

**U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 East Market Street  
Meeker, CO 81641**

## **ENVIRONMENTAL ASSESSMENT**

**NUMBER:** CO-110-2007-199-EA

**CASEFILE/PROJECT NUMBER:** COC70636, COC70637

**PROJECT NAME:** Williams' Well 24-30-297 and 11-31-297

**LEGAL DESCRIPTION:** The legal description pertains to the surface location for the well pad.

Township	Range	Qtr/Qtr	Section	P.M.	X <sup>a</sup>	Y
2 S.	97 W.	NENW	31	6 <sup>th</sup>	728591	4413210

<sup>a</sup> Coordinates were collected using the NAD83, Zone 12 datum.

**APPLICANT:** Williams Production RMT Company

**ISSUES AND CONCERNS:** No specific issues or concerns have been noted. The on-site for the original well pad and associated well (i.e., well 21-31-297) was conducted on 21 May 2005. Consequently, APDs for the above referenced wells (i.e., 24-30-297 and 11-31-297) were received on 11 April 2007. The WRFO has not received an APD for well 21-31-297.

### **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

***Background/Introduction:*** Williams Production RMT Company (Williams) has submitted applications to construct a well pad containing two wells. Proposed project actions would also include an associated pipeline and an access road within the North Ryan Gulch area of the Piceance Basin on Fee Surface lands owned by ExxonMobil Oil Corporation and Equity Oil Company in Rio Blanco County, Colorado (Figure 1).

The proposed location for Wells 24-30-297 and 11-31-297 is along Fawn Creek, south of Black Sulphur Creek (Project Area). The wells would be approximately 30 feet apart from each other on the proposed well pad. Site characteristics of the proposed well pad location consist of sagebrush communities at an elevation of approximately 6,358 feet.

**Proposed Action:** The Proposed Action would include construction of a well pad and **528** feet (0.1 mile) of new access road, and include disturbance of approximately **4.53** acres (see Table 1 for well pad dimensions and disturbance estimates).

**Table 1.** Pad dimensions and acres disturbed for the proposed well pad and access road.

Well No	Pad Size (feet)	Disturbance <sup>a</sup> (Acres)	New Access (feet)	Disturbance (acres)	Total Disturbance (acres) <sup>b</sup>
24-30-297	250 x 400	3.8	528 x 60	0.73	4.53
11-31-297					

<sup>a</sup> Estimate includes total acres disturbed for pad surface, overburden, and the production facilities pad.

<sup>b</sup> Estimate includes total acres disturbed for well pad, new road construction and pipeline ROW construction

If the wells are productive, the Proposed Action will also include the installation of a 4-inch diameter steel gas gathering line that would run northwest to tie into the Williams existing 4-inch line in Section 30. The total length of the proposed pipeline would be **516** feet and would be within the 60-foot wide right-of-way (ROW) along the proposed access road. The permanent ROW would be 30 feet wide (**0.36** acres) after reclamation. Total area disturbed for the well pad, access road and pipeline ROW would be approximately **4.89** acres.

The access road and all surface-disturbing activities would conform to standards outlined in the BLM Gold Book, *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (BLM 2006a).

Vegetative material and topsoil would be stockpiled and used for reclamation. All roadside and well location cut and fill slopes would be revegetated immediately after construction with the seed mixture(s) specified in the Conditions of Approval.

All reserve pits would be designed and fenced to Bureau of Land Management (BLM) specifications. These specifications would be provided to the Operator as part of the Conditions of Approval. Produced waste water could be confined to the pit for a period of 90 days after initial production. During the 90 day period the required waste analysis would be submitted for the Authorized Officer's (AO's) approval, pursuant to Onshore Oil and Gas Order No. 7 (NTL-2B). A permanent steel tank would be installed in the ground next to the production facilities to contain any produced water for the duration of the well.

Reserve pits would be backfilled after pit fluids were allowed to evaporate. The backfilling of the reserve pit would be done in such a manner that the mud and associated solids would be confined to the pit and not squeezed out and incorporated into the surface materials. There would be a minimum of 3 feet of cover (overburden) on the pit.

All remaining cuttings would be solidified and buried in place, or disposed of in an approved manner. The stockpiled ground cover would be evenly distributed over the disturbed areas. The recommended seed mix to be used on all disturbed areas would be determined by the BLM White River Field Office (WRFO). The dirt contractor would be provided with an approved copy of the surface use plan.

Williams would build a temporary lined pit to store frac water while completing the well. The frac pit would be reclaimed immediately following completion.

Chemical pesticides or any other control agent that represents a potential soil, air, or water pollutant would not be utilized for any purpose on public lands without express written authorization from the Authorized Officer (AO) of the BLM.

The Operator or his contractor would notify the BLM 48 hours before starting reclamation work that involves earth-moving equipment and upon completion of restoration measures.

During the Environmental Assessment (EA) process for this area, cultural resource clearance inventories were submitted under separate cover by Grand River Institute. Threatened and endangered species surveys have been completed by SWCA Environmental Consultants (SWCA) for the proposed locations.

Construction of the well pad and access road would commence approximately 1 August 2007. The anticipated duration for construction related activities is 30 days, which includes drilling and completion.

**No Action Alternative:** Under the No Action Alternative, the application would be denied and the well pad and access road would not be constructed.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:** None.

**NEED FOR THE ACTION:** To respond to request by applicant to exercise lease rights and develop potential hydrocarbon reserves.

**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: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997.

Decision Number/Page: Pages 2-5 through 2-6.

Decision Language: "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values."

### **AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES**

**STANDARDS FOR PUBLIC LAND HEALTH:** In January 1997, Colorado BLM approved the Standards for Public Land Health. These 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.

Because a standard exists for these five categories, a finding must be made for each of them in an EA. These findings are presented in the specific elements listed below.

## **CRITICAL ELEMENTS:**

### **AIR QUALITY**

*Affected Environment:* The Project Area is sparsely populated and therefore has relatively few residential air emissions that primarily arise from small communities and ranches. Vehicle traffic in the area is increasing and affects air quality through exhaust emissions and dust (particulate matter) generated by driving on unpaved roads. Historically, there have been limited industrial facilities in the area, however, oil and gas development in the basin is rapidly increasing.

Despite the increase in industrial emissions, overall air quality conditions in the Project Area are likely to be good due to effective atmospheric dispersion conditions and limited transport of air pollutants from outside the area. Background air pollutant concentration data have been compiled for EAs in the vicinity of the Project Area (BLM 2006b, 2006c). These data are considered to be the best available representation of background air pollutant concentrations near the Project Area and include impacts from existing sources both inside and outside the Project Area. The data show that maximum pollutant concentrations are well below state and federal standards for most pollutants. Maximum concentrations of ozone approaching the federal standard were observed.

The federal government established the National Ambient Air Quality Standards (NAAQS) under the Federal Clean Air Act and its amendments for six criteria pollutants. These six criteria pollutants are carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide, lead, and particulate matter. The federal government also authorizes local, state, and tribal air quality regulatory agencies to establish regulations that are more stringent than federal requirements. The state of Colorado has adopted the NAAQS but has also established a more stringent Colorado Ambient Air Quality Standard (CAAQS) standard for sulfur dioxide.

Specific air quality monitoring data is not available for the Project Area. In the vicinity of the Project Area, the cities of Grand Junction, Steamboat Springs, and Parachute contain monitoring stations. All stations monitor for particulate matter (PM<sub>10</sub>) and Grand Junction also monitors for carbon monoxide. Other criteria pollutants are not monitored for on the Western Slope. Monitoring data at Grand Junction, Steamboat Springs, and Parachute indicates that the area is in attainment, meaning that the ambient concentrations of criteria pollutants are less than the applicable air quality standards (NAAQS and CAAQS).

The Clean Air Act and its amendments established the mandatory federal Prevention of Significant Deterioration (PSD) Class I and Class II designation. Mandatory federal Class I areas include existing wilderness areas greater than 5,000 acres in size and national parks greater than 6,000 acres in size. All other locations in the country where ambient air quality is within the NAAQS (including attainment and unclassified areas) were designated as PSD Class II areas. Both classes are protected under the Clean Air Act, but Class I areas are identified for somewhat

more stringent protection from air pollution damage than Class II areas, except in specified cases. For instance, the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division (APCD) has designated Dinosaur National Monument as a State Category 1 Area, with the same sulfur dioxide increments as a federal PSD Class I area.

Given the attainment status of the Project Area, it is designated as PSD Class II. The Flat Tops Wilderness Area, designated as PSD Class I, is located approximately 25 miles east of the Project Area. Dinosaur National Monument, which is subject to PSD Class I requirements, is located approximately 60 miles northwest of the Project Area. New development projects in PSD areas that would be a major source of pollutants (defined as either 250 tons/year or 150 tons/year depending on the source) require demonstration of the "Best Available Control Technology (BACT)", an air quality analysis, an additional impacts analysis, and public involvement.

*Environmental Consequences of the Proposed Action:* Direct air quality impacts associated with Project Activities would likely occur. Impacts would result from the use of engines and turbines during construction and development. This machinery is usually powered by diesel, which when combusted produces a variety of emissions. These emissions include particulates and gases such as nitrogen oxides, carbon monoxide, carbon dioxide, and various volatile organic compounds (VOCs). These gas emissions further contribute to visibility degradation, ozone levels, and additional particulate formation. Surface disturbance of the land, drilling activities, and increased vehicle traffic on unpaved roads would also directly increase fugitive dust and particulates. Short-term increases in non-criteria pollutants such as visibility, nitric oxide, air toxics and total suspended particulates (TSP) may also occur during construction and development activities.

*Environmental Consequences of the No Action Alternative:* There would be no additional impacts to air quality under the No Action Alternative.

*Mitigation:* All activities would be required to comply with all applicable local, state, and federal air quality laws, statutes, regulations, standards, and implementation plans. Documentation of this compliance would be provided to the BLM. Further mitigation of air quality impacts would also be required, including:

- the limitation of vehicle speeds on associated access road to 15 miles per hour (mph) or another appropriate limit that minimizes visible dust plumes;
- application of a BLM-approved dust suppressant would be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph;
- surfacing of access road constructed on soils susceptible to wind erosion with gravel or other appropriate material;
- suspension of land clearing, grading, earth moving, and excavation activities when wind speed exceeds 20 mph;
- restoration of disturbed areas including re-grading to original contours, revegetation with a BLM-approved seed mixture, and post-seeding placement of woody debris in appropriate areas to increase effective ground cover and retain soil moisture;
- maintenance of construction equipment in good operating condition to ensure engines run efficiently; and

- maintenance of emission controls on vehicles and construction equipment to ensure effective pollutant emission reductions.

## CULTURAL RESOURCES

*Affected Environment:* The proposed well pad, access routes, and well pipeline route have been inventoried at the Class III (100 percent pedestrian) level (Davenport, Archuleta, and Conner 2005, Compliance Dated 10/03/2005) with no new cultural resources identified in the inventoried area. There are no other known sites located within the vicinity of the proposed well location.

*Environmental Consequences of the Proposed Action:* The proposed well pad location, access, and pipelines would not impact any known significant cultural resources. However, previously undetected resources within 308 meters could potentially be impacted by vibrations from construction and drilling or increased unauthorized collections due to increased human activity in the area.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to cultural resources under the No Action Alternative.

*Mitigation:* The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If subsurface features are located during clearing of the well pad location, access road, or well tie in pipeline, all construction on the well pad must cease immediately. The AO (i.e., Field Manager or his/her acting representative) would be notified immediately. Within five working days the AO would contact the Operator regarding:

- whether the subsurface features or materials found during construction appear eligible for the NRHP;
- the mitigation measures the Operator would likely have to undertake before the site can be used (assuming that in situ preservation is not necessary); and
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer (SHPO), that the findings of the AO are correct and that the mitigation is appropriate.

At any time, if the Operator wishes to relocate the construction activities to avoid the expense of mitigation and/or the delays associated with the process, the AO would assume the responsibility of recording and/or stabilizing the exposed materials, if required. Mitigation technical guidelines and procedures would be provided by the AO. The Operator may resume construction once the AO has verified that mitigation is complete.

Pursuant to 43 CFR 10.4 (g) the holder of the authorization must notify the AO, by telephone, followed by written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Pursuant to 43 CFR 10.4 (c) and (d), activities in the vicinity of the discovery must stop and the discovery must be protected for 30 days or until the AO provides notice to proceed.

## INVASIVE, NON-NATIVE SPECIES

*Affected Environment:* Noxious weeds known to occur in the project area include mullein, houndstongue and bull thistle. Noxious weeds are officially designated non-native plant species that are invasive and/or have the potential to become monocultures, and can cause harm to land value, native ecology, agricultural interests, wildlife habitat, livestock forage, riparian resources, and aesthetic and visual values of land.

The State of Colorado maintains an official state list of weed species that are designated noxious species. Weeds are prioritized on three lists (Classes A, B, and C) depending on noxious and invasive tendencies. Class A species are noxious weeds that have the potential to pose a significant threat to local economies, ecosystems, and habitats. Class A species currently are not present in the state or have a limited distribution. For Class A species, preventing invasions and eradicating existing infestations is the highest priority. Class B weeds are species that are limited to portions of the state. In areas with severe infestations, management plans should be designed to contain the infestation and prevent further spread. Class C weeds are species that are widespread throughout the state. Table 2 lists 20 noxious weeds present, or potentially present, in the Project Area. Of these, 19 species appear on the state noxious weed list and 19 species on the noxious weed list for Rio Blanco County. Management decisions for these species should be determined at the local level based on feasibility of control and severity of infestation.

**Table 2.** Noxious weed species potentially present in the Project Area.

Common Name	Scientific Name	Colorado Noxious Weed List <sup>1</sup>	Rio Blanco Noxious Weed List <sup>2</sup>	Present in Project Area
Russian knapweed	<i>Acroptilon repens</i>	B	X	
Common burdock	<i>Arctium minus</i>	C	X	
Cheatgrass	<i>Bromus tectorum</i>	C		X
Hoary cress	<i>Cardia draba</i>	B	X	
Plumeless thistle	<i>Carduus acanthoides</i>	B	X	
Musk thistle	<i>Carduus nutans</i>	B	X	
Diffuse knapweed	<i>Centaurea diffusa</i>	B	X	
Spotted knapweed	<i>Centaurea maculosa</i>	B	X	
Black knapweed	<i>Centaurea nigra</i>		X	
Canada thistle	<i>Cirsium arvense</i>	B	X	
Field bindweed	<i>Convolvus arvensis</i>	C	X	
Houndstongue	<i>Cynoglossum officinale</i>	B	X	
Leafy spurge	<i>Euphorbia esula</i>	B	X	
Halogeton	<i>Halogeton glomeratus</i>	C	X	X
Black henbane	<i>Hyoscyamus niger</i>	B	X	
Perennial pepperweed	<i>Lepidium latifolium</i>	B	X	
Dalmatian toadflax	<i>Linaria dalmatica</i>	B	X	
Yellow toadflax	<i>Linaria vulgaris</i>	B	X	
Scotch thistle	<i>Onopordum acanthium</i>	B	X	
Common mullein	<i>Verbascum thapsus</i>	C	X	

<sup>1</sup>U.S. Department of Agriculture (USDA) 2003.

<sup>2</sup>State of Colorado Department of Agriculture (CSD) 2007

Invasive and non-native species observed in the Project Area during the SWCA biological survey on 21 May 2007 include cheatgrass and halogeton. These species are Class C state-listed noxious weeds.

*Environmental Consequences of the Proposed Action:* Approximately 3.03 acres of vegetation would be disturbed in conjunction with the construction of the well pad, pipeline, and the access road. Where soils are disturbed and native vegetation is lost, the likelihood for non-native or invasive species to be introduced and become established is increased. Direct impacts to vegetation from weed infestations in the Project Area may include reduced structural and species diversity, loss of wildlife habitat, and loss of rangeland productivity. Indirect impacts resulting from weed infestations in the Project Area would include changes in the fire cycle and increased economic costs from weed management efforts.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative there would be no additional impacts to vegetation from noxious weeds within the Project Area. However, the No Action Alternative may allow present populations of noxious weeds to persist or increase as no additional weed monitoring or management efforts would occur.

*Mitigation:* The Operator would conduct all surface activities in accordance with the BLM Manual 9015 - Integrated Weed Management (BLM 1992) and the BLM White River Resource Management Plan (BLM 1997a) Appendix B, Management of Noxious Weeds.

