

U.S. Department of the Interior
Bureau of Land Management
White River Field Office
73544 Hwy 64
Meeker, CO 81641

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-110-2006-176-EA

CASEFILE/PROJECT NUMBER: COC-62035

PROJECT NAME: APD for well # 3S-95-34-44 (McCarthy)

LEGAL DESCRIPTION: T3S, R95W, SESE sec.34, 6th P.M.

APPLICANT: XTO ENERGY INC.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Proposed Action: The applicant proposes to upgrade 8.2 miles of existing 2-track roads (approx 3600' x 40' right of way [ROW] on BLM =3.3 ac.), install 13,780' of buried pipeline (2044' x 50' ROW on BLM =2.4 ac.), and construct a well pad 525'x 500' (6 acres) with an adjacent production pad 211.5' x 100' (0.5 ac.). Total surface disturbance on BLM would be approx. 12.2 acres.

- Native material used for construction of road and gravel would be purchased to improve road if well is a producer.
- Roads would be crowned with bar ditches and 18-24" culverts would be installed as necessary.
- Access road will be all weather from the beginning of construction and upgraded/improved to BLM standards.
- Maximum travel surface will be 25' or less if the well is successful or as stipulated in the COA's.
- Maximum grades will not exceed 10% after construction.
- Surface disturbance and vehicular travel will be limited to the approved location and access road only. Any additional surface area needed must be approved by BLM in advance.
- If any additional right-of-way is necessary, no surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The holder will adhere to conditions of approval in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
- If the well is productive, the access road will be brought to resource (Class III) road standards within a time period specified by the BLM. If upgraded, the access road must be maintained at these standards until the well is properly abandoned. If this time frame

cannot be met, the Field Office Manager will be notified so that temporary drainage control can be installed along the access road.

- On site production facilities would consist of one 300 bbl steel oil/condensate tank and two 400 bbl steel tanks for produced water. The tanks would be surrounded by a berm constructed to contain 1½ times the volume of the largest tank. All loading lines and valves for these tanks will be placed inside the berm surrounding the tank battery.
- All production facilities would be painted a flat, non reflective color as specified by BLM within 6 months of installation.
- Facilities required for compliance with the Occupational Safety and Health Act (OSHA) may be excluded.
- If necessary, off-site facilities (both on lease and off lease) may include central compression, gas processing, separation, tanks, pits, electronics, gas measurement and possibly a produced water disposal (SWD) well.
- The well will be produced into a 4"-8" steel gas pipeline and transported to either an existing pipeline ROW (3rd party transporter) or gas processing facility. This proposed pipeline will be located south of the well pad (approach). The pipeline tie-in point will be ~150' southwest of RBC 5 at the Thacker Ranch. A 4" water line will follow the same ROW as the pipeline if needed.
- There are no plans to include powerlines in this application. In the event power is required, a ROW application will be submitted to the appropriate agencies.
- Water needed for drilling would be either trucked to the location or temporary surface lines would be laid.
- Water obtained on private land, or land administered by another agency, will require approval from the owner or agency for use of said water.
- Pad construction would be from native material on private surface or purchased from private landowners or gravel pits and trucked to the location on approved access roads.
- The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3, if applicable.
- The reserve pit would typically be lined with a synthetic material, ~12 mils in thickness. The reserve pit shall be located in cut material, with at least 50% of the pit volume below original ground level. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain in place until the pit is dry. The amount of time the pit may remain open will typically be specified by the COA's in the APD. Once dry, the pit liner will be cut and removed at the mud line and the pit will be covered and buried in place.
- Trash must be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at completion of drilling operations.
- Sewage from trailers and chemical portable toilets will be removed on a regular basis by a third party contractor and disposed of at an authorized sanitary waste facility.
- Any and all chemicals used during the drilling and completion of the well will be kept to a minimum and stored within the boundaries of the well pad. The third party chemical contractor will be responsible for containment and clean-up and removal of all spilled chemicals on location.
- No ancillary facilities will be required during the drilling or completion of the well.

- All equipment and vehicles that will be used to drill and complete this well will remain within the boundaries of the approved well pad.
- Any equipment and/or vehicles parked or stored off the location will be considered trespassing on federal lands and will not be tolerated.
- Materials obtained from the construction of location, like topsoil and vegetation will be stockpiled as indicated and permitted by the approved APD. The stockpiles themselves may be outside the approved boundaries of the well pad.
- The top 6" of topsoil material will be removed from the location and stockpiled separately as specified by the approved APD.
- Topsoil along the access road will be reserved in place adjacent to the road as indicated by the approved APD.
- Within 30-45 days after completion of well, all equipment that is not necessary for production shall be removed.
- The reserve pit and that portion of the location not needed for production will be reclaimed in a given time period as specified by the BLM in the approved APD.
- Before any dirt work to restore the location takes place, the reserve pit must be dry and ready for burial. If necessary, any approvals needed to commence the burial operation will be obtained.
- All road surfacing will be removed prior to the rehabilitation of roads, if necessary.
- Reclaimed roads will have the berms and cuts reduced and will be closed to vehicle use.
- All disturbed areas will be recontoured to replicate the natural slope.
- The stockpiled topsoil will be evenly distributed over the disturbed area.
- Prior to seeding, all disturbed areas, including the access roads will be scarified and left with a rough surface.
- Seed will be drilled or broadcast between/during a time specified by the BLM and/or state.
- If seed is broadcast, a harrow or some other implement will be dragged over the seeded area to assure uniform seed coverage.
- The seed mixture will be specified by BLM.
- If necessary, an abandonment marker will be one of the following, as specified by BLM:
 - 1) at least 4' above ground level, or
 - 2) at restored ground level, or
 - 3) below ground level.
- In any case the marker shall be inscribed with the following: operator name, lease number, well name and surveyed description (township, range, section and either ¼ ¼ or footages).
- A BLM approved archaeological contractor will submit the appropriate reports to the agency as required. Special stipulations will be included in the conditions of approval (COAs) of the approved APD.
- A BLM approved threatened and endangered species contractor will submit the appropriate reports to the agency as required. Special stipulations will be included in the COAs of the approved APD.
- Current wildlife restrictions and closure dates, if applicable will be specified in the approved APD.

On- site: 07/17/2005.

No Action Alternative: Proposed action would not be approved and no construction or drilling would take place and no environmental impacts would occur.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: None

NEED FOR THE ACTION: To respond to the request by the applicant to exercise lease rights to construct access road, well pad, and install pipelines to develop 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: Page 2-5

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 Bureau of Land Management (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 environmental analysis. These findings are located in specific elements listed below:

CRITICAL ELEMENTS

AIR QUALITY

Affected Environment: The entire White River Resource area has been classified as either attainment or unclassified for all pollutants, and most of the area has been designated prevention of significant deterioration (PSD) class II. The proposed action is not located within a ten mile radius of any special designation air sheds or non-attainment areas. The air quality criteria pollutant likely to be most affected by the proposed actions is the level of inhalable particulate matter, specifically particles ten microns or less in diameter (PM₁₀) associated with fugitive dust. In addition, slight increases in the following criteria pollutants: carbon monoxide, ozone

(secondary pollutant), nitrogen dioxide, and sulfur dioxide may also occur during construction due to the combustion of fossil fuels associated with construction operations. Also, non-criteria pollutants such as visibility, nitric oxide, air toxics (e.g. benzene) and total suspended particulates (TSP) may also experience slight short term increases as a result of the proposed actions (no national ambient air quality standards have been set for non-criteria pollutants). Unfortunately, no monitoring data is available for the survey area. However, it is apparent that current air quality near the proposed location is good because only one location on the western slope (Grand Junction, CO) is monitoring for criteria pollutants other than PM₁₀. Furthermore, the Colorado Air Pollution Control Division (APCD) estimates the maximum PM₁₀ levels (24-hour average) in rural portions of western Colorado like the Piceance Basin to be near 50 micrograms per cubic meter (µg/m³). This estimate is well below the National Ambient Air Quality Standard (NAAQS) for PM₁₀ (24-hour average) of 150 µg/m³.

Environmental Consequences of the Proposed Action: Cumulative impacts detrimental to air quality in the Piceance Creek Basin can be expected as carbon monoxide, ozone (secondary pollutant), nitrogen dioxide, particulate matter, and sulfur dioxide levels are elevated due to increased oil and gas development. Construction equipment producing elemental and organic carbon via fuel combustion combined with surface disturbing activities that leave soils exposed to eolian processes will both increase production of particulate matter (PM₁₀) during construction. Elemental and organic carbon existing in the air as PM₁₀ can reduce visibility and increase the potential of respiratory health problems to exposed parties. However, following initial construction, suggested mitigation, and successful interim reclamation, criteria pollutant levels should return to near pre-construction levels.

Environmental Consequences of the No Action Alternative: None

Mitigation: The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so. To minimize production of fugitive particulate matter (fugitive dust) from associated access roads, vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph (on BLM administered lands). Surfacing access roads with gravels will also help mitigate production of fugitive particulate matter. Land clearing, grading, earth moving or excavation activities will be suspended when wind speeds exceed a sustained velocity of 20 miles per hour. Disturbed areas will be restored to original contours, and revegetated with a BLM preferred seed mixture. Following seeding, woody debris cleared from the ROW will be pulled back over the pipeline to increase effective ground cover and help retain soil moisture.

Construction equipment will be maintained in good operating condition to ensure that engines are running efficiently. Vehicles and construction equipment with emission controls will also be maintained to ensure effective pollutant emission reductions.

CULTURAL RESOURCES

Affected Environment: the proposed well pad location, access road route and proposed well tie pipeline routes have all been inventoried at the Class III (100% pedestrian) level (Hays and Bear 2006, Compliance Dated 7/11/2006) with one historic road identified in the project area. The road is currently in use with routine maintenance being performed and is not linked to any identified significant persons or events. Therefore, the road is not considered eligible for nomination to or listing on the National Register of Historic Places. There are no other known cultural resources within 305 meters of the proposed developments.

Environmental Consequences of the Proposed Action: upgrading of the proposed access road and construction of the proposed well tie pipeline has the potential to impact the historic road that is located in the project area. Impacts would likely involve burying the pipeline adjacent to the traveling surface of the road and upgrading of the road may involve widening the running surface and possible graveling the existing road for travel during inclement weather.

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

Mitigation: 1. 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 historic or archaeological 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 eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

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.

2. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Noxious weeds known to occur in the project area include houndstongue (*Cynoglossum officinale*), mullein (*Verbascum thapsus*), musk thistle (*Carduus nutans*), bull thistle (*Cirsium vulgare*), and Canada thistle (*Cirsium arvense*).

