nontaxable Federal lands within County boundaries (BLM 2006). Payments are based on Federal acreage in the County for all land management agencies, including BLM, U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), and National Park Service (NPS). The amount may also be adjusted based on population and as appropriated by Congress. By formula, payments are decreased as other Federal funds, such as mineral royalty payments, increase. PILT received by Garfield County in the last five years has been as follows: \$808,348 in 2005; \$1,065,158 in 2006; \$1,078,087 in 2007; and \$1,078,521 in 2008; \$1,808,984 in 2009 (USDI 2010).

In addition to PILT payments, BLM shares revenue generated by commercial activities on public lands with State and County governments (BLM 2006). 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. Half the royalty receipts are distributed to Colorado; the amount distributed to Garfield County in 2002 was \$14.1 million, compared to \$5.5 million in 2001 (BLM 2006). These funds are then allocated to fund County services, schools, and local communities.

Property tax revenue from oil and gas development has become the largest source of public revenue in Garfield County. In 2009, oil and gas assessed valuation in Garfield County amounted to approximately \$3.8 billion, or about 74% of total assessed value. Total revenues from property taxes and special district levies were \$130 million. Tax dollar distributions in 2009 were Schools 30.4%, County 32.3%, Special Districts 14.3%, Fire Districts 12.3%, Colleges 8.9%, and Towns 1.7% (Garfield County 2009).

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 Latino community is the only minority population of note in the vicinity of the project area. In 2000, 16.7% of the residents of Garfield County identified themselves as Hispanic or Latino, and this is consistent across the State (17.1%). African Americans, American Indians, and Pacific Islanders account for less than 1% of the Garfield County population, which is below the State levels (Garfield County 2000).

Environmental Consequences

The Proposed Action would positively impact 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 experience an increase in tax and royalty revenues. Some minor economic loss to a permitted outfitter and guide may result from the potential displacement of big game and resulting reduction in big game hunting within the project area.

The Proposed Action could result in negative social impacts, including a change in the recreational, a reduced scenic quality, increased levels of fugitive dust, and increased traffic volumes.

No Action Alternative

With no additional construction or drilling work occurring on public lands, the present economic conditions would change in only a minor way, subject to any additional drilling on nearby private land. Little if any expansion of job opportunities would occur except as related to the general population growth of the region, which has slowed in recent years due to the economic downturn. Local governments would not benefit from Federal mineral royalties generated by the Proposed Action. This alternative would cause only nominal social impacts. Because there would be little change in the existing recreational character of the area, further reductions in the scenic quality of the area would not occur, and dust levels and traffic would not increase.

Soils (includes an analysis on Public Land Health Standard 1)

Affected Environment

The area is located in the Divide Creek valley, at elevations between approximately 7,500 and 8,000 feet. The Proposed Action area would occur entirely on the Torrifluvents soil type, comprising deep, well drained to somewhat poorly drained soils formed in floodplains (USDA 1985). Surface layers range from loamy sand and fine sandy loam to silty loam and clay loam; underlying layers are stony loam or loam stratified with sand, gravel, and cobbles. This soil supports riparian vegetation. The water table is typically 2 to 4 feet below the ground surface. Soils may become saturated or inundated during spring snowmelt and runoff peaks. Slopes range from less than 1% on valley floors to steeper than 20% on adjacent mountain slopes. Erosion hazard of the proposed CMU 22-7 pad is slight to moderate because its location in a generally well vegetated area and on relatively gentle terrain.

Environmental Consequences

The Proposed Action would involve surface disturbance for the access road, road improvements, well pad, and pipelines and would result in approximately 12 acres of short-term vegetation loss and soil compaction and displacement. Long-term loss following interim reclamation of the pad and reclamation of temporary disturbance areas for the road and pipelines would be reduced to less than 2 acres. In general, vegetation buffers and low to moderate slopes in the area affected by the Proposed Action would reduce the potential for sediment transport to Baldy Creek and the Colorado River. Construction activities would cause mixing of soil horizons, slight to moderate increases in local soil loss, loss of soil productivity, and increased sediment available for transport to surface waters. Infestations of noxious weeds resulting from soil disturbance would also affect soil productivity. The potential for soil transport to surface waters would increase as a function of slope, proximity to streams, and type of disturbance.

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

No Action Alternative

The No Action Alternative result in no impacts to soils, because none of the surface-disturbing activities included in the Proposed Action would occur.

Analysis on Public Land Health Standard 1 for Upland Soils

Standard 1 for upland soils was being met at all 58 upland sites assessed during the Divide Creek LHA (BLM 2009), although some minor problems were observed, including evidence of pedestalling, gullying, less litter than expected, and the presence of a compaction layer. The Proposed Action would result in disturbance of native soils. However, measures attached as COAs (Appendix A) for controlling erosion and revegetating disturbances would minimize long-term impacts to soil volume and productivity. Therefore, the Proposed Action is not expected to contribute to a failure of the area to meet standards.

Special Status Species (includes an analysis on Public Land Health Standard 2)

Federally Listed, Proposed, or Candidate Plant Species

Affected Environment:

According to the latest information available online from the USFWS, the following Federally listed, proposed, or candidate plant species may occur within or be impacted by actions occurring in Garfield County: Parachute beardtongue (*Penstemon debilis*), DeBeque phacelia (*Phacelia submutica*), Colorado hookless cactus (*Sclerocactus glaucus*), and Ute ladies'-tresses orchid (*Spiranthes diluvialis*).

Environmental Consequences

Proposed Action

Results of a plant survey conducted in May 2011 indicate no habitat for Federally listed, proposed, or candidate plants in the project area. Therefore, the project would have “**No Effect**” on these species.

No Action Alternative

Because of the lack of potential habitat for any Federally listed, proposed, or candidate plant species in the project area, no impacts to these species would result from implementation of the No Action Alternative.

Federally Listed, Proposed, or Candidate Animal 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 summarized below:

Canada Lynx (*Lynx canadensis*). Federally listed as threatened. Canada lynx occupy high-latitude or high-elevation coniferous forests characterized by cold, snowy winters and an adequate prey base (Ruggiero et al. 1999). The preferred prey of Canada lynx throughout their range is the snowshoe hare (*Lepus americanus*). In the western United States, lynx are associated with mesic forests of lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen in the upper montane and subalpine zones, generally between 8,000 and 12,000 feet in elevation. Although snowshoe hares are the preferred prey in Colorado, lynx also feed on other species such as the mountain cottontail (*Sylvilagus nuttallii*), pine squirrel (*Tamiasciurus hudsonicus*), and dusky grouse (*Dendragapus obscurus*).

The U.S. Forest Service (USFS) has mapped suitable denning, winter, and other habitat for lynx within the White River National Forest (WRNF), portions of which are adjacent to BLM lands within the CRVFO. The mapped suitable habitat in the WRNF comprises several areas known as Lynx Analysis Units (LAUs). Several LAUs border BLM lands along the I-70 corridor from east of Wolcott to west of DeBeque. While BLM lands within the CRVFO area are generally not suitable habitat, they may support movement by animals dispersing to a new area or, potentially, moving to lower elevations during severe winter weather in search of prey. The project area does not border the Divide Creek LAU and therefore will not be considered further in this document.

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

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*). Candidate for Federal listing. This secretive species occurs in mature riparian forests of cottonwoods and other large deciduous trees with a well-developed understory of tall riparian shrubs. Western cuckoos breed in large blocks of riparian habitats, particularly woodlands with cottonwoods (*Populus fremontii*) and willows (*Salix* sp.) Riparian areas in the project area do not provide suitable habitat for this species due to the patchy nature of the

stands and the general lack of a tall-shrub understory. Because no known occurrences or suitable habitats are present in the project vicinity, this species is not considered further.

Razorback Sucker (*Xyrauchen texanus*), Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), and Bonytail (*G. elegans*). Federally listed as endangered. These four species of Federally listed Colorado River fishes occur within the Colorado River near or downstream from the town of Rifle. Designated Critical Habitat for the razorback sucker and Colorado pikeminnow includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle. The nearest known habitat for the humpback chub and bonytail is within the Colorado River approximately 70 miles downstream from the town of Rifle at Black Rocks near the Colorado Utah border

Greenback Cutthroat Trout (*Oncorhynchus clarkii stomias*). Federally listed as threatened. The greenback cutthroat trout was not identified on the USFWS list for Garfield County; however, recent surveys have identified a population in Cache Creek, located several drainages southwest of the town of Rifle. It is unclear as to the true range of greenbacks in Colorado and genetic testing is currently being conducted to determine cutthroat lineage distributions across the state. In the meantime, populations that appear to be greenbacks are being treated as such with regard to their threatened status and compliance with the Endangered Species Act. However, because drainages within the project area do not support this species, it is not considered further.

Environmental Consequences

Proposed Action

The Canada lynx, Mexican spotted owl, western yellow-billed cuckoo, and greenback cutthroat trout are not expected to occur in the project vicinity based on habitat types present and documented occurrences. Therefore, the Proposed Action would have “**No Effect**” on these species.

However, the Proposed Action could affect the four endangered big-river fishes as a result of depletions from the Colorado River and tributaries due to withdrawals for drilling, completion, and dust abatement. The initial exploratory well is estimated to result in a depletion of 0.7 acre-feet of water. 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**” the Colorado pikeminnow, bonytail, humpback chub, or razorback sucker as a result of depletions associated with oil and gas projects. To offset the impacts, the BLM has set up a Recovery Agreement, which includes a one-time fee per well. This well and its 0.7 acre-foot depletion amount 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. These fees are used for site-specific mitigation projects, and contribute to the recovery of these endangered fish 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.

Other potential impacts to these species include inflow of sediments from areas of surface disturbance and inflow of chemical pollutants related to oil and gas activities on the well pads, associated with ancillary surface facilities, or resulting from an accident involving a haul truck in proximity to a stream. Stormwater controls required for the protection of surface water quality would also apply to the protection of aquatic organisms (see COAs in Appendix A).

Even if sediment inflow were to occur, including incidental aerial deposition of fugitive dust from roadways and construction areas, these fishes are adapted to the naturally high sediment loads that characterize the Colorado River and its tributaries. Inflow of chemical pollutants is a very infrequent event due to the various design requirements imposed by BLM and the COGCC. However, in the event of a spill or accidental release, the operator is required to implement its Spill Prevention, Control, and Countermeasure (SPCC) plan, including such cleanup and mitigation measures as required by BLM or the State. For these reasons, and because the potential for spills or other releases in quantities that would be deleterious, or even detectable, upon rapid dilution in the Colorado River, the potential for impacts from chemical releases is not considered significant.

No Action Alternative

Under the No Action Alternative, none of the project components would be approved or implemented. Consequently, this alternative would result in no depletions of flows and “No Effect” on the four endangered big-river fishes.