- Conduct pre-construction surveys for noxious weed infestations within the site boundaries and along access road. Surveys should be conducted in spring.
- Consult with BLM and Rio Blanco County Cooperative Extension to determine treatment for noxious weeds, if identified.
- Construction vehicles and equipment would be cleaned, power-washed, and free of soil and vegetation debris prior to entry and use of access road to prevent transporting weed seeds.
- All seed mix, erosion control materials, and reclamation materials would be certified weed free.
- Revegetated areas would be monitored for at least 3 years following seeding to evaluate the need for supplemental seeding and noxious weed control.
- The ROW and other disturbed areas would be monitored for noxious weed infestations, and new or expanding populations would be controlled or eradicated for the duration of the construction, operation, and reclamation phases.
- The presence of Class C weeds in the Project Area requires that the Operator develop and implement management measures to prevent the spread of noxious weeds and install a monitoring system for a minimum of 3 years.

Materials and methods must be approved in advance by the AO.

## **MIGRATORY BIRDS**

*Affected Environment:* The Migratory Bird Treaty Act (MBTA) provides for protection of migratory birds, including their nests and eggs. A variety of birds protected by the MBTA

that utilize pinyon-juniper woodland habitat may be present and nesting in or near the Project Area during spring and summer months. The Partners in Flight program identifies priority bird species and habitats for conservation, and establishes objectives for bird populations in physiographic areas (Partners in Flight 2000). Priority bird populations for pinyon-juniper habitat in the Colorado Plateau region include black-chinned hummingbird (*Archilochus alexandri*), gray flycatcher (*Empidonax wrightii*), Cassin's kingbird (*Tyrannus vociferans*), gray vireo (*Vireo vicinior*), pinyon jay (*Gymnorhinus cyanocephalus*), juniper titmouse (*Baeolophus ridgwayi*), black-throated gray warbler (*Dendroica nigrescens*), and Scott's oriole (*Icterus perisorum*).

Migratory bird species noted during the SWCA biological survey on 21 May 2007 included American robin (*Turdus migratorius*), mountain bluebird (*Sialia currucoides*), white-breasted nuthatch (*Sitta carolinensis*), and Clark's nutcracker (*Nucifraga columbiana*), common raven (*Corvus corax*), and Townsend's solitaire (*Myadestes townsendi*). Other species observed in associated similar habitat included mourning dove (*Zenaida macroura*), horned lark (*Eremophila alpestris*), hermit thrush (*Catharus guttatus*), plumbeous vireo (*Vireo plumbeus*), broad-tailed hummingbird (*Selasphorus platycercus*), American crow (*Corvus brachyrhynchos*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), and northern saw-whet owl (*Aegolius acadicus*).

*Environmental Consequences of the Proposed Action:* Disturbance of vegetation has the potential to impact individual migratory birds or their nests. Under the Proposed Action, approximately 3.03 acres of vegetation would be disturbed. The native vegetation directly affected in the Project Area consists of a mature sagebrush community. Since the amount of proposed vegetation disturbance is low, there would be no measurable impact on the abundance or distribution of migratory birds. Noise and human presence could temporarily disrupt the courting or nesting of birds in or adjacent to the Project Area. Birds displaced by temporary activities would relocate to adjacent suitable habitat; therefore, no long-term impacts would occur. Construction activities are expected to begin 1 August 2007, at the end of nesting season for raptors (February 1 through August 15). Due to timing and lack of nesting habitat, the Proposed Action would not directly disrupt migratory bird nesting activities.

No raptors or nests were observed within the Project Area during SWCA biological surveys. The mature sagebrush community that would be directly disturbed is not suitable for raptor breeding and nesting activities. The small trees that surround the Project Area make for poor nesting habitat, but the openness and high rolling hills are ideal for perching and foraging.

*Environmental Consequences of the No Action Alternative:* There would be no affect on migratory birds or their habitats under the No Action Alternative.

*Mitigation:* The operator will be responsible for implementing mitigation measures that minimize bird injuries or mortality as a result of contact with produced water in the reserve pit. The most effective measure currently being used includes the use of netting to cover the pit. The use of plastic balls that float on the surface and reduce the area that might be perceived by waterfowl as a place to rest and/or forage has also been used, with limited results. The use of plastic flagging has proven to be ineffective at deterring use by migratory waterfowl for

foraging, resting or as a source of free water, and is strongly discouraged. The operator will notify WRFO Natural Resource Specialist, Brett Smithers via Email (brett\_smithers@blm.gov) or by phone ([970] 878-3818) of the method that will be used to prevent impacts to birds two weeks prior to the date when **completion activities** are expected to begin. The operator will also submit a **Sundry Notice** (SN) stating what method will be used, and the anticipated installation date for the deterrent. The BLM-approved method will be applied within **24 hours** after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

Disruptive activity would be prohibited within 0.25 mile of functional non-sensitive raptor nesting sites (February 1 through August 15).

**THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES** (includes a finding on Standard 4)

*Affected Environment:* The U.S. Fish and Wildlife Service (USFWS) lists eight animals found in Rio Blanco County as threatened, endangered, or candidate species under the Endangered Species Act (ESA) (Table 3). In addition, the BLM WRFO lists several species as sensitive (Table 4).

**Table 3.** Federally listed and candidate species for Rio Blanco County, Colorado.

Species	Scientific Name	Status	Habitat
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Winters along shores of rivers and lakes, nests in tall trees or on cliffs near water
Black-footed ferret	<i>Mustela nigripes</i>	E	Open grasslands, steppe, and shrub steppe containing extensive prairie dog towns
Bonytail	<i>Gila elegans</i>	E	Colorado River system
Canada lynx	<i>Lynx canadensis</i>	T	Montane coniferous forests
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	E	Colorado River system
Humpback chub	<i>Gila cypha</i>	E	Colorado River system
Razorback sucker	<i>Xyrauchen texanus</i>	E	Colorado River system
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C	Large, unfragmented riparian areas

Source: USFWS 2007

T = Threatened, E = Endangered, C = Candidate

**Table 4.** BLM sensitive animal species for the WRFO.

Species	Scientific Name	Habitat within Project Area?
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	No
Fringed myotis	<i>Myotis thysanodes</i>	No
Yuma myotis	<i>Myotis yumanensis</i>	No
Barrow's goldeneye	<i>Bucephala islandica</i>	No
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Yes
White-faced ibis	<i>Plegadis chihi</i>	No

Species	Scientific Name	Habitat within Project Area?
Northern goshawk	<i>Accipiter gentilis</i>	No
Ferruginous hawk	<i>Buteo regalis</i>	No
Mountain plover	<i>Charadrius montanus</i>	No
Long-billed curlew	<i>Numenius americanus</i>	No
Black tern	<i>Chlidonias niger</i>	No
Midget-faded rattlesnake	<i>Crotalus viridis concolor</i>	Yes
Northern leopard frog	<i>Rana pipiens</i>	No
Great Basin spadefoot	<i>Spea intermontana</i>	Yes
Bluehead sucker	<i>Catostomus discobolus</i>	No
Flannelmouth sucker	<i>Catostomus latipinnis</i>	No
Mountain sucker	<i>Catostomus platyrhynchus</i>	Yes
Plains topminnow	<i>Fundulus sciadicus</i>	No
Roundtail chub	<i>Gila robusta</i>	No
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	No

Source: BLM 2000

No federally listed species are expected to occur in the Project Area due to lack of suitable habitat. The Project Area does not include suitable nesting habitat for bald eagle or BLM-sensitive raptor species. The Proposed Action includes the removal of young and mid-age juniper. BLM-sensitive raptor and bat species typically utilize mature stands of pinyon-juniper with well-developed forest canopies and large diameter trees that offer nesting, foraging, and roosting habitat. Therefore, these species are not likely to be present in the Project Area or impacted by habitat removal. No raptor nests were found during SWCA biological surveys, although raptors were observed in the vicinity. Colorado Natural Heritage Program (CNHP) records indicate a known Northern goshawk nest approximately 2 miles north of the Project Area.

According to the Colorado Division of Wildlife (CDOW) data (2007), one historic lek (where viable populations have not occurred in five years or more) is located between Duck Creek and Yellow Creek along County Road (CR) 24, just north of the Project Area. A sage-grouse brooding and production area is located near Little Corral Gulch, east of Piceance Creek. This lek was active in 2007 (Ed Hollowed pers. comm. with Larry Semo June 2007). Four additional leks are located south of Box Elder Gulch, just east of the Cathedral Bluffs. The Proposed Action would not impact any of these sage-grouse leks.

The midget-faded rattlesnake, a diminutive subspecies of the common prairie rattlesnake, is known to occur in northwestern Colorado across varied habitats, including pinyon-juniper woodland and shrubland. It is difficult to differentiate this subspecies, as Hammerson (1999) concluded that Rio Blanco County apparently constitutes an area of intergradation between *C. concolor* and *C. viridis*.

In Colorado, the Great Basin spadefoot inhabits pinyon-juniper woodlands, sagebrush, and semi-desert shrublands. It ranges from the bottoms of rocky canyons to broad dry basins and stream floodplains (CDOW 2007). CNHP records indicate known spadefoot habitat approximately 2 miles northeast of the Project Area, at the confluence of Black Sulphur and Piceance Creeks.

The four federally listed fish species associated with the Colorado River Basin are not likely to occur within the Project Area, but may occur downstream in the White River and Colorado River. BLM WRFO and CDOW surveys in February 2007 noted mountain sucker approximately 1.5 miles upstream and 0.25 mile downstream of the Project Area in Fawn Creek.

*Environmental Consequences of the Proposed Action:* Land disturbance resulting from the Proposed Action is not expected to result in direct, long-term adverse effects to federally-listed or BLM sensitive animal species. Construction activities may create temporary disturbance to areas used by a few species; however, they are not likely to cause a trend toward federal listing or a loss of viability of these animals.

*Environmental Consequences of the No Action Alternative:* There would be no affect on threatened, endangered, or sensitive animal species under the No Action Alternative.

*Mitigation:* Pad and road construction, drilling, well completion, workover activity, and reclamation would be subject to the White River ROD/RMP approved timing limitation stipulation TL-04, which disallows disruptive activity (i.e., construction, and drilling and completion-related activities) within 0.5 mile of listed and BLM sensitive raptor nests from February 1 through August 15.

*Finding on the Public Land Health Standard for Threatened & Endangered species:* Standard 4 of the *BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado* states that special status plants and animals and their habitats should be maintained or enhanced to sustain public land health. The Proposed Action would have no effect on the land health standard with implementation of mitigation measures.

**THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES** (includes a finding on Standard 4)

*Affected Environment:* The vegetation in the Project Area consists of inter-mountain basin big sagebrush shrubland. Special status plant species (SSS) with known populations in the Piceance Creek Basin all depend upon barren shale exposures of the Green River Formation (Table 5). A special status plant survey and habitat assessment was conducted during the SWCA biological surveys on 21 May 2007. Based on the results of the survey, the Project Area does not contain suitable habitat for any of these SSS.

**Table 5.** Special status plant species with known populations in the Piceance Creek Basin.

Common Name	Scientific Name	Status
Debris milkvetch	<i>Astragalus detritalis</i>	BLM Sensitive
Park rockcress	<i>Boechera fernaldiana</i> ( <i>Arabis vivariensis</i> )	BLM Sensitive
Ephedra buckwheat	<i>Eriogonum ephedroides</i>	BLM Sensitive
Utah gentian	<i>Gentianella tortuosa</i>	BLM Sensitive
Narrow-stem gilia	<i>Gilia stenothyrsa</i>	BLM Sensitive
Dudley Bluffs bladderpod	<i>Lesquerella congesta</i>	USFWS Threatened
Piceance bladderpod	<i>Lesquerella parviflora</i>	BLM Sensitive

Common Name	Scientific Name	Status
Narrow-leaf evening primrose	<i>Oenothera acutissima</i>	BLM Sensitive
Rollins cryptanth	<i>Oreocarya (Cryptantha) rollinsii</i>	BLM Sensitive
Graham beardtongue	<i>Penstemon grahamii</i>	USFWS Candidate
White River beardtongue	<i>Penstemon scariosus</i> var. <i>albifluvis</i>	USFWS Candidate
Piceance twinpod	<i>Physaria obcordata</i>	USFWS Threatened

Source: Spackman et al. 1997

*Environmental Consequences of the Proposed Action:* No adverse impacts are expected to any SSS from development of this location.

*Environmental Consequences of the No Action Alternative:* There would be no effect on threatened, endangered, or sensitive plant species under the No Action Alternative.

*Mitigation:* None.

*Finding on the Public Land Health Standard for Threatened & Endangered Species:* Standard 4 of the *BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado* states that special status plants and animals and their habitats should be maintained or enhanced to sustain public land health. The project would have no effect on the land health standard.

## **WASTES, HAZARDOUS OR SOLID**

*Affected Environment:* According to the BLM, hazardous materials are defined as any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The term does not include petroleum products, crude oil, or natural gas.

The environment for hazardous materials includes air, water, soil, and biological resources that may potentially be affected by an accidental release of hazardous materials at or during transport to and from the Project Area, storage, and use in construction and operations at the proposed site. Examples of sensitive areas for hazardous materials release include areas adjacent to water bodies and areas where humans or animals reside.

There are no known hazardous or other solid wastes on the subject land, nor have hazardous materials been known to have been used, stored, or disposed of on the site. As discussed in the Proposed Action, a variety of materials, including lubricants, treatment chemicals, gasoline, oil, and diesel fuels would be used to construct and operate proposed Wells 24-30-297 and 11-31-297. Potentially harmful substances used in the construction and operation would be kept on site in limited quantities, and trucked to and from the site as required.

Most waste generated would be exempt from hazardous waste regulations under the exploration and production exemption of the Resource Conservation and Recovery Act (RCRA). Examples of exempt wastes include process water and hydrocarbon impacted soils. No hazardous

substance, as defined by 40 CFR 355, in amounts above the threshold quantities, would be used, produced, stored, transported, or disposed of.

Solid waste includes, but is not limited to, human waste, trash, garbage, ashes, welding rods, etc. Solid waste would be generated during construction activities and during operation at Wells 24-30-297 and 11-31-297.

*Environmental Consequences of the Proposed Action:* During construction and operation, a variety of by-products and waste materials would be generated. They include construction waste, drill hole cuttings, garbage, and miscellaneous solid and sanitary wastes. With the proper procedures in place, it is anticipated that waste would not present any environmental consequences especially if materials are collected in appropriate containers and recycled or disposed off site in accordance with applicable regulations.

During construction and operation of the proposed project, accidental spills or leaks associated with equipment failures, refueling and maintenance of equipment, and storage of fuels, oil, or other fluids could cause soil and surface and/or groundwater contamination. The severity of potential impacts from accidental material spills would depend upon the chemical released, the quantity released, and the proximity of the release to a waterbody or aquifer.

The Proposed Action would increase contributions to solid waste landfills. Trash in the Project Area could be blown off-site into adjacent lands.

*Environmental Consequences of the No Action Alternative:* No hazardous or solid wastes would be generated or managed under the No Action Alternative.

*Mitigation:* The BLM requires the following mitigation in addition to the actions described in the Proposed Action, to ensure impacts from hazardous or solid wastes would be minimized by implementation. In addition, Williams would watch for signs of hazardous or solid wastes throughout excavation and operations at the proposed site, and if found, would take the appropriate reporting and mitigation measures to protect the public and workers, including:

- maintain the Project Area in a sanitary condition at all times;
- provide an adequate number of trash containers on-site;
- dispose of trash and nonflammable wastes at an appropriate waste disposal site;
- provide portable toilets on-site, removing and disposing of contents in accordance with applicable laws and regulations;
- use, store, transport, and/or dispose of hazardous materials in accordance with applicable federal and state laws; and
- implement spill prevention measures, inspection and training requirements, and spill response and notification procedures to minimize the potential for accidental spills or leaks.

The holder(s) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) 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 right-of-way or on facilities authorized under this

right-of-way 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 or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

The holder shall submit documentation of its Spill Prevention Containment and Countermeasure (SPCC) plan, *if applicable*; to the authorized officer prior to the scheduled start up.

If during any phase of the construction, operation, or termination of the pipeline or related facilities any oil or other pollutant should be discharged from the pipeline system, or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of holder to control, cleanup, or dispose of such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting from, the authorized officer may take such measures as he deems necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the authorized officer shall not relieve the holder of any liability or responsibility.