Environmental Consequences of the Proposed Action: Unless aggressively treated with herbicides to control their spread, and disturbed areas promptly and successfully re-vegetated with desirable species, the noxious weeds already present will likely invade and proliferate in the 12 acres that will be disturbed as a result of this project. If untreated, the resulting proliferation of noxious weeds will not only create problems with reclamation through aggressive competition with or exclusion of desired vegetation, but will eminently result in degradation of affected ecological sites and further the spread and establishment of noxious weeds in the surrounding native plant communities.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: The operator will be required to monitor and treat noxious weeds within the project area for a minimum of three years post disturbance to eradicate noxious and invasive species that occur on site using materials and methods approved in advance by the Authorized Officer. Further, to minimize opportunity for future establishment of noxious or invasive weeds associated with this project, with the exception of the access road travel surface and the area around well pad production facilities would be reclaimed within the first growing season or prior to the first full growing season following disturbance with the seed mix recommended in the Vegetation section. Successful re-vegetation should be achieved within three years. Other mitigation is included in the Vegetation section.

MIGRATORY BIRDS

Affected Environment: The proposed well is located on a ridgeline composed of a higher elevation (7800') sage-steppe community comprised of a big sagebrush and snowberry complex (average 30% canopy cover) with minor complements of antelope bitterbrush, Utah serviceberry, and pinyon-juniper regeneration. A number of migratory birds fulfill nesting functions in these mixed shrub communities during the months of May, June, and July. Species associated with these shrublands are typical and widely represented in the Resource Area and region. Those bird populations associated with this Resource Area's mixed shrub communities identified as having higher conservation interest by the Rocky Mountain Bird Observatory/Partners in Flight program (i.e., Brewer's sparrow, green-tailed towhee) are abundant and well distributed in extensive suitable habitats throughout the Resource Area. The young pinyon-juniper encroachment developing on the site has little influence on the composition of migratory birds at this time. Although the higher ridgeline sites have no open water or wetland areas that support or attract waterfowl use, the development of reserve pits that contain drilling fluids have attracted waterfowl use, at least during the migratory period (i.e., local records: mid-March through late May; mid-October through late November).

Environmental Consequences of the Proposed Action: Construction and drilling associated with this pad (i.e., single well) is expected to commence in the fall of 2006 and continue as late as April. Based on this schedule, the potential to disrupt the nesting activities of migratory birds would be low since construction (about 12 acres cleared on BLM surface) and drilling/completion activity (including use of access road) would take place prior to the arrival of migrants. Breeding efforts would adjust in response to ongoing activities and would be commensurate with species- and individual-specific tolerance to disturbance.

It recent incidents, migratory waterfowl (i.e., teal and gadwall) have contacted drilling or frac fluids (i.e., stored in reserve pits) during or after completion operations and are suffering mortality in violation of the Migratory Bird Treaty Act. The extent and nature of the problem is being investigated by industry and the federal agencies. Until the vectors of mortality are better understood, management measures must be conservative and relegated to preventing bird contact with frac and drilling fluids that may pose a problem.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to disrupt the breeding activities of migratory birds. Alternate actions would have similar or more substantive consequences as those discussed under the proposed action.

Mitigation: The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. 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.

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

Affected Environment: There are no animals listed, proposed, or candidate to the Endangered Species Act that are known to inhabit or derive important benefit from the areas potentially influenced by the proposed action. The project area is associated with the Piceance population of greater sage-grouse, a species considered sensitive by the BLM. Discussions pertaining to the sage-grouse are included with the Terrestrial Wildlife section below.

Environmental Consequences of the Proposed Action: Pad and road construction and drilling/completion operations would have no conceivable influence on special status species (except greater sage-grouse, which is discussed in the Terrestrial Wildlife section) or associated habitat.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence special status species or associated habitats.

Mitigation: None.

Finding on the Public Land Health Standard for Threatened & Endangered species: The proposed and no-action alternatives would have no influence on populations or habitats of animals associated with the Endangered Species Act or BLM sensitive species (see Terrestrial Wildlife section for discussion of greater sage-grouse) and, as such, would have no influence on the status of applicable land health standards.

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

Affected Environment: Within the project area the Green River formation is sandwiched between several units of the Uintah formation. Several named and unnamed tongues of the Green river occur also. The most likely sensitive plant species to be encountered in this area and at the elevations of the project is the Piceance bladderpod (*Lesquerella parviflora*). Known occurrences of this plant are located along barren shale outcrops of the Parachute Creek Member of the Green River formation along Piceance Creek within one mile of the well location. No Special Status Species (SSS) were observed to occur within areas proposed to be disturbed. WestWater performed a pedestrian survey of all areas proposed to be disturbed to document the presence or absence of any SSS plants within the project area.

Environmental Consequences of the Proposed Action: None

Environmental Consequences of the No Action Alternative: None

Mitigation: None

Finding on the Public Land Health Standard for Threatened & Endangered species: There is no reasonable likelihood that the proposed action or no action alternative would have an influence on the condition or function of Threatened, Endangered, or Sensitive plant species. Thus there would be no effect on achieving the land health standard.

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored or disposed of at sites included in the project area.

Environmental Consequences of the Proposed Action: No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain some hazardous constituents,

they would be stored, used and transported in a manner consistent with applicable laws, and the generation of hazardous wastes would not be anticipated. Solid wastes would be properly disposed of.

Environmental Consequences of the No Action Alternative: No hazardous or other solid wastes would be generated under the no-action alternative.

Mitigation: The applicant shall be required to collect and properly dispose of any waste generated by the proposed actions.

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

Affected Environment: The proposed action is located in the Middle Piceance Creek fifth level watershed. Proposed location #3S-95-34-44, access road and associated pipeline are situated in stream segment 16 of the White River Basin. The well pad location and last 2.7 miles of access road are situated on the drainage divide between the Halfmoon Gulch and Schutte Gulch 6th and 7th level watersheds. The remaining portion of proposed access road and pipeline are situated in the McCarthy Gulch and East Fork Story Gulch 6th and 7th level watersheds. All of the affected 6th and 7th watersheds are ephemeral tributaries to Piceance Creek which is a perennial tributary to the White River. The White River is a tributary to the Green River (in Utah) which is a tributary to the Colorado River.

The “Status of Water Quality in Colorado –2006” (CDPHE 2006b) and Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin (CDPHE 2005a) were reviewed for information relating to drainages within the project area.

Stream segment 16 of the White River Basin is defined as all tributaries to Piceance Creek, including all wetlands, lakes and reservoirs, from the source to the confluence with the White River, except for the specific listings in segments 17, 19, and 20. The State has classified stream segment 16 of the White River Basin as “Use Protected” and further designated as beneficial for the following uses: Warm Aquatic Life 2, Recreation 2, and Agriculture. The antidegradation review requirements in the Antidegradation Rule are not applicable to waters designated use-protected. For those waters, only the protection specified in each reach will apply. For this reach, minimum standards for three parameters have been listed. These parameters are: dissolved oxygen = 5.0 milligrams per liter (mg/l), pH = 6.5 - 9.0, and Fecal Coliform = 2,000/100 milliliters (ml) and 630/100 ml E. coli. Numeric standards for inorganic compounds and metals can be found within Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin (CDPHE 2005a).

Newly promulgated Colorado Regulations Nos. 93 and 94 (CDPHE 2006c and 2006d, respectively) were reviewed for information related to the proposed project area drainages. Regulation No. 93 is the State’s Section 303(d) list of water-quality-limited segments requiring Total Maximum Daily Loads (TMDLs). The 2006 303(d) list of segments needing development of TMDLs includes two segments within the White River - segment 9b, White River tributaries North and South Forks to Piceance Creek, specifically the Flag Creek portion (for impairment from selenium with a low priority for TMDL development) and segment 22, tributaries to the

White River, Douglas Creek to the Colorado/Utah boarder, specifically West Evacuation Wash, and Douglas Creek (sediment impairments). Regulation 94 is the State's list of water bodies identified for monitoring and evaluation, to assess water quality and determine if a need for TMDLs exists. The list includes two White River segments that are potentially impaired – 9 (Flag Creek) and 22 (Soldier Creek). Stream segment 16 was not listed.

Stream flows in Piceance Creek and its tributaries generally peak in mid spring as a result of high elevation snowmelt and periodically during late summer and early fall in response to high intensity precipitation events. Approximately eighty percent of annual flows in Piceance Creek originates as discharge from alluvial and bedrock aquifers (Tobin, 1987). Ephemeral drainages flow only in direct response to snowmelt and intense summer and early autumn storms.

Approximately 98% of the precipitation in the Piceance Basin is lost to evapotranspiration. The remaining water runs off rapidly and replenishes streamflow or recharges bedrock and alluvial aquifers. Ground water recharge areas generally are located in higher parts of the drainage basin. The recharge moves slowly laterally and downward into the upper aquifer system, passes through the Mahogany zone (leaky confining unit) and enters the lower aquifer system through fractures and solution openings. The water in the upper and lower aquifers moves horizontally through the basin to the discharge areas. In the Piceance drainage basin, the water eventually moves upward back through the aquifer system where it discharges into the valley-fill alluvial aquifer or emerges as springs in the stream valleys (Taylor 1987).

The stream banks of Piceance Creek are generally composed of sand, silt, and clay particles that are less than about one-tenth of an inch in diameter. The bank materials erode easily when stream discharge increases during peak flow conditions. Bank erosion is probably most prominent during the spring snowmelt when high flows persist for several days. The bank material absorbs a large amount of water, becomes soft and easily removable, and sloughs into the stream in large clumps. The stream bed of Piceance Creek is composed of silt, sand, gravel, and occasional cobbles, with pockets of fine material where the velocity of the stream generally is slow. Coarse streambed materials normally move only under peak flow conditions (Norman 1987).

Ground Water: Surface geologic formation at the proposed pad location and the upper portion of the access road and pipeline is Tertiary in age (Uinta Formation) and consists primarily of interbedded sandstone and siltstone. Surface geologic formation along the lower portion of the pipeline and access road (mainly in the drainage bottom of McCarthy Gulch) is Tertiary aged Parachute Creek member of the Green River Formation. The Parachute Creek member of the Green River Formation sits within the Lower Piceance Basin hydrogeologic unit and is composed of sandstone, fractured marlstone, and siltstone. A review of the US Geological Survey Ground Water Atlas of the United States (Topper et al., 2003) was done to assess ground water resources at the location of the proposed action. The proposed action is located in the Piceance Creek structural basin. Primary bedrock aquifers within the Piceance Basin are listed in table 1.