BLM Sensitive Plant Species

Affected Environment

BLM sensitive plant species with habitat and/or occurrence records in Garfield County include DeBeque milkvetch (*Astragalus debequaeus*), Naturita milkvetch (*Astragalus naturitensis*), Piceance bladderpod (*Lesquerella parviflora*), Roan Cliffs blazing star (*Mentzelia rhizomata*), Harrington’s penstemon (*Penstemon harringtonii*), and Cathedral Bluffs meadow-rue (*Thalictrum heliophilum*).

Environmental Consequences

Proposed Action

Results of a May 2011 plant inventory indicate no BLM sensitive plant species or their habitats in the vicinity of the project.

No Action Alternative

Since no BLM sensitive plant species occur in the project area, no impacts to these species are anticipated.

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 10. Species with the potential to occur within the project area and vicinity are described following the table.

Environmental Consequences

Proposed Action

Fringed Myotis (*Myotis thysanodes* and Townsend’s Big-eared Bat (*Corynorhinus townsendii*) – 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.

Table 10. Special-Status Wildlife Species Present or Potentially Present in the Project Area		
<i>Common Name</i>	<i>Habitat</i>	<i>Potential for Occurrence</i>
Fringed myotis, Townsend's big-eared bat	Breed and roost in caves, trees, mines, and buildings; hunts over pinyon-juniper, montane conifers, and semi-desert shrubs.	Possible
Northern goshawk	Predominantly uses spruce/fir forests but also use Douglas-fir, various pines, and aspens.	Possible
Bald eagle	Nests and roosts in mature cottonwood forests along rivers, large streams, and lakes.	No suitable habitat
Brewer's sparrow	Nests in well-developed sagebrush shrublands, including mountain parks; occasionally found in alpine willow stands.	No suitable habitat
Midget faded rattlesnake	Limited to high, cold desert areas dominated by sagebrush and with an abundance of rock outcrops or exposed canyon walls.	No suitable habitat
Great Basin spadefoot	Breeds in seasonal streams and ponds in areas of pinyon-juniper woodland or semi-desert shrubland.	No suitable habitat
Northern leopard frog	Inhabits wet meadows, marshes, slow-flowing streams, and the shallows of glacial kettles, beaver ponds, and lakes.	Limited suitable habitat
Colorado River cutthroat trout	Restricted to small headwaters streams isolated from introductions or colonization by non-native trouts.	Present in Baldy Creek on State and private lands
Flannelmouth sucker, bluehead sucker, and roundtail chub	Adult flannelmouth suckers and roundtail chubs generally restricted to rivers and major tributaries. Juveniles of these species and bluehead suckers of all sizes in smaller, lower elevation streams.	Present in the mainstem Colorado River and Divide Creek

Northern Goshawk (*Accipiter gentilis*) – 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.).

Northern Leopard Frog (*Rana pipiens*) – The northern leopard frog is limited to perennial waters, including ponds and slow-flowing perennial streams or persistent portions of intermittent streams. They require ponds or streams with good water quality and abundant aquatic or shoreline vegetation. The project would not involve habitat disturbance near water sources known to contain northern leopard frog populations, impacts to this species are not expected.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) – Remaining populations of this subspecies of cutthroat trout occur mostly in headwater streams and lakes of the Colorado River drainage. This species is found in Baldy Creek upstream of the project site on private and state lands located between BLM parcels in the headwaters and lower portions of the drainage. Because of the potential for the Colorado River Cutthroat trout and habitat to be impacted by the Proposed Action, precautions will be taken in the form of the Controlled Surface Use Stipulation (GS-CSU-02): Protection of Riparian and

Wetland Zones and via additional Protective COAs (Appendix A) to address stormwater management, pollution/spill prevention, and spread of disease prevention.

Flannemouth Sucker (*Catostomus latipinnis*), Bluehead Sucker (*C. discobolus*), and Roundtail Chub (*Gila robusta*) – As with the ecologically similar Colorado River endangered fishes described above, the flannemouth sucker, bluehead sucker, and roundtail chub are adapted to naturally high sediment loads and therefore would not be affected by any increased sediment transport to the Colorado River. Protective COAs for water quality (Appendix A) would minimize this potential, and the potential for flow of chemical pollutants into area streams. Also similarly to the endangered big-river fishes, these species are vulnerable to alterations in flow regimes in the Colorado River that affect the presence of sandbars and seasonally flooded overbank areas needed for reproduction. The small amount of water consumption associated with the Proposed Action would not cause discernible impacts to flows in the Colorado River.

No Action Alternative

Under the No Action Alternative, none of the components of the Proposed Action would be approved or implemented. Consequently, no adverse impacts to sensitive fish and wildlife species are expected.

Analysis on Public Land Health Standard 4 for Special Status Species

According to the Divide Creek LHA (BLM 2009), qualitative information suggests all sites with potential special status species habitat were in good condition, providing healthy and productive habitat. Based on the overall condition of upland and riparian habitats located on public lands, suitable habitat is available for BLM sensitive plant and terrestrial wildlife species within the Divide Creek LHA. Thus, Standard 4 for BLM sensitive terrestrial wildlife species is being met within the Divide Creek watershed.

However, the habitat alteration associated with the Proposed Action would likely contribute to a declining trend and help to reduce the potential for meeting or maintaining Standard 4 for special status species over the long-term. With the implementation of the mitigation measures identified in this section and elsewhere in the EA, Standard 4 for special status species and their habitats would be achieved, but populations could be at risk with increasing natural gas development.

Vegetation (includes an analysis on Public Land Health Standard 3)

Affected Environment

Vegetation in the project area consists primarily of dense oakbrush (*Quercus gambelii*), chokecherry (*Prunus virginiana*), and serviceberry (*Amelanchier alnifolia*), three species of tall shrubs common at similar elevations throughout the region. Some of these shrubs reach 25 feet in height. Lower growing shrubs such as roundleaf snowberry (*Symphoricarpos rotundifolius*) and currant (*Ribes* sp.) are also present. Young quaking aspen (*Populus tremuloides*) trees are present in the lower portion of the project area. Dominant understory species include elk sedge (*Carex geyeri*), Oregon grape (*Mahonia repens*), wild strawberry (*Fragaria vesca*), and cinquefoil (*Potentilla* sp.).

A few mature Engelmann spruce (*Picea engelmannii*), blue spruce (*P. pungens*), and Douglas-fir (*Pseudotsuga menziesii*) trees occur across the slope and above the existing county road near the proposed road and pad. The majority of these trees would be avoided during construction activities. However, a few trees within the proposed pad footprint would be lost, because the pad could not be repositioned on the slope owing to a lack of other suitable sites. Narrow bands of riparian vegetation occur along Baldy Creek including species such as narrowleaf cottonwood (*Populus angustifolia*), willow (*Salix* spp.),

young aspen, thinleaf alder (*Alnus incana*), and red-osier dogwood (*Cornus sericea*). No construction would occur within the riparian corridor.

Environmental Consequences

Proposed Action

Construction of the proposed pad, pipeline, and access road would result in both direct and indirect effects on vegetation. Direct effects would include short and long-term loss of vegetation and long-term modification of community structure and composition. Indirect effects could include increased potential for noxious weed invasion, increased soil erosion and sedimentation, reduced wildlife habitat quantity or quality, and changes in fire regime.

The Proposed Action would result in the short-term loss of approximately 12 acres of vegetation on BLM land, of which somewhat less than 2 acres would remain unreclaimed during the life of the wells. With implementation of standard COAs (Appendix A), desirable forbs and grasses on the unused portions of the pad, road, and pipeline could be established within 2 to 3 years. However, because of periodic workovers and the potential for additional well bores in the future, it is likely that vegetation would remain in an early seral stage for the life of the wells.

Although vegetation would regenerate over time, this process could take several decades, depending on the growth and persistence of seeded species and the intensity of grazing by livestock or wildlife. This would result in an increase in the proportion of herbaceous (i.e., non-woody) species in the areas of disturbance. The success or failure of revegetation would affect other resources including soils, surface water quality, wildlife, visual resources, and livestock grazing.

No Action Alternative

Under the No Action Alternative, none of the proposed 12.0 acres of ground disturbance on BLM land would occur; therefore, there would be no impacts to vegetation under No Action Alternative.

Analysis on Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial)

This area was meeting the standard, although problems were noted. These included invasive weeds, inadequate litter cover, and the decline in diversity and abundance of functional groups such as cool-season perennial grasses and perennial forbs. Noxious weeds and undesirable species varied in distribution and cover throughout the Divide Creek landscape.

Due to the intensity of uses and activities occurring in the landscape, noxious weeds were common on a number of sites, particularly at the lower elevations. Noxious weeds such as houndstongue, whitetop, musk thistle, and Canada thistle were locally common but only in scattered areas across the overall landscape. Other undesirable non-natives such as Kentucky bluegrass and dandelions were fairly common in the mixed mountain shrub communities at middle elevations.

Surface disturbance associated with the Proposed Action has the potential to encourage expansion and dominance of the site by invasive, non-native species. Appendix A includes provisions to revegetate the disturbances with native species and to control noxious weeds. If successfully revegetated, the Proposed Action would not contribute to the failure of the area to meet Standard 3.

Visual Resources

Affected Environment

The Proposed Action would take place on public lands along the toe of the southwest-facing slope of Center Mountain, approximately 7 miles southeast of New Castle, Colorado. This area is classified as Visual Resource Management (VRM) Class IV, as identified by the 1984 Glenwood Springs RMP. The objectives for VRM Class IV, as defined in BLM Manual H-8410-1 – Visual Resource Inventory (BLM 1986), are described below.

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

The existing landscape consists of moderate to steep hillsides rising from the Baldy Creek drainage. Center Mountain rises directly to the east of the project area. The Proposed Action would occur on the southwest facing slope of Center Mountain. The area is characteristic of scattered rural agricultural/ranching land and some oil and gas development to the north and south. Vegetation consists predominantly of dense oakbrush shrublands (serviceberry and chokecherry) with scattered mature Engelmann spruce, blue spruce, and Douglas-fir on the south-facing aspect of Center Mountain. In contrast, the north-facing aspect directly west of Center Mountain consists of dense spruce-fir stands bordering Baldy Creek and along the ridgelines extending toward Baldy Creek from an unnamed mountain to the west of Center Mountain. Groves of aspen groves and patches of oakbrush-serviceberry are interspersed within the spruce-fir. Narrow bands of riparian vegetation occur along Baldy Creek.

The Proposed Action would occur on BLM-administered lands (See Figure 8). The visual resource analysis area includes CR 328. This viewshed is important, as it is viewed by people who ranch and recreate in the area. 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 easily noticed by the casual observer.

The visual impact analysis for this project is based on the views from four Key Observation Points (KOPs) representing four linear viewer locations representing the viewing angle and direction with the highest frequency of viewers (Figure 8).

KOP 1 (Figure 9) is located along CR 328 just north of the project Location. KOP 1 represents the first location where viewers would see the project while traveling south on CR 328).

