

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

## **ENVIRONMENTAL ASSESSMENT**

**NUMBER:** CO-110-2006-260-EA

**CASEFILE/PROJECT NUMBER:** COC-061047

**PROJECT NAME:** APDs for 2 wells #2S-95-16-22CP, #2S-95-16-33DP

**LEGAL DESCRIPTION:** T2S, R95W, SENW sec.16 (#2S-95-16-22CP),  
T2S, R95W, NWSE sec.16 (#2S-95-16-33DP)

**APPLICANT:** XTO Energy Inc.

**ISSUES AND CONCERNS:** None

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

**Proposed Action:** Well pad #2S-95-16-22CP would be located on private surface, & well pad #2S-95-16-33DP would be located on both private and BLM surface (approx. 2.0 ac. on BLM). Well pad #2S-95-16-22CP would be 500' x 515' (6 ac.) with a production pad 200' x 100' (0.5 ac.), and an access road of 220', a reroute of an existing two track for 290', and the upgrading of an existing two track for 1.6 miles (total access approx. 6.2 ac, total access on BLM would be approx. 0.25 mi. for 0.3 ac. of new surface disturbance). Well pad #2S-95-16-33DP would be 500' x 450' (5.2 ac. with approx. 2.0 ac. disturbance on BLM) with an access road of 70' and the upgrading of an existing two track for 0.8 mi. (3 ac. with no disturbance on BLM). The pipeline for the wells will parallel the access roads and share the same ROW (50' total x 1320'=1.5 ac.). Total new surface disturbance on BLM would be approximately 3.5 acres, including portion of well pad, access road, and pipeline constructed on BLM land in section 16 (T2S, R95W, 6<sup>th</sup> P.M.).

- Maximum travel surface width would be 25' or less.
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- Maximum grades will not exceed 10% after construction.
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- No turnouts are planned at this time. Turnouts may be specified in the approved APD and only necessary if the well is successful.

- Only native materials will be used during construction. If necessary, gravel or rock may be purchased and used to improve road conditions and travel.
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- Roads will be crowned and bar ditches will be located along either side. 18-24" dia. Culverts will be installed if necessary.
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- Any cattleguards will be specified in the stipulations if necessary, and will meet or exceed BLM standards of construction.
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- 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.
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- 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 (granted). The holder will adhere to conditions of approval in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
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- If a right-of-way is secured, boundary adjustments in the lease or unit shall automatically amend this right-of-way to include that portion of the facility no longer contained within the lease or unit. In the event of an automatic amendment to this right-of-way grant, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.
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- If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligations as determined by the BLM.
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- If the well is productive, the access road will be rehabilitated as needed and 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.
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- On site production facilities would consist of a wellhead, flow lines (typically 3"-6" dia.), artificial lifting system (if necessary), wellhead compression (if necessary), gas/oil/water separator (3 phase), gas measurement and water measurement equipment, and a heated enclosure/building for weather and environmental protection. The tanks would be surrounded by a berm constructed to contain 1½ times the volume of the largest tank (s). The tanks typically necessary for the production of this well will be one 400 bbl steel above ground tank for the collection and sale of oil/condensate and two 400 bbl steel

above ground tanks for produced water. All loading lines and valves for these tanks will be placed inside the berm surrounding the tank battery.

- All oil/condensate/gas production and measurement shall conform to the provisions of 43 CFR 3162.7 and Onshore Oil and Gas Order No. 4 and No. 5. The measurement and sales of all gases and oils produced from this lease (Fed. # COC-61047) will be sold from a sales point (gas flow meter or tank) that remains within the lease boundary. The sales point will not be used for the additional measurement and sales of (off-lease) gases and oils without receiving prior approval from the BLM. Other on-site equipment and system may include methanol injection and winter weather protection.
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- All permanent (in place for six months or longer) structures constructed or installed on the well site location will be painted a flat, non reflective color to match the standard environmental colors, as specified by the COAs in the APD. All facilities will be painted within six months of installation. Facilities are required to comply with the Occupational Safety and Health Act (OSHA) may be excluded.
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- Off site facilities are typically located at the CDP station and usually include central compression, gas processing, separation, tanks, pits, electronics, gas measurement and possibly a produced water disposal (SWD) well.
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- The well will be produced into a 4"-8" steel gas pipeline and transported to either an existing pipeline ROW (3<sup>rd</sup> party transporter) or gas processing facility. This proposed pipeline will be located within 10'-15' of the access roads to location and can share the same area of disturbance along with the access roads during construction.
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- 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.
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- Water will be piped from an unidentified source through lines typically laid on top of the ground. If necessary, water may also be trucked via third party to the location over approved access roads. Water obtained on private land, or land administered by another agency, will require approval from the owner or agency for use of said water.
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- Pad construction material will be obtained from (if the material is Federal owned, a map will be included showing the location of the material): All construction material will be purchased from private landowners and or from a commercial gravel/materials pit. All material will be trucked to location via third party trucking using only approved access roads.
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- The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3, if applicable.