Table 1:

Summary of Hydrogeologic Units						
Hydrogeologic Unit	Stratigraphic Unit	Physical Description	Thickness	Hydraulic Conductivity	Yield	TDS
			(ft)	(ft/day)	(gpm)	mg/L
Upper Piceance Basin aquifer	Uinta Formation	sandstone, fractured siltstone, fractured marlstone	0 – 1,400	<0.2 to >1.6	1- 900	500-1,000
Mahogany confining unit	Green River Formation	dolomitic marlstone and shale	500-1,800	<0.01	<25	NL
Lower Piceance Basin aquifer	Green River Formation	shale, fine-grained sandstone, fractured marlstone	0 – 1,870	<0.1 to >1.2	1-1,000	1,000-10,000
Basal confining unit	Green River Formation, Wasatch Formation	claystone, siltstone, clay rich oil shale, marlstone, channel sandstone	0-6,800	<0.01	<10-100	NL
Fort Union aquifer	Fort Union Formation	Coarse-grained sandstone	Very thin	NL	NL	NL
Mesaverde aquifer	Mesaverde Group	sandstone interbedded shale and coal	Averages 3,000	0.0001-1.0	NL	NL
Mancos confining unit	Mancos Shale	mostly shale but Frontier Sandstone may be local aquifer	>7,000	NL	NL	NL
Abbreviations: ft = feet, approx = approximate, avg = average, gpm = gallons per minute, mg = milligrams, L = liters, and NL = not listed.						

Table information from Topper et al. (2003).

The Piceance Creek drainage basins upper and lower aquifers are separated by the semi-confining Mahogany Zone. Information presented in Topper et al. (2003) indicates the following approximate depths to potentiometric surfaces (elevation at which water level would have stood in tightly cased wells, 1985) within hydrogeologic units: upper Piceance basin aquifer ~750 feet, lower Piceance basin aquifer ~650 feet, and Mesaverde aquifer ~700 feet (based on a surface elevation of 7,700 feet). Water well data from the Colorado Division of Water Resources (Topper et al., 2003) indicated that in central Rio Blanco County water wells are uncommon. Based on existing water well data near the project area, total concentration of dissolved constituents in the upper and lower aquifers is generally lower than 1000 milligrams per liter.

Environmental Consequences of the Proposed Action: Surface Water: Clearing, grading, and soil stockpiling activities may temporarily alter overland flow and natural groundwater recharge patterns. Near-surface soil compaction caused by construction equipment and vehicles could reduce the soil's ability to absorb water and could increase surface runoff, sedimentation and salt loading to surface waters in of the Colorado River System. The magnitude and duration of potential impacts to surface runoff and groundwater recharge would depend on soil depth, soil type, vegetation type and density, slope, aspect, erosive force of rainfall or surface runoff, and duration and extent of construction activities. Impacts would likely be greatest immediately

following commencement of construction activities and would likely decrease thereafter due to reclamation activities.

Toxic metals and organic substances associated with fluid mineral development (such as substances found in produced water) that are relatively insoluble in water may be adsorbed on the surface of sediments and transported with sediment to surface waters further deteriorating water quality in the Colorado River System. In addition, spills or leaks of produced water or mechanical means of produced water evaporation which may result in overspray would likely result in increased salt deposits (notably sodium and chlorides). Salt deposition resulting from spills, leaks, or overspray may adversely impact the health of surrounding vegetation reducing effective ground cover and increasing the potential for soil erosion. In addition, salts deposits would likely be carried down gradient to surface waters of the Colorado River system deteriorating water quality.

Ground Water: In the event of any leaks or spills, local ground water may be adversely impacted as runoff could carry contaminants down gradient to alluvial aquifers such as the Piceance Creek alluvium which is situated hydrologically down gradient from the proposed actions. Potential for ground water contamination in bedrock aquifers increases if fractures in confining units are formed. Hydraulic conductivity increases exponentially along fracture zones resulting in rapid transport of fluids/contaminants in these areas. The upper and lower Piceance Basin aquifers have differing water qualities, mixing will degrade water quality in the upper aquifer which is generally of better quality. Storage or surface disposal methods (e.g. evaporation ponds) for produced water would also elevate potential for contaminating ground water of the Upper Piceance Basin Aquifer, and Piceance Creek Alluvial Aquifer.

Environmental Consequences of the No Action Alternative: None

Mitigation: Comply with “Gold Book” fourth edition surface operating standards for all surface disturbing activities (copies of the “Gold Book” fourth edition can be obtained at the WRFO). The operator will restrict non emergency maintenance activities on pipeline ROW and associated access roads when soils become saturated to a depth of three inches or more. The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, Army Corps Section 404 permit coverage, and Industrial Wastewater/Produced Water Permits).

Surface Water: The operator will consult with the State of Colorado Water Quality Control Division regarding Stormwater Discharge Permits prior to commencing construction activities. Construction activities that disturb one acre or greater require a Stormwater Discharge Permit. Written documentation to the BLM Authorized Officer is required within 30 days of the APD approval date to indicate that appropriate permits have been obtained. Written documentation may be a copy of the Stormwater Discharge Permit or an official verification letter from the State Water Quality Control Division to the operator that includes the Permit Certification Number. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or Nathan_Dieterich@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-878-3805), or mailed to Nate Dieterich at the above address.

The operator will consult with the US Army Corps of Engineers to obtain approval prior to discharging fill material into waters of the US in accordance with Section 404 of the Clean Water Act. Waters of the US are defined in 33 CFR Section 328.3. Written documentation to the BLM Authorized Officer is required within 45 days of the APD approval date to indicate that the US Army Corps of Engineers has been notified prior to construction or 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) Form or an official verification letter from the US Army Corps of Engineers to the operator stating that a permit has been issued or is not required for the activities in question. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or Nathan_Dieterich@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-878-3805), or mailed to Nate Dieterich at the above address.

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, shall be reclaimed as early and as nearly as practicable to their original condition and shall be maintained to control dust and minimize erosion (COGCC). To allow optimal opportunity for interim reclamation of well pads, all tanks and production facilities will be situated on the access road side of the well pad (unless otherwise approved by the WRFO-BLM Area Manager). Reclamation efforts on all pipelines will be final. Interim reclamation of well pads and final reclamation of pipeline right of ways (ROW) will 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 shall be removed (COGCC).
- Stockpiled topsoil and spoil piles will be separated and clearly labeled to prevent mixing during reclamation efforts.
- Stockpiled topsoil will be seeded with a BLM approved seed mixture. Topsoil stockpiles that will potentially remain in place for extended periods of time (e.g. multi-well locations) will be covered with biodegradable fabrics such as (but not limited to) jute netting or Curlex and seeded with the appropriated seed mixture.
- Stockpiled topsoil segregated from spoil piles will be replaced during reclamation in its respective original position (last out, first in) to minimize mixing of soil horizons.
- Stockpiled soils (spoil and topsoil) will 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 pads* not needed for production operations shall be partially reshaped as early and as nearly as practicable to near pre-construction contours. Pipelines will be recontoured to pre-construction contours as soon as construction activities cease.
- The operator will ensure stockpiled topsoil is evenly distributed over the **top** of spoil used in recontouring/partial-reshaping efforts.
- Recontoured/partially-reshaped areas will be seeded with a BLM approved seed mixture, and all slopes exceeding 5 % will be covered with wildlife friendly biodegradable fabrics (such as but not limited to Jute blankets, 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 will be pulled back over the recontoured/partially-reshaped areas to act as flow deflectors and sediment traps. Available woody debris will be evenly distributed over the entire portion of the reclaimed area and will not account for more than 20% of total ground cover.
- The operator will 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 4-strand BLM Type-D barbed wire fence with braced wooden corners will be constructed around all reclaimed portions of the well pad including cut and fill slopes following placement of woody debris (unless otherwise instructed by the BLM).
- The operator will be responsible for achieving a reclamation success rate of sufficient vegetative ground cover from reclaimed plant species within three growing seasons after the application of seed. The ground cover of reclaimed seed species shall be comparable to that of the nearby undisturbed plant communities at a Potential Natural Community (PNC) state in relation to the seed mix as deemed appropriate by the BLM. Rehabilitation efforts must be repeated if it is concluded that the success rate is below an expectable level as determined by the BLM.

Upon final abandonment of well pads, new access roads, and completion of pipelines, 100% of all disturbed surfaces will be restored to pre-construction contours, and revegetated with a BLM preferred seed mixture. Natural drainage patterns will be restored and stabilized with a combination of vegetative (seeding) and non-vegetative (straw bails, woody debris, straw wattles, biodegradable fabrics...) techniques. All available woody debris will be pulled back over recontoured areas (woody debris will not account for more than 20% of total surface cover) to help stabilize soils, trap moisture, and provide cover for vegetation. Monitoring and additional reclamation efforts will persist until reclamation is proven successful (as determined by the BLM).

In addition, to mitigate water being channelized down the roadway, all activity must stop when soils or road surfaces become saturated to a depth of three inches. Furthermore, mud blading will be prohibited in attempts to reduce further soil displacement and sedimentation/salt loading to surface waters.

Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any groundwater produced from the Mesaverde Formation will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to surface water. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment will be required to intercept such contaminants prior to contacting soils. Furthermore, all pits shall be lined and all wastes associated with construction and drilling will be properly treated and disposed of.

Finding on the Public Land Health Standard for water quality: Stream segment 16 of the White River Basin currently meets water quality standards set by the state. Many of the upper tributaries which are ephemeral and flow in direct response to storm events do not meet the

standards during periods of flow. Following suggested mitigation measures, water quality in the affected stream segment should continue to meet standards.

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

Affected Environment: The closest channel system supporting riparian vegetation is Piceance Creek, which is separated by a minimum 2.0 miles of ephemeral channel from the proposed action. This portion of Piceance Creek (and about 30 miles downstream) is private and State-owned and stream function and morphology is heavily modified by irrigation practices (e.g., not strongly represented by obligate forms of riparian vegetation, moderately entrenched/undersized floodplains).

Environmental Consequences of the Proposed Action: This ridgeline project is separated from the nearest riparian system by at least 2.0 miles of ephemeral channel. Pad, pipeline, and road construction would have no direct impact on riparian/wetland resources. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Piceance Creek channel or its associated riparian resources.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on downstream riparian communities.

Mitigation: None.

Finding on the Public Land Health Standard for riparian systems: Downstream portions of Piceance Creek are private with the nearest BLM-administered reach about 30 miles downstream. These private portions of the creek are stable, but due to the factors listed above, their functional status is generally at-risk. Neither the proposed or no-action alternative would have any effective influence on the function or condition of the Piceance Creek channel, its riparian expression, or its land health status.