KOP 2 (Figure 10) is located on CR 328 directly southwest from the project location. KOP 2 represents the location where the project would be most visible to viewers traveling south or north along CR 328.

KOP 3 (Figure 11) is located on CR 328 where the access road would begin. KOP 3 would be visible to viewers traveling south or north along CR 328.

KOP 4 (Figure 12) is located on CR 328 in the area where the proposed pipeline would tie-in to the ETC pipeline. KOP 4 would be visible to viewers traveling south and north along CR 328.

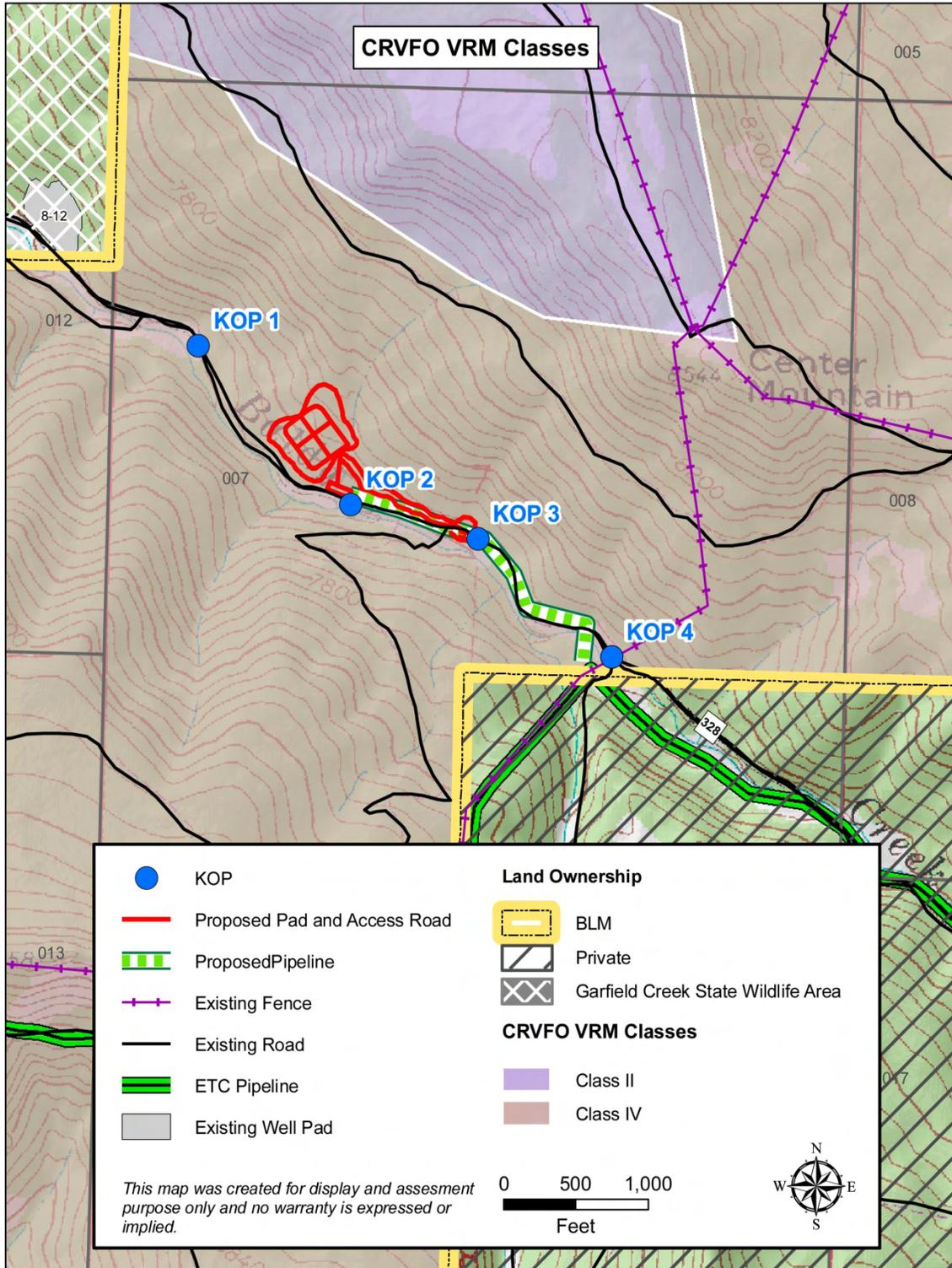
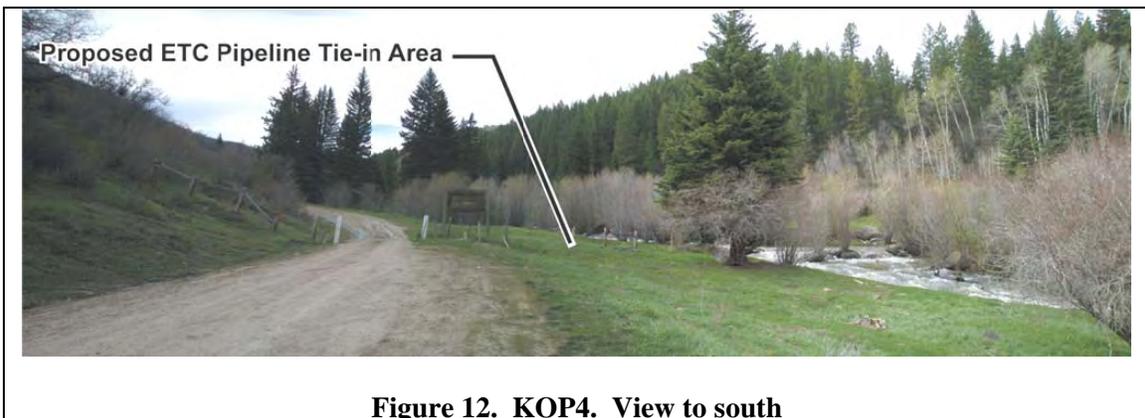
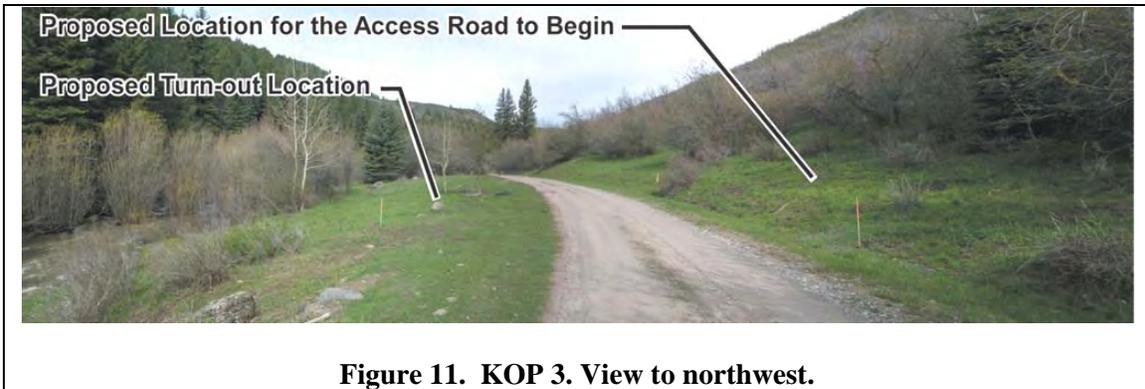
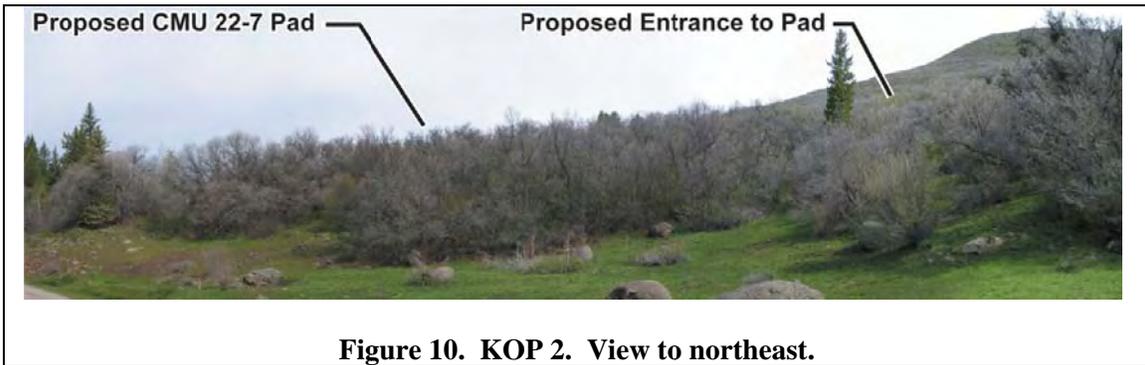
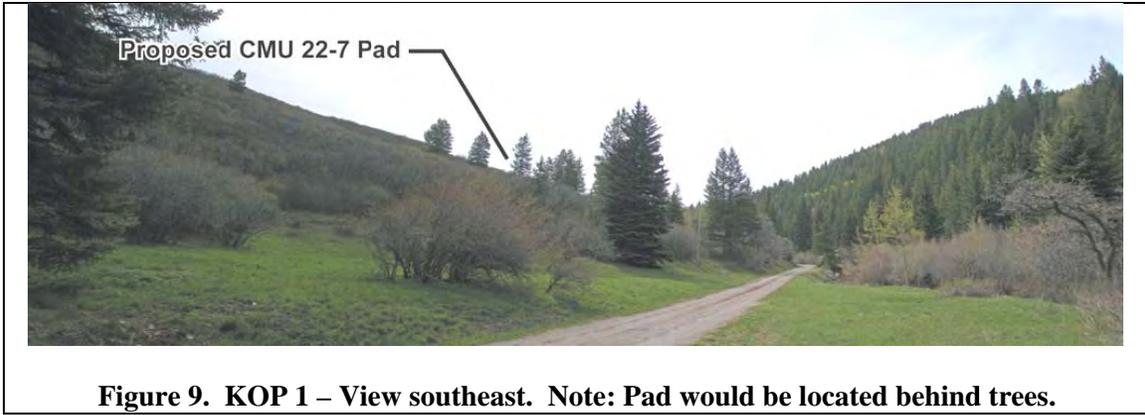


Figure 8. Project in Relation VRM Class Designations.



Environmental Consequences

Proposed Action

The planning process involved several site visits where layout locations for the pad, access road, and pipeline were reviewed. The project was designed to utilize existing terrain to minimize the amount of surface disturbance as much as possible.

The Proposed Action would create visual contrast within the immediate landscape by removing the existing vegetation, exposing bare ground, and creating a series of distinct lines and colors within the landscape. Such visual changes would be most evident during construction and completion activities. Once the well is put into production and the pad is recontoured and vegetation is re-established, the overall visual contrast and texture of the site would be expected to blend with the surroundings. Short-term visual impacts would include light pollution, dust, and increased traffic from construction, drilling and completion activities.

Such impacts should be adequately mitigated by proper utilization of the standard COAs.