- The reserve pit will be typically 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 until the pit is dry. The amount of time the pit may remain open will typically be specified by the COAs 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.
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- 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.
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- No ancillary facilities will be required during the drilling or completion of the well.
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- 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 of the location will be considered trespassing on private land 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.
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- Topsoil along the access road will be reserved in place adjacent to the road as indicated by the approved APD.
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- Within 30-45 days after completion of well, all equipment that is not necessary for production shall be removed.
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- 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.
- Prior to starting any dirt work to restore the location, the reserve pit must be dry and ready for burial. If necessary, any approvals needed to commence the burial operation will be obtained.
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- All road surfacing will be removed prior to the rehabilitation of roads, if necessary.
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- Reclaimed roads will have the berms and cuts reduced and will be closed to vehicle use.
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- All disturbed areas will be re-contoured to replicate the natural slope.
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- The stockpiled topsoil will be evenly distributed over the disturbed area.
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- Prior to reseeding, all disturbed areas, including the access roads, will be scarified and left with a rough surface.
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- Seed will be broadcast or drilled between/during a time specified by the BLM and or state. If 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:
  - at least 4' above ground level, or
  - at restored ground level, or
  - 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).
- The surface is currently owned by Shults Ranch LLLP and sub-surface minerals are owned by the United States Federal Government and are managed by the Bureau of Land Management.
- A BLM approved contractor will submit the appropriate reports to the agency as required for archaeological concerns. Special stipulations will be included in the COAs of the approved APD.
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- 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 contact the appropriate BLM Field Office for further instructions.
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- A BLM approved contractor will submit the appropriate reports for threatened and endangered species concerns to the agency as required. Special stipulations will be included in the COAs of the approved APD.
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- Current wildlife restrictions and closure dates, if applicable, will be specified in the approved APD.

- A copy of the surface owner's agreement between XTO Energy Inc. and Shults Ranch LLLP is included with this APD.

The date the work would start would be 12/2006.

**No Action Alternative:** The project would not be approved; therefore there would not be any environmental impacts.

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

**NEED FOR THE ACTION:** To respond to request by applicant to exercise lease rights to construct access roads, well pads, 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 thirty 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 (PM<sub>10</sub>) 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 and drilling 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 PM<sub>10</sub>. Furthermore, the Colorado Air Pollution Control Division (APCD) estimates the maximum PM<sub>10</sub> levels (24-hour average) in rural portions of western Colorado like the Piceance Basin to be near 50 micrograms per cubic meter (µg/m<sup>3</sup>). This estimate is well below the National Ambient Air Quality Standard (NAAQS) for PM<sub>10</sub> (24-hour average) of 150 µg/m<sup>3</sup> (CDPHE-APCD, 2005).

*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 (PM<sub>10</sub>) during construction. Elemental and organic carbon existing in the air as PM<sub>10</sub> 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:*

*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. 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 #2S-95-16-22CP and #2S-95-16-33DP well pad locations, access roads and well tie pipeline have been inventoried at the Class III (100% pedestrian) level (Hays 2006, Compliance Dated 9/27/2006) with no new cultural resources identified in the inventoried areas. This does not mean that resources do not exist outside the inventoried areas.

*Environmental Consequences of the Proposed Action:* The proposed action does not appear to impact any known cultural resources. However, resources located within 308 meters of the development that have not been identified could be adversely impacted by vibrations from pad construction, pipeline trenching, increased accessibility to the area that could lead to unauthorized collection or other impacts.