CRITICAL ELEMENTS NOT PRESENT OR NOT AFFECTED:

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

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: The following data is a product of an order III soil survey conducted by the Natural Resources Conservation Service (NRCS) in Rio Blanco County, CO. Table 2 highlights important soil characteristics. A complete summary of this information can be found at the White River Field Office.

Table 2:

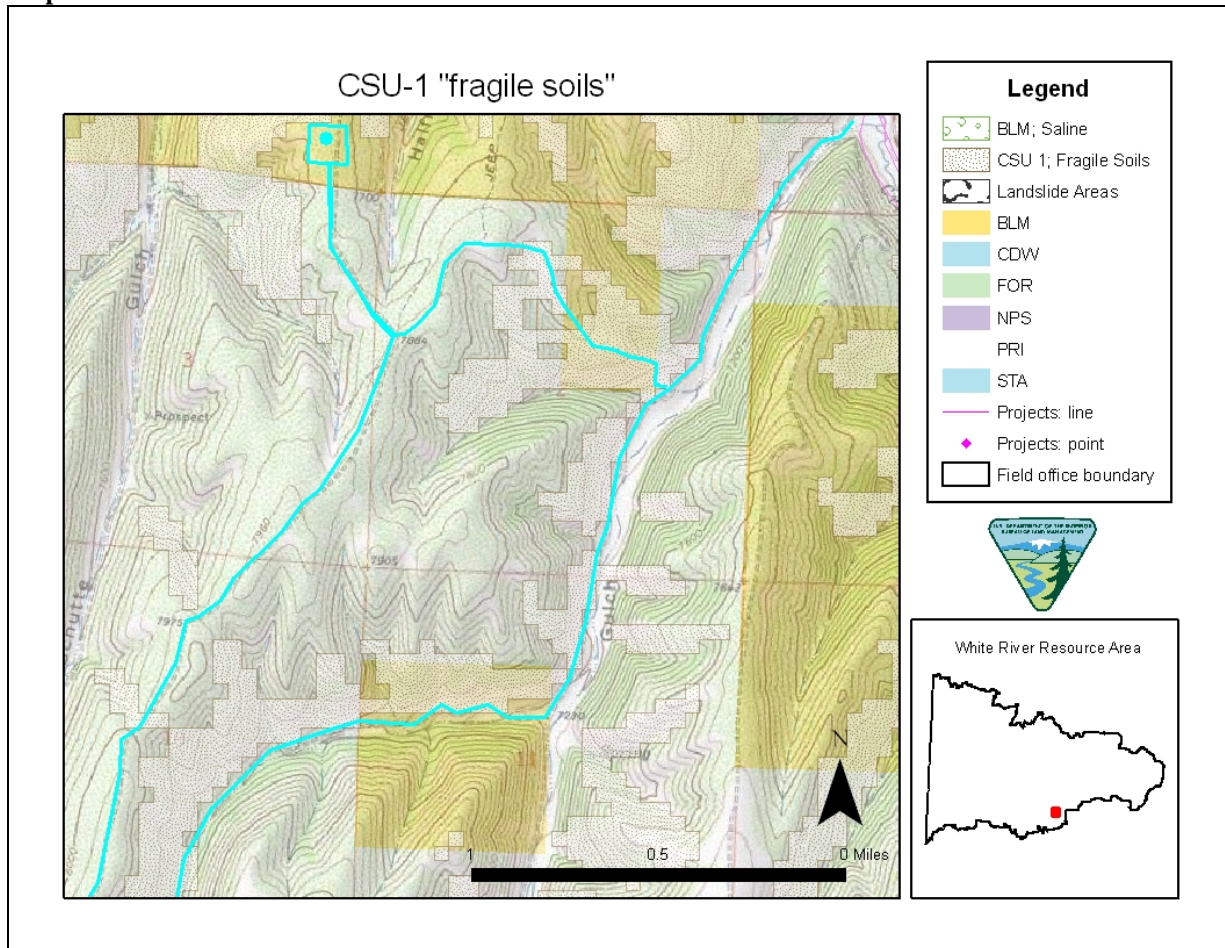
Soil Number	Soil Name	Slope	Ecological site	Salinity	Run Off	Erosion Potential	Bedrock
6	Barcus channery loamy sand	2-8%	Foothills Swale	<2	Slow	Moderate	>60
15	Castner channery loam	5-50%	Pinyon-Juniper woodlands	<2	Medium to rapid	Moderate to very high	10-20
36	Glendive fine sandy loam	2-4%	Foothills Swale	2-4	Slow	Slight	>60
43	Irigul-Parachute complex	12-45% 5-30%	Loamy Slopes/Mountain Loam	<2	Rapid	Slight to high	10-20
53	Moyerson stony clay loam	15-65%	Clayey Slopes	2-4	Rapid	Very high	10-20
58	Parachute Loam	25-75%	Brushy Loam	<2	Medium	Very high	20-40
60	Patent loam	0-3%	Rolling Loam	<2	Medium	Slight	>60
73	Rentsac channery loam	5-50%	Pinyon-Juniper woodlands	<2	Rapid	Moderate to very high	10-20
76	Rhone loam	30-75%	Brushy Loam	<2	Medium	Very high	40-60
82	Silas loam	0-8%	Mountain Swale	<2	Medium	Slight to moderate	>60
91	Torriorthents-Rock Outcrop complex	15-90%	Stoney Foothills	-	Rapid	Very high	10-20
96	Veatch channery loam	12-50%	Loamy Slopes	<2	Medium	Moderate to very high	20-40

CSU-1 “fragile soils” have been mapped on BLM surface along the first ~475 meters of the proposed pipeline ROW from the proposed access road in the bottom of McCarthy Gulch. CSU-1 “fragile soils” have also been mapped along the last ~360 meters of the first ~660 meters of access road on BLM surface in section 11. Map 1 clearly shows the location of CSU-1 “fragile soils” likely to be impacted by the proposed actions. As outlined in the White River ROD/RMP, All surface disturbing activities encountering “fragile soils” will be allowed only after an engineered construction/reclamation plan is submitted by the operator and approved by the Area Manager. The following items must be addressed in the plan:

- How soil productivity will be restored

- How surface runoff will be treated to avoid accelerated erosion such as riling, gully, piping, and mass wasting.

Map 1:



6-Barcus channery loamy sand (2 to 8 percent slopes) is a deep, somewhat excessively drained soil found on alluvial fans and in narrow valleys. It formed in alluvium derived from calcareous sandstone and shale. The native vegetation is mainly low shrubs and grasses. Typically, the surface layer is pale brown channery loamy sand 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. 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.

15-Castner channery loam (5 to 50 percent slopes) is a shallow, well drained soil located on mountainsides, ridge tops, and uplands. It formed in residuum derived from sandstone. The native vegetation is mainly pinyon and juniper and an understory of brush and grasses. Sandstone is at a depth of 17 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of the Castner soil is moderate. Available water capacity is very low. Effective

rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is moderate to very high.

36-Glendive fine sandy loam (2 to 4 percent slopes) is a deep, well drained soil, formed in alluvium, and found along drainages. Typically, the surface layer is pale brown fine sandy loam 6 inches thick. The underlying material to a depth of 60 inches or more is very pale brown, stratified fine sandy loam that has thin lenses of loamy fine sand to sandy clay loam. The soil is calcareous throughout. Permeability of this Glendive soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The soil is subject to rare periods of flooding.

43-Irigul-Parachute complex (5 to 30 percent slopes) is located on ridges and mountainsides. The native vegetation is mainly grasses and shrubs. The Irigul soil is shallow and well drained. It formed in residuum derived from sandstone and hard shale. Typically, the surface layer is grayish brown channery loam 5 inches thick. The underlying material is brown extremely channery loam 7 inches thick. Hard sandstone is at a depth of 12 inches. Depth to hard sandstone or shale is 10 to 20 inches. Permeability of the Irigul soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is very high.

The Parachute soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is grayish brown loam 4 inches thick. Sandstone is at a depth of 38 inches. Depth to sandstone or shale ranges from 20 to 40 inches. Permeability of the Parachute soil is moderate. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate to very high.

53 -Parachute-Rhone loams (5 to 30 percent slopes) are located on ridge crests and mountainsides. The Parachute soil formed in residuum from sandstone or marlstone, and the Rhone soil formed in residuum from hard, fine-grained sandstone. The Parachute soil makes up about 55 percent of the map unit, the Rhone soil makes up about 30 percent, and the soils of minor extent make up 15 percent. The Parachute soil is mostly on ridge crests, and the Rhone soil is in gently sloping to moderately sloping areas on mountainsides. The Parachute soil is moderately deep and well drained. Hard, fractured sandstone is at a depth of 29 inches. Permeability of the Parachute soil is moderate, and available water capacity is low. Effective rooting depth is 20 to 40 inches. Surface runoff is medium, and the erosion hazard is moderate.

The Rhone soil is deep and well drained. Fractured sandstone is at a depth of 52 inches. Permeability of the Rhone soil is moderate, and available water capacity is moderate to high. Effective rooting depth is 40 to 60 inches. Surface runoff is slow, and the erosion hazard is slight.

58-Parachute loam (25 to 75 percent slopes) is a moderately deep, well drained soil found on ridges and mountainsides. It formed in residuum derived dominantly from sandstone. The native vegetation is mainly brush and grasses. Typically, the surface layer is grayish brown loam 4 inches thick. Fractured sandstone is at a depth of 38 inches. Depth to sandstone ranges from

20 to 40 inches. Permeability of the Parachute soil is moderate. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is very high.

60-Patent loam (0 to 3 percent slopes) is a deep, well drained soil found on fans and terraces. It formed in alluvium and colluvium derived dominantly from sandstone. The native vegetation is mainly low shrubs and grasses. The upper 14 inches of the underlying material is very pale brown loam, and the lower part to a depth of 60 inches or more is very pale brown very fine sandy loam. The soil is calcareous throughout, and it contains varying amounts of gypsum. Permeability of this Patent soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight.

73-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, brush, and grasses. 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 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.

76-Rhone loam (30 to 75 percent slopes) is a deep, well drained soil found on mountainsides, upland ridges, and side slopes. It formed in residuum and colluvium derived dominantly from sandstone. The native vegetation is mainly brush and grasses. Elevation is 7,600 to 8,600 feet. Fractured sandstone is at a depth of 50 inches. Depth to sandstone ranges from 40 to 60 inches. Permeability of the Rhone soil is moderate. Available water capacity is high. Effective rooting depth is 40 to 60 or more inches. Runoff is medium, and the hazard of water erosion is very high.