The total short-term disturbance related to the Proposed Action would amount to 12 acres (pad, access road, production equipment area, and pipeline corridor) with the long-term disturbance after site reclamation and successful revegetation amounting to less than 2 acres.

No Action Alternative

Under the No Action Alternative, none of the components of the Proposed Action would be approved. The existing visual environment would remain in its current condition, with no new or additional impacts to scenic quality or visual resources.

Wastes, Hazardous or Solid

Affected Environment

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

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

- The Oil Pollution Act (Public Law 101-380, August 18, 1990) prohibits discharge of pollutants into waters of the US, which by definition would include any tributary, including any dry wash that eventually connects with the Colorado River.
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Public Law 96-510 of 1980) provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment. It also provides national, regional, and local contingency plans. Applicable emergency operations plans in place include the National Contingency Plan (40 CFR 300, required by section 105 of CERCLA), the Region VIII Regional Contingency Plan, the Colorado River Sub-Area Contingency Plan (these three are Environmental Protection Agency produced plans), the Mesa County Emergency Operations Plan (developed by the Mesa County Office of Emergency Management), and the BLM Grand Junction Field Office Hazardous Materials Contingency Plan.
- The Resource Conservation and Recovery Act (RCRA) (Public Law 94-580, October 21, 1976) regulates the use of hazardous substances and disposal of hazardous wastes. Note: While oil and gas lessees are exempt from RCRA, right-of-way holders are not. RCRA strictly regulates the management and disposal of hazardous wastes.

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

Environmental Consequences

Proposed Action

Possible pollutants that could be released during the construction phase of this project would include diesel fuel, hydraulic fluid, and lubricants. These materials would be used during construction of the pads, roads, and pipelines, and for refueling and maintaining equipment and vehicles. Potentially harmful substances used in the construction and operation phases would be kept onsite in limited quantities and trucked to and from the site as required. No hazardous substance, as defined by 40 CFR 355 would be used, produced, stored, transported, or disposed of in amounts above threshold quantities.

Waste generated by construction activities would not be exempt from hazardous waste regulations under the oil and gas exploration and production exemption of RCRA. Exempt wastes would include those associated with well production and transmission of natural gas through the gathering lines and the natural gas itself.

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

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

Surface water or groundwater could be impacted under the Proposed Action. Pollutants that might be released during the operational phase of the project could include condensate, produced water (if the wells in the area produce water) and glycol (carried to the site and used as antifreeze). While uncommon, an accident could occur that could result in a release of any of these materials. A release could result in contamination of surface water or soil. Improper casing and cementing procedures could result in the contamination of groundwater resources. In the case of any release, emergency or otherwise, the responsible party would be liable for cleanup and any damages. Depending on the scope of the accident, any of the above referenced contingency plans would be activated to provide emergency response. At a minimum, the BLM Grand Junction Field Office contingency plan would apply.

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

No Action Alternative

Under this alternative, the components of the Proposed Action would not be approved or implemented. Therefore, no new, project-related increases in potential impacts from hazardous or solid wastes would be expected.

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

Surface Water

Affected Environment

The proposed activities for CMU22-7 including pad construction, pipeline and access road would occur within the Baldy Creek USGS 6th-code hydrologic unit watershed which drains to Garfield Creek and ultimately into the Colorado River approximately 7 miles to the North of the project. According to the *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission [WQCC] Regulation No. 37) (CDPHE 2007), the mainstem of Baldy Creek and including all tributaries and wetlands which drain to the creek are within segment 7a. Following is a brief description of segment 7a.

- Segment 7a – This segment has been classified as aquatic life cold 1, recreation E, water supply, and agriculture. Aquatic life cold 1 indicates that this water course is currently capable of sustaining a wide variety of cold water biota, including sensitive species, or could sustain such biota but for correctable water quality conditions. Recreation class E refers to waters with existing primary contact uses. This segment is suitable or intended to become suitable for potable water supplies and agricultural purposes that include irrigation and livestock use.

Streams within segment 7a are not on the State of Colorado 303(d) *List of Impaired Waters and Monitoring and Evaluation List* (CDPHE, WQCC Regulation No. 93) (CDPHE 2010). Baldy Creek is important as a perennial waterway supporting Colorado cutthroat trout. No historical water quality data is available from USGS on Baldy Creek but the data has been collected for the small perennial creek to the west of the site. Data were also collected from the Colorado River near Rulison, which is downstream of the confluence of Baldy Creek with the Colorado River (Table 11).

Northern Goshawk (*Accipiter gentilis*) – 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.).

Table 11. Selected Water Quality Data for Two Sampling Locations near the project area		
Parameter	Divide Creek near Silt CO, USGS Site #393225107372001 10/13/2003	Colorado River below Rulison CO, USGS Site #09092570 4/8/1977
Instantaneous discharge (cfs)	1.1	1,560
Temperature, water (°C)	11.5	11
Field pH (standard units)	8.5	8.1
Specific conductance (µS/cm/cm at 25°C)	1,020	1,200
Total Dissolved Solids (mg/L)	988	733
Hardness as CaCO ₃ (mg/L)	622	250
Chloride (mg/L)	41.0	230
Selenium (µg/L)	606	1
Dissolved oxygen (mg/L)	9	10
Note: NA is 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).

Environmental Consequences

Proposed Action

The Proposed Action would result in approximately 12 acres of surface disturbance, of which less than 2 acres would be unreclaimed during the life of the wells. The location of the pad, access road and pipeline have the potential to impact Baldy Creek. Potential impacts 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 well and facility pads, roads, and pipelines cause loss of vegetation cover, soil compaction and displacement, increased volume and velocity of runoff, and increased sedimentation and salinity in surface waters. Initially 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. Additionally, tanks used to store produced water and condensate would be placed in secondary containment to prevent offsite release. 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. A separate gated culvert will be installed to drain water from the pad and will be closed in the event of a spill. Pipelines associated with the transport of these liquids would be pressure tested to detect leakage prior to use. Cuttings management areas must be decontaminated to COGCC standards prior to pit closure.

Implementation of the standard and site specific COAs for mitigating impacts to surface waters (Appendix A) would minimize risks of adverse impacts associated with construction and ongoing production activities.

No Action Alternative

Under this alternative, the components of the Proposed Action would not be approved or implemented. Therefore, no new, project-related impacts to surface waters are anticipated.

Waters of the U.S.

Affected Environment

Waters of the U.S. located in the project vicinity are Baldy Creek and ultimately to 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. The existing access road parallels and crosses Baldy Creek. New activities or maintenance activities at this crossing would require a permit under Section 404 of the Clean Water Act prior to discharging dredged or fill material into waters of the U.S. as defined by 33 CFR Part 328. Larger discharges would require an individual permit, while smaller discharges may be authorized under an existing nationwide permit (NWP).

Environmental Consequences

Proposed Action

No new crossings of waters of the U.S. are included in the pad construction or road improvements in the Proposed Action. Any upgrades to pipeline crossings of drainages within the project would be authorized by the USACE. A COA listed in Appendix B required that the operator obtain a formal jurisdictional determination by USACE prior to any construction that could affect Waters of the U.S., and verification that the impacts do not require a permit.

Improperly designed and improperly installed culverts, could result in soil degradation, including erosion at culvert outlets. This could potentially supply sediment to the Colorado River approximately 7 miles to the North. However, standard and site-specific surface-use COAs listed in Appendix A would be implemented to protect Baldy Creek the Colorado River, and any other waters of the U.S. potentially impacted by long-distance stormflow transport.

No Action Alternative

Under this alternative, the components of the Proposed Action would not be approved or implemented. Therefore, no new, project-related impacts to waters of the U.S. are anticipated.

Groundwater

Affected Environment

The Lower Piceance Basin contains both alluvial and bedrock aquifers (CGS 2003). Unconsolidated alluvial aquifers are the most productive aquifers in the region (EPA 2004) and are defined as narrow, thin deposits of sand and gravel formed primarily along stream courses, in this case, along the Colorado River and its tributaries. Alluvial well depths are generally less than 200 feet, and water levels typically range between 100 to 150 feet. Well yield is dependent upon the intended use of the well, well construction design, sediment type and saturated thickness. Domestic use wells are limited to 15 gallons per minute (gpm) administratively, while municipal wells are designed and constructed for maximum potential yield.

Underlying the alluvial aquifer systems is a confining unit which consists of the lower two members of the Green River Formation, and the Wasatch Formation. Although considered a confining unit, some fresh water wells are completed in the discontinuous water bearing sands of the Wasatch Formation, but these water-bearing intervals are considered localized.

Below the Wasatch Formation is the Cretaceous aged Mesaverde aquifer. The depth to the top of this aquifer beneath the project area is more than 5,000 feet below ground surface (bgs), far too deep for economic development. The Mesaverde aquifer is of regional importance, but does not provide recharge into the fresh water system within the shallower groundwater system of the project area.

Water quality of the upper Piceance Basin aquifer unit is relatively good, ranging in total dissolved solid (TDS) levels from 500 to 1,000 milligrams per liter (mg/L). In the lower unit, TDS concentrations increase from 1,000 to 10,000 mg/L along basin flow paths. Waters with TDS values in excess of 1,000 mg/L are generally unsuitable for potable supply. Water suitable for drinking has a Federal secondary standard set at 500 mg/L or less (EPA 2006). The quality of the water in the Mesaverde aquifer is highly variable, with concentrations of dissolved solids ranging from less than 1,000 milligrams per liter in many of the basin-margin areas to more than 10,000 milligrams per liter in the central part of the Piceance Basin (EPA 2004). In general, areas of the aquifer that are recharged by infiltration from precipitation or surface water sources contain relatively fresh water. However, water quality in the Piceance Basin is generally poor overall due to the presence of nahcolite deposits and salt beds found throughout the basin. Only very shallow waters such as those from the surficial Wasatch Formation are used for drinking water (Graham 2001, cited in EPA 2004).

No permitted domestic water wells are located within a mile of the proposed project area. The closest well is located approximately 1.5 miles to the northeast in section 6, T7S, R90W. The well is 68 feet deep with a static water level of 30 and pump rate of 30 gpm. Well depth and static water level are indicative of a well completed in alluvial deposits.

Environmental Consequences

Proposed Action

Potential impacts to groundwater resources from the proposed development would include contamination of the groundwater with produced water, drilling mud, and petroleum constituents. Hydraulic fracturing (fracing) would be incorporated to create additional pathways to facilitate gas production. Propping agents, or proppants, are mixed with both fresh and produced water to help “prop open” the fractures created by fracing. Proppants typically include sand, aluminum, glass, or plastic beads, with less than 1%, of other compounds such as corrosion, friction, and scale inhibitors (EnerMax Inc. 2007). Fracing

techniques are used to create secondary porosity fractures, held open by proppants, allowing the otherwise trapped gas to migrate up the borehole for production. Hydrofracturing would be conducted at 5,000 feet or more below ground surface (bgs). Drilling scenarios are developed to prevent fluids and produced hydrocarbons from migrating upward into fresh water zones. Geologic and engineering reviews are conducted to ensure that the cementing and casing programs are adequate to protect all downhole resources. With the use of proper construction practices, drilling practices, and BMPs, no significant adverse impact to groundwater aquifers is anticipated to result from the project (see Appendix A regarding cementing and casing programs).