*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*), Russian, spotted and diffuse knapweeds (*Centaurea sp*), bull thistle (*Cirsium vulgare*), yellow toadflax (*Linaria vulgaris*) and black henbane (*Hyoscyamus niger*). The invasive alien annual cheatgrass occurs throughout the project area in association with unvegetated earthen disturbance along roads, wells, and pipelines. The project area is approximately ten miles east of and is directly connected by road with the Magnolia area, a veritable hot bed for noxious weed infestations due primarily to the continuous earthen disturbance which has and continues to occur there.

*Environmental Consequences of the Proposed Action:* Two primary negative impacts will/could occur as a result of access road, pad and pipeline construction; 1) The 3.5 acres disturbed as a result of pipeline, access road and pad construction will accelerate the rate of plant community fragmentation which is presently occurring in this area of Piceance Basin. This impact is unmitigated in the short term and likely, longer. 2) In terms of plant community composition, structure and function, the principal negative impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from location, pipeline and access road construction. Drilling multiple wells from a single pad, while limiting disturbance and plant community fragmentation over both the short and long term, will not completely mitigate the negative impact of the proposed action upon 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 the project area for a minimum of five years post disturbance and eradicate all noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.

## **MIGRATORY BIRDS**

*Affected Environment:* Well pad 2S-95-16-33DP is situated along a ridgeline comprised not of Wyoming big sage with a minor bitterbrush component, breaking off to a Gamble oak-serviceberry interface with scattered pinyon-juniper regeneration on the south slope. The understory is extremely degraded with little to no herbaceous groundcover. The pad itself is bisected by an existing two-track and is located approximately 70-80 meters from an existing well access road. Well pad 2S-95-16-22CP is located along a ridgetop in a serviceberry dominated Wyoming big sagebrush matrix. The well pad straddles an existing two-track.

There are a number of migratory birds that fulfill nesting functions in the big sagebrush, mountain shrub, and pinyon-juniper communities traversed by this project during the months of May, June, and July, including several species identified as having higher conservation interest by the Rocky Mountain Bird Observatory, Partners in Flight program (i.e., green-tailed towhee, Virginia's warbler, Brewer's sparrow, gray flycatcher, and black-throated gray warbler). Because of the younger-aged pinyon-juniper woodlands located at pad 2S-95-16-33DP, pinyon-juniper associates are not well represented. Woodland species associated with cavities and mature stands (e.g., accipitrine hawks, juniper titmouse) are generally absent.

Although this high plateau area has 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 is scheduled to begin in December 2006 and therefore would have no potential to directly impact migratory bird nesting activities. Should construction be extended to spring 2007, it may coincide with a portion of the migratory bird breeding season. This would likely result in nest disruption and possible nest abandonment, particularly if early in the nesting season.

The proposed action would result in the loss of nearly two acres of mountain shrub-big sagebrush communities and approximately two acres of pinyon-juniper woodlands and may displace up to two pairs of higher interest bird species. Although the proposed actions would represent an incremental and longer term reduction in big sagebrush, mountain shrub and pinyon/juniper habitat, implementation of the proposed actions would have no measurable influence on the abundance or distribution of breeding migratory birds at any landscape scale.

It has recently been brought to BLM's attention that in certain situations migratory waterfowl 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 not well defined, but is being actively investigated by the federal agencies and the companies. 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 or habitats of migratory birds.

*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 threatened, endangered or BLM-sensitive animal species that are known to inhabit or derive important benefit from areas within the project site.

*Environmental Consequences of the Proposed Action:* Pad and road construction and drilling/completion operations would have no conceivable influence on special status species 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 and, as such, would have no influence on the status of applicable land health standards.

**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 solid 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 Lower Piceance Creek and Middle Piceance Creek fifth level watersheds. The proposed well pad locations, pipelines, and access roads are all situated in stream segment 16 of the White River Basin. 6<sup>th</sup> and 7<sup>th</sup> level watersheds directly impacted by the proposed actions are Bear Gulch and East Fork Dry Prong Gulch. The proposed project area is situated on the drainage divide between Bear Gulch (to the northeast) and East Fork Dry Prong Gulch (to the southwest). Bear Gulch is an ephemeral tributary to Dry Fork Piceance creek while East Fork Dry Prong Gulch is an intermittent tributary to Main Dry Prong Gulch which is an ephemeral tributary to Dry Fork Piceance Creek. Two perennial springs feed the upper reaches of East Fork Dry Prong Gulch however the extent of perennial surface water is limited to a short distance from the spring source (see Hydrology and Water Rights portion of this document). Directly down gradient of the proposed project area the Dry Fork Piceance Creek is a perennial tributary 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 four 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.