82-Silas loam (0 to 8 percent slopes) is a deep, well drained soil found on the bottoms of narrow mountain valleys. It formed in mixed alluvium. The native vegetation is mainly grasses and shrubs. Typically, the upper part of the surface layer is dark gray loam about 4 inches thick. The lower part is dark gray loam about 20 inches thick. The underlying material to a depth of 60 inches or more is stratified, dark gray loam and dark gray sandy clay loam. Permeability of this Silas soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight to moderate. A water table is at a depth of 48 to 72 inches in spring and early in summer.

91-Torriorthents-Rock outcrop complex (15 to 90 percent slopes) can be found on extremely rough and eroded areas on mountains, hills, ridges, and canyon-sides. The native vegetation is mainly sparse shrubs and grasses with some pinyon and juniper trees. This unit is 50 percent Torriorthents that have slopes of 15 to 65 percent and 30 percent Rock outcrop that has slopes of 35 to 90 percent. Torriorthents are very shallow to moderately deep and are well drained and somewhat excessively drained. They formed in residuum and colluvium derived dominantly from sandstone, shale, limestone, and siltstone. Shale or sandstone is at a depth of 16 inches.

Torriorthents are calcareous throughout. Permeability of the Torriorthents is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is very rapid, and the hazard of water erosion is very high.

96-Veatch channery loam (12 to 50 percent slopes) is a moderately deep, well drained soil situated on mountainsides. It formed in colluvium derived dominantly from sedimentary rock. The native vegetation is mainly brush, shrubs, and grasses. Sandstone is at a depth of 32 inches. Permeability of this Veatch soil is moderate. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate to very high.

Environmental Consequences of the Proposed Action: Clearing and grading of well pads, pipeline right of ways and access road will 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 (rutting of roads, etc...) will likely result in a net loss of valuable topsoil by sheet, rill, and gully erosion. 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.

Any leaks or spills of environmentally unfriendly substances (e.g. diesel fuel) could compromise the productivity of affected soils. Decreased soil productivity will hinder reclamation efforts and leave soils further exposed to erosional processes.

Environmental Consequences of the No Action Alternative: None

Mitigation: As outlined in the White River ROD/RMP, All surface disturbing activities encountering “fragile soils” will be allowed only after an engineered construction/reclamation plan is submitted by the operator and approved by the Area Manager. The following items must be addressed in the plan:

- How soil productivity will be restored
- How surface runoff will be treated to avoid accelerated erosion such as riling, gullying, piping, and mass wasting.

The operator will 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 will be installed on all slopes exceeding five percent to mitigate soil loss. Erosion and sediment control measures will be maintained until stream banks and adjacent upland areas are stabilized.

Mud blading will be prohibited and all activity shall cease when soils or road surfaces become saturated to a depth of three inches (on BLM administered lands) unless otherwise approved by the AO. All disturbed surfaces will be restored to natural contours and revegetated with a BLM approved seed mixture. Interim reclamation will follow the mitigation outlined in the Water Quality portion of this document.

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, soil health should remain unchanged from current conditions.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The proposed well access road will traverse through approximately 3733 feet of BLM lands. The lower section of BLM where the proposed road leaves McCarthy Gulch in T4S R95W Sec 11 will traverse through approximately 2956 feet of basin big sagebrush (*Artemisia tridentata* var. *tridentata*) with an understory of western wheatgrass (*Pascopyrum smithii*), Kentucky bluegrass (*Poa pratensis*), needle and thread (*Hesperostia* Sp.), basin wildrye (*Leymus cinereus*) and several forbs such as yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), blue flax (*Linum perenne*), and phlox (*Phlox longifolia*) and is a foothills swale range site. The toe of the slope on the eastern end of the parcel has a small aspen stand that comes down to the edge of the existing two track. The corner of BLM where the road turns and goes back to the north in section 22 will traverse through approximately 452 feet of mountain sagebrush (*Artemisia tridentata* var. *vaseyana*) community with a comparable understory as listed above in greater density and is a mountain loam range site. Where the road returns to BLM and enters the pad will traverse through 324 feet of mountain sagebrush with the pad also occupying the same sagebrush community and is situated in a loamy slopes range site. The proposed pipeline will come down from the well location and pass through a parcel of BLM just above McCarthy Gulch on a south facing slope for approximately 1929 feet, that is for the most part sparsely vegetated with scattered mature and young pinion and juniper, mountain mahogany (*Cercocarpus montanus*) with scattered mottes of Gambel oak (*Quercus gambelii*).

Environmental Consequences of the Proposed Action: The access road for the proposed action will collectively remove 2.7 acres of basin big sagebrush from a functioning vegetation community in section 11 an additional 0.70 acres of mountain big sagebrush will be removed from the functioning vegetation community for the remainder of the access road on BLM lands. The well pad will also remove an additional 6.5 acres of functioning mountain big sagebrush community. Where the road enters the BLM parcel in section 11 on the eastern side depending upon how the road is constructed several aspen trees could be lost by improving the road if the road is widened by cutting into the slope. Upon completion of the proposed well pad and access roads, fugitive dust could have a negative effect on vegetation directly adjacent to the access road once dust settles on the vegetation plants are not able to efficiently carry out the photosynthetic process and will become stressed and eventually die. The pipeline will remove approximately 2.2 acres of scattered pinion-juniper mountain brush vegetation community. Prompt revegetation of disturbed areas and suppression of noxious/problem weeds will reduce but not eliminate the long term negative impact of oil and gas development and infrastructure on native plant communities associated with this project.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: All disturbed areas for the pipeline, access road and location with the exception of the access road travel surface and the area around well pad production facilities will be reclaimed within the first growing season or prior to the first full growing season following disturbance with Native Seed mix #2:

Seed Mix #	Species (Variety)	Lbs. PLS per Acre	Ecological Sites
2	Western wheatgrass (Rosanna)	2	Deep Loam, Loamy 10"-14", Loamy Breaks, Loamy Slopes, Rolling Loam, Valley Bench
	Indian ricegrass (Nezpar)	1	
	Bluebunch wheatgrass (Whitmar)	2	
	Thickspike wheatgrass (Critana)	2	
	Green needlegrass (Lodorm)	1	
	Globemallow	0.5	

Successful revegetation should be achieved within three years. The operator will be required to monitor the project site(s) for a minimum of three years post-construction to detect the presence of noxious/invasive species. Any such species which occur will be eradicated using materials and methods approved in advance by the Authorized Officer.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Most of the public land plant communities within the area of the proposed action have an appropriate age structure and diversity of species which meet the criteria established in the standard for vegetation. With successful reclamation, the proposed action would not change this status.

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: Piceance Creek, the aquatic habitat nearest the proposed action, is separated from the proposed action by a minimum 2 miles of ephemeral channel. The nearest BLM-administered reach is about 30 miles downstream of this point. Stream function and morphology on intervening portions of Piceance Creek are heavily modified by spring and winter grazing and summer-long irrigation practices, but the stream persists in supporting small populations of leopard frog, speckled dace, and flannelmouth sucker.

Environmental Consequences of the Proposed Action: This pad is situated on the crest of a ridge separated from the nearest aquatic system by a minimum 2.0 miles of ephemeral channel. Pad and road construction would have no direct impact on aquatic habitats. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Piceance Creek channel or its associated aquatic values.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on downstream aquatic habitat.

Mitigation: None.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): Downstream portions of Piceance Creek are private with the nearest BLM-administered reach about 30 miles downstream. Neither the proposed or no-action alternative would have any effective influence on the function or condition of the Piceance Creek channel, its aquatic habitat values, or its land health status.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The project site is composed of a higher elevation (7800') sage-steppe community comprised of a big sagebrush and snowberry complex (average 30% canopy cover) with minor complements of antelope bitterbrush, Utah serviceberry, and pinyon-juniper regeneration. These habitats serve primarily as upper elevation general winter ranges for deer and elk from September through January and secondarily as short term spring transition range (April and May).

Although these ridgelines >7600' appear suited for use by sage-grouse, there is no information indicating occupation over the last 25 years or so and no evidence of grouse use was observed during allotment inspections in October 2003. Suitable sage-steppe habitats surrounding current cores of grouse populations in Piceance Basin are likely to be instrumental in allowing future population expansion and effective recovery of this sage-grouse population.

While raptors may opportunistically forage throughout the area, this project area's mixed shrub series does not provide adequate nesting substrate for woodland raptors. Non-game wildlife using this area are typical and widely distributed in extensive like habitats across the Resource Area and northwest Colorado; there are no narrowly endemic or highly specialized species known to inhabit those lands potentially influenced by this action.

Environmental Consequences of the Proposed Action: This project represents a substantial extension of gas development onto previously undeveloped big game winter ranges. However, the actual involvement of BLM-administered surface is relatively small (about 12 acres) and, depending on the future status of negotiated public access on the oil shale claim lands, may be associated only with land-locked BLM surface. Big game habitat disuse and elevated energy demands attending road proliferation received prominent attention in the White River ROD/RMP. Although this project would require substantial upgrading of about 8.2 miles of existing 2-track, the bulk of this road network lies on privately controlled surface (only 0.7 mile on BLM surface). Because this access would be privately controlled, it is unlikely that there would be an attendant increase in the frequency of unregulated vehicle traffic or long term residual use typically associated with public recreational use. With efforts to incorporate interim reclamation techniques, long term occupation of these lands and the reduction in the herbaceous and woody forage base for big game (about 12 acres) would be discountable at the landscape level. Similarly, the loss of forage and cover for non-game animals would be negligible.

Even though this pad was shifted as far as practical to the western margin of the ridgeline during the on-site, this large pad would continue to straddle and occupy much of the more gentle gradient portions of the ridgeline crest in the long term. For many wildlife species that require

overhead vegetation to provide security and protective cover during land-based movements (including sage-grouse broods), these large cleared pads and associated cut/fill slopes are likely strong barriers that impede former movements across the pad to habitats below and above the pad. The production pad has been placed on the western side of the access road, which leaves the east half of the pad available for interim reclamation that may be capable of restoring or enhancing ridgeline continuity across the pad.

Environmental Consequences of the No Action Alternative: No immediate action would be authorized that would have potential to adversely modify terrestrial wildlife habitats or be capable of disrupting animal behavior within the project area.

Mitigation: The use of interim reclamation techniques will be used to the extent practicable on this pad such that: 1) all available topsoil material would be used to rehabilitate recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), and 2) disturbed areas are recontoured, revegetated, and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads on federal surface).