No Action Alternative

Under this alternative, the components of the Proposed Action would not be approved or implemented. Therefore, no new, project-related impacts to groundwater resources are anticipated.

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

Affected Environment

Baldy Creek is one of the major tributaries to the Colorado River south of New Castle and I-70. Baldy Creek is a perennial stream providing habitat for a variety of aquatic wildlife species. Based on sampling and existing data, Baldy Creek contains fish and aquatic insects (BLM 2009). Baldy Creek has been identified by CDOW as designated Colorado River Cutthroat Trout Habitat.

Environmental Consequences

Proposed Action

The Proposed Action could have an indirect impact on aquatic wildlife within and downstream from the project area. Soil erosion from construction activities could increase sediment input into Baldy Creek, which could lead to siltation of spawning gravels, smothering of macroinvertebrate habitat, and filling of pools. Contamination from a spill or the use of equipment previously used in another water body without proper disinfection could also affect aquatic wildlife species by the introduction of potentially harmful diseases, both downstream and upstream from the project location. Water depletion, diversion, or the creation of barriers to in-stream movement of aquatic organisms could also adversely impact individuals and populations of these species.

Mitigation measures would include stormwater management control, dust abatement, installation of silt fencing adjacent to the stream, preservation of an undisturbed vegetation buffer between Baldy Creek and CR 328 to act as a filter for sediments, and prompt reclamation to prevent soil erosion. Disinfection practices would be implemented to prevent the transfer of any potentially harmful diseases to aquatic wildlife species. A Spill Prevention, Control, and Countermeasure (SPCC) plan would be required, as described in the section on Hazardous or Solid Wastes, to avoid or quickly control and mitigate accidental spills or releases of chemical pollutants. The plan would cover the area from the CMU 22-7 pad downstream to the intersection of CR 312 and CR 335. During drilling operations, surface casing would be set in place to prevent migration of drilling fluids, fracing fluids, and produced fluids from the borehole into freshwater aquifers or Baldy Creek (see section on Groundwater).

Stipulations attached to the project would include a CSU (Controlled Surface Use) for surface-disturbing activities to provide for special design and implementation within 500 feet of riparian habitat or relocation of project components by more than 200 meters to protect the riparian and aquatic resources.

Refer to Appendix A for standard and site-specific COAs to mitigate impacts to aquatic wildlife and their habitat. The COAs and best management practices (BMPs) associated with construction activities, interim reclamation, spill prevention and control, and measures to prevent contamination or spread of disease between aquatic areas are expected to minimize risks to aquatic wildlife species and habitat.

No Action Alternative

Under the No Action Alternative, the components of the Proposed Action would not be approved or implemented. Therefore, no new, project-related impacts to aquatic resources are anticipated.

Analysis on Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Vegetation and Wildlife, Terrestrial)

Baldy Creek contains primarily Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) in the middle portions of the stream on private and state lands located between BLM parcels situated in the headwaters and lower portions of the drainage. No fish have been observed or collected in the lower BLM section of the creek, near the project location, during recent sampling efforts. However, no identifiable limiting factors have been identified that would preclude fish from inhabiting this portion of Baldy Creek. This perennial stream contains decent year round flows, and in-channel habitat quality is fair to good with a good mix of pools, riffles, and runs. Riparian condition is also good with good cover and species diversity. However, the stream carries large sediment loads, particularly during high runoff periods, and is adjacent to an unpaved road along most of its length.

Given the proximity of the project to the Baldy Creek riparian area, surface disturbance associated with the Proposed Action has the potential to impact the area, with the possibility of increased sediment load and the expansion of noxious weeds. However, Appendix A includes COAs that both prevent degradation of the area as well as provisions for the prompt repair of any damage that may occur from the proposed development. As a result of project design and implementation of these COAs, the Proposed Action should not contribute the a failure of the area to meet Standard 3.

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

Affected Environment

Mammals

The CMU 22-7 project area vicinity is located within CDOW Game Management Unit (GMU) 42. Big game habitats mapped in the vicinity of the project include overall range and summer range for mule deer (*Odocoileus hemionus*) and summer range, winter range, and calving (production) areas for Rocky Mountain elk (*Cervus elaphus nelsoni*)(CDOW 2009)(Figure 13).

Summer range is the portion of overall range in which 90% of individuals are located between spring green-up and the first heavy snowfall (CDOW 2009). Winter range is the portion of overall range in which 90% of 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 (DAU) (CDOW 2009). The Proposed Action would occur within an area of mapped elk winter range that extends along Baldy Creek and portions of adjacent west-facing slopes (Figure 13). As shown by Figure 13, the proposed CMU 22-7 pad location is also within approximately 0.5 mile of an elk calving area mapped by CDOW as extending several miles east and southeast from the site.

CMU 22-7

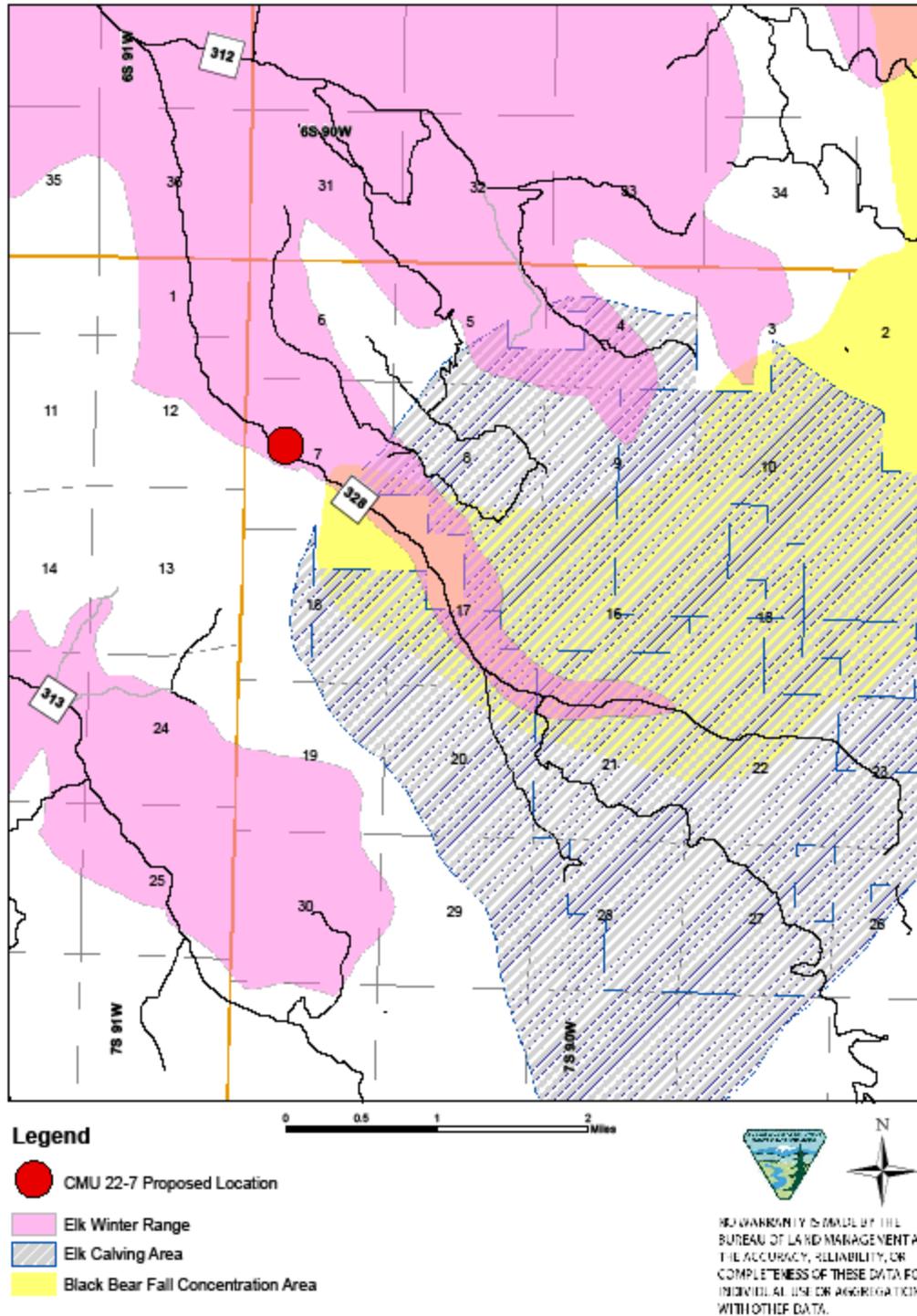


Figure 13. Crucial Wildlife Use Areas

Elk calving areas, typically located in transitional habitats between winter range and summer range, are characterized by a combination of hiding and thermal cover, lush herbaceous forage, accessible surface water to meet the needs of lactating females and their calves, and relatively gentle terrain that facilitates movement by calves while their mobility is limited. Mosaics of conifers, aspen, tall shrubs, and grassy clearings in proximity to a stream, such as are present in the project vicinity, are typical calving habitat. Calving areas are used traditionally, meaning that females tend to use the same areas each year. Mule deer summering on Center Mountain or other areas within and south of the project vicinity migrate northward to lower elevations during fall and remain there until late spring. For deer summering in the project vicinity, winter habitat includes the Garfield Creek State Wildlife Area to the north along Baldy and Garfield Creeks. Elk are also migratory but generally able to winter at higher elevations than deer due to longer legs and greater mobility through deep snow, as well as larger bodies that allow them to tolerate colder temperatures and longer periods when food is scarce. Consequently, elk may remain in the project vicinity during mild winters.

Large carnivores present in the project vicinity include the mountain lion (*Puma concolor*) and black bear (*Ursus americanus*). CDOW (2009) has mapped all of the project vicinity as black bear overall range. In addition, the southeastern part of the area lies approximately 0.5 mile from a large area mapped by CDOW as a black bear fall concentration area (CDOW 2009)(Figure 13). Like the elk calving area, the black bear fall concentration area extends several miles to the east and southeast of the pad site. Black bear fall concentration areas typically provide an abundance of calorie-rich acorns and berries provided by the oaks and rosaceous shrubs (serviceberry, chokecherry). 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 throughout the region in open habitats and broken or wooded terrain, respectively, where they hunt for small mammals, reptiles, and ground-dwelling birds.

Small mammals present within the planning area include rodents such as the mountain cottontail (*Sylvilagus nuttallii*), golden-mantled ground squirrel (*Spermophilus lateralis*), least chipmunk (*Neotamias minimus*), spotted skunk (*Spilogale gracilis*), and ringtail (*Bassariscus astutus*). Rodents and, to a lesser extent rabbits, are the primary prey base for a variety of avian and mammalian predators.