A release of any chemical, oil, petroleum product, produced water, or sewage, etc, (regardless of quantity) must be reported to the Bureau of Land Management – WRFO Hazardous Materials Coordinator, at (970) 878-3800. The Colorado Department of Public Health and Environment (CDPHE) should be notified, if applicable, through the 24-hour spill reporting line at 1 (877) 518-5608.

If the operator encounters any waste dump sites, on or adjacent to the project area, they must be reported to the BLM.

## **WATER QUALITY, SURFACE AND GROUND** (includes a finding on Standard 5)

*Affected Environment:* The Project Area is located in the Colorado River Basin in the Piceance Creek drainage. Groundwater in the proposed Project Area is associated with the Colorado Plateau aquifer system and is located in the Piceance Basin structural unit. The groundwater and surface water quality are interconnected in this region, although the exact location and extent of hydrologic connections are not well understood.

Surface Water: The Project Area is located near the west bank of Fawn Creek. Fawn Creek is a tributary to Black Sulphur Creek, which is a tributary to Piceance Creek. Piceance Creek is a tributary to the White River which flows west out of Colorado into Utah to its confluence with the Green River, which ultimately drains into the Colorado River.

Under the State of Colorado Water Body Identification (WBID) system, the Project Area is defined under stream segment 19 of the White River Basin. This segment is defined as the mainstem of Fawn Creek from the source to the confluence with Black Sulphur Creek. Water quality standards for this segment are contained in Regulation No. 37, Classifications and Numeric Standards for Lower Colorado River Basin (CDPHE 2007). These standards were most recently amended in February 2007 and would take effect on 1 July 2007.

Under state water quality regulations, Fawn Creek is designated as “Use Protected”. The three designated uses for Fawn Creek as designated under Segment 19 are Aquatic Life Cold Water Class 2, Agriculture, and Recreation Class 2. As of the last assessment, in October 2001, the uses for Fawn Creek as designated under Segment 19 were not assessed (CDPHE 2006a).

No impairments or sources of impairments have been identified in Segment 19. Colorado Regulation No. 93, 2006 303(d) List of Water-Quality-Limited Segments Requiring Total Maximum Daily Loads (TMDLS) (CDPHE 2006a), was reviewed for information related to the Project Area drainage. Two segments within the White River Basin were listed as water-quality-limited: Segment 9b (Flag Creek) and Segment 22 (West Evacuation Wash and Douglas Creek). Stream Segment 19, Fawn Creek, is not listed. Colorado Regulation No. 94, 2006 Monitoring and Evaluation List of Water Bodies Identified for Additional Water Quality Evaluation (CDPHE 2006b), was also reviewed for information related to the Project Area drainage. Two segments within the White River Basin were identified for additional evaluation: Segment 9 (Flag Creek) and Segment 22 (Soldier Creek). Stream Segment 19, Fawn Creek, is not listed.

Although Fawn Creek and its neighboring stream segments have not been identified as impaired, surface water quality in the Piceance Basin is affected by the interaction of groundwater with higher concentrations of dissolved solids. Except for times of storm pulses or snowmelt runoff, approximately 80 percent of the annual flow of Piceance Creek originates as groundwater discharge (Tobin 1987). This groundwater contains concentrations of dissolved solids, bicarbonate, sulfate, and sodium that are discharged into the surface water and transported downstream.

Sediment loading from erosional processes is also a water quality characteristic of surface waters in the Piceance Basin. During large storm events, sediment loading and transport can be significant. Erosion and the resulting sediment loading occurs under natural conditions in the basin but the increased development and land disturbance occurring in the vicinity of the Project Area is likely resulting in larger amounts of sediment loading in the surface water.

Groundwater: The Project Area contains both alluvial and bedrock aquifers. The alluvial aquifers primarily consist of unconsolidated valley-fill deposits of sand and gravel formed along stream courses. The three principal bedrock aquifers underlying the Piceance Basin are the Uinta-Animas aquifer, the Mesaverde aquifer, and the Dakota-Glen Canyon aquifer system. The quality of the groundwater in these aquifers depends on the chemical and physical attributes of the material through which the water passes, the length of time the water is in contact material, and other conditions such as temperature and pressure.

The alluvium in the stream valleys tends to be thin, narrow, and discontinuous but contains locally important surficial aquifers. In the Piceance Basin, these unconsolidated alluvial aquifers are the most productive aquifers in the Basin (EPA 2004). No water quality data was available for alluvial groundwater in the vicinity of the Project Area. However, the City of Meeker is supplied by wells in the White River alluvium (Welder 1987), which suggests that the alluvial groundwater quality is sufficient for municipal use. Also, based on well records maintained by the Colorado Division of Water Resources (CDWR), the potable water wells in the Piceance Basin generally extend no farther than 200 feet in depth (EPA 2004). This further suggests that the shallower groundwater is of good quality.

The shallowest of the bedrock aquifers is the Uinta-Animas aquifer. This aquifer is also known as the upper and lower Piceance Basin sub-aquifers and is present in silty sandstone, siltstone, and marlstone. Dissolved-solids concentrations in water from the upper part of the Uinta-Animas aquifer generally range from about 500 to more than 1,000 milligrams per liter (Robson and Banta 1995). The water chemistry in this part of the aquifer is dominated by dissolved calcium, magnesium, bicarbonate, and sulfate with trace concentrations of strontium and fluoride (Tobin 1987). In the lower part of the Uinta-Animas aquifer, concentrations of dissolved constituents may exceed 10,000 milligrams per liter in parts of the Basin (Robson and Banta 1995). Dissolved sodium and bicarbonate are present, as well as fluoride, barium, boron, lithium, and chloride.

The Mesaverde aquifer is located below the Uinta-Animas aquifer, separated by a low permeability confining unit. The Mesaverde aquifer is located in the Mesaverde Group which contains the area's coalbed methane reserves. Water quality in the Mesaverde aquifer is extremely variable. Concentrations of dissolved constituents range less than 1,000 milligrams per liter to high local concentrations occur. For instance, dissolved solids concentrations of more than 10,000 milligrams per liter were documented in the aquifer towards the central part of the Piceance Basin (Robson and Banta 1995).

The deepest of the three primary aquifers, the Dakota-Glen Canyon aquifer, consists of a series of aquifers and confining units at depths that can 12,000 feet in substantial parts of the Piceance Basin. In the Dakota-Glen Canyon aquifer, where the aquifer is deeply buried, the dissolved-solids concentration can exceed 35,000 milligrams per liter (Robson and Banta 1995).

*Environmental Consequences of the Proposed Action:* Impacts to surface and groundwater quality could occur as a result of the Proposed Action. The magnitude and duration of these impacts depends on site-specific factors (e.g. soil, vegetation, slope) and the extent of construction activities. Impacts would likely be greatest immediately following completion of construction activities and would likely decrease thereafter due to reclamation and mitigation procedures.

Surface Water: Construction and development activities, including grading, drilling, earth moving, stockpiling, and excavation, may impact water quality through increased sedimentation and runoff. Soil disturbance and removal of vegetative cover increases the potential for soil erosion which in turn, increases sediment loading during runoff-producing storm events. The amount of runoff produced by a storm event may also increase due to soil compaction from the

operation of vehicles and other construction equipment. Salts, metals, and organic substances contained in or adsorbed on to sediments can be transported into the surface waters along with the sediment and further degrade water quality. The extent of these impacts depends on the amount and type of surface disturbance at any particular time and the climatic conditions.

Road construction would also contribute to water quality impacts. The compacted soil of the access road decreases the ability of the soil to infiltrate precipitation, leading to increased runoff. The road provides a “path of least resistance” and can act as a channel that concentrates runoff. Runoff on roads may be conveyed at higher velocities than would occur with overland flow on undisturbed surfaces, resulting in increased erosion and sediment loading. Sediment and other pollutants present on the road could be transported in the runoff, contributing to water quality degradation.

The water extracted and produced as a by-product of this natural gas development would be of poor quality with high concentrations of total dissolved solids. Spills or leaks of the produced water would result in deposition of salts that if transported into the surface water, could degrade water quality.

Groundwater: Some impacts to groundwater quality resulting from hydraulic fracturing may occur, but the extent of the impact is unknown. Groundwater contamination from an aquifer of lower quality (generally located at greater depths in the Piceance Basin) to an aquifer of better quality (generally located at a shallower depth) could result if fractures in the confining units are formed during project activities. Hydrologic connections (both natural and artificial) such as fractures, faults, and high permeability streaks greatly increase the conductivity of the aquifer system. This allows for more rapid transport and mixing of process fluids (e.g. drilling/fracturing fluids) with groundwater, as well as mixing between groundwater of varying quality that occurs in different parts of the aquifer.

Other impacts to groundwater could occur if pollutants from any leaks or spills are mobilized in runoff and infiltrated into the shallow aquifers. The storage and evaporation of produced water in reserve pits also has the potential to impact groundwater if leaks occur.

*Environmental Consequences of the No Action Alternative:* There would be no additional impacts to water quality under the No Action Alternative.

*Mitigation:* All activities would be required to comply with all applicable local, state, and federal water quality law, statutes, regulations, standards, and implementation plans. This compliance includes, but is not limited to the following:

- Prior to commencing construction activities the Operator would consult with the State of Colorado Water Quality Control Division regarding applicable stormwater discharge permits. Permit requirements may include development of a Stormwater Management Plan outlining how BMPs would be used to control runoff and sediment transport. Written documentation that the appropriate permits have been obtained must be provided to the BLM AO. Acceptable forms of this documentation include a copy of the permit or an official verification letter from the State of Colorado Water Quality Control Division including the permit certification number.

- Prior to commencing construction activities, the Operator would consult with the US Army Corp of Engineers (USACE) regarding Section 404 of the Clean Water Act compliance. Where applicable, written documentation to the BLM AO is required prior to the start of construction to indicate that the USACE has been notified and that 404 Permits have been obtained or are not required by the permitting agency. Written documentation may be a copy of the Pre-Construction Notification (PCN) or an official verification letter from the USACE to the Operator stating that a permit has been issued or that a permit is not required.

To mitigate for water quality impacts from road runoff and drainage, corrugated metal pipes (CMPs) and drainage dips would be located in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. CMPs are not recommended on roads that have gradients less than 10 percent. Based on the nature of the affected soils, drain dips would be utilized in place of CMPs in these locations. The use of drain dips on road gradients greater than 10 percent should be avoided. Energy dissipaters such as large gravels/small cobbles would be used at culvert and drainage dip inlets/outlets to minimize additional erosion. To mitigate water being channelized down the roadway, all activity would stop when soils or road surfaces become saturated to a depth of 3 inches. Mud blading would be prohibited in attempts to reduce further soil displacement (unless otherwise approved by the BLM).

To mitigate additional soil erosion at the well pad and potential increased sediment and salt loading to nearby surface waters, all disturbed areas affected by drilling or subsequent operations, except areas reasonably needed for production operations, would be reclaimed as early as possible and as nearly as practicable to their original condition. These areas shall be maintained to control dust and minimize erosion.

To allow for optimal interim reclamation of well pad, all tanks and production facilities would be situated on the access road side of the well pad (unless otherwise approved by the BLM WRFO Field Manager). Interim reclamation of well pad and final reclamation of pipeline ROWs on BLM-administered surfaces would commence as follows:

- Debris and waste materials other than de minimus amounts, including, but not limited to, concrete, sack bentonite and other drilling mud additives, sand, plastic, pipe and cable, as well as equipment associated with the drilling, re-entry or completion operations would be removed.
- Stockpiled topsoil and spoil piles would be separated and clearly labeled to prevent mixing during reclamation efforts.
- Stockpiled topsoil would be seeded with a BLM approved seed mixture. Topsoil stockpiles that would potentially remain in place for extended periods of time (e.g., multiwell locations) would be covered with biodegradable fabrics, such as jute netting or Curlex, and seeded with approved seed mixture.
- Stockpiled topsoil segregated from spoil piles would be replaced during reclamation in its respective original position (last out, first in) to minimize mixing of soil horizons.
- Stockpiled soils (spoil and topsoil) would be pulled back over all disturbed surfaces affected by pipeline/road construction, drilling or subsequent operations, except areas reasonably needed for production operations. Areas on well pad not needed for production operations would be partially reshaped as early and as nearly as practicable to

near pre-construction contours. Pipelines would be recontoured to pre-construction contours as soon as construction activities cease.

- The Operator would ensure stockpiled topsoil is evenly distributed over the top of spoil used in recontouring/partial-reshaping efforts.
- Recontoured/partially-reshaped areas would be seeded with a BLM approved seed mixture, and all slopes exceeding 5 percent would be covered with wildlife friendly biodegradable fabrics, such as Jute netting or Curlex, to provide additional protection to topsoil, retain soil moisture, and help promote desired vegetative growth.
- Following seeding and placement of biodegradable fabrics, woody debris cleared during initial construction would be pulled back over the recontoured/partially-reshaped areas to act as flow deflectors and sediment traps. Available woody debris would be evenly distributed over the entire portion of the reclaimed area and would not account for more than 20 percent of total ground cover.

A **Reclamation Status Report** would be submitted to the WRFO biannually for all actions that require disturbance of surface soils on BLM-administered lands as a result of the proposed action. Actions may include, but are not limited to, well pad and road construction, construction of ancillary facilities, or power line and pipeline construction. The Reclamation Status Report would be submitted by 15 April and 15 August of each calendar year, and would include the well number, API number, legal description, project description (e.g., well pad or pipeline), reclamation status (e.g., interim or final), whether the well pad or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, estimate of acres seeded and seeding method (e.g., disk-plowed, drilled, or both). Internal and external review of this report and the process used to acquire the necessary information would be conducted annually, and new information or changes in the reporting process would be incorporated into the report. The Reclamation Status Report would be submitted electronically via email as a Microsoft Excel table to Natural Resource Specialist, Brett Smithers (brett\_smithers@blm.gov).

In an attempt to track interim and final reclamation of land use authorizations related to the development of federal mineral resources, the operator is asked to submit Geographic Information System (GIS) data to the White River Field Office (WRFO) for any **post construction** point, polyline or polygon feature that was included in the Application for Permit to Drill (APD) and associated with the proposed action. GIS point, polyline and polygon features may include, but are not limited to, constructed access road, existing roads that were upgraded, pipeline right-of-way corridors, and well pad footprint (i.e., a polygon that shows the total area disturbed for the working surface of the pad and the overburden) for each APD. Geospatial data would be submitted as ArcView datasets (i.e., shapefiles or features), ArcInfo coverage's, or as ArcView compatible data files (e.g., AutoCAD export .dwg or .dxf files). All AutoCAD files must include the projection information and/or spatial (datum) reference to allow import into a spatially referenced GIS format. GIS point, polyline and polygon feature data shall be submitted for each APD submitted for review that includes new disturbance. GIS data shall be submitted electronically to BLM, WRFO Natural Resource Specialist, Brett Smithers (brett\_smithers@blm.gov; Phone: [970] 878-3818) in the UTM, NAD83, Zone 13 projection. If the Operator is unable to send the data electronically, the Operator shall submit the data on compact disk(s) to:

BLM, White River Field Office  
220 East Market Street  
Meeker, Colorado 81641  
Attn: Brett Smithers

If for any reason the location or orientation of the geographic feature associated with the proposed action changes, the operator is asked to submit updated GIS data to BLM, WRFO within 2 weeks of the change, and this information should accompany the Sundry Notice.

Upon final abandonment of the well pad, new access road, and completion of pipelines, 100 percent of all disturbed surfaces would be restored to pre-construction contours, and revegetated with a BLM approved seed mixture. Natural drainage patterns would be restored and stabilized with a combination of vegetative (e.g., seeding) and non-vegetative (e.g. straw bails, woody debris, straw waddles, or biodegradable fabrics) techniques. All available woody debris would be pulled back over recontoured areas to help stabilize soils, trap moisture, and provide cover for vegetation. Monitoring and additional reclamation efforts would persist until reclamation is proven successful (as determined by the BLM).

Surface casing and cementing would be installed in wells to protect aquifers from contamination due to hydraulic fracturing or contact with oil and gas products. Any groundwater produced from the Fort Union or Mesaverde Formations would be removed from the site and disposed of due to poor water quality. It would not be stored or evaporated on site, therefore preventing adverse impacts to surface and ground water resources.