Within the Piceance Creek drainage basin, the quality of the surface water and ground water are related, except during periods of extensive runoff due to storms and snowmelt, when streams are

freshened. During other periods, approximately 80 percent of the annual flow of Piceance Creek originates as discharge from alluvial and bedrock aquifers. During steady-flow conditions on March 26, 1981, analysis of the major dissolved constituents at numerous sites in Piceance Creek generally indicated increases in the downstream direction. The concentrations of dissolved solids, bicarbonate, sulfate, and sodium increased due to the discharge of water from the bedrock aquifers to the stream valley and tributaries (Tobin, 1987).

Ground Water: Surface geologic formation at the proposed location is Tertiary in age (Uinta Formation) and consists primarily of interbedded sandstone 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:**

<b>Summary of Hydrogeologic Units</b>						
<b>Hydrogeologic Unit</b>	<b>Stratigraphic Unit</b>	<b>Physical Description</b>	<b>Thickness</b>	<b>Hydraulic Conductivity</b>	<b>Yield</b>	<b>TDS</b>
			<b>(ft)</b>	<b>(ft/day)</b>	<b>(gpm)</b>	<b>mg/L</b>
<b>Upper Piceance Basin aquifer</b>	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
<b>Lower Piceance Basin aquifer</b>	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
<b>Fort Union aquifer</b>	Fort Union Formation	Coarse-grained sandstone	Very thin	NL	NL	NL
<b>Mesaverde aquifer</b>	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 water chemistry of the upper bedrock aquifers is dominated by dissolved calcium, magnesium, and bicarbonate along the rim of the basin; and by sodium, magnesium, bicarbonate, and sulfate in the central part of the basin. These constituents are characteristic of water in the upper aquifers, principally the Uinta Formation. Sodium and bicarbonate are the dominant dissolved constituents in the upper aquifers generally are lower than 1,000 milligrams per liter. Characteristic trace elements include strontium in concentrations of several milligrams per liter in the Uinta Formation, and fluoride in concentrations of greater than 1 milligram per liter in water samples from the lower part of the upper aquifers (Tobin, 1987).

*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 completion of construction activities and would likely decrease thereafter due to reclamation procedures.

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/colluvial aquifers such as the Dry Fork Piceance Creek alluvium, and BLM spring 170-04 (see Hydrology and Water Rights portion of this document) which are situated 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 (e.g. drilling/fracturing fluids) 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 in local shallow colluvial/alluvial aquifers, Upper Piceance Basin Aquifer, and Piceance Creek Alluvial Aquifer.

*Environmental Consequences of the No Action Alternative:*

*Mitigation:* Surface Water: All surface disturbing activities on BLM administered lands will strictly adhere to "Gold Book" (fourth edition) surface operating standards for oil and gas exploration and development (copies of the "Gold Book" can be obtained at the WRFO). Corrugated metal pipes (CMPs) and drainage dips shall be located in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. CMPs are not recommended on roads that have gradients less than 10 percent. Based on the nature of the affected soils, drain dips will be utilized in place of CMPs in these locations. The use of drain dips on road gradients greater than 10 percent should be avoided. Energy dissipaters such as large gravels/small

cobbles will be used at culvert and drainage dip inlets/outlets to minimize additional erosion. To mitigate water being channelized down the roadway, all activity will stop when soils or road surfaces become saturated to a depth of three inches. Mud blading will be prohibited in attempts to reduce further soil displacement (unless otherwise approved by the BLM).

The operator will consult with the State of Colorado Water Quality Control Division (contact Matt Czahor at: 303-692-3575 or [matthew.czahor@state.co.us](mailto:matthew.czahor@state.co.us)) regarding Stormwater Discharge Permits prior to commencing construction activities. All 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. XTO has filed a General Permit Application with the Colorado Department of Public Health and Environment (CDPHE) to permit stormwater discharges associated with construction of well pads, access roads, pipelines, storage areas and related disturbances. This permit was approved, assigned certification number COR-038830, and is on file at the BLM-WRFO. The SWMP contains an appendix for each site, one acre or more, where surface disturbance is required that will outline additional site specific mitigation measures aimed at minimizing the impacts of stormwater runoff. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or [Nathan\\_Dieterich@blm.gov](mailto:Nathan_Dieterich@blm.gov).