Birds

Birds such as raptors, songbirds, and other nongame species are addressed raptors, and o and Migratory birds, including raptors, potentially present in the project vicinity are discussed in the section on Migratory Birds.

Two upland gamebird species occur in the Center Mountain area, the wild turkey (*Meleagris gallopavo*) and dusky grouse (*Dendragapus obscurus*). The project area is mapped by CDOW as wild turkey overall range and winter range (CDOW 2009). Within the project vicinity, the area is mapped as a wild turkey production area on the upper slopes and top of Center Mountain. The area is below the usual elevational range of the dusky grouse, but vagrants could occasionally use the vicinity for feeding, particularly during winter.

Reptiles and Amphibians

The project area is above the elevational range of most reptile species known to occur in Garfield County. The species most likely to occur is the western terrestrial garter snake (*Thamnophis elegans*), which has the highest elevational distribution of any snake in Colorado and is mostly associated with riparian areas and other mesic sites.

The only amphibian potentially present, besides the northern leopard frog (see section on Special Status Species) is the northern chorus frog (*Pseudacris triseriata*), which is common in lower to middle elevation wetlands, include elevations in the project area and habitats similar to those along portions of Baldy Creek.

Environmental Consequences

Proposed Action

The Proposed Action would result in the initial loss of approximately 12 acres of wildlife habitat and fragmentation of a larger area of generally contiguous habitat. Interim reclamation of the pad would reduce the area of bare ground to only about 2 acres, although seeded grasses on the reclaimed surfaces would be of little or no value to elk due to the proximity to oil and gas production equipment and regular visits by Williams or contractor personnel. Elk are capable of tolerating human presence when the intensity of the human activity, including noise is low and consistent; i.e., they are able to habituate to it to some extent. However, this is less true for hunted populations, which tend to humans as threats, or when an area is subject to periodic high levels of disturbance that occur irregularly, such as ongoing maintenance operations and occasional workovers.

Both male and female elk are especially sensitive to disturbance during the late winter/early spring transition season, when energy stores are depleted, the availability, palatability, and nutritional value of forage is low, mobility is made more difficult by the deep snow accumulations, and the effectiveness of cover is reduced due to the lack of leaves on deciduous trees and tall shrubs. Female elk are also highly sensitive to disturbance during the late spring/early summer calving season, when they are late in the gestation period or nursing young. Whether still pregnant or caring for young calves that are not yet very mobile, females need areas that meet the need for seclusion as well as lush forage and water. Elk that would normally move through or remain in the project vicinity during the calving season could be displaced a considerable distance from the pad and access road, potentially to lower quality habitats. Individuals that do not relocate may be subject to increased stress from the human activity. Nonetheless, suitable calving habitat is extensive in the project vicinity, and the availability of dense vegetation and steep topography probably decreases the distances that displaced elk would move. These considerations, in combination with the short duration of the exploratory phase and relatively short duration associated with adding up to 21 additional wells, indicates that any population-level effects on elk use, including calving, would be minor.

For activities related to the CMU 22-7 pad on lands overlying Federal lease COC65516, TLs attached as lease stipulations would prohibit construction, drilling, or completion activities during the period from December 1 to April 30 in mapped big game winter range. These TL dates would also apply to construction of portions of the access road and pipelines across other BLM lands, under a stipulation attached to the right-of-way grants, and for use of those road segments to support construction, drilling, or completion activities at the pad. A different TL stipulation on Federal lease COC65516 for the protection of elk calving does not apply to the pad site and access road (Figure 13).

Black bears concentrate in the general area in fall to feed on acorns and berries before hibernating (Figure 13). However, the pad site and access road do not lie within the boundaries of black bear fall concentration area, and no TL stipulation or COA would apply to prohibit oil and gas activities during the fall season. Because of the proximity of the pad site to the mapped concentration area, some bears that might move through the area or extend their use to include the site could be displaced to other areas. This could also affect wild turkeys, which share with black bears a reliance on acorns and berries as an abundant food source before the relative privation of winter. Nonetheless, because the site is not within the mapped concentration area, significant impacts on fall feeding are not expected.

For other wildlife, human activity at the pad and along the access road during the exploratory phase and, potentially, a later development phase would reduce habitat availability by creating a zone of reduced use. Causes of this reduced use would include increased human presence and the noise and dust generated by equipment operations and vehicle traffic. During drilling and completion, 24-hour operations over a period of several days to several months would result in longer-term avoidance than with more transitory activities, and the bright lights during these activities could increase the zone of reduced use by nocturnal species as well as diurnal species.

Avoidance of areas with otherwise suitable forage and cover results in effective habitat loss, often much greater than direct loss, with a concomitant reduction in the capacity of an area to sustain wildlife. However, the amount of direct or indirect habitat loss associated with the Proposed Action would be relatively minor compared to the overall availability of suitable habitat in the vicinity. Therefore, while some individuals would be subject to physiological or behavioral stress and potentially reduced survivorship or reduced reproductive success, population-level impacts are not expected to be significant.

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

No Action Alternative

Under the No Action Alternative, the components of the Proposed Action would not be approved or implemented, and no new, project-related impacts to wildlife would be anticipated.

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

A formal Land Health Assessment was completed in 2009 for the portion of the CRVFO that includes the project area. The area was generally meeting the standard, although some issues with weeds were noted. Habitat loss and fragmentation at the small scale of the Proposed Action, in combination with the COAs included as Appendix A, are not expected to contribute to a failure of the area to meet Standard 3.

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, 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, the rate of development, particularly oil and gas development, has generally been increasing in the area, resulting in an accelerated accumulation of individually nominal effects. Second, residential and commercial expansion, as well as 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 lands. Recent COGCC regulations have closed considerably the gap between the potential environmental impacts associated with development of private versus Federal fluid mineral resources.

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

PERSONS AND AGENCIES CONSULTED

Williams Production RMT Company LLC: April Mestas, Dan Collette, Kris Meil, Kent Rider
 Colorado Division of Wildlife: Michael Warren
 Colorado Oil & Gas Conservation Commission (COGCC): David A. Kubeczko

INTERDISCIPLINARY TEAM REVIEW

Members of the CRVFO Interagency Energy Team who participated in the impact analysis of the Proposed Action, development of appropriate mitigation measures, and preparation of this EA are listed in Table 12, along with their areas of responsibility.

Table 12. BLM Interdisciplinary Team Authors and Reviewers		
<i>Name</i>	<i>Title</i>	<i>Areas of Participation</i>
Julie McGrew	Natural Resource Specialist	Project Lead, Access and Transportation, Recreation, Socio-Economics, Visual Resources
Allen Crockett	Supervisory Natural Resource Specialist	NEPA Review
Beth Brenneman	Ecologist	Invasive Non-native Species, Special Status Plants, Vegetation
DJ Beaupeurt	Energy Lands/Realty Specialist	Rights-of-Way
John Brogan	Archaeologist	Cultural Resources, Native American Religious Concerns
Monte Senor	Rangeland Management Specialist and Weed Management Specialist	Range Management
Shauna Kocman	Hydrologist	Soil, Air, Surface Water, Waters of the US, Noise, Prime Farmland, Wetlands
Sylvia Ringer	Wildlife Biologist	Migratory Birds, Special Status Fish and Wildlife, Aquatic and Terrestrial Wildlife
Todd Sieber	Geologist	Groundwater, Paleontology, Geology and Minerals
Tom Fresques	Fishery Biologist	Aquatic Habitat and Fisheries
Will Howell	Petroleum Engineer	Downhole COAs

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APPENDIX A

Surface-Use and Downhole Conditions of Approval

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**STANDARD SURFACE-USE CONDITIONS OF APPROVAL
DOI-BLM-CO-N040-2010-0083-EA**

The following standard surface use COAs are in addition to all stipulations attached to the respective Federal lease 65516 and attached to any right-of-way grants for crossing of other BLM lands for access to the CMU 22-7 pad or for the conveyance of fluids in pipelines.

STANDARD SURFACE-USE COAS FOR DEVELOPMENT OF FEDERAL OIL AND GAS WELLS

1. Administrative Requirements. 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.
2. Road Construction and Maintenance. Roads shall be crowned, ditched, surfaced, drained with culverts and/or water dips, and constructed to BLM Gold Book standards. Initial gravel application shall be a minimum of 6 inches. The operator shall provide timely year-round road maintenance and cleanup on the access roads. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement, and dust abatement. When rutting within the traveled way becomes greater than 6 inches, blading and/or gravelling shall be conducted as approved by the BLM.
3. 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.
4. Drainage Crossings and Culverts. Construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g. burying pipelines, installing culverts) shall be timed to avoid high flow conditions. Construction that disturbs any flowing stream shall utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.

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

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

5. Jurisdictional Waters of the U.S. The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers (USACE) prior to discharging fill material into waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the U.S. are defined in 33 CFR Section 328.3

and may include wetlands as well as perennial, intermittent, and ephemeral streams. Permanent impacts to waters of the U.S. may require mitigation. Contact the USACE Colorado West Regulatory Branch at 970-243-1199 ext. 17 (Travis Morse). Copies of any printed or emailed approved USACE permits or verification letters shall be forwarded to the BLM.

6. Wetlands and Riparian Zones. The operator shall restore temporarily disturbed wetlands or riparian areas. The operator shall consult with the BLM Colorado River Valley Field Office to determine appropriate mitigation, including verification of native plant species to be used in restoration.
7. Reclamation. The goals, objectives, timelines, measures, and monitoring methods for final reclamation of oil and gas disturbances are described in Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS). Specific measures to follow during interim and temporary (pre-interim) reclamation are described below.
 - a. Reclamation Plans. In areas that have low reclamation potential or are especially challenging to restore, reclamation plans will be required prior to APD 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; timeline for drilling completion, interim reclamation earthwork, and seeding; soil test results and/or a soil profile description; amendments to be used; soil treatment techniques such as roughening, pocking, and terracing; erosion control techniques such as hydromulch, blankets/matting, and wattles; and visual mitigations if in a sensitive VRM area.
 - b. Deadline for Interim Reclamation Earthwork and Seeding. Interim reclamation to reduce a well pad to the maximum size needed for production, including earthwork and seeding of the interim reclaimed areas, shall be completed within 6 months following completion of the last well planned to be drilled on that pad as part of a continuous operation. If a period of greater than one year is expected to occur between drilling episodes, BLM may require implementation of all or part of the interim reclamation program.

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

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

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis. If the BLM approves an extension for seeding, the operator may be required to stabilize the reclaimed surfaces using hydromulch, erosion matting, or other method until seeding is implemented.