Interim reclamation objectives will include testing whether these techniques are sufficient or appropriate for developing herbaceous ground cover that, in lieu of the removed shrub canopy, is capable of promoting sage-grouse movement across cleared surface facilities that are thought to interrupt ridgeline continuity and impede terrestrial movement by grouse. In this instance, as much of the east side of the pad will be graded, reclaimed, and fenced to provide an uninterrupted interval of mildly sloping ridgeline cover that allows for sage-grouse movement across the producing well.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The project area presently meets the public land health standards for terrestrial animal communities. The proposed action and no-action alternatives would have negligible short and long term influence on the utility or function of big game, raptor, or nongame habitats in the vicinity of these sites. Although pads and access associated with the proposed action cannot be considered as meeting the definition of the land health standard, the overall shrubland communities comprising this landscape retain sufficient character to support viable populations of resident game and nongame species. Thus, in an overall context, lands affected by the no-action or proposed action would continue to meet the land health standard for terrestrial animals.

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
Access and Transportation		X	
Cadastral Survey	X		

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
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		

FOREST MANAGEMENT

Affected Environment: The access road for the proposed project will go through the bottom of an aspen stand in T. 4 S., R. 95 W., Sec 11, SENW. This aspen stand is mature and overall healthy with minimal disease and insect problems.

Environmental Consequences of the Proposed Action: Widening of the road is expected to destroy several aspen trees even with avoidance. The loss of these trees is not expected to damage the stand. Of more concern is the creation of dust which is expected to coat the leaves and decrease the overall health of the stand. There may also be cutting and removal of aspen for firewood associated with the operation. This is allowed by the current land use plan but is limited to 10 cords/yearly for the Piceance area.

Environmental Consequences of the No Action Alternative: There would be no impacts.

Mitigation: From the White River ROD/RMP of 1997, Appendix B #7. All trees removed in the process of construction shall be purchased from the Bureau of Land Management. The trees shall be cut with a maximum stump height of six inches and disposed of by one of the following methods:

- Trees must be cut before being dozed off the area of disturbance. Trees shall be cut into four-foot lengths, down to four inches in diameter and placed along the edge of the disturbance.
- Purchased trees may be removed from federal land for resale or private use. Limbs may be scattered off the area of disturbance but not dozed off.
- Chipped and scattered.

GEOLOGY AND MINERALS

Affected Environment: The surface geologic formation of the well location is Uinta and XTO's targeted zone is in the Mesaverde. During drilling potential water, oil shale, and gas zones will be encountered from surface to the targeted zone. 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 aquifer zones along with the Wasatch formation are known for difficulties in drilling and cementing. Oil shale resources will be encountered in the Green River formation and it is located in the area identified in the ROD/RMP as available for oil shale leasing. The well is located on Federal oil and Gas Lease COC-062035.

Environmental Consequences of the Proposed Action: The cementing procedure of the proposed action isolates the formations and will prevent the migration of gas, water, and oil between formations. This includes oil shale and coal zones. However, conventional recovery of the coals is not considered feasible at the depths that are encountered in the well. Development of this well will deplete the natural gas resources in the targeted formation

Environmental Consequences of the No Action Alternative: The natural gas resources in the targeted zone would not be recovered at this time.

Mitigation: None

HYDROLOGY AND WATER RIGHTS

Affected Environment: The proposed action is located in the Middle Piceance Creek Fifth level watershed. Stream flows in Piceance Creek and its tributaries generally peak in mid spring as a result of high elevation snowmelt and periodically during late summer and early fall in response to high intensity precipitation events. Approximately eighty percent of annual flows in Piceance Creek originates as discharge from alluvial and bedrock aquifers (Tobin, 1987). Ephemeral drainages flow only in direct response to snowmelt and intense summer and early autumn storms.

Approximately 98% of the precipitation in the Piceance Basin is lost to evapotranspiration. The remaining water runs off rapidly and replenishes streamflow or recharges bedrock and alluvial aquifers. Ground water recharge areas generally are located in higher parts of the drainage basin. The recharge moves slowly laterally and downward into the upper aquifer system, passes through the Mahogany zone (leaky confining unit) and enters the lower aquifer system through fractures and solution openings. The water in the upper and lower aquifers moves horizontally through the basin to the discharge areas. In the Piceance drainage basin, the water eventually moves upward back through the aquifer system where it discharges into the valley-fill alluvial aquifer or emerges as springs in the stream valleys (Taylor 1987).

The stream banks of Piceance Creek are generally composed of sand, silt, and clay particles that are less than about one-tenth of an inch in diameter. The bank materials erode easily when stream discharge increases during peak flow conditions. Bank erosion is probably most

prominent during the spring snowmelt when high flows persist for several days. The bank material absorbs a large amount of water, becomes soft and easily removable, and sloughs into the stream in large clumps. The stream bed of Piceance Creek is composed of silt, sand, gravel, and occasional cobbles, with pockets of fine material where the velocity of the stream generally is slow. Coarse streambed materials normally move only under peak flow conditions (Norman 1987).

Three BLM springs have been identified within 0.5 miles of surface disturbing activities associated with the proposed actions. Table 3 outlines basic water quality, water rights, and legal descriptions for these water sources. A search of water rights through Colorado's Decision Support Systems web site (CDSS, 2006) was done to identify water rights case numbers for each of the springs. It should be noted that BLM spring 187-22 (McCarthy Gulch Spring) currently has no record of any water rights filings.

Table 3:

Name	Quarter	Sec#	Twp	Range	Map Code	Water Right	SC	pH	Q (gpm)	Date
Schutte Gulch #2	NWSE	34	3S	95W	187-17	W0467 corrected in 90CW111	1419	7.6	1.19	09/26/83
McCarthy Gulch	NWSE	11	4S	95W	187-22	none	956	8.8	0.83	08/10/83
-	SESW	15	4S	95W	187-30	AR72	1043	7.9	6.04	09/27/83

Environmental Consequences of the Proposed Action: Improper drainage from well pads, access roads, and pipeline rights of ways will elevate sediment production from disturbed areas. Increased sediment loads to local surface water drainages may result in a sediment rich system. Sediment rich systems are characterized by deposition and high width to depth ratios (W/D ratio). As the W/D ratio increases (wide shallow channels) the hydraulic stress against the banks also increases and bank erosion is accelerated. Increases in the sediment supply to the channel develop from bank erosion, reducing the systems capability to transport sediment. As a result, deposition occurs, further accelerating bank erosion, and the cycle continues (Rosgen, 1996).

Construction activities may disrupt natural surface and ground water flow patterns. Altered flow patterns could disrupt natural surface and ground water recharge/discharge patterns. Changes to natural recharge/discharge patterns could have adverse impacts on stream channel morphology, productivity springs, riparian areas and aquatic life.

Environmental Consequences of the No Action Alternative: None

Mitigation: The BLM will obtain water rights for McCarthy Gulch Spring (187-22) to ensure beneficial uses for livestock and wildlife watering for years to come.

For additional mitigation, refer to the Water Quality portion of this document.

PALEONTOLOGY

Affected Environment: Portions of the proposed well tie pipeline and access road in Section 36, T 3 S, R 95 W, and Sections 2, 10 and 11, T 4 S, R 95 W are in an area generally mapped as the Parachute Creek Member of the Green River Formation (Tweto 1979). The BLM, WRFO has classified the Parachute Creek member of the Green River formation as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The well pad location and all other portions of the proposed access road and well tie pipeline are located in areas generally mapped as the Uinta Formation which the BLM, WRFO has classified as a Condition I fossil bearing formation meaning it is known to produce scientifically important fossil resources.

Environmental Consequences of the Proposed Action: If for any reason it becomes necessary to excavate into the underlying rock formations to upgrade the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

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

Mitigation: 1. 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.

2. Prior to the initiation of any construction all exposed outcrops of the formations must be inventoried by an approved paleontologist and a report detailing the results of said inventory along with any recommended mitigation shall be submitted to the BLM.

3. If, at any time, it becomes necessary to excavate into the underlying rock formations in order to upgrade the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit a paleontological monitor shall be present during such excavations

RANGELAND MANAGEMENT

Affected Environment: The proposed action occurs within the Halfmoon pasture of the Schutte Gulch allotment (06018). This is a summer use pasture and is used by Larry Robinson for cattle grazing on a yearly basis as follows.

Allotment/ Permit #	Year	Livestock # & Kind		Period of Use	Percent Public Land	Authorized Use (AUM)
Schutte 0501415	One	100	C	06/06-06/25	33	22
	Two	100	C	06/10-06/30	33	24

A long term trend monitoring plot is located west of the proposed access road in section 3, approximately 400-600 meters south of the proposed location. Long term trend plots are critical in monitoring rangeland condition over time and extreme care should be taken to avoid disturbing this site.

Environmental Consequences of the Proposed Action: Surface disturbing activities associated with the proposed action would result in the loss of about one AUM of livestock forage however this loss is insignificant relative to the total grazing preference in this pasture.

On disturbed areas that are successfully rehabilitated, herbaceous vegetation and herbaceous forage production typically recovers to the level before disturbance in three years. Rehabilitated sites often produce more livestock forage than native rangeland. There would be some a minor long-term loss of vegetation associated with the well pad and associated roads that would persist for the life of the project. Airborne dust from roads that coats vegetation will negatively impact the vegetation and reduce its usability as forage.

There could be some annoyance impact to cattle from construction and drilling activities and associated traffic, especially if this activity coincides with grazing use near the location.

Physical harm to livestock could occur from proposed action such as traffic accidents, open pits or trenches or consumption of contaminated water or forage. Any livestock losses from operations conducted by the applicant would require a negotiated settlement between the applicant and the livestock owner.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: Locate trend plot site prior to upgrading road to assure the entire site is left undisturbed by construction activities. If necessary, contact Mark Hafkenschiel, Rangeland Management Specialist at the WRFO to aide in locating this site.

Reserve pit fencing will comply with BLM specifications as described in the BLM Gold Book (Fourth Edition, 2005). Reserve pit fence specifications will be included as part of the conditions of approval.

If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities

REALTY AUTHORIZATIONS

Affected Environment: The proposed access road, natural gas pipeline, and waterline each cross segments of public lands. There are no existing linear rights-of-way located on the affected public lands. Several segments of the proposed ROWs cross private lands. These private lands are owned by the proponent and by other landowners.