The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment would be required for all locations to intercept contaminants prior to contacting soils and infiltrating into groundwater. All pits shall be lined to protect shallow ground water from pit contents. All wastes associated with construction and drilling would be properly treated and disposed of. Efforts would be taken to avoid direct soil contact with diesel fuels or other pollutants which could be leached into the groundwater.

*Finding on the Public Land Health Standard for Water Quality:* Water quality in the vicinity of the Project Area currently meets State Water Quality Standards. Project activities, with the implementation of mitigation measures, are not anticipated to affect the status of these waters. Therefore, the Proposed Action would have no effect on the land health standard.

## **WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)**

*Affected Environment:* Wetlands and riparian zones are important resources that are a source of substantial biodiversity and provide multiple ecosystem functions. In the general vicinity of the Project Area, wetland habitat typically associated with perennial streams. Nearby riparian areas typically occur as narrow transition zones between stream and/or wetland areas and the adjacent uplands.

The Project Area is located adjacent to Fawn Creek which supports some riparian vegetation. Fawn Creek drains into Black Sulphur Creek which is a tributary to Piceance Creek. The habitat consists of an open creek bed and floodplain. Immediately above the riparian zone, the dominant vegetation species along the stream banks is sagebrush. The riparian habitat is limited and is composed mainly of grasses and other vegetation types associated with a semi-arid region. A well developed wetland community is not present within the immediate Project Area. However, parcels less than 2 miles upstream of the Project Area contain wetland habitat that supports well-developed obligate growth.

*Environmental Consequences of the Proposed Action:* Riparian and wetland communities in the vicinity of the Project Area have the potential to be impacted by the Proposed Action. Because the Proposed Action would occur adjacent to the floodplain it may directly or indirectly disturb riparian vegetation and possibly impact the channel morphology.

Impacts resulting from the Proposed Action could include increased noxious weeds and subsequent vulnerability of native species, sedimentation of riparian zones, and decreased bank stability. Surface disturbances could lead to the mixing of topsoil with subsoil which could make it more difficult for vegetation to establish during mitigation and reclamation. Soil compaction from heavy equipment activity or stockpiles could alter drainage patterns, inhibit seed germination, or increase the potential for siltation in wetland and riparian areas.

The potential for adverse impacts would be greatest during, and immediately after construction. With the implementation of mitigation measures, including BMPs, these impacts would likely be minor.

*Environmental Consequences of the No Action Alternative:* The No Action Alternative would have no conceivable influence on riparian or wetland communities.

*Mitigation:* All activities would be required to comply with all applicable local, state, and federal water quality law, statutes, regulations, standards, and implementation plans. This includes compliance with any applicable USACE, CDPHE, and National Pollutant Discharge Elimination System (NPDES) permit requirements. Mitigation measures to further minimize potential impacts to wetland and riparian resources include:

- Install and maintain erosion control structures and bank stabilization to minimize potential for sediment runoff into surface waters or drainages;
- Prohibit storage of hazardous materials, chemicals, fuels, lubricating oils, concrete coating, and refueling activities within 200 feet of wetland or riparian areas;
- Minimizing soil compaction and furrowing by using mats or wide tire/low ground pressure equipment for construction activities within riparian zones (if necessary);
- Completing all construction activities in riparian area during no-flow period;
- Limiting grading, topsoil segregation, and excavation to the area immediately over the trenchline and directly within the footprint of the well pad to avoid excessive disruption of soils and the native seed and rootstock within the soils;
- Performing routine daily inspections on equipment and vehicles to identify leaks and initiate corrective actions;

- Managing all soil materials such that erosion and sediment transport are minimized; and
- Revegetating disturbed areas with BLM-approved seed mixes as soon as practical following disturbance.

Additional mitigation measures that would reduce impacts to riparian and wetland resources are provided in the Water Quality, Soils, and Vegetation sections of this document.

*Finding on the Public Land Health Standard for riparian systems:* Standard 2 of the *BLM Standards for Public Land Health* states that riparian systems associated with both running and standing water should function properly and have the ability to recover from major disturbance. With the implementation of proposed mitigation measures, the Proposed Action would not affect the local riparian system's ability to function or recover.

### **CRITICAL ELEMENTS NOT PRESENT OR NOT AFFECTED:**

No ACECs, prime and unique farmlands, Wilderness, or Wild and Scenic Rivers exist within the area affected by the proposed Project Action. There are also no associated Native American religious or environmental justice concerns.

### **NON-CRITICAL ELEMENTS:**

The following elements **must** be addressed due to the involvement of Standards for Public Land Health:

#### **SOILS** (includes a finding on Standard 1)

*Affected Environment:* Soils in the Project Area vary depending on the topography, slope orientation, and parent material from which the soil is derived. The topographic pattern of the area consists of rolling hills, and narrow valleys. Soil types in the area are interrelated to dominant vegetation and can be associated with certain climatic or ecotones depending on elevation. Soils in the area support dominant vegetation communities such as the sagebrush community and pinyon-juniper woodland (USDA 1982).

Soil types in the Project Area consist of the Rentsac channery loam and Barcus channery loamy sand (NRCS 2007).

Rentsac channery loam (5 to 50 percent slopes) is a shallow, well drained soil found on ridges, foothills, and side slopes. It formed in residuum derived dominantly from calcareous sandstone. The native vegetation is mainly pinyon, juniper, sagebrush, and grasses. Elevation is 6,000 to 7,600 feet. The average annual precipitation is 14 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is grayish brown channery loam about 5 inches thick. The next layer is very channery loam about 4 inches thick. The underlying material is extremely flaggy light loam

about 7 inches thick. Hard sandstone is at a depth of 16 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of this Rentsac soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate to very high (USDA 1982).

Barcus channery loamy sand (2 to 8 percent slopes) is deep, somewhat excessively drained soil found on alluvial fans and in narrow valleys. It formed in alluvium derived from calcareous sandstone and shale. Areas are fan shaped, triangular, or elongated and are 20 to 100 acres. The native vegetation is mainly low shrubs and grasses. Elevation is 5,800 to 6,800 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 42 to 44 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is pale brown channery loamy sand about 6 inches thick. The upper part of the underlying material is light yellowish brown channery sand 10 inches thick, and the lower part to a depth of 60 inches or more is stratified, light yellowish brown and pale brown very channery sand and very channery loamy fine sand. The soil is calcareous throughout. In some areas the surface layer is channery fine sandy loam or channery sand. Permeability of the Barcus soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is moderate (USDA 1982).

*Environmental Consequences of the Proposed Action:* Clearing and grading of well pad, pipeline ROWs and access road would remove protective vegetative cover from the affected soils accelerating the erosion process. Grading, trenching, and backfilling activities could cause mixing of the soil horizons and could result in reduced soil fertility reducing revegetation potential. Water erosion of soils associated with construction activities would likely result in a net loss of valuable topsoil by sheet, rill, and gully erosion. Dissolution of calcium carbonate (calcareous soils) may promote development of sink holes and gully formation on and adjacent to disturbed areas if drainage relief structures are not properly designed and installed. Eroded topsoil and subsoil may increase salt loading and sedimentation to surface waters down gradient disturbed areas. Increased sedimentation/salt loads could adversely impact water quality and aquatic life.

Unauthorized use of newly constructed access road during wet conditions would deteriorate road surfaces decreasing effectiveness of drainage structures. Improper drainage from newly constructed access road would result in elevated erosion rates down gradient and complicate reclamation efforts.

Any leaks or spills of environmentally unfriendly substances (e.g. diesel fuel, fracturing fluids, produced water) could compromise the productivity of affected soils. Decreased soil productivity would hinder reclamation efforts leaving soils further exposed to erosional processes.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative there would be no additional impacts to soils within the Project Area.

*Mitigation:* Mitigate soil loss from roadway and surrounding area by restricting road access to authorized personnel only (e.g. gate and sign newly constructed access road). The

Operator would be responsible for segregating topsoil material and backfilling of topsoil in its respective original position (last out, first in) to assist in the reestablishment of soil health and productivity. Erosion and sediment control measures would be installed on all slopes exceeding five percent to mitigate soil loss. Erosion and sediment control measures would be maintained until upland areas are stabilized.

Mud blading would be prohibited and all activity shall cease when soils or road surfaces become saturated to a depth of three inches unless otherwise approved by the BLM. All disturbed surfaces would be restored to natural contours and revegetated with a BLM approved seed mixture. Interim reclamation would follow the mitigation outlined in the Water Quality portion of this document. All reserve pits shall be lined to prevent contents from reserve pits from seeping into surrounding soils, contaminating local ground water, reducing soil productivity, and compromising reclamation success.

*Finding on the Public Land Health Standard for upland soils:* Soils in the vicinity of the Proposed Action currently are meeting the standards. By following all suggested mitigation techniques and reclamation procedures, the Proposed Action would have no effect on the land health standard.

## **VEGETATION** (includes a finding on Standard 3)

*Affected Environment:* Wells 24-30-297 and 11-31-297 and access routes include a dominant community of basin big sagebrush shrubland. The inter-mountain basins big sagebrush ecological system occurs throughout much of the western U.S., and is typically found in broad basins between mountain ranges, plains and foothills between 1500 to 2300 meters in elevation. Soils are typically deep, well-drained and non-saline. These shrublands are dominated by basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*) and/or Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Scattered juniper, greasewood (*Sarcobatus vermiculatus*) and saltbush (*Atriplex* spp.) may be present in some stands. Rubber rabbitbrush (*Ericameria nauseosa*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), antelope bitterbrush (*Purshia tridentata*), or snowberry (*Symphoricarpos* spp.) may codominate disturbed stands. Perennial herbaceous components typically contribute less than 25 percent vegetative cover. Common graminoid species include Indian ricegrass (*Achnatherum hymenoides*), thickspike wheatgrass (*Elymus lanceolatus*), needle-and-thread (*Hesperostipa comata*), basin wildrye (*Leymus cinereus*), James' galleta (*Pleuraphis jamesii*), western wheatgrass (*Pascopyrum smithii*), Sanberg bluegrass (*Poa secunda*), and bluebunch wheatgrass (*Pseudoroegneria spicata*) (SWreGAP 2007).

*Environmental Consequences of the Proposed Action:* Approximately 3.03 acres of vegetation would be disturbed and/or removed in conjunction with the construction of the well pad and access road. The big sage community is dominant in the Project Area and, therefore, would be most impacted by the Proposed Action. Direct impacts of vegetation removal include short-term loss of vegetation including the modification of vegetation structure, plant species composition, and aerial extent of cover types. Removal of vegetation results in increased soil exposure, loss of wildlife habitat, reduced plant diversity, and loss of livestock forage. Indirect impacts include the increased potential for non-native/noxious plant establishment and

introduction, accelerated wind and water erosion, changes in water runoff due to road/facility construction, soil impacts that affect plant growth (soil erosion or siltation), shifts in species composition and/or changes in vegetative density away from desirable conditions, and changes in visual aesthetics.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative there would be no additional impacts to the vegetation within the Project Area.

*Mitigation:* If construction/development occurs between April 15 and November 15, the Operator would be required to water or surface access road to reduce airborne dust and damage to roadside vegetation communities.

The Operator would promptly revegetate all disturbed areas not necessary for production, including roadside and well pad cut and fill slopes, with Native Seed Mix #5 from the White River Record of Decision/Resource Management Plan appendix B-22 listed in the table below.

<b>Species</b>	<b>Pounds per acre</b>
Basin Wildrye (Magnar,)	2
Western wheatgrass (Rosanna)	3
Bluebunch wheatgrass (Secar)	1
Thickspike wheatgrass (Critana)	1
Fourwing saltbush (Wytana)	1

Re-vegetation would commence immediately after construction and would not be delayed until the following fall. Drill seeding is the preferred method of application. Where broadcast seeding is required, the pounds per acre application rate for seeding must be doubled. Debris would not be scattered on the pipeline until after seeding operations are completed.

The Operator would be responsible for excluding livestock grazing from all reclaimed portions of well pad. To eliminate livestock utilization of reclaimed areas prior to successful reclamation, a barbed wire fence built to BLM specifications would be constructed around all reclaimed portions of the well pad including cut and fill slopes immediately after interim reclamation is concluded (within 2 weeks) unless otherwise instructed by the BLM. A BLM specified cattleguard would be placed at the time of fence construction where the well access road bisects the fenceline that surrounds the well pad's disturbance imprint. Once reclaimed plant species are fully established on disturbed sites as determined by the BLM (e.g. Desired Plant Community (DPC), Public Land Health Standards), the fence and cattle guard would be completely removed by the applicant after a minimum of two growing seasons. This would allow for reclaimed plant species to establish without grazing pressure from livestock.

The Operator would be responsible for achieving a reclamation success rate for interim reclamation and final abandonment (on all disturbed areas associated with the well pad, pipeline, and access road) of sufficient vegetative ground cover from reclaimed plant species within three growing seasons after the application of seed. Additional reclamation efforts would be undertaken at the Operators expense. Reclamation achievement would be evaluated using the Public Land Health Standards that include indicators of rangeland health. Rehabilitation efforts

must be repeated if it is concluded that the success rate is below an acceptable level as determined by the BLM.

*Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial):* Standard 3 states that plant and animal communities of native and desirable species should be maintained at viable population levels to sustain public land health. With implementation of mitigation measures and successful revegetation, the Proposed Action would have no effect on the land health standard.

## **WILDLIFE, AQUATIC (includes a finding on Standard 3)**

*Affected Environment:* The Project Area is located along Fawn Creek, approximately 1 mile upstream of the perennial Black Sulphur Creek. Fawn Creek is classified as Aquatic Life Cold Water Class 2 (see Water Quality section). Class 2 waters are described as not capable of sustaining an abundance or diversity of cold water biota, including sensitive species, due to physical habitat, water flows or levels, or water quality conditions.

Due to a lack of substantial aquatic habitat, little aquatic wildlife is expected to occur in the immediate Project Area. However, aquatic species are known to occur upstream and downstream of the Project Area. BLM WRFO and CDOW surveys in February 2007 noted the BLM-sensitive mountain sucker approximately 1.5 miles upstream and 0.25 mile downstream of the Project Area in Fawn Creek. Additional CDOW surveys also noted brook trout (*Salvelinus fontinalis*) and speckled dace (*Rhinichthys osculus*) in the vicinity. The gravel and silt bed material found in Fawn Creek are relatively poor substrate for aquatic invertebrates, but areas of watercress (*Rorippa nasturtium-aquaticum*) have been observed, and may support other aquatic species.

*Environmental Consequences of the Proposed Action:* Surface disturbance and vegetation removal can lead to increased erosion, sedimentation, and risk of contaminants reaching surface waters, which can damage important habitat for aquatic species. Water depletions are not expected to result from Project activities. With mitigation measures in place to protect water resources within the Project Area, there would be no effect on Colorado River endangered fish species or other aquatic wildlife from pollution or sedimentation.

*Environmental Consequences of the No Action Alternative:* There would be no effect on aquatic wildlife under the No Action Alternative.

*Mitigation:* BMPs would be used throughout the life of the project to avoid impacts to aquatic habitat. For specific mitigation measures, refer to the Water Quality, Surface and Ground section and the Vegetation section of this document.

*Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial):* Standard 3 of the *BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado* states that plant and animal communities of native and desirable species should be maintained at viable population

levels to sustain public land health. With implementation of mitigation measures and successful revegetation, the Proposed Action would have no effect on the land health standard.

**WILDLIFE, TERRESTRIAL** (includes a finding on Standard 3)

*Affected Environment:* Big game species present in the Project Area include elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), and mountain lion (*Felis concolor*). The Project Area falls within elk winter range and mule deer summer range. Mule deer severe winter range is located to the northeast. Small game includes mountain cottontail (*Sylvilagus nuttalli*), dusky grouse (*Dendragapus obscurus*), and greater sage-grouse, which is discussed in the Threatened, Endangered, and Sensitive Animal Species section. Raptors and other birds that typically inhabit pinyon-juniper habitat in western Colorado are discussed in the Migratory Bird section. Portions of the Piceance Creek State Wildlife Area are located north of the wells along Ryan Gulch and Piceance Creek.

*Environmental Consequences of the Proposed Action:* Surface disturbances associated with the Proposed Action would result in the direct loss of big game habitat, including elk winter range and mule deer summer range. Human activity associated with drilling activities and increased traffic could result in increased mortality from vehicle collisions and temporarily displace elk and mule deer into areas of decreased disturbance.