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. 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 Field Manager). Reclamation efforts on all pipelines will be final. Interim reclamation of well pads and final reclamation of pipeline right of ways (ROW) on BLM administered surfaces 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.
- 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 pads*. To eliminate livestock utilization of reclaimed areas prior to successful reclamation, a 4-strand BLM Type-D barbed wire fence with braced wooden corners or net wire fence brought to the ground surface built to BLM specifications will be constructed around all reclaimed portions of the well pad including cut and fill slopes immediately after interim reclamation is concluded (within 2 weeks) unless otherwise instructed by the BLM. A BLM specified cattleguard will be placed at the time of fence construction where the well access road bisects the fenceline that surrounds the well pad's disturbance imprint. Once reclaimed plant species are fully established on disturbed sites as determined by the BLM (e.g. Desired Plant Community (DPC), Public Land Health Standards), the fence and cattle guard will be completely removed by the applicant after a minimum of two growing seasons. This will allow for reclaimed plant species to establish without grazing pressure from livestock.
- The operator will be responsible for achieving a reclamation success rate for interim reclamation and final abandonment (on all disturbed areas associated with well pads, pipelines, and access roads) of sufficient vegetative ground cover from reclaimed plant species within three growing seasons after the application of seed. Additional reclamation efforts will be undertaken at the operators expense if: after the first growing season there is no positive indicators of successful establishment of seeded species (e.g. germination); after the second year seeded species are not yet established (e.g. producing seed); and after the third growing season seeded vegetative communities lack persistence (e.g. reproductively capable of enduring drought conditions and sustaining the seeded community). Following the third growing season, ground cover of reclaimed seed species shall be at a Desired Plant Community (DPC) in relation to the seed mix as deemed appropriate by the BLM. Reclamation achievement will be evaluated using the Public Land Health Standards that include indicators of rangeland health. Rehabilitation efforts must be repeated if it is concluded that the success rate is below an acceptable level as determined by the BLM.

Upon final abandonment of the 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).

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 Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. 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 for all locations to intercept contaminants prior to contacting soils and infiltrating into groundwater. Furthermore, all pits shall be lined to protect shallow ground water from pit contents. 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. However, many of the upper tributaries are ephemeral, flow only in direct response to storm events/snowmelt and do not meet the standards during periods of flow. By following all 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 supporting riparian vegetation is Dry Fork of Piceance which is separated from the project area by a minimum 2 ½ miles of ephemeral channel.

*Environmental Consequences of the Proposed Action:* Both pads are situated along the ridgetop which is separated from the nearest channel by a minimum of 2 ½ miles. 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 Dry Fork 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:* The riparian zones along Dry Fork are currently meeting the Land Health Standards for a riparian system. 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 Dry Fork channel or its associated riparian resources.

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

No ACEC’s, flood plains, prime and unique farmlands, or Wild and Scenic Rivers, threatened, endangered or sensitive plants exist within the area affected by the proposed action. For threatened, endangered and sensitive plant species Public Land Health Standard is not applicable since neither the proposed nor the no-action alternative would have any influence on populations of, or habitats potentially occupied by, special status plants. 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	Affected Acres w/in 30 m	Slope	Ecological site	Salinity	Run Off	Erosion Potential	Bedrock
42	Irigul channery loam	21.24	5-50%	Loamy Slopes	<2	Medium to rapid	Very high	10-20
43	Irigul-Parachute complex	23.33	12-45% 5-30%	Loamy Slopes /Mountain Loam	<2	Rapid	Slight to high	10-20
58	Parachute Loam	1.52	25-75%	Brushy Loam	<2	Medium	Very high	20-40
87	Starman-Vandamore complex	11.52	5-40%	Dry Exposure/Dry Exposure	<2	Medium	Moderate to very high	10-20

CSU-1 “fragile soils” have been mapped throughout the entire project area. However, onsite evaluations and observation of topographic maps indicate that no surface disturbing activities will occur on slopes exceeding 35%.