Environmental Consequences of the Proposed Action: The access road, natural gas pipeline, and waterline will require authorizations:

ACTION	COC #	LENGTH	WIDTH	ACRES
Access road	70534	3387 ft	35	2.72
Gas pipeline	70535	2036 ft	30	1.40
Water pipeline	70536	2036 ft	30	1.40
			TOTAL *	5.52

*The water line and gas line widths will overlap as they will be buried in the same trench. Authorization of actions on public lands does not imply any rights on associated private lands.

Environmental Consequences of the No Action Alternative: No construction would take place and no rights-of-way would be authorized.

Mitigation: The holder must negotiate separate agreements with other private landowners and provide documentation of such before construction begins on public lands. Although there are no authorized linear facilities location on the affected public lands, Colorado One Call procedure must be initiated before construction.

RECREATION

Affected Environment: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The project area has been delineated a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between users but evidence of other users may be present. SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk.

Environmental Consequences of the Proposed Action: The public will lose approximately 13 acres of dispersed recreation potential while wells are in operation. The public

will most likely not recreate in the vicinity of these facilities and will be dispersed elsewhere. If action coincides with hunting seasons (September through November) it will most likely disrupt the experience sought by those recreationists.

With the introduction of new well pads and roads, an increase of traffic could be expected increasing the likelihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

Environmental Consequences of the No Action Alternative: No loss of dispersed recreation potential and no impact to hunting recreationists.

Mitigation: None.

VISUAL RESOURCES

Affected Environment: The proposed action would be located in an area with a VRM II classification. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Environmental Consequences of the Proposed Action: The proposed action would be located on top of a flat ridge that is approximately 1.5 miles from the nearest route (RBC 5) that would likely be traveled by a casual observer. This route is paved and is commonly referred to as Piceance Creek Road. RBC 5 is located in the bottom of the valley that parallels Piceance Creek, and the proposed action would not be visible from this route. Seasonal big game hunters and energy related activity on public lands in the area would be able to view the proposed action if traveling on some of the primitive dirt roads in close proximity to the proposed action. The most direct access route to the proposed action would be through private lands and not accessible by the public. By utilizing low profile and then painting all production facilities Juniper Green to mimic and blend with the surrounding vegetation types that repeat the basic elements of form, line, color, and texture, then a casual observer could see the proposed action, but it would not attract their attention. The level of change to the characteristic landscape would be low, and the objectives of the VRM II classification would be retained.

Environmental Consequences of the No Action Alternative: There would be no environmental consequences.

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

CUMULATIVE IMPACTS SUMMARY: Cumulative impacts from oil and gas development were analyzed in the White River Resource Area PRMP/FEIS. Current development, including the actions proposed in this EA, has not exceeded the foreseeable development analyzed in the PRMP/FEIS.

REFERENCES CITED:

Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC), 2005a. Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin. Amended December 12, 2005 and Effective March 2, 2006.

CDPHE-WQCC, 2006b. "Status of Water Quality in Colorado – 2006, The Update to the 2002 and 2004 305(b) Report," April 2006.

CDPHE-WQCC, 2006c. "Regulation No. 93, 2006 Section 303(d) List Water-Quality-Limited Segments Requiring TMDLs," effective April 30.

CDPHE-WQCC, 2006d. "Regulation No. 94, Colorado's Monitoring and Evaluation List," effective April 30.

Colorado Oil and Gas Conservation Commission (COGCC). Reclamation Regulations. Accessed online at: http://oil-gas.state.co.us/RR_Asp/1000-ser.pdf. Accessed July 2006.

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Norman, V. 1987. Suspended Sediment 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.

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Tweto, Ogden

1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

PERSONS / AGENCIES CONSULTED: None

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility
Nate Dieterich	Hydrologist	Air Quality
Tamara Meagley	Natural Resource Specialist	Areas of Critical Environmental Concern
Tamara Meagley	Natural Resource Specialist	Threatened and Endangered Plant Species
Michael Selle	Archeologist	Cultural Resources Paleontological Resources
Mary Taylor	Rangeland Management Specialist	Invasive, Non-Native Species
Ed Hollowed	Wildlife Biologist	Migratory Birds
Ed Hollowed	Wildlife Biologist	Threatened, Endangered and Sensitive Animal Species
Melissa J. Kindall	Hazmat Collateral; Range Technician	Wastes, Hazardous or Solid; Wild Horses
Nate Dieterich	Hydrologist	Water Quality, Surface and Ground Hydrology and Water Rights
Ed Hollowed	Wildlife Biologist	Wetlands and Riparian Zones
Chris Ham	Outdoor Recreation Planner	Wilderness
Nate Dieterich	Hydrologist	Soils
Ken Holsinger	Natural Resource Specialist	Vegetation
Ed Hollowed	Wildlife Biologist	Wildlife Terrestrial and Aquatic
Chris Ham	Outdoor Recreation Planner	Access and Transportation
Ken Holsinger	Natural Resource Specialist	Fire Management
Robert Fowler	Forester	Forest Management
Paul Daggett	Mining Engineer	Geology and Minerals
Mary Taylor	Rangeland Management Specialist	Rangeland Management
Linda Jones	Realty Specialist	Realty Authorizations
Chris Ham	Outdoor Recreation Planner	Recreation
Keith Whitaker	Natural Resource Specialist	Visual Resources

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

CO-110-2006-176-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 addition of the mitigation measures listed below.

MITIGATION MEASURES:

1. The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so. To minimize production of fugitive particulate matter (fugitive dust) from associated access roads, vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph (on BLM administered lands). Surfacing access roads with gravels will also help mitigate production of fugitive particulate matter. Land clearing, grading, earth moving or excavation activities will be suspended when wind speeds exceed a sustained velocity of 20 miles per hour. Disturbed areas will be restored to original contours, and revegetated with a BLM preferred seed mixture. Following seeding, woody debris cleared from the ROW will be pulled back over the pipeline to increase effective ground cover and help retain soil moisture.

2. Construction equipment will be maintained in good operating condition to ensure that engines are running efficiently. Vehicles and construction equipment with emission controls will also be maintained to ensure effective pollutant emission reductions.

3. 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 historic or archaeological 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 eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)

- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

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.

4. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

5. The operator will be required to monitor and treat noxious weeds within the project area for a minimum of three years post disturbance to eradicate noxious and invasive species that occur on site using materials and methods approved in advance by the Authorized Officer. Further, to minimize opportunity for future establishment of noxious or invasive weeds associated with this project, with the exception of the access road travel surface and the area around well pad production facilities would be reclaimed within the first growing season or prior to the first full growing season following disturbance with the seed mix recommended in the Vegetation section. Successful re-vegetation should be achieved within three years. Other mitigation is included in the Vegetation section.

6. The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. 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. The applicant shall be required to collect and properly dispose of any waste generated by the proposed actions.

8. Comply with “Gold Book” fourth edition surface operating standards for all surface disturbing activities (copies of the “Gold Book” fourth edition can be obtained at the WRFO). The operator will restrict non emergency maintenance activities on pipeline ROW and associated access roads when soils become saturated to a depth of three inches or more. The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, Army Corps Section 404 permit coverage, and Industrial Wastewater/Produced Water Permits).

9. Surface Water: The operator will consult with the State of Colorado Water Quality Control Division regarding Stormwater Discharge Permits prior to commencing construction activities. Construction activities that disturb one acre or greater require a Stormwater Discharge Permit. Written documentation to the BLM Authorized Officer is required within 30 days of the APD approval date to indicate that appropriate permits have been obtained. Written documentation may be a copy of the Stormwater Discharge Permit or an official verification letter from the State Water Quality Control Division to the operator that includes the Permit Certification Number. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or Nathan_Dieterich@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-878-3805), or mailed to Nate Dieterich at the above address.

10. The operator will consult with the US Army Corps of Engineers to obtain approval prior to discharging fill material into waters of the US in accordance with Section 404 of the Clean Water Act. Waters of the US are defined in 33 CFR Section 328.3. Written documentation to the BLM Authorized Officer is required within 45 days of the APD approval date to indicate that the US Army Corps of Engineers has been notified prior to construction or 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) Form or an official verification letter from the US Army Corps of Engineers to the operator stating that a permit has been issued or is not required for the activities in question. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or Nathan_Dieterich@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-878-3805), or mailed to Nate Dieterich at the above address.

11. 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, shall be reclaimed as early and as nearly as practicable to their original condition and shall be maintained to control dust and minimize erosion (COGCC). To allow optimal opportunity for interim reclamation of well pads, all tanks and production facilities will be situated on the access road side of the well pad (unless otherwise approved by the WRFO-BLM Area Manager). Reclamation efforts on all pipelines will be final. Interim reclamation of well pads and final reclamation of pipeline right of ways (ROW) will 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 shall be removed (COGCC).
- Stockpiled topsoil and spoil piles will be separated and clearly labeled to prevent mixing during reclamation efforts.
- Stockpiled topsoil will be seeded with a BLM approved seed mixture. Topsoil stockpiles that will potentially remain in place for extended periods of time (e.g. multi-well locations) will be covered with biodegradable fabrics such as (but not limited to) jute netting or Curlex and seeded with the appropriated seed mixture.
- Stockpiled topsoil segregated from spoil piles will be replaced during reclamation in its respective original position (last out, first in) to minimize mixing of soil horizons.

- Stockpiled soils (spoil and topsoil) will 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 pads* not needed for production operations shall be partially reshaped as early and as nearly as practicable to near pre-construction contours. Pipelines will be recontoured to pre-construction contours as soon as construction activities cease.
- The operator will ensure stockpiled topsoil is evenly distributed over the **top** of spoil used in recontouring/partial-reshaping efforts.
- Recontoured/partially-reshaped areas will be seeded with a BLM approved seed mixture, and all slopes exceeding 5 % will be covered with wildlife friendly biodegradable fabrics (such as but not limited to Jute blankets, 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 will be pulled back over the recontoured/partially-reshaped areas to act as flow deflectors and sediment traps. Available woody debris will be evenly distributed over the entire portion of the reclaimed area and will not account for more than 20% of total ground cover.
- The operator will 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 4-strand BLM Type-D barbed wire fence with braced wooden corners will be constructed around all reclaimed portions of the well pad including cut and fill slopes following placement of woody debris (unless otherwise instructed by the BLM).
- The operator will be responsible for achieving a reclamation success rate of sufficient vegetative ground cover from reclaimed plant species within three growing seasons after the application of seed. The ground cover of reclaimed seed species shall be comparable to that of the nearby undisturbed plant communities at a Potential Natural Community (PNC) state in relation to the seed mix as deemed appropriate by the BLM. Rehabilitation efforts must be repeated if it is concluded that the success rate is below an expectable level as determined by the BLM.