Increased noise, dust, and human presence could result in temporary alteration of the behavior and home ranges of terrestrial wildlife within the Project Area. Populations of mobile wildlife species likely would temporarily disperse to adjacent undisturbed habitat. Activities proposed under the Proposed Action are not likely to result in measurable direct effects to any species.

*Environmental Consequences of the No Action Alternative:* There would be no effect on terrestrial wildlife under the No Action Alternative.

*Mitigation:* None

*Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic):* Standard 3 of the *BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado* states that plant and animal communities of native and desirable species should be maintained at viable population levels to sustain public land health. The Project Area presently meets the public land health standards for terrestrial animal communities. With implementation of mitigation measures and successful revegetation, the proposed project would have no effect on the land health standard.

**OTHER NON-CRITICAL ELEMENTS:** For the following elements, only those brought forward for analysis will be addressed further.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
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Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Access and Transportation			X
Cadastral Survey	X		
Fire Management			X
Forest Management			X
Geology and Minerals			X
Hydrology/Water Rights			X
Law Enforcement		X	
Noise		X	
Paleontology			X
Rangeland Management			X
Realty Authorizations	X		
Recreation			X
Socio-Economics		X	
Visual Resources			X
Wild Horses	X		

## ACCESS AND TRANSPORTATION

*Affected Environment:* The Project Area is located approximately between an existing county road and Fawn Creek. Access from the existing county road to the Project Area would be constructed. County Road 5 is the primary access road to the general vicinity of the Project Area and is paved. The north end of CR 5 is accessed from Colorado Highway 64 between Meeker and Rangely. The south end of CR 5 is accessed from Colorado Highway 13, north of Rifle. From CR 5, the Project Area is accessed by heading west on CR 26 for approximately two miles, to the intersection with CR 29. From the intersection of CR 26 and CR 29, travel Southwesterly on CR 29 for 1.3 miles to the proposed access road. Turn left on the access road and travel south approximately 0.1 mile to the Project Area.

The access road connecting the Project Area to CR 29 would be approximately 528 feet long and would be located entirely on Fee surface. The road would be constructed to address on-the-ground conditions with the goal of minimizing surface disturbance.

Average daily traffic numbers compiled from the Colorado Department of Transportation (CDOT) and the Garfield and Rio Blanco counties Road and Bridge Departments were compiled for EAs in the vicinity of the Project Area (BLM 2006b, 2006c). Table 6 shows this compiled data for major roads that would access the Project Area.

**Table 6.** Average daily traffic for major access roads in the Project Area.

Road	Baseline Average Daily Traffic
Colorado Highway 13 between Rifle and Junction with South End of Rio Blanco CR 5 (Piceance Creek Road)	2,300 <sup>1</sup>

Road	Baseline Average Daily Traffic
Colorado Highway 13 Between South End of CR 5 and Colorado Highway 64 Near Meeker	2,300 <sup>1</sup>
Colorado Highway 64 between Meeker and North End of CR 5	830 <sup>1</sup>
Colorado Highway 64 between north end of CR 5 and Colorado Highway 139	1,700 <sup>1</sup>
CR 5 (Piceance Creek Road)	562 - 1,076 <sup>2</sup>

Source: BLM 2006b, 2006c

<sup>1</sup>Colorado Department of Transportation.

[http://www.dot.state.co.us/App\\_DTD\\_DataAccess/Downloads/TrafficVolumeMaps/TVMap1.pdf](http://www.dot.state.co.us/App_DTD_DataAccess/Downloads/TrafficVolumeMaps/TVMap1.pdf)

<sup>2</sup>Rio Blanco Country Road and Bridge Department, 2005. Lower traffic range measured in May, high traffic range measured in late October/early November, coinciding with big game hunting season.

CR = County Road #

*Environmental Consequences of the Proposed Action:* The Proposed Action would not create additional access onto BLM lands, but it would increase traffic on existing roadways. The increased vehicle traffic associated with proposed Project activities would include heavy equipment and loads.

During construction, numerous workers and contractors would commute regularly to and from the job site. Construction of access to the site would cause a disruption to the flow of traffic along CR 29 for a short period of time. After construction at the site is completed, smaller crews or individuals would commute periodically for maintenance and other associated activities.

The county roads in the vicinity of the Project Area were originally designed for rural and agricultural uses and were not intended for the repeated heavy loads associated with the current increase in oil and gas development. The increasing traffic volume, frequency, and vehicle size on these rural roads has and would likely continue to result in an increase in the costs associated road repair and maintenance. If road maintenance activities are not commensurate with the levels of road usage, surface damage to roads may occur.

*Environmental Consequences of the No Action Alternative:* There would be no additional environmental consequences associated with the No Action Alternative.

*Mitigation:* All activities would be required to comply with all applicable local, state, and federal transportation laws, statutes, regulations, standards, and plans. Activities would strictly adhere to “Gold Book” fourth edition surface operating standards for oil and gas exploration and development (BLM 2006a).

Further mitigation of impacts to access and transportation should be achieved through management practices including:

- use of a construction yard as the primary parking for personal vehicles;
- encouragement and/or arrangement for employees and contractors to carpool to and from the site;
- requiring contractors and employees to comply with all posted speed limits;
- compliance with county and state weight restrictions and limitations;

- controlling dust along unsurfaced access road and minimizing the tracking of mud onto paved roads; and
- post-construction restoration of unsurfaced roads to equal or better conditions than existed before construction.

## **FIRE MANAGEMENT**

*Affected Environment:* According to the White River ROD/RMP, the objective of fire management in the area is to protect public health, safety, and property as well as allow fire to carry out important ecological functions. Prescribed fire, which includes both management and natural ignition sources, may be used to achieve land or resource management objectives.

The mature plant communities and relatively dry climate of the Piceance Basin make this area prone to fire especially during the heat of summer when rains are infrequent and dry thunderstorms are common. Fires in this area move quickly as they gain momentum from the flashy fuels and considerable fuel loads associated in mature undisturbed pinyon-juniper woodland habitats. Most of these communities are rejuvenated by fire to maintain healthy, diverse plant communities. Emphasizing the natural fire disturbance regimes would provide for the maximum plant species composition diversity, restore plant vigor, and production. Fire would provide the means to change the plant communities from woodland dominated sites to perennial grass to early successional stages. Natural fire probably maintains woodlands at a constant overall acreage, but human interference in this natural cycle through fire suppression has extended the range of these woodlands.

Wells 24-30-297 and 11-31-297 and the access road are located near the Fawn Creek drainage, south of Black Sulphur Creek. Habitat consists of predominately an open canopy of a scattered mature pinyon-juniper woodland forest with tree heights generally averaging about 20 to 25 feet inter-mixed with scattered sagebrush and forbs. Some dead and down debris and flashy fuels (e.g. forbs and shrubs) exist ranging in the 5 to 10 hour fuels category, but spreading potential is low due to the high percentage of continuous exposed bare ground.

*Environmental Consequences of the Proposed Action:* Nearly all the plant communities in the general vicinity of the Project Area are mature pinyon-juniper woodland habitats with moderate to considerable fuel loads. The Proposed Action would initially clear 3.03 acres area in the sagebrush community.

The proposed surface disturbance and the inclusion of structures would adversely impact the fire cycle and the proper role of fire burning naturally within the ecosystem. These disturbances would break up continuous fuels and reduce the potential of a natural mosaic burn. Vegetation removal and soil disturbance could provide an opportunity for noxious weeds and cheatgrass to invade the Project Area, which could result in a shift from the natural fire regime to an unnatural, more frequent, fire regime and the loss of key ecosystem components (BLM 2006b). In addition, the proposed access road may be used by the general public for a variety of reasons. This increased public use could increase the potential for a man caused wildland fire.

*Environmental Consequences of the No Action Alternative:* No impacts associated with the Proposed Action would occur. Although, fire suppression has greatly increased the fuel buildup and enhanced the maturity and encroachment of shrubs and woodlands, thus producing older age plant communities with decreased diversity in structure and species composition. Large areas of mature vegetation would continue a downward decline in diversity of plant species, especially of herbaceous species. These conditions could potentially produce larger, more intense fires, and would cost more to suppress.

*Mitigation:* The Operator would be responsible for developing a fire management plan as an integral part of the overall safety plan that would include evacuation procedures and designate escape routes. In the case of an incident, the Operator shall immediately notify the BLM via Craig Interagency Dispatch 970-826-5037. No suppression actions shall be taken until meeting with the incident commander for any given incident. Further mitigation of impacts to the fire cycle should be achieved through management practices including:

- notify the BLM, and affected landowners, of any fires during construction, maintenance, or operation;
- inform site personnel of fire prevention practices concerning smoking materials, welding, etc., and make hand tools available, including shovels and fire extinguishers, for fire control;
- furnish all motor vehicles and equipment with fire-extinguishing equipment and stage fire fighting equipment and water tanks on site in readily accessible areas;
- construct defensible space as necessary and determine design criteria in coordination with BLM fire staff;
- an emergency evacuation plan would be followed in the event of a fire;
- perform all welding activities in areas where vegetation and other flammable materials have been removed;
- control noxious weeds and cheatgrass as discussed in the Invasive, Non-Native Species section;
- seed disturbed areas as discussed in the Vegetation and Soils sections;
- redistribute large, woody material salvaged during clearing operations on BLM WRFO administered lands and disperse materials over the portion of the right-of-way from which the trees and brush were originally removed to meet fire management objectives (not to exceed 20% total ground cover for woody debris) and to provide wildlife habitat, seedling protection, and deter vehicular traffic; and
- refer to the BLM Fire Management Activity Plan (FMAP) for additional mitigation requirements.

## **FOREST MANAGEMENT**

*Affected Environment:* Within the White River Resource Area (WRRA), the forest management program has been divided into two sections, Timberland Management and Woodland Management. Timberlands consist of those lands that support stands of trees dominated by Douglas-fir (*Pseudotsuga menziesii*), spruce (*Picea* spp.)-fir (*Abies* spp.), lodgepole pine (*Pinus contorta*), and aspen (*Populus tremuloides*). Woodlands consist of those

lands that support stands of trees predominated by pinyon-juniper and Gambel oak. There are approximately 24,125 acres of timberlands and approximately 622,590 acres of woodlands in the WRRRA (BLM 1997b).

The Project Area is dominated a community of inter-mountain basin big sagebrush shrubland and is not characterized by either timberland or woodland communities.

*Environmental Consequences of the Proposed Action:* The Proposed Action would not impact management objectives for timberland or woodland areas. There would be no forestry impacts associated with the Proposed Action.

*Environmental Consequences of the No action Alternative:* There would be no harvesting of trees under the No Action Alternative, which would maintain stand integrity and woodland habitat health.

*Mitigation:* None.

## **GEOLOGY AND MINERALS**

*Affected Environment:* The Project Area is located within the Piceance Basin. The Piceance Basin occupies approximately 7,100 square miles in northwestern Colorado (Colorado School of Mines 2007). The Piceance Basin is asymmetric, with steep beds on the eastern boundary and gentle dips on the western edge. The Basin's boundaries are the White River to the north, the Cathedral Bluffs to the west, the Roan and Book cliffs on the south, and to the east the crest of the ridge system that serves as the head of Piceance Creek. The eastern edge is not as clearly defined, but the north south trending ridges, called the Grand Hogback that run from Rio Blanco to the White River, provide a general marker for the eastern boundary of the Basin. The Basin generally trends from southeast to northwest. The higher elevations, on the south side of this northwest trending down warp, reach 9,000 feet, while at the north end, where Piceance Creek flows into the White River, the elevation is 5,700 feet (BLM 2007).

The Uinta Formation (Eocene) is present immediately below the surface within the Project Area (Duncan 1976). The proposed wells would be drilled from the alluvium of the Uinta Formation into the Williams Fork Formations of the Late Cretaceous Age Mesaverde Group. The following is a summarized discussion of these geological features.

The Late Eocene Uinta Formation consists of fluvial deposits that overlie the Green River Formation from the last phase of Lake Uinta. Later, the lake filled up with volcaniclastic material, followed by abundant bedded evaporites. Oil shale and sodium resources occur in the parachute creek Member of the Green River formation. (EERE 2007).

The Mesaverde Group consists of three dominant reservoir facies: lenticular, fluvial sandstones of the Williams Fork Formation, coals that occur in the basal portion of the Williams Fork Formation, and extensive shoreline-marine sandstones of the Iles Formation. The fluvial sandstones of the Williams Fork Formation are approximately 4,000 feet thick in the eastern part of the Piceance Basin, thinning to <2,000 feet on the Douglas Creek Arch and 2,200 to 2,900 feet

in the Natural Buttes Field in the Uinta Basin. These sandstones are lithic arkoses and feldspathic arenites containing authigenic quartz and carbonate cement. They have low porosities, ranging from 7 to 12 percent, and low matrix permeabilities due to the abundance of authigenic clays (EERE 2007).

Fresh water aquifers that will be encountered during drilling are; the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. These geologic zones along with upper portion of the Wasatch are known for difficulties in drilling and cementing.

Surface location of the pad is located in an area identified in the ROD/RMP as available for sodium leasing and oil shale leasing and is approximately 1.5 mile northwest of Chevron U.S.A.'s Oil Shale Research Demonstration and Development tract COC-69165.

*Environmental Consequences:* Drilling and completion of this well may adversely affect the fresh water aquifers if there is loss of circulation or problems cementing the casing. However, the proposed drilling, cementing and completion procedure of the proposed action isolates the formations and will prevent the migration of gas, water, and oil between formations. Development of these wells will deplete the hydrocarbon resources in the targeted formation. Well locations may prevent an orderly future development of sodium and oil shale resources.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative there would be no additional impacts to the geological resources within the Project Area and the natural gas resources in the targeted zones will not be developed at this time.

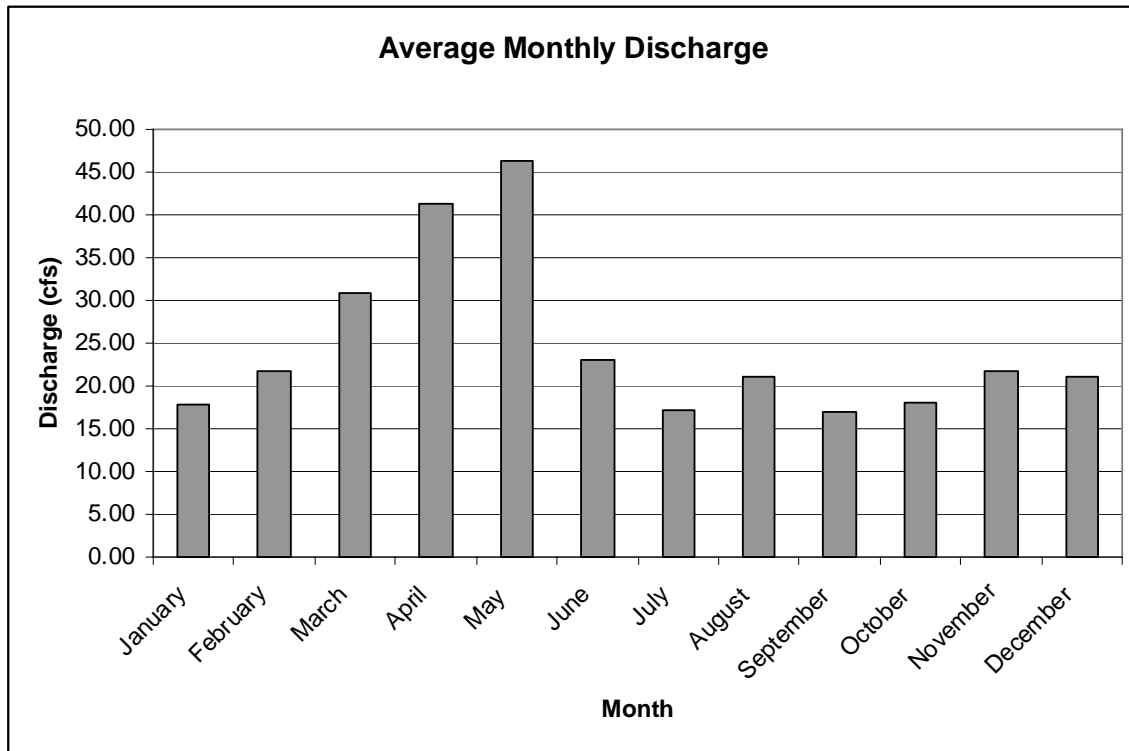
*Mitigation:* None

## **HYDROLOGY AND WATER RIGHTS**

*Affected Environment:* The Project Area is located in the Piceance drainage of the White River Basins within the Lower Colorado River Basin. Groundwater in the proposed Project Area is associated with the Colorado Plateau aquifer system and is located in the Piceance Basin structural unit. The Project Area has an arid to semi-arid climate with dry, sunny conditions and a wide diurnal temperature range. Average annual precipitation ranges from approximately 12 to 20 inches. The basin receives precipitation in the form of both rainfall and snow. Approximately 98 percent of this precipitation is lost to evapotranspiration (Taylor 1987). Water that remains in the system becomes surface water flow or infiltrates, recharging groundwater. Groundwater and surface water hydrology are interconnected in this region; however, the exact location and extent of hydrologic connections are not well understood.