- c. Topsoil Stripping, Storage, and Replacement. All topsoil shall be stripped following removal of vegetation during construction of well pads, pipelines, roads, or other surface facilities. In areas of thin soil, a minimum of the upper 6 inches of surficial material shall be stripped. The BLM may specify a stripping depth during the onsite visit or based on subsequent information regarding soil thickness and suitability. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation. The BLM best management practice (BMP) for the Windrowing of Topsoil (COA number 19) shall be implemented for well pad construction whenever topography allows.
- 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.

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

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

- 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 lands affected by the project (see Attachments 1 and 2 of the letter provided to operators dated May 1, 2008). 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 noxious, prohibited, or restricted 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. Site Protection. The pad shall be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species are firmly established, whichever comes later. The seeded species will be considered firmly established when at least 50 percent of the new plants are producing seed. The BLM will approve the type of fencing.
- j. 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 to the BLM by **December 31** of each year. The monitoring program shall use the four Reclamation Categories defined in Appendix I of the 1998 DSEIS to assess progress toward reclamation objectives. The annual report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing the corrective actions or other measures specified by the BLM.
8. Weed Control. The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the Glenwood Springs Field Office *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. A Pesticide Use Proposal (PUP) must be approved by the BLM prior to the use of herbicides. Annual weed monitoring reports shall be submitted to BLM by **December 1**.
9. Big Game Winter Range. To minimize impacts to wintering big game, no construction, drilling or completion activities shall occur during a Timing Limitation (TL) period from **December 1 to April 30** within mapped winter range.
10. Bald and Golden Eagles. It shall be the responsibility of the operator to comply with the Bald and Golden Eagle Protection Act (Eagle Act) with respect to “take” of either eagle species. Under the Eagle Act, “take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest and disturb. “Disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. Avoidance of eagle nest sites, particularly during the nesting season, is the primary and preferred method to avoid a take. Any oil or gas construction, drilling, or completion activities planned within 0.5 mile of a bald or golden eagle nest, or other associated activities greater than 0.5

miles from a nest that may disturb eagles, should be coordinated with the BLM project lead and BLM wildlife biologist and the USFWS representative to the BLM Field Office (970-876-9051).

11. Raptor Nesting. Raptor nest surveys in the project vicinity in April 2011 did not result in location of raptor nest structures within 0.25 mile of a well pad or 0.125 mile of an access road, pipeline, or other surface facility associated with this project. However, to help ensure compliance with the Migratory Bird Treaty Act (MBTA), the operator should schedule construction or drilling activities to begin outside the raptor nesting season (February 1 to August 15) if practicable. If initiation of construction, drilling, or completion activities during these dates cannot be avoided, the operator is responsible for complying with the MBTA, which prohibits the “take” of birds or active nests (those containing eggs or young), including nest failure caused by noise and human activity.
12. 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. Under the MBTA, “take” means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The operator shall prevent use by migratory birds of any pit containing fluids associated with oil or gas operations, including but not limited to reserve pits, produced-water pits, hydraulic fracturing flowback pits, cuttings trenches (if covered by water or other fluid), and evaporation pits. Liquids in these pits may pose a risk to migratory birds (e.g., waterfowl, shorebirds, wading birds, songbirds, and raptors) as a result of ingestion, absorption through the skin, or interference with buoyancy and temperature regulation. Regardless of the method used, it shall be in place within 24 hours following the placement of fluids into a pit. Because of high toxicity to birds, oil slicks and oil sheens should immediately be skimmed off the surface of any pit that is not netted. The most effective way to eliminate risk to migratory birds is prompt drainage, closure, and reclamation of pits, which is strongly encouraged. All mortality or injury to species protected by the MBTA shall be reported immediately to the BLM project lead and to the USFWS representative to the BLM Field Office at 970-876-9051 and visit <http://www.fws.gov/mountain-prairie/contaminants/oilpits.htm>.
13. Birds of Conservation Concern. Pursuant to BLM Instruction Memorandum 2008-050, removal of vegetation or initiation of surface-disturbing activities within potential habitat for BCC species is prohibited from **May 1 to June 30**. 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 audial survey for diagnostic vocalizations in conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under favorable conditions for detecting and identifying a BCC species. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 1 and continue into the 60-day period at the same location.
14. Range Management. Range improvements (fences, gates, reservoirs, pipelines, etc) shall be avoided during development of natural gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator will be responsible for repairing or replacing the damaged range improvements. If a new or improved access road bisects an existing livestock fence, steel frame gate(s) or a cattleguard with associated bypass gate shall be installed across the roadway to control grazing livestock.
15. Ips Beetle. To avoid mortality of pinyon pines due to infestations of the *Ips* beetle, any pinyon trees damaged during road, pad, or pipeline construction shall be chipped after being severed from the stump or grubbed from the ground, buried in the toe of fill slopes (if feasible), or cut and removed from the site within 24 hours to a location approved by the Colorado State Forest Service.

16. Paleontological Resources. All persons associated with operations under this authorization shall be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM of the findings. The discovery must be protected until notified to proceed by the BLM.

Where feasible, the operator shall suspend ground-disturbing activities at the discovery site and immediately notify the BLM of any finds. The BLM will, as soon as feasible, have a BLM-permitted paleontologist check out the find and record and collect it if warranted. If ground-disturbing activities cannot be immediately suspended, the operator shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.

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

Pursuant to 43 CFR 10.4(g), the BLM shall be notified by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), activities shall stop in the vicinity of the discovery, and the discovery shall be protected for 30 days or until notified by the BLM to proceed.

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

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

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

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

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

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

18. Visual Resources. Production facilities shall be placed to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points—unless directed otherwise by the BLM due to other resource concerns—and shall be placed to maximize reshaping of cut-and-fill slopes and interim reclamation of the pad.

Existing vegetation shall be preserved when clearing and grading for pads, roads, and pipelines. The BLM may direct that cleared trees and rocks be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features.

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

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

19. Windrowing of Topsoil. Topsoil shall be windrowed around the pad perimeter to create a berm that limits and redirects stormwater runoff and extends the viability of the topsoil per BLM Topsoil Best Management Practices (BLM 2009 PowerPoint presentation available upon request from Glenwood Springs Field Office). Topsoil shall also be windrowed, segregated, and stored along pipelines and roads for later spreading across the disturbed corridor during final reclamation. Topsoil berms shall be promptly seeded to maintain soil microbial activity, reduce erosion, and minimize weed establishment.
20. Reserve Pit. A minimum of 2 feet of freeboard shall be maintained in the reserve pit. Freeboard is measured from the highest level of drilling fluids and cuttings in the reserve pit to the lowest surface elevation of ground at the reserve pit perimeter.
21. Soils. Cuts and fills shall be minimized when working on erosive soils and slopes in excess of 30%. Cut-and-fill slopes shall be stabilized through revegetation practices with an approved seed mix shortly following construction activities to minimize the potential for slope failures and excessive erosion. Fill slopes adjacent to drainages shall be protected with well-anchored silt fences, straw wattles, or other acceptable BMPs designed to minimize the potential for sediment transport. On slopes greater than 50%, BLM personnel may request a professional geotechnical analysis prior to construction.

ADDITIONAL, SITE-SPECIFIC COAS FOR THE CMU 22-7 WELL PAD

The following site-specific surface use COAs are in addition to the standard COAs listed above and all relevant stipulations attached to the respective Federal leases.

1. Pre-Construction Meeting. A pre-construction onsite meeting shall be held **prior to pad construction**. Attendees will include the appropriate operator representatives, construction contractors, and BLM specialists including the natural resource specialist, hydrologist, and ecologist.
2. Pre-Interim Reclamation Meeting. An onsite meeting shall also be held **prior to interim reclamation of the pad**. Attendees will include the appropriate operators' representatives, construction contractors, and BLM specialists including the natural resource specialist, hydrologist, and ecologist.
3. Aquatic Wildlife Habitat (Colorado River Cutthroat Trout).
 - a. The Operator shall disinfect all heavy equipment, hand tools, boots and any other equipment that was previously used in a river, stream, lake, pond, or wetland prior to moving the equipment to another water body. Disinfection shall be performed by removing mud and debris and then implementing one of the following practices:
 - i. Spray/soak equipment with a disinfectant solution capable of killing whirling disease spores.
 - ii. Spray/soak equipment with water greater than 140 degrees Fahrenheit for at least 10 minutes.
 - iii. Sanitize water suction hoses and water transportation tanks (using methods described above) and discard rinse water at an appropriately permitted disposal facility.
 - b. The operator shall conduct sampling to determine water quality, habitat quality and macro invertebrate community at a point upstream and downstream of the proposed construction before any surface disturbing activities occur and post interim reclamation. The sampling will be conducted to evaluate any impacts that have resulted from construction and drilling activities or in the event of a spill.
 - c. Additional erosion control shall be provided with a hydromulch rated for erosion which includes a hydraulic soil stabilizer such as polyacrylamide. The hydrolmulch shall provide at minimum 6 months of erosion control .
4. Raptor Nesting. Although the raptor nesting survey of the area surrounding the CMU 22-7 pad location did not result in observations of active nests within 0.25 mile of the proposed site, two inactive hawk nests and three species of raptors were observed within the larger survey area. Therefore, for any construction, drilling, or completion activities initiated after January 2012, a raptor nesting TL for the period **February 1 to August 15** shall apply.

An exception to this TL may be granted for any year in which a subsequent survey determines one of the following: (a) the nests are in a severely dilapidated condition or has been destroyed due to natural causes; (b) the nests are not occupied during the normal nesting period for that species, (c) the nests are known, or appear, to have been occupied but have subsequently failed due to apparently natural causes, or (d) the nests were occupied, but the nestlings have fledged and dispersed from the nest.

5. Stormwater Management – The operator shall adequately protect the creek from sediment and contamination in the event of an accidental spill.
 - a. The operator shall separate the surrounding landscape runoff water and pad runoff water to separate culverts draining to the Creek. The pad water shall be drained to a sedimentation

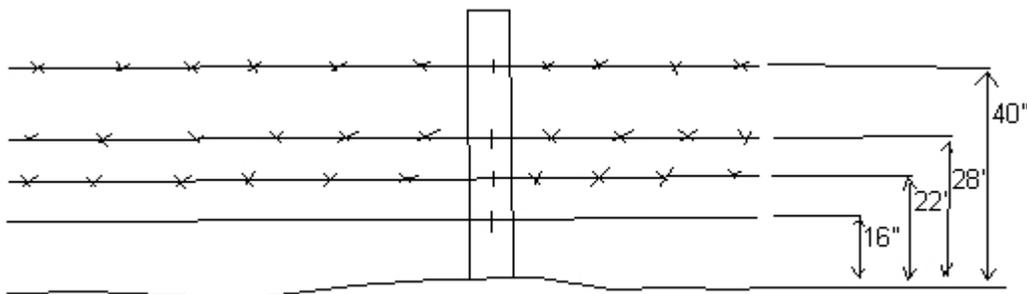
basin and a gated culvert, which shall be closed during drilling activities to prevent an accidental spill from reaching the stream. The culverts shall be opened during rainfall events.