*42-Irigul channery loam* (5 to 50 percent slopes) is a shallow, well drained soil situated on ridges and mountainsides. It formed in residuum derived from sandstone and hard shale. The native vegetation is mainly grasses and shrubs. Elevation is 7,600 to 8,700 feet. The average annual precipitation is 18 to 22 inches, the average annual air temperature is 37 to 39 degrees F, and the

average frost-free period is 45 to 75 days. 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 this 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. Management practices suitable for use on this unit are proper range use, deferred grazing, and rotation grazing. Brush management and seeding are also suitable practices where slopes are less than 15 percent. Brush management improves deteriorated areas of range that are producing more woody shrubs than were present in the potential plant community. The main limitations for seeding are shallow soil depth and the short growing season. The plants selected for seeding should meet the seasonal requirements of livestock or wildlife, or both. For successful seeding, prepare a seedbed and drill in the seed.

*43-Irigul-Parachute complex* (5 to 30 percent slopes) can be found on ridges and mountainsides. The native vegetation is mainly grasses and shrubs. Elevation is 7,600 to 8,500 feet. The average annual precipitation is 18 to 22 inches, the average annual air temperature is 37 to 39 degrees F, and the average frost-free period is 45 to 75 days. This unit is 60 percent Irigul channery loam and 30 percent Parachute loam. The Irigul soil is mainly in convex areas, and the Parachute soil is in slightly concave areas. 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. The upper 20 inches of the subsoil is grayish brown loam channery loam, and the lower 8 inches is pale brown extremely channery sandy loam 6 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. If this unit is seeded, the main limitations are slope, shallow rooting depth, and a short growing season. The plants selected for seeding should meet the seasonal requirements of livestock or wildlife, or both. For successful seeding, prepare a seedbed and drill in the seed.

*58-Parachute loam* (25 to 75 percent slopes) is 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. Elevation is 7,500 to 8,700 feet. The average annual precipitation is 18 to 22 inches, the average annual air temperature is 37 to 39 degrees F, and the average frost-free period is 45 to 75 days. Typically, the surface layer is grayish brown loam 4 inches thick. The upper 10 inches of the subsoil is loam, and the lower 10 inches is channery loam. The next layer is very channery loam 8 inches thick. The substratum is extremely channery sandy loam 6 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.

*87-Starman-Vandamore complex* (5 to 40 percent slopes) can be found on rolling ridges and windswept ridge tops. The native vegetation is mainly grasses and low shrubs. Elevation is 7,500 to 8,900 feet. The average annual precipitation is 18 to 22 inches, the average annual air temperature is 37 to 39 degrees F, and the average frost-free period is 45 to 75 days. This unit is 50 percent Starman channery loam that has slopes of 5 to 30 percent and 40 percent Vandamore channery loam that has slopes of 5 to 40 percent. The Starman soil is shallow and well drained. It formed in residuum derived dominantly from hard shale. Typically, the surface layer is grayish brown channery loam 2 inches thick. The upper 6 inches of the underlying material is pale brown extremely channery loam, and the lower part is very pale brown extremely channery loam 9 inches thick. Hard shale is at a depth of 17 inches. Depth to hard shale ranges from 10 to 20 inches. Permeability of the Starman soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate to very high. The hazard of soil blowing is moderate to high.

The Vandamore soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is light brownish gray channery loam about 4 inches thick. The next layer is light brownish gray very channery loam about 4 inches thick. The underlying material is very pale brown extremely channery loam 17 inches thick. Sandstone is at a depth of 25 inches. Depth to sandstone ranges from 20 to 40 inches. Permeability of the Vandamore soil is moderate. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate to very high. The hazard of soil blowing is moderate to high. Prevailing winds sweep most of the snow cover off the soils in this unit in winter. Management practices suitable for use on this unit are proper range use, deferred grazing, rotation grazing, and brush management. The suitability of the unit for rangeland seeding is poor. Livestock grazing should be managed to protect the soil in this unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

*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.

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

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

*Environmental Consequences of the No Action Alternative:* Impacts to soil resources are not anticipated from the no-action alternative.