Surface Water: The closest USGS gage with current data is on Piceance Creek below Ryan Gulch, approximately 3.5 miles downstream (USGS gage 09306200) of the confluence with Black Sulphur Creek. The gage is located at an elevation of 6,070 feet and is approximately 6 miles from the Project Area. An examination of this flow data shows that mean monthly flows are the highest in the spring time (Figure 2), which coincides with runoff from snowmelt, and

lowest in late summer and early fall. High intensity summer storm pulses also produce short-term high flows in this area.



**Figure 2.** Mean monthly discharge on Piceance Creek below Ryan Gulch

The Project Area is not currently highly populated but there are large demands for water for irrigation and industrial use. Mineral development including coal bed methane extraction and oil shale development is increasing in the area and resulting in additional demands for water.

The Colorado Decision Support System (CDSS 2007) was searched to identify water rights near the Project Area. Within an approximate 1 mile radius, there are water rights associated with springs and ditches sourced by Fawn Creek. Many of these are associated with the Exxon Lower Fawn Creek diversion located just downstream of the Project Area. Beneficial uses associated with water rights within approximately one mile of the Project Area include storage, irrigation, commercial, industrial, augmentation, fishery, recreation, municipal, and domestic. When the search was expanded to an approximate 2 mile radius, many more water rights were found. The sources of these water rights are Black Sulphur Creek and Fawn Creek. Most of these rights are associated with wells, reservoirs, and springs. In addition, there are three rights associated with wells (two along Hunter Creek and one along Fawn Creek). Beneficial uses storage, irrigation, commercial, industrial, augmentation, fishery, recreation, municipal, and domestic.

Groundwater: In the Piceance basin, the primary source of natural groundwater recharge is the infiltration of snowmelt in higher elevation areas of the basin. Sub-surface flow of the recharge occurs downward and laterally passing through a system of permeable zones and leaking through less permeable confining units. The formation of fractures and solution channels has increased the permeability of the system such that local recharge of lower parts of the formation can occur.

Thin, narrow, and discontinuous alluvial deposits located in the stream valleys contain locally important surficial aquifers. In the Piceance Basin, these unconsolidated alluvial aquifers are the most productive aquifers in the Basin (EPA 2004). The City of Meeker is supplied by wells in the White River alluvium, where the thickness of the saturated alluvium is more than 100 feet thick (Welder 1987). Saturated alluvium also exists near the Project Area. Test holes drilled in Piceance Creek, approximately 4 miles upstream of the Black Sulphur Creek confluence penetrated about 70 feet of saturated sand and gravel (Welder 1987). However, test holes drilled on Piceance creek about 4 miles downstream of the Black Sulphur Creek confluence penetrated as much as 70 feet of organic clay. This demonstrates that the characteristics of the alluvium in this area are not uniform and can change over a relatively short distance.

The shallowest of the bedrock aquifer is the Uinta-Animas aquifer, consisting of the upper and lower sub-aquifers, separated by the Mahogany Zone of the Parachute Creek Member, a poorly permeable layer of oil shale. The permeable portions of this aquifer are present in the silty sandstone, siltstone, and marlstone of the Uinta Formation and the dolomitic marlstone of the Parachute Creek Member of the Green River Formation. Portions Uinta and Green River formations are associated with oil shale reserves in the Basin (Taylor 1987). Permeability in the upper and lower aquifers is increased by fractures and solution channels. Locally, groundwater flow is controlled by these fractures and solution channels; regionally, it is controlled by precipitation and stream systems (Taylor 1987). The thickness of the Uinta-Animas aquifer generally increases toward the central part of each basin. In the central part of Piceance Basin, the Uinta-Animas aquifer is as much as 2,000 feet thick (Robson and Banta 1995).

The Mesaverde aquifer is located below the Uinta-Animas aquifer, separated by a confining unit. The Mesaverde aquifer is located in the Mesaverde Group which contains the area's coalbed methane reserves. The thickness of the Mesaverde aquifer in the Piceance Basin is generally between 2,000 and 4,000 feet although localized areas of greater or lesser thicknesses have been documented.

The Dakota-Glen Canyon aquifer system underlies the Uinta-Animas and Mesaverde aquifers. This system consists of a series of aquifers and confining units in rocks ranging in age from late Cretaceous to Triassic. The depth to the top of the Dakota-Glen Canyon aquifer exceeds 12,000 feet in substantial parts of the Piceance Basin.

*Environmental Consequences of the Proposed Action:* Potential impacts to surface and groundwater flow patterns may occur as a result of proposed action. On-site groundwater extraction would occur as produced water is removed from saturated areas encountered during the drilling and extraction process. This local removal of groundwater from the system could result in minor impacts to groundwater flow at this site. Local changes in groundwater flow could potentially lead to indirect impacts on surface water in Black Sulphur Creek caused by a reduction in groundwater discharge but given the relatively slow movement of groundwater in the subsurface and the depth that produced water would be extracted, potential depletions would likely be minimal.

Direct impacts to surface water would also likely be minimal. Due to increased surface disturbance from the well pad and roads, surface water drainage patterns may be altered locally. Runoff that otherwise would have infiltrated into the ground may flow more rapidly into the nearby drainages as overland flow. This effect is likely to be localized and would not alter the overall surface water patterns in the Basin. This decrease in infiltration to groundwater would only occur locally and is not likely to significantly alter natural recharge patterns.

If induced fracture networks were to alter the natural interactions between aquifer systems (e.g., if fractures in confining units are formed), changes in groundwater and surface water flows could occur. If flow patterns are altered, natural recharge/discharge patterns could be impacted. Recharge and discharge could occur in different amounts or different locations resulting in changes to gaining and losing reaches of the stream and subsequently, channel morphology. The productivity of wells and springs located downgradient of the Project Area could also be affected. The processes governing these potential effects are complicated and the extent and magnitude of these effects is not known. However, current well design and drilling techniques consider these potential effects and incorporate controls (casing) to minimize changes to the natural connections between aquifers.

Impacts from the Proposed Action on other water rights in the area have not been quantified. As discussed above, some ground water would be removed from the system as produced water associated with Project activities. A right to use groundwater typically requires the approval of an augmentation plan to protect downstream or downgradient users. The produced water would be extracted from saturated zones in the Mesaverde Group. This water is of poor quality and not drawn on for use in the area. The sources of the nearby wells are the alluvium of Fawn Creek and Hunter Creek. The hydrologic connectivity between the groundwater affected by Project activities and the groundwater extracted by the alluvial wells is likely limited.

Potential impacts to water quality are addressed in the section Water Quality, Surface and Ground.

*Environmental Consequences of the No Action Alternative:* There are no environmental consequences associated with the No Action Alternative.

*Mitigation:* All activities would be required to comply with all applicable local, state, and federal water laws, statutes, regulations, standards, and implementation plans. Standard drilling methods including surface casing would be implemented to minimize potential impacts from hydraulic fracturing. For additional mitigation, refer to the mitigation outlined in the Water Quality and Geology/Minerals portions of this document.

## **PALEONTOLOGY**

*Affected Environment:* According to published geologic mapping (Duncan 1976), the Project Area is immediately underlain by Holocene alluvium. The following is a summarized discussion of the geology and paleontology of alluvium, as well as its paleontological sensitivity

according to the Probable Fossil Yield Classification (PFYC) System (USFS 1996) and BLM Condition System (Conditions 1 through 3).

Holocene Alluvium According to geologic mapping (Duncan 1976), alluvium within the Project Area consists of silt, sand and gravel of floodplains and alluvial fans. Floodplain deposits are mostly gray, buff, and brown silt and sand. Alluvial fan deposits consist of unsorted sediments including angular sandstone and marlstone boulders and pebbles mixed with silt and sand, and are derived from nearby hilly terrain and deposited by torrential floods. The thickness of these deposits ranges from 0 to 50 feet (Duncan 1976).

Holocene-age surficial deposits such as alluvium may contain the unfossilized remains of modern taxa but are too young to contain in situ fossils. Therefore, surficial deposits within the Project Area have low paleontological sensitivity (BLM Condition 3, PFYC Class 2).

*Environmental Consequences of the Proposed Action:* For project areas which are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also impacted. Due to the low paleontological sensitivity of Holocene alluvium, there is a low potential to impact scientifically significant paleontological resources during ground disturbance associated with the Proposed Action.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to paleontological resources under the No Action Alternative.

*Mitigation:* The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

## RANGELAND MANAGEMENT

*Affected Environment:* The proposed well is within the Fawn Creek allotment (BLM 2007). The affected pasture is used for spring and winter use on an alternate yearly basis. Table 7 shows the permitted use for the entire allotment.

**Table 7.** Fawn Creek allotment permitted use.

Allotment #	Allotment Name & Permittee	Livestock		Authorized Use	% BLM	Total Acres	AUMs
		#	Kind				
06024	Fawn Creek CW Brennan	906	Cattle	5/01-6/15	70	37,923	959
		906	Cattle	6/16-10/9	5		173
		570	Cattle	10/10-11/15	70		485
		15	Horses	5/1-10/31	70		64

AUMs = Animal Unit Months

*Environmental Consequences of the Proposed Action:* The Proposed Action would result in an immediate loss of about 1 Animal Unit Months (AUMs) of livestock forage and a long-term loss of .5 AUMs when only the road remains and the well pad has been revegetated. The removal of vegetation would also increase the potential for noxious weed infestations in the project area. However, disturbed areas previously dominated by pinyon-juniper woodland and revegetated with native grasses could provide additional forage for livestock.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative there would be no additional impacts to livestock grazing in the Project Area.

*Mitigation:* All roadside and well location cut and fill slopes would be revegetated immediately after construction with Native Seed mixture #5. Revegetation operations would start immediately following the completion of recontouring/dirt work operations.

Reserve pit fencing would comply with BLM specifications as described in the Gold Book (BLM 2006a). Reserve pit fence specifications would be included as part of the conditions of approval.

If construction/development occurs between April 15 and November 15, the Operator would be required to water surface access road to reduce airborne dust and damage to roadside vegetation communities.

## RECREATION

*Affected Environment:* The Project Area is located within the White River Extensive Recreation Management Area (ERMA). The BLM manages the White River ERMA for unstructured recreation activities including hunting, dispersed camping, hiking, horseback riding, wildlife viewing, and off-highway vehicle use. The Recreation Opportunity Spectrum (ROS) classifies federal land as primitive; semiprimitive, nonmotorized; semiprimitive, motorized;

roaded natural; rural; or urban. The project does not fall in an area classified by the ROS. The area along the White River, north of the project, is classified as roaded natural.

The Project Area is located near the Piceance Creek State Wildlife Area, which provides camping, fishing, hunting, wildlife watching, and photography. Fawn Creek is classified as Recreation Class 2 (see Water Quality section). These surface waters are suitable or intended to become suitable for recreational uses, other than primary contact, including fishing and other streamside recreation.

*Environmental Consequences of the Proposed Action:* The public would lose approximately 3.03 acres of dispersed recreation potential while the well is in operation. Recreationists would likely avoid the well and disperse elsewhere within the White River ERMA. The recreational experience of hunters could be disrupted if construction occurs during hunting seasons (September through November). Increased traffic levels resulting from the new well pad and associated road could increase the likelihood of human interactions, increase the sights and sounds associated with the human environment, and create an environment that appears less natural.

*Environmental Consequences of the No Action Alternative:* The No Action Alternative would have no impact on recreation within the White River ERMA.

*Mitigation:* None.

## **VISUAL RESOURCES**

*Affected Environment:* Wells 11-31-297 and 24-30-297 and associated access road are located in an area classified as Visual Resource Management (VRM) Class III and IV. The well pad is located along Fawn Creek, which is Class III, and the surrounding area is Class IV. The objective for Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate, and any changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. Management activities may attract attention but should not dominate the view of the casual observer. Class IV areas allow major modifications to the existing character of the landscape. Management activities may dominate the view and be the major focus of viewer attention. However, management of Class IV areas should attempt to minimize the impact of activities through careful location, minimal disturbance, and repeating the basic elements found in the predominant natural features of the landscape.

*Environmental Consequences of the Proposed Action:* The Proposed Action would not be visible to a casual observer traveling along paved routes in the area. Most people traveling along unpaved roads in the area would be energy related personnel, local ranchers, and seasonal big game hunters. The drilling activities may be seen temporarily, but would not dominate the view. The wells would be located in stands of pinyon-juniper and sagebrush habitat. All above ground facilities would be painted to mimic and blend with the surrounding vegetation. Interim reclamation and revegetation would also minimize visual disturbance in the Project Area during

production. Therefore, the level of change to the characteristic landscape would be less than moderate and the objectives of the VRM III and IV classification would be retained.

*Environmental Consequences of the No Action Alternative:* There would be no impacts to visual resources from the No Action Alternative.

*Mitigation:* All permanent (onsite for 6 months or longer) structures, facilities and equipment placed onsite would be painted Munsell Soil Color Chart Juniper Green or equivalent within six months of installation.

**CUMULATIVE IMPACTS SUMMARY:** This action is consistent with the scope of impacts addressed in the White River ROD/RMP. The cumulative impacts of oil and gas activities are addressed in the White River ROD/RMP for each resource value that would be affected by the Proposed Action.

#### **REFERENCES CITED:**

- Bureau of Land Management (BLM). 2007. Topography and Physiography Report of North Western Colorado. Available online at <http://www.co.blm.gov/wrra/documents/TopographyandPhysiographyreportofNWCO.pdf> Accessed on June 7, 2007.
- \_\_\_\_\_. 2006a. The Gold Book. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development.
- \_\_\_\_\_. 2006b. Chevron USA, Inc. Oil & Gas Oil Shale Research, Development and Demonstration Tracts Environmental Assessment. CO-110-2006-117.
- \_\_\_\_\_. 2006c. Shell Frontier Oil & Gas Oil Shale Research, Development and Demonstration Tracts Environmental Assessment. CO-110-2006-117.
- \_\_\_\_\_. 2000. Colorado BLM State Director's Sensitive Species List (Animals and Plants) June, 2000. Accessed June 6, 2007 at [http://www.blm.gov/co/st/en/BLM\\_Programs/botany/Sensitive\\_Species\\_List\\_.html](http://www.blm.gov/co/st/en/BLM_Programs/botany/Sensitive_Species_List_.html)
- \_\_\_\_\_. 1997a. Resource Management Plan, Final Environmental Impact Statement. White River Resource Area.
- \_\_\_\_\_. 1997b. White River Record of Decision and Approved Resource Management Plan. Available online at [http://www.co.blm.gov/nepa/rmpdocs/wrfodocs/White\\_River/Wrrr/Wrrr.pdf](http://www.co.blm.gov/nepa/rmpdocs/wrfodocs/White_River/Wrrr/Wrrr.pdf). Accessed on June 8, 2007.