The operator shall include silt fencing adjacent to stream.

- 6. Engineering Review and Construction Oversight.** Prior to commencing any surface disturbing activities, a qualified geotechnical engineer licensed in the State of Colorado shall prepare a site evaluation and analysis in at-risk areas showing evidence of slope instability (ie. past mass movement or slumping soils, high soil moisture content present in undisturbed soils, presence of springs or seeps), for cut and fill slopes in excess of 30 feet in height, and cut of fill slope angles steeper than the requirements in the BLM Gold Book 2007 (3:1 in erosive soil, 1:1 common soils, 0.5:1 conglomerate, 0.25:1 solid rock) as determined by the BLM.

During the construction of the pad/and or road sections in areas at risk of slope instability or environmentally sensitive areas a qualified independent construction inspector or civil/geotechnical engineer shall be onsite during all phases of construction in the at risk areas and as determined by the BLM. The inspector/ engineer shall confirm the pad and/or road sections are built to specification in the design package including, but not limited to cut and full slope staking, disturbance limits staking, excavation and embankment placement, slope compaction, slope retention devices, slope benching, at grade and subgrade drainages stormwater control measures etc. Inspection reports prepared by the construction inspector or onsite engineer will be submitted to the BLM.

- 7. Spill Prevention Plan.** A Spill Prevention, Control, and Countermeasures (SPCC) plan shall be implemented including spill location stations for sites that are high risk with little opportunity to easily contain a spill, and locations adjacent to Baldy Creek and its drainages. The plan shall extend from the CMU 22-7 pad location downstream to the intersection of CR 335 and CR 312. A copy of the SPCC plan and a spill response facility shall be located on the pad.
- 8. Secondary Containment.** Corrugated, lined metal containment rings shall be used for facilities associated with CMU22-7, which are regulated by the EPA’s SPCC rule.
- 9. Fencing.** A shall be erected **prior** to pad and access road construction using the wildlife-friendly fence specifications as follows: *Four wires, upper three wires barbed, lower wire smooth; wire spacing from ground up is 16 inches, 6 inches, 6 inches, and 12 inches; maximum height is 40 inches.*



BLM Wire Spacing and Wire Type Standards for Cattle Exclusion in Deer and Elk Habitat

- 10. Noise and Traffic Calming.** To mitigate noise impacts to recreational users in the area, Williams shall instruct its employees and contractors that use of engine braking by trucks serving the Williams oil and gas development is not allowed on BLM roads. To avoid conflicts with vehicular traffic accessing nearby private land, Williams shall implement signing and traffic control measures during construction, drilling and completion operations serving the CMU 22-7 pad. Williams shall obtain

approved access permits from Garfield County and shall adhere to Garfield County's safety and maintenance requirements.

11. As-Built Survey. An "as-built" survey provided by a Certified Land Surveyor, licensed to work in the State of Colorado, shall be provided to the BLM within following of completion of the project.

RIGHT-OF-WAY GRANT STIPULATIONS SPECIFIC TO PORTIONS OF THE ROAD AND PIPELINES

The following ROW grant stipulations are in addition to the standard and site-specific surface use COAs listed above, as relevant.

1. Administrative Notification. The operator shall notify the BLM representative at least 48 hours prior to initiation of construction.
2. Copies of COA and Stipulations Maintained Onsite. All copies of the COA and stipulations shall be kept on site during construction and maintenance activities. All construction personnel shall review the grant and stipulations before beginning any surface disturbing work.
3. Road Construction and Maintenance. The exterior boundaries of the authorized right-of-way shall be clearly marked/flagged before any surface disturbing activities shall occur. Roads shall be crowned, ditched, surfaced, drained with culverts and/or water dips, and constructed to BLM Gold Book standards. (Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition, Revised 2007, BLM/WO/ST-06/021+3071/REV 07) Initial gravel application shall be a minimum of 6 inches. The operator shall provide timely year-round road maintenance and cleanup on the access roads. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement, and dust abatement. When rutting within the traveled way becomes greater than 6 inches, blading and/or gravelling shall be conducted as approved by the BLM. The exterior boundaries of the authorized right-of-way shall be clearly marked/flagged before any surface disturbing activities shall occur.
4. 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.
5. Saturated Soil Conditions. When saturated soil conditions exist on or along the proposed ROW, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils.
6. Hold Harmless Clause. The operator agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601 et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the ROW (unless the release or threatened release is wholly unrelated to the operator's activity in the ROW). This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.
7. 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, as amended (15 U.S.C. 2601 et seq.) with regard to any toxic

substances that are used, generated by, or stored on the ROW or on facilities authorized under this ROW grant (see 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any federal agency or state government as a result of a reportable release of spill of any toxic substances shall be furnished to the BLM concurrent with the filing of the reports to the involved federal agency or state government.

8. 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 shall 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).
9. Trash. The holder shall promptly remove and dispose of all waste, caused by its activities. The term "waste" as used herein means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, ashes and equipment. No burning of trash, trees, brush, or any other material shall be allowed.
10. 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 Rifle Municipal Watershed Area and/or within 100 feet of any perennial or intermittent stream crossing, shall have all welds X-rayed. 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).
11. Drainage Crossings and Culverts. Construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g., burying pipelines, installing culverts) shall be timed to avoid high flow conditions. Construction that disturbs any flowing stream shall utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.

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

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

12. Open Trenches. Open trenches adjacent to access roads shall be maintained in a safe condition and shall be covered and/or warning barriers erected upon completion of daily construction or at anytime personnel are not present on the construction site.

13. Pipeline Testing. The entire pipeline shall be tested in compliance with DOT regulations (49 CFR Part 192). 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).

Williams shall ensure that pressure-testing operations are carried out in accordance with the following:

- United States Department of Transportation Code of Federal Regulations (CFR), Title 49, Part 192, Subpart J, entitled “Test Requirements”
- Environmental Protection Agency

14. Pipeline Warning Signs: Pipeline warning signs shall be installed within five days of construction completion and prior to use of the pipeline for transportation of product. Pipeline warning signs are required at all road crossings. Signs shall be visible from sign to sign along the R/W. For safety purposes, each sign shall be permanently marked with the holder’s name and shall clearly identify the owner (emergency contact) and purpose (product) of the pipeline. (49 CFR 192.707(a) Buried Pipelines)

15. As-Built Survey. An “as-built” survey provided by a Certified Land Surveyor, licensed in the State of Colorado, shall be provided to the BLM within 2 months following completion of the project.

DOWNHOLE CONDITIONS OF APPROVAL
Applications for Permit to Drill

Company/Operator: Williams Production RMT Company LLC

Surface Location: SENW, Section 7, Township 7 South, Range 90 West, 6th P.M.

<u>Well Name</u>	<u>Well No.</u>	<u>Bottomhole Location</u>	<u>Lease</u>
CMU	22-7	SENW Sec. 7, T. 7S, R. 90W.	COC65516

1. Twenty-four hours prior to (a) spudding, (b) conducting BOPE tests, (c) running casing strings, and (d) within twenty-four hours after spudding, the CRVFO shall be notified. One of the following CRVFO inspectors shall be notified by phone: David Giboo at 970-876-9038, Alan White 970-876-9037.
2. A CRVFO petroleum engineer shall be contacted for a verbal approval prior to commencing remedial work, plugging operations on newly drilled boreholes, changes within the drilling plan, changes or variances to the BOPE, deviating from conditions of approval, and conducting other operations not specified within the APD. Contact William Howell at 970-876-9049 (office) or 970-319-5837 (cell) for approvals.
3. If a well control issue arises (e.g. kick, blowout, or water flow), casing failure occurs, or an increase in bradenhead pressure occurs during fracturing operations, William Howell shall be notified within 24 hours from the time of the event.
4. The BOPE shall be tested and conform to Onshore Order #2 for a 3M system.
5. A casinghead rated to 3,000 psi or greater shall be utilized.
6. An electrical/mechanical mud monitoring equipment shall be functional prior to drilling out the next shoe. As a minimum, this shall include a pit volume totalizer, stroke counter, and flow sensor.
7. Gas-detecting equipment shall be installed in the mud return system, prior to drilling out the next shoe, and hydrocarbon gas shall be monitored for pore pressure changes.
8. A gas buster shall be functional and all flare lines effectively anchored in place, prior to drilling out the next shoe. The discharge of the flare lines shall be a minimum of 100 feet from the wellhead and targeted at bends. The panic line shall be a separate line (not open inside the buffer tank) and effectively anchored. All lines shall be downwind of the prevailing wind direction and directed into a flare pit, which cannot be the reserve pit. The flare system shall use an automatic ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and maintain a continuous flare.
9. Prior to commencing fracturing operations, the production casing shall be tested to the maximum anticipated surface treating pressure and held for 15 minutes. If leak-off greater than 2 percent is found, Williams Howell shall be notified within 24 hours of the failed test, but prior to proceeding with fracturing operations. The test shall be charted and set to a time increment as to take up no less than a quarter of the chart per test. The chart shall be submitted with the well completion report.

10. As a minimum, cement shall be brought to 200 feet above the Mesaverde. Prior to commencing fracturing operations, a CBL shall be run (from TD to 200 feet above the TOC) and an electronic copy submitted to the CRVFO. If the TOC is lower than required or the cement sheath of poor quality, then within 4 days prior to commencing fracturing operations, a CRVFO petroleum engineer shall be notified for further instruction.

11. Submit the (a) mud/drilling log (e.g. Pason disc), (b) driller's event log/operations summary report, (c) production test volumes, (d) directional survey, and (e) Formation Integrity Test results with the well completion report. Contact William Howell for clarification.

FONSI
DOI-BLM-CO-040-2011-0083-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 as described and analyzed in this EA. This decision will provide for the orderly, economical, and environmentally sound exploration and development of oil and gas resources on a valid Federal oil and gas lease.

RATIONALE: The bases for this decision are as follows:

1. Approval of the Proposed Action is validating the rights granted with the Federal oil and gas leases to develop the leasehold to provide commercial commodities of oil and gas.
2. The environmental impacts would be avoided, minimized, or offset with the mitigation measures incorporated into the Proposed Action or attached and enforced by BLM as Conditions of Approval (COAs).
3. This Decision does not authorize the initiation of surface-disturbing activities on BLM lands or of drilling activities associated with any Federal oil and gas well. Initiation of activities related to the new Federal oil and gas well to be added to the existing well pad may commence only upon approval by BLM of an Application for Permit to Drill (APD) submitted by Williams Production RMT Company LLC.

MITIGATION MEASURES: Mitigation measures presented in Appendix A will be incorporated as COAs attached to the APD for the Williams CMU 22-7 well for both surface and drilling operations and as stipulations for right-of-way grants authorizing the crossing of other BLM lands with an access road and pipelines..

NAME OF PREPARER: Julie McGrew, Natural Resource Specialist

SIGNATURE OF AUTHORIZED OFFICIAL:



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

DATE: 7/1/11