12. Upon final abandonment of well pads, new access roads, and completion of pipelines, 100% of all disturbed surfaces will be restored to pre-construction contours, and revegetated with a BLM preferred seed mixture. Natural drainage patterns will be restored and stabilized with a combination of vegetative (seeding) and non-vegetative (straw bails, woody debris, straw waddles, biodegradable fabrics...) techniques. All available woody debris will be pulled back over recontoured areas (woody debris will not account for more than 20% of total surface cover) to help stabilize soils, trap moisture, and provide cover for vegetation. Monitoring and additional reclamation efforts will persist until reclamation is proven successful (as determined by the BLM).

13. In addition, to mitigate water being channelized down the roadway, all activity must stop when soils or road surfaces become saturated to a depth of three inches. Furthermore, mud blading will be prohibited in attempts to reduce further soil displacement and sedimentation/salt loading to surface waters.

14. Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any groundwater produced from the Mesaverde Formation will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to surface water. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment will be required to intercept such contaminants prior to contacting soils. Furthermore, all pits shall be lined and all wastes associated with construction and drilling will be properly treated and disposed of.

15. As outlined in the White River ROD/RMP, All surface disturbing activities encountering “fragile soils” will be allowed only after an engineered construction/reclamation plan is submitted by the operator and approved by the Area Manager. The following items must be addressed in the plan:

- How soil productivity will be restored
- How surface runoff will be treated to avoid accelerated erosion such as riling, gullyng, piping, and mass wasting.

The operator will 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 will be installed on all slopes exceeding five percent to mitigate soil loss. Erosion and sediment control measures will be maintained until stream banks and adjacent upland areas are stabilized.

16. Mud blading will be prohibited and all activity shall cease when soils or road surfaces become saturated to a depth of three inches (on BLM administered lands) unless otherwise approved by the AO. All disturbed surfaces will be restored to natural contours and revegetated with a BLM approved seed mixture. Interim reclamation will follow the mitigation outlined in the Water Quality portion of this document.

17. All disturbed areas for the pipeline, access road and location with the exception of the access road travel surface and the area around well pad production facilities will be reclaimed within the first growing season or prior to the first full growing season following disturbance with Native Seed mix #2:

Seed Mix #	Species (Variety)	Lbs. PLS per Acre	Ecological Sites
2	Western wheatgrass (Rosanna)	2	Deep Loam, Loamy 10"-14", Loamy Breaks, Loamy Slopes, Rolling Loam, Valley Bench
	Indian ricegrass (Nezpar)	1	
	Bluebunch wheatgrass (Whitmar)	2	
	Thickspike wheatgrass (Critana)	2	
	Green needlegrass (Lodorm)	1	
	Globemallow	0.5	

Successful revegetation should be achieved within three years. The operator will be required to monitor the project site(s) for a minimum of three years post-construction to detect the presence of noxious/invasive species. Any such species which occur will be eradicated using materials and methods approved in advance by the Authorized Officer.

18. The use of interim reclamation techniques will be used to the extent practicable on this pad such that: 1) all available topsoil material would be used to rehabilitate recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), and 2) disturbed areas are recontoured, revegetated, and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads on federal surface).

19. Interim reclamation objectives will include testing whether these techniques are sufficient or appropriate for developing herbaceous ground cover that, in lieu of the removed shrub canopy, is capable of promoting sage-grouse movement across cleared surface facilities that are thought to interrupt ridgeline continuity and impede terrestrial movement by grouse. In this instance, as much of the east side of the pad will be graded, reclaimed, and fenced to provide an uninterrupted interval of mildly sloping ridgeline cover that allows for sage-grouse movement across the producing well.

20. From the White River ROD/RMP of 1997, Appendix B, #7. All trees removed in the process of construction shall be purchased from the Bureau of Land Management. The trees shall be cut with a maximum stump height of six inches and disposed of by one of the following methods:

- Trees must be cut before being dozed off the area of disturbance. Trees shall be cut into four-foot lengths, down to four inches in diameter and placed along the edge of the disturbance.
- Purchased trees may be removed from federal land for resale or private use. Limbs may be scattered off the area of disturbance but not dozed off.
- Chipped and scattered.

21. The BLM will obtain water rights for McCarthy Gulch Spring (187-22) to ensure beneficial uses for livestock and wildlife watering for years to come.

22. 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.

23. Prior to the initiation of any construction all exposed outcrops of the formations must be inventoried by an approved paleontologist and a report detailing the results of said inventory along with any recommended mitigation shall be submitted to the BLM.
24. If, at any time, it becomes necessary to excavate into the underlying rock formations in order to upgrade the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit a paleontological monitor shall be present during such excavations
25. Locate trend plot site prior to upgrading road to assure the entire site is left undisturbed by construction activities. If necessary, contact Mark Hafkenschiel, Rangeland Management Specialist at the WRFO to aide in locating this site.
26. Reserve pit fencing will comply with BLM specifications as described in the BLM Gold Book (Fourth Edition, 2005). Reserve pit fence specifications will be included as part of the conditions of approval.
27. If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities.
28. The holder must negotiate separate agreements with other private landowners and provide documentation of such before construction begins on public lands. Although there are no authorized linear facilities location on the affected public lands, Colorado One Call procedure must be initiated before construction.
29. All permanent (onsite for six [6] months or longer) structures, facilities and equipment placed onsite shall be low profile and painted Munsell Soil Color Chart Juniper Green or equivalent within six months of installation.

NAME OF PREPARER: Keith Whitaker

NAME OF ENVIRONMENTAL COORDINATOR: Caroline P. Hollowed

SIGNATURE OF AUTHORIZED OFFICIAL: 
Field Manager

DATE SIGNED: 09/20/06

ATTACHMENTS: Exhibit A XTO access, gas line, water line
General location map of the Proposed Action



XTO access, gas line, water line Fed 3S-95-34-44

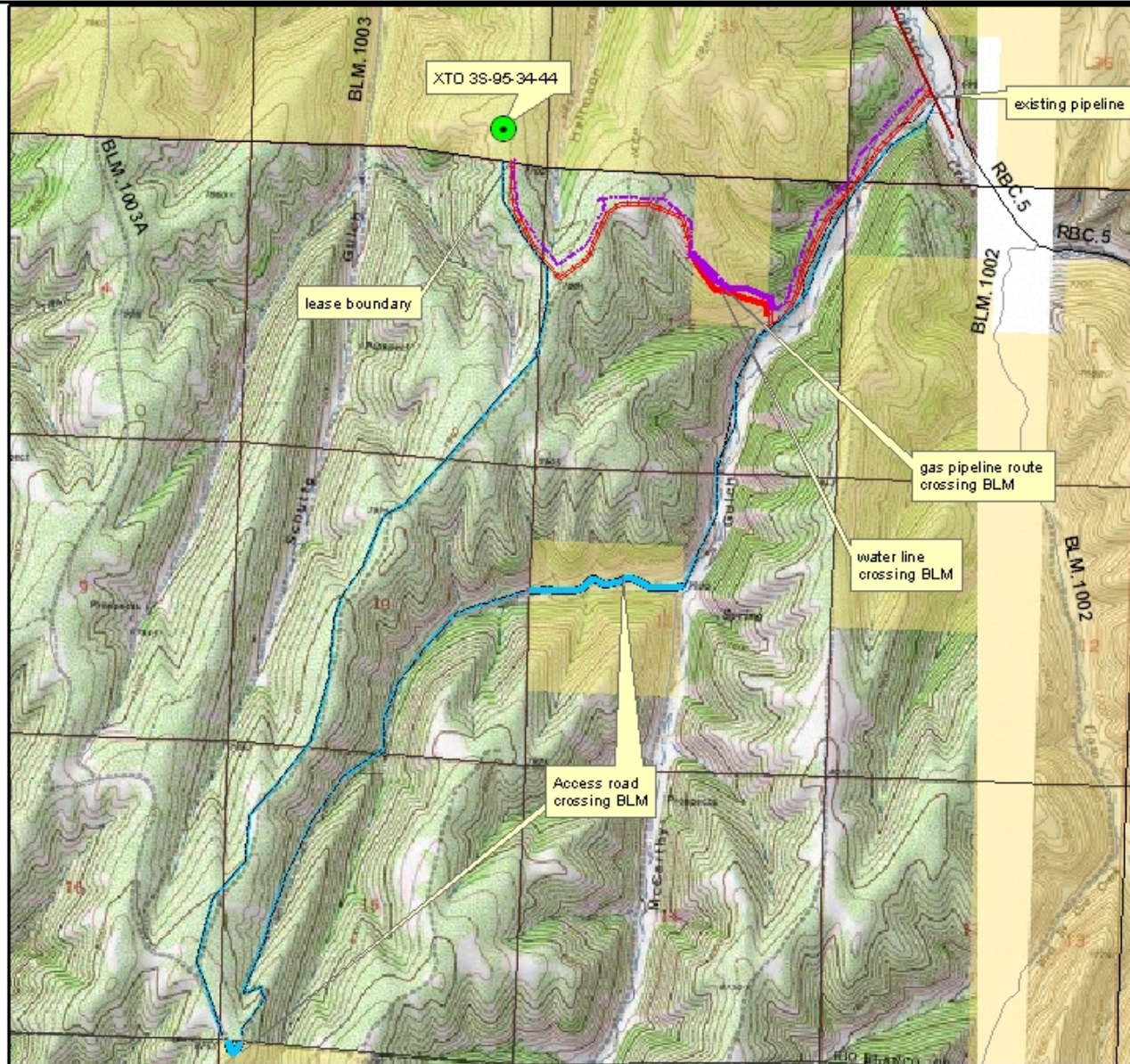


EXHIBIT A

CO-110-06-176-EA
Sixth Principal Meridian
T.3S., R.95W., sec. 2, 11, 22

COC70534 -road
COC70535-gas pipeline
COC70536-water pipeline

- BLM
- CDW
- FOR
- NPS
- PRI
- STA

Sections

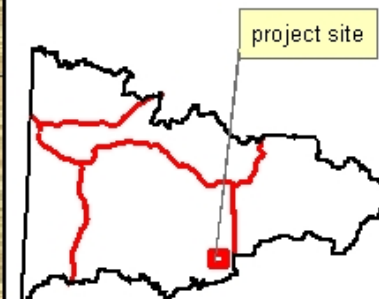
Major roads

RD_CODE

- Highway
- County
- NPS
- Forest service
- BLM
- Plats



0-/11/06 scale 1:32,000



Location of Proposed Action CO-110-2006-176-EA