- \_\_\_\_\_. 1992. BLM Manual 9015 Integrated Weed Management. Available online at <http://www.blm.gov/ca/st/en/prog/weeds/9015.html>. Accessed on June 8, 2007.
- Colorado Decision Support Systems (CDSS). 2007. Water Rights Database. Accessed on June 7, 2007. Database last refreshed on May 2, 2007.  
<http://cdss.state.co.us/DNN/WaterRights/tabid/76/Default.aspx>
- Colorado Department of Public Health and Environment (CDPHE). 2006a. Colorado Regulation No. 93, 2006 303(d) List of Water-Quality-Limited Segments Requiring TMDLS. 5 CCR 1002-93.
- \_\_\_\_\_. 2006b. Colorado Regulation No. 94, 2006 Monitoring and Evaluation List of Water Bodies Identified for Additional Water Quality Evaluation. 5 CCR 1002-94
- \_\_\_\_\_. 2007. Regulation No. 37, Classifications and Numeric Standards for Lower Colorado River Basin. 5 CCR 1002-37.
- Colorado Division of Wildlife (CDOW). 2007. Natural Diversity Information Source. Available at <http://ndis.nrel.colostate.edu/wildlife.asp>.
- Colorado School of Mines. 2007. The Piceance Basin and the Roan Plateau. Available online at [http://www.mines.edu/outreach/Cont\\_Ed/emfi2005/PiceanceRoan.pdf](http://www.mines.edu/outreach/Cont_Ed/emfi2005/PiceanceRoan.pdf). Accessed on June 7, 2007.
- Davenport, B., D. Archuleta, and J. Conner. 2005. Class III Cultural Resources Inventory for Thirteen Proposed Well Locations and Related Linear Routes in Rio Blanco County, Colorado. Prepared for Williams Production RMT by Grand River Institute. Submitted to the BLM, White River Field Office, Meeker, CO.
- Duncan, D.C. 1976. Preliminary Geologic Map of Rock School Quadrangle, Rio Blanco County, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-757 (1:24,000).
- Energy Efficiency and Renewable Energy (EERE). 2007. Guide to Tribal Energy Development: Uintah and Ouray Indian Reservation. Available online at [http://www.eere.energy.gov/tribalenergy/guide/pdfs/uintah\\_ouray.pdf](http://www.eere.energy.gov/tribalenergy/guide/pdfs/uintah_ouray.pdf). Accessed on June 7, 2007.
- Environmental Protection Agency (EPA). 2004. Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs, Attachment 3 – The Piceance Basin.
- Hammerson, G. 1999. Amphibians and Reptiles of Colorado; A Colorado Field Guide. Second Edition. University Press of Colorado and Colorado Division of Wildlife. Niwot, Colorado.

- Natural Resources Conservation Service (NRCS). 2007. Web Soil Survey of Rio Blanco County Area, Colorado. Available at <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed May 2007.
- Partners in Flight. 2000. Partners in Flight Land Bird Conservation Plan, Colorado. Version 1.0. January 2000.
- Robson, S.G. and E.R. Banta 1995. Ground Water Atlas of the United States. USGS Publication HA 730-C. Arizona, Colorado, New Mexico, Utah.
- Southwest Regional Gap Analysis Program (SWReGAP). 2007. Southwest Regional Gap Analysis Project 'PROVISIONAL' Landcover and Related Datasets. Available online at <http://earth.gis.usu.edu/swgap/>. Accessed on June 4, 2007.
- Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado Rare Plant Field Guide. Prepared for the Bureau of Land Management, the U.S. Forest Service and the U.S. Fish and Wildlife Service by the Colorado Natural Heritage Program.
- State of Colorado Department of Agriculture (CSD). 2007. Rio Blanco County Noxious Weed List. Available online at <http://www.ag.state.co.us/CSD/Weeds/mapping/counties/RioBlanco.html>. Accessed June 8, 2007.
- Taylor, O.J. 1987. Hydrologic System of Piceance Basin, in Taylor, J., ed., Oil Shale, Water Resources, and Valuable Minerals of the Piceance Basin, Colorado: The Challenge and Choices of Development. US Geol. Surv. Prof. Paper 1310.
- Tobin, R.L. 1987. Water Quality in the Piceance Basin, in Taylor, J., ed., Oil Shale, Water Resources, and Valuable Minerals of the Piceance Basin, Colorado: The Challenge and Choices of Development. US Geol. Surv. Prof. Paper 1310.
- U.S. Department of Agriculture (USDA). 2003. Colorado State-Listed Noxious Weeds. Available online at <http://plants.usda.gov/java/noxious/>. Accessed June 4, 2007.
- \_\_\_\_\_. 1982. Soil Survey of Rio Blanco County Area Colorado.
- United States Forest Service (USFS). 1996. Probable fossil yield classification (PFYC): Developed by the Paleontology Center of Excellence and the Region 2 (USFS) Paleo Initiative.
- U.S. Fish and Wildlife Service (USFWS). 2007. Endangered species lists by county in Colorado. Available online at <http://mountainprairie.fws.gov/endspp/CountyLists/COLORADO.htm>. Accessed June 8, 2007.

Welder, F.A. 1987. Unconsolidated Deposits of the Piceance Basin, in Taylor, J., ed., Oil Shale, Water Resources, and Valuable Minerals of the Piceance Basin, Colorado: The Challenge and Choices of Development. US Geol. Surv. Prof. Paper 1310.

**PERSONS / AGENCIES CONSULTED:** None.

**INTERDISCIPLINARY REVIEW:**

<b>Project Team</b>		
<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>
<b>BLM Oversight</b>		
Keith Whitaker	Natural Resource Specialist	Visual Resource Management
Paul Daggett	Mining Engineer	Geology and Minerals
Brett Smithers	NRS/Wildlife Biologist (Project Leader)	Migratory Birds; Threatened, Endangered and Sensitive Animal Species; Wildlife; Wetlands and Riparian Zones
Ken Holsinger	Botanist	Areas of Critical Environmental Concern; Threatened and Endangered Plant Species
Chris Ham	Outdoor Recreation Planner	Recreation; Wilderness; Access and Transportation
Mark Hafkenschiel	Rangeland Management Specialist	Vegetation; Invasive, Non-Native Species; Rangeland Management
Michael Selle	Archeologist	Cultural and Paleontological Resources
Tom Johnson	Hydrologist	Air Quality; Water Quality, Surface and Ground; Hydrology and Water Rights; and Soils
Penny Brown	Realty Specialist	Realty Authorizations
Ken Holsinger	Botanist	Fire Management
Ken Holsinger	Botanist	Forest Management
Tom Johnson	HazMat Collateral	Wastes, Hazardous or Solid
Melissa J. Kindall	Range Technician	Wild Horses

<b>SWCA (Third Party Contractor)</b>		
Larry Semo	Senior Scientist	Senior Review, all areas; Migratory Birds; Threatened, Endangered and Sensitive Animal Species; Wildlife, Terrestrial and Aquatic
Chad Baker	Environmental Specialist	Migratory Birds; Threatened, Endangered and Sensitive Animal Species; Wildlife, Terrestrial and Aquatic; Areas of Critical Environmental Concern; Wastes, Hazardous or Solid; Threatened and Endangered Plant Species; Invasive, Non-Native Species; and Vegetation
Hillary Browning	Water Resources Specialist/Planner	Air Quality; Water Quality, Surface and Ground; Hydrology and Water Rights; Geology and Minerals; Soils; Access and Transportation; Visual Resources; Forest Management; Wetlands and Riparian Zones; Fire Management; and Rangeland Management;

# **Finding of No Significant Impact/Decision Record (FONSI/DR)**

## **CO-110-2007-199-EA**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE:** The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

**DECISION/RATIONALE:** It is my decision to approve the proposed action with the mitigation measures listed below.

### **MITIGATION MEASURES:**

1. All activities would be required to comply with all applicable local, state, and federal air quality laws, statutes, regulations, standards, and implementation plans. Documentation of this compliance would be provided to the BLM. Further mitigation of air quality impacts would also be required, including:

- the limitation of vehicle speeds on associated access road to 15 miles per hour (mph) or another appropriate limit that minimizes visible dust plumes;
- application of a BLM-approved dust suppressant would be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph;
- surfacing of access road constructed on soils susceptible to wind erosion with gravel or other appropriate material;
- suspension of land clearing, grading, earth moving, and excavation activities when wind speed exceeds 20 mph;
- restoration of disturbed areas including re-grading to original contours, revegetation with a BLM-approved seed mixture, and post-seeding placement of woody debris in appropriate areas to increase effective ground cover and retain soil moisture;
- maintenance of construction equipment in good operating condition to ensure engines run efficiently; and
- maintenance of emission controls on vehicles and construction equipment to ensure effective pollutant emission reductions.

2. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If subsurface features are located during clearing of the well pad location, access road, or well tie in pipeline, all construction on the well pad must cease immediately. The AO (i.e., Field Manager or his/her acting representative) would be notified immediately. Within five working days the AO would contact the Operator regarding:

- whether the subsurface features or materials found during construction appear eligible for the NRHP;
- the mitigation measures the Operator would likely have to undertake before the site can be used (assuming that in situ preservation is not necessary); and
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer (SHPO), that the findings of the AO are correct and that the mitigation is appropriate.

3. At any time, if the Operator wishes to relocate the construction activities to avoid the expense of mitigation and/or the delays associated with the process, the AO would assume the responsibility of recording and/or stabilizing the exposed materials, if required. Mitigation technical guidelines and procedures would be provided by the AO. The Operator may resume construction once the AO has verified that mitigation is complete.

4. Pursuant to 43 CFR 10.4 (g) the holder of the authorization must notify the AO, by telephone, followed by written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Pursuant to 43 CFR 10.4 (c) and (d), activities in the vicinity of the discovery must stop and the discovery must be protected for 30 days or until the AO provides notice to proceed.

5. The Operator would conduct all surface activities in accordance with the BLM Manual 9015 - Integrated Weed Management (BLM 1992) and the BLM White River Resource Management Plan (BLM 1997a) Appendix B, Management of Noxious Weeds.

- Conduct pre-construction surveys for noxious weed infestations within the site boundaries and along access road. Surveys should be conducted in spring.
- Consult with BLM and Rio Blanco County Cooperative Extension to determine treatment for noxious weeds, if identified.
- Construction vehicles and equipment would be cleaned, power-washed, and free of soil and vegetation debris prior to entry and use of access road to prevent transporting weed seeds.
- All seed mix, erosion control materials, and reclamation materials would be certified weed free.
- Revegetated areas would be monitored for at least 3 years following seeding to evaluate the need for supplemental seeding and noxious weed control.
- The ROW and other disturbed areas would be monitored for noxious weed infestations, and new or expanding populations would be controlled or eradicated for the duration of the construction, operation, and reclamation phases.
- The presence of Class C weeds in the Project Area requires that the Operator develop and implement management measures to prevent the spread of noxious weeds and install a monitoring system for a minimum of 3 years.

6. The operator will be responsible for implementing mitigation measures that minimize bird injuries or mortality as a result of contact with produced water in the reserve pit. The most effective measure currently being used includes the use of netting to cover the pit. The use of plastic balls that float on the surface and reduce the area that might be perceived by waterfowl as a place to rest and/or forage has also been used, with limited results. The use of plastic flagging

has proven to be ineffective at deterring use by migratory waterfowl for foraging, resting or as a source of free water, and is strongly discouraged. The operator will notify WRFO Natural Resource Specialist, Brett Smithers via Email (brett\_smithers@blm.gov) or by phone ((970) 878-3818) of the method that will be used to prevent impacts to birds two weeks prior to the date when **completion activities** are expected to begin. The operator will also submit a **Sundry Notice** (SN) stating what method will be used, and the anticipated installation date for the deterrent. The BLM-approved method will be applied within **24 hours** after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

7. Pad and road construction, drilling, well completion, workover activity, and reclamation would be subject to the White River ROD/RMP approved timing limitation stipulation TL-04, which disallows disruptive activity (i.e., construction, and drilling and completion-related activities) within 0.5 mile of listed and BLM sensitive raptor nests from February 1 through August 15.

8. The BLM requires the following mitigation in addition to the actions described in the Proposed Action, to ensure impacts from hazardous or solid wastes would be minimized by implementation. In addition, Williams would watch for signs of hazardous or solid wastes throughout excavation and operations at the proposed site, and if found, would take the appropriate reporting and mitigation measures to protect the public and workers, including:

- maintain the Project Area in a sanitary condition at all times;
- provide an adequate number of trash containers on-site;
- dispose of trash and nonflammable wastes at an appropriate waste disposal site;
- provide portable toilets on-site, removing and disposing of contents in accordance with applicable laws and regulations;
- use, store, transport, and/or dispose of hazardous materials in accordance with applicable federal and state laws; and
- implement spill prevention measures, inspection and training requirements, and spill response and notification procedures to minimize the potential for accidental spills or leaks.

9. The holder(s) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) 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 right-of-way or on facilities authorized under this right-of-way 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 or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

10. The holder shall submit documentation of its Spill Prevention Containment and Countermeasure (SPCC) plan, *if applicable*; to the authorized officer prior to the scheduled start up.

11. If during any phase of the construction, operation, or termination of the pipeline or related facilities any oil or other pollutant should be discharged from the pipeline system, or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of holder to control, cleanup, or dispose of such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting from, the authorized officer may take such measures as he deems necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the authorized officer shall not relieve the holder of any liability or responsibility.

12. A release of any chemical, oil, petroleum product, produced water, or sewage, etc, (regardless of quantity) must be reported to the Bureau of Land Management – WRFO Hazardous Materials Coordinator, at (970) 878-3800. The Colorado Department of Public Health and Environment (CDPHE) should be notified, if applicable, through the 24-hour spill reporting line at 1 (877) 518-5608.

13. If the operator encounters any waste dump sites, on or adjacent to the project area, they must be reported to the BLM.

14. All activities would be required to comply with all applicable local, state, and federal water quality law, statutes, regulations, standards, and implementation plans. This compliance includes, but is not limited to the following:

- Prior to commencing construction activities the Operator would consult with the State of Colorado Water Quality Control Division regarding applicable stormwater discharge permits. Permit requirements may include development of a Stormwater Management Plan outlining how BMPs would be used to control runoff and sediment transport. Written documentation that the appropriate permits have been obtained must be provided to the BLM AO. Acceptable forms of this documentation include a copy of the permit or an official verification letter from the State of Colorado Water Quality Control Division including the permit certification number.
- Prior to commencing construction activities, the Operator would consult with the US Army Corp of Engineers (USACE) regarding Section 404 of the Clean Water Act compliance. Where applicable, written documentation to the BLM AO is required prior to the start of construction to indicate that the USACE has been notified and that 404 Permits have been obtained or are not required by the permitting agency. Written documentation may be a copy of the Pre-Construction Notification (PCN) or an official verification letter from the USACE to the Operator stating that a permit has been issued or that a permit is not required.

15. To mitigate for water quality impacts from road runoff and drainage, corrugated metal pipes (CMPs) and drainage dips would be located in such a manner as to avoid discharge onto unstable

terrain such as headwalls or slumps. CMPs are not recommended on roads that have gradients less than 10 percent. Based on the nature of the affected soils, drain dips would be utilized in place of CMPs in these locations. The use of drain dips on road gradients greater than 10 percent should be avoided. Energy dissipaters such as large gravels/small cobbles would be used at culvert and drainage dip inlets/outlets to minimize additional erosion. To mitigate water being channelized down the roadway, all activity would stop when soils or road surfaces become saturated to a depth of 3 inches. Mud blading would be prohibited in attempts to reduce further soil displacement (unless otherwise approved by the BLM).

16. To mitigate additional soil erosion at the well pad and potential increased sediment and salt loading to nearby surface waters, all disturbed areas affected by drilling or subsequent operations, except areas reasonably needed for production operations, would be reclaimed as early as possible and as nearly as practicable to their original condition. These areas shall be maintained to control dust and minimize erosion.

17. To allow for optimal interim reclamation of well pad, all tanks and production facilities would be situated on the access road side of the well pad (unless otherwise approved by the BLM WRFO Field Manager). Interim reclamation of well pad and final reclamation of pipeline ROWs on BLM-administered surfaces would commence as follows:

- Debris and waste materials other than de minimus amounts, including, but not limited to, concrete, sack bentonite and other drilling mud additives, sand, plastic, pipe and cable, as well as equipment associated with the drilling, re-entry or completion operations would be removed.
- Stockpiled topsoil and spoil piles would be separated and clearly labeled to prevent mixing during reclamation efforts.
- Stockpiled topsoil would be seeded with a BLM approved seed mixture. Topsoil stockpiles that would potentially remain in place for extended periods of time (e.g., multiwell locations) would be covered with biodegradable fabrics, such as jute netting or Curlex, and seeded with approved seed mixture.
- Stockpiled topsoil segregated from spoil piles would be replaced during reclamation in its respective original position (last out, first in) to minimize mixing of soil horizons.
- Stockpiled soils (spoil and topsoil) would be pulled back over all disturbed surfaces affected by pipeline/road construction, drilling or subsequent operations, except areas reasonably needed for production operations. Areas on well pad not needed for production operations would be partially reshaped as early and as nearly as practicable to near pre-construction contours. Pipelines would be recontoured to pre-construction contours as soon as construction activities cease.
- The Operator would ensure stockpiled topsoil is evenly distributed over the top of spoil used in recontouring/partial-reshaping efforts.
- Recontoured/partially-reshaped areas would be seeded with a BLM approved seed mixture, and all slopes exceeding 5 percent would be covered with wildlife friendly biodegradable fabrics, such as Jute netting or Curlex, to provide additional protection to topsoil, retain soil moisture, and help promote desired vegetative growth.
- Following seeding and placement of biodegradable fabrics, woody debris cleared during initial construction would be pulled back over the recontoured/partially-reshaped areas to act as flow deflectors and sediment traps. Available woody debris would be evenly

distributed over the entire portion of the reclaimed area and would not account for more than 20 percent of total ground cover.

18. A **Reclamation Status Report** would be submitted to the WRFO biannually for all actions that require disturbance of surface soils on BLM-administered lands as a result of the proposed action. Actions may include, but are not limited to, well pad and road construction, construction of ancillary facilities, or power line and pipeline construction. The Reclamation Status Report would be submitted by 15 April and 15 August of each calendar year, and would include the well number, API number, legal description, project description (e.g., well pad or pipeline), reclamation status (e.g., interim or final), whether the well pad or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, estimate of acres seeded and seeding method (e.g., disk-plowed, drilled, or both). Internal and external review of this report and the process used to acquire the necessary information would be conducted annually, and new information or changes in the reporting process would be incorporated into the report. The Reclamation Status Report would be submitted electronically via email as a Microsoft Excel table to Natural Resource Specialist, Brett Smithers (brett\_smithers@blm.gov).

19. In an attempt to track interim and final reclamation of land use authorizations related to the development of federal mineral resources, the operator is asked to submit Geographic Information System (GIS) data to the White River Field Office (WRFO) for any **post construction** point, polyline or polygon feature that was included in the Application for Permit to Drill (APD) and associated with the proposed action. GIS point, polyline and polygon features may include, but are not limited to, constructed access road, existing roads that were upgraded, pipeline right-of-way corridors, and well pad footprint (i.e., a polygon that shows the total area disturbed for the working surface of the pad and the overburden) for each APD. Geospatial data would be submitted as ArcView datasets (i.e., shapefiles or features), ArcInfo coverage's, or as ArcView compatible data files (e.g., AutoCAD export .dwg or .dxf files). All AutoCAD files must include the projection information and/or spatial (datum) reference to allow import into a spatially referenced GIS format. GIS point, polyline and polygon feature data shall be submitted for each APD submitted for review that includes new disturbance. GIS data shall be submitted electronically to BLM, WRFO Natural Resource Specialist, Brett Smithers (brett\_smithers@blm.gov; Phone: [970] 878-3818) in the UTM, NAD83, Zone 13 projection. If the Operator is unable to send the data electronically, the Operator shall submit the data on compact disk(s) to:

BLM, White River Field Office  
220 East Market Street  
Meeker, Colorado 81641  
Attn: Brett Smithers

If for any reason the location or orientation of the geographic feature associated with the proposed action changes, the operator is asked to submit updated GIS data to BLM, WRFO within 2 weeks of the change, and this information should accompany the Sundry Notice.

20. Upon final abandonment of the well pad, new access road, and completion of pipelines, 100 percent of all disturbed surfaces would be restored to pre-construction contours, and revegetated with a BLM approved seed mixture. Natural drainage patterns would be restored and stabilized

with a combination of vegetative (e.g., seeding) and non-vegetative (e.g. straw bails, woody debris, straw waddles, or biodegradable fabrics) techniques. All available woody debris would be pulled back over recontoured areas to help stabilize soils, trap moisture, and provide cover for vegetation. Monitoring and additional reclamation efforts would persist until reclamation is proven successful (as determined by the BLM).

21. Surface casing and cementing would be installed in wells to protect aquifers from contamination due to hydraulic fracturing or contact with oil and gas products. Any groundwater produced from the Fort Union or Mesaverde Formations would be removed from the site and disposed of due to poor water quality. It would not be stored or evaporated on site, therefore preventing adverse impacts to surface and ground water resources.

22. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment would be required for all locations to intercept contaminants prior to contacting soils and infiltrating into groundwater. All pits shall be lined to protect shallow ground water from pit contents. All wastes associated with construction and drilling would be properly treated and disposed of. Efforts would be taken to avoid direct soil contact with diesel fuels or other pollutants which could be leached into the groundwater.

23. All activities would be required to comply with all applicable local, state, and federal water quality law, statutes, regulations, standards, and implementation plans. This includes compliance with any applicable USACE, CDPHE, and National Pollutant Discharge Elimination System (NPDES) permit requirements. Mitigation measures to further minimize potential impacts to wetland and riparian resources include:

- Install and maintain erosion control structures and bank stabilization to minimize potential for sediment runoff into surface waters or drainages;
- Prohibit storage of hazardous materials, chemicals, fuels, lubricating oils, concrete coating, and refueling activities within 200 feet of wetland or riparian areas;
- Minimizing soil compaction and furrowing by using mats or wide tire/low ground pressure equipment for construction activities within riparian zones (if necessary);
- Completing all construction activities in riparian area during no-flow period;
- Limiting grading, topsoil segregation, and excavation to the area immediately over the trenchline and directly within the footprint of the well pad to avoid excessive disruption of soils and the native seed and rootstock within the soils;
- Performing routine daily inspections on equipment and vehicles to identify leaks and initiate corrective actions;
- Managing all soil materials such that erosion and sediment transport are minimized; and
- Revegetating disturbed areas with BLM-approved seed mixes as soon as practical following disturbance.

24. Mitigate soil loss from roadway and surrounding area by restricting road access to authorized personnel only (e.g. gate and sign newly constructed access road). The Operator would be responsible for segregating topsoil material and backfilling of topsoil in its respective original position (last out, first in) to assist in the reestablishment of soil health and productivity. Erosion and sediment control measures would be installed on all slopes exceeding five percent to

mitigate soil loss. Erosion and sediment control measures would be maintained until upland areas are stabilized.

25. Mud blading would be prohibited and all activity shall cease when soils or road surfaces become saturated to a depth of three inches unless otherwise approved by the BLM. All disturbed surfaces would be restored to natural contours and revegetated with a BLM approved seed mixture. Interim reclamation would follow the mitigation outlined in the Water Quality portion of this document. All reserve pits shall be lined to prevent contents from reserve pits from seeping into surrounding soils, contaminating local ground water, reducing soil productivity, and compromising reclamation success.

26. If construction/development occurs between April 15 and November 15, the Operator would be required to water or surface access road to reduce airborne dust and damage to roadside vegetation communities.

27. The Operator would promptly revegetate all disturbed areas not necessary for production, including roadside and well pad cut and fill slopes, with Native Seed Mix #5 from the White River Record of Decision/Resource Management Plan appendix B-22 listed in the table below.

<b>Species</b>	<b>Pounds per acre</b>
Basin Wildrye (Magnar,)	2
Western wheatgrass (Rosanna)	3
Bluebunch wheatgrass (Secar)	1
Thickspike wheatgrass (Critana)	1
Fourwing saltbush (Wytana)	1

28. Re-vegetation would commence immediately after construction and would not be delayed until the following fall. Drill seeding is the preferred method of application. Where broadcast seeding is required, the pounds per acre application rate for seeding must be doubled. Debris would not be scattered on the pipeline until after seeding operations are completed.

29. The Operator would be responsible for excluding livestock grazing from all reclaimed portions of well pad. To eliminate livestock utilization of reclaimed areas prior to successful reclamation, a barbed wire fence built to BLM specifications would be constructed around all reclaimed portions of the well pad including cut and fill slopes immediately after interim reclamation is concluded (within 2 weeks) unless otherwise instructed by the BLM. A BLM specified cattleguard would be placed at the time of fence construction where the well access road bisects the fenceline that surrounds the well pad's disturbance imprint. Once reclaimed plant species are fully established on disturbed sites as determined by the BLM (e.g. Desired Plant Community (DPC), Public Land Health Standards), the fence and cattle guard would be completely removed by the applicant after a minimum of two growing seasons. This would allow for reclaimed plant species to establish without grazing pressure from livestock.

30. The Operator would be responsible for achieving a reclamation success rate for interim reclamation and final abandonment (on all disturbed areas associated with the well pad, pipeline, and access road) of sufficient vegetative ground cover from reclaimed plant species within three

growing seasons after the application of seed. Additional reclamation efforts would be undertaken at the Operators expense. Reclamation achievement would be evaluated using the Public Land Health Standards that include indicators of rangeland health. Rehabilitation efforts must be repeated if it is concluded that the success rate is below an acceptable level as determined by the BLM.

31. All activities would be required to comply with all applicable local, state, and federal transportation laws, statutes, regulations, standards, and plans. Activities would strictly adhere to “Gold Book” fourth edition surface operating standards for oil and gas exploration and development (BLM 2006a).

32. Further mitigation of impacts to access and transportation should be achieved through management practices including:

- use of a construction yard as the primary parking for personal vehicles;
- encouragement and/or arrangement for employees and contractors to carpool to and from the site;
- requiring contractors and employees to comply with all posted speed limits;
- compliance with county and state weight restrictions and limitations;
- controlling dust along unsurfaced access road and minimizing the tracking of mud onto paved roads; and
- post-construction restoration of unsurfaced roads to equal or better conditions than existed before construction.

33. The Operator would be responsible for developing a fire management plan as an integral part of the overall safety plan that would include evacuation procedures and designate escape routes. In the case of an incident, the Operator shall immediately notify the BLM via Craig Interagency Dispatch 970-826-5037. No suppression actions shall be taken until meeting with the incident commander for any given incident. Further mitigation of impacts to the fire cycle should be achieved through management practices including:

- notify the BLM, and affected landowners, of any fires during construction, maintenance, or operation;
- inform site personnel of fire prevention practices concerning smoking materials, welding, etc., and make hand tools available, including shovels and fire extinguishers, for fire control;
- furnish all motor vehicles and equipment with fire-extinguishing equipment and stage fire fighting equipment and water tanks on site in readily accessible areas;
- construct defensible space as necessary and determine design criteria in coordination with BLM fire staff;
- an emergency evacuation plan would be followed in the event of a fire;
- perform all welding activities in areas where vegetation and other flammable materials have been removed;
- control noxious weeds and cheatgrass as discussed in the Invasive, Non-Native Species section;
- seed disturbed areas as discussed in the Vegetation and Soils sections;

- redistribute large, woody material salvaged during clearing operations on BLM WRFO administered lands and disperse materials over the portion of the right-of-way from which the trees and brush were originally removed to meet fire management objectives (not to exceed 20% total ground cover for woody debris) and to provide wildlife habitat, seedling protection, and deter vehicular traffic; and
- refer to the BLM Fire Management Activity Plan (FMAP) for additional mitigation requirements.

34. All activities would be required to comply with all applicable local, state, and federal water laws, statutes, regulations, standards, and implementation plans. Standard drilling methods including surface casing would be implemented to minimize potential impacts from hydraulic fracturing. For additional mitigation, refer to the mitigation outlined in the Water Quality and Geology/Minerals portions of this document.

35. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

36. All roadside and well location cut and fill slopes would be revegetated immediately after construction with Native Seed mixture #5. Revegetation operations would start immediately following the completion of recontouring/dirt work operations.

37. Reserve pit fencing would comply with BLM specifications as described in the Gold Book (BLM 2006a). Reserve pit fence specifications would be included as part of the conditions of approval.

38. If construction/development occurs between April 15 and November 15, the Operator would be required to water surface access road to reduce airborne dust and damage to roadside vegetation communities.

39. Wherever possible the well access road would be used as the working surface for the pipeline construction allowing only 20 feet from the edge of the road bed for pipeline installation. This would not be applied to the county roads that various pipeline connections parallel.

40. All permanent (onsite for 6 months or longer) structures, facilities and equipment placed onsite would be painted Munsell Soil Color Chart Juniper Green or equivalent within six months of installation.

**COMPLIANCE/MONITORING:** On-going compliance inspections and monitoring of drilling, production and post-production activities will be conducted by White River Field Office staff during construction of well pad, access road, and pipelines. Specific mitigation developed in this Environmental Assessment and the lease terms and conditions will be followed. The Operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

**NAME OF PREPARER:** SWCA Environmental Consultants

**NAME OF ENVIRONMENTAL COORDINATOR:** Caroline Hollowed

**SIGNATURE OF AUTHORIZED OFFICIAL:** *Kent E. Walter*  
Field Manager

**DATE SIGNED:** 08/28/07

**ATTACHMENTS:**

Figure 1 - Map of project area.  
General Location Map of the Proposed Action

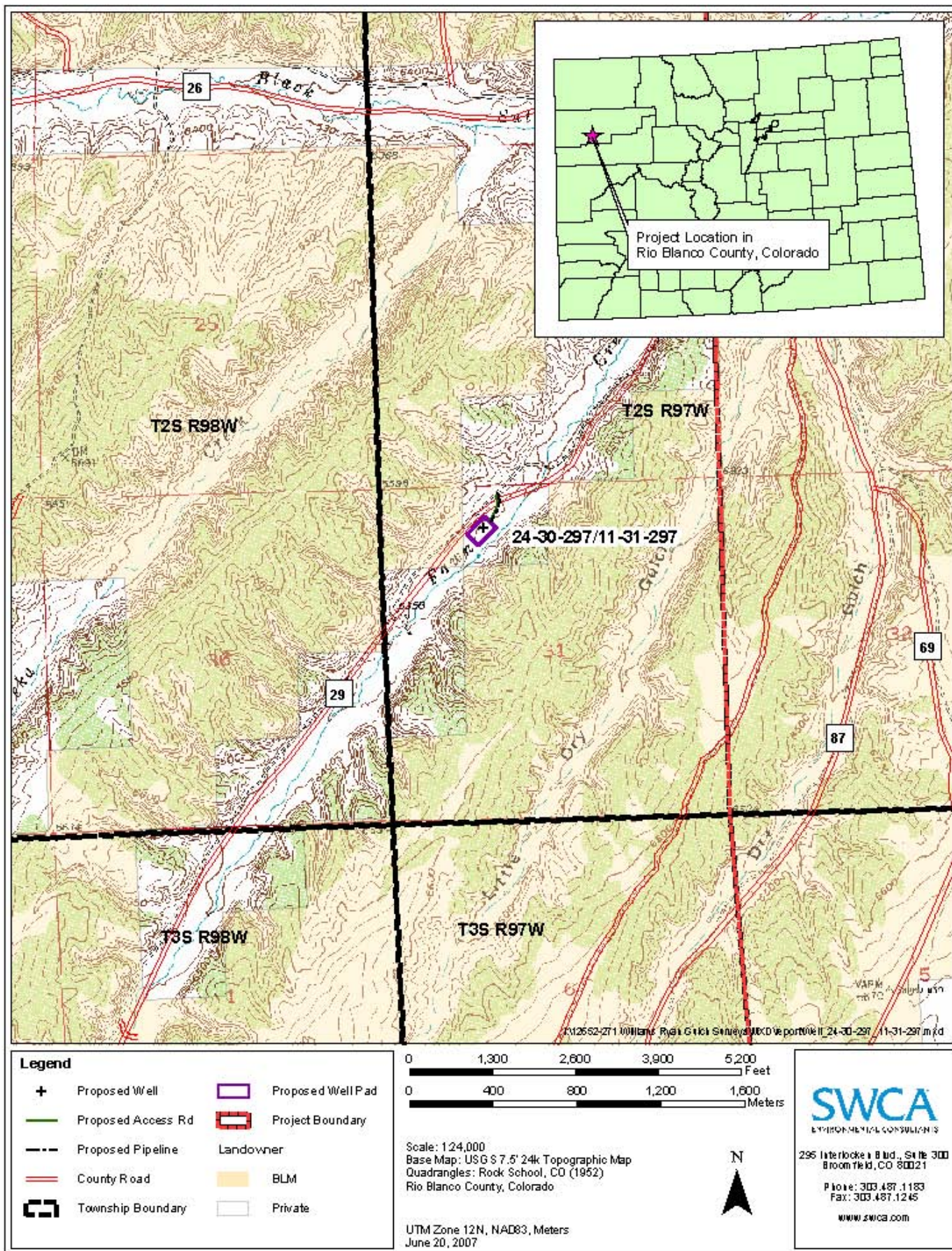


Figure 1. Project Location of Proposed Well Pad 24-30-297/11-31-297, Proposed Access Road, and Proposed Pipeline.

# Location map of the Proposed Action CO-110-2007-199-EA