*Mitigation:* Mitigate soil loss from roadway and surrounding area by restricting road access to authorized personal only (e.g. gate and sign newly constructed access roads as discussed at the on-site). 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 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. All pits shall be lined to prevent contents from reserve pits from seeping into surrounding soils, contaminating local ground water, reducing soil productivity and compromising reclamation success.

*Finding on the Public Land Health Standard for upland soils:* Soils in the vicinity of the proposed action currently are meeting the standards. By following all suggested mitigation techniques and reclamation procedures, soil health should remain unchanged from current conditions.

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

*Affected Environment:* Vegetation at both the proposed locations is dominated by a mixed mountain shrub plant community consisting primarily of mountain big sagebrush and Utah serviceberry. The corresponding ecological site is Loamy Slopes.

*Environmental Consequences of the Proposed Action:* Two primary negative impacts will/could occur as a result of access road, pad and pipeline construction; 1) The 3.5 acres disturbed as a result of pipeline, access road and pad construction will accelerate the rate of plant community fragmentation which is presently occurring in this area of Piceance Basin. This impact is unmitigated in the short term and likely, longer. 2) In terms of plant community composition, structure and function, the principal negative impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from pipeline and access road construction. Drilling multiple wells from a single pad, while limiting disturbance and plant community fragmentation over both the short and long

term, will not completely mitigate the negative impact of the proposed action upon native plant communities

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

*Mitigation:* Promptly revegetate all disturbed areas including roadside and pad cut and fill slopes with Native Seed mix #2. Revegetation will commence immediately after construction and will not be delayed until the following fall. Debris will not be scattered on the pipeline until after seeding operations are completed. Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application.

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	
	Alternates: Fourwing saltbush, Utah sweetvetch, balsamroot		

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.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Plant communities in the project area currently meet the Standard both on a watershed and landscape scale and are expected to continue to meet the Standard following implementation of the proposed action.

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

*Affected Environment:* The proposed pads are separated from the nearest perennial reach (Dry Fork of Piceance) by a minimum 2 ½ miles of ephemeral channel. This lower reach of Dry Fork supports a simple invertebrate community. The lower reaches of Dry Fork, separated from the proposed pads by nearly 12 miles of intermittent channel, support the nearest vertebrate community.

*Environmental Consequences of the Proposed Action:* Both pads are situated along a ridgetop which is separated from the nearest channel by a minimum of 2 ½ miles. Pad, pipeline, 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 Dry Fork channel or its associated aquatic resources.

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

*Mitigation:* None

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Terrestrial): Neither the proposed or no-action alternative would have any reasonable potential to influence the function or condition of subtending channels or their aquatic habitat values. Pad, pipeline, 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 Dry Creek channel or its aquatic wildlife.

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

*Affected Environment:* The project area's mountain shrub and Wyoming big sagebrush communities are categorized by the Colorado Division of Wildlife as big game general winter range. These areas are generally occupied from October through April.

The immature pinyon-juniper woodlands scattered throughout site 2S-95-16-33DP do not provide adequate nesting substrate for woodland raptors. There are no cliffs or rock outcrops in the vicinity of the project area.

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:* The proposed action represents an incremental reduction in big game winter range. Much of the pad access is along an existing route and would, therefore, not add substantively to road density in this area, but the change in road character and increasing frequency of use would expand the extent of avoidance-related effects (i.e., behavioral avoidance and habitat disuse; increased energetic demands).

Localized road density is currently about 2.6 miles per square mile, which is within the desired road density objective (3 miles per square mile) established for big game winter ranges in the White River RMP. Because of the existing road network in this area, it is not feasible to mitigate the adverse effects of roads on big game habitat utility through gating.

The long-term occupation of about four acres of foraging area (pad and access road) would have negligible influence on big game forage availability, with the herbaceous component ultimately offset by reclamation.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have potential to affect resident wildlife populations or associated habitat.

*Mitigation:* The use of interim reclamation techniques will be used to the extent practicable on the 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), 2) production facilities are located to maximize the extent of surface disturbance available for recontouring and reclamation after completion operations and through the productive life of the well (e.g., where access road enters pad), and 3) all disturbed areas are reseeded and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads). In the event newly constructed access roads on BLM surface are no longer needed for well maintenance or development the roads will be recontoured to original grade.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Aquatic): On a landscape scale, the project area meets the public land health standards for terrestrial animal communities. The proposed action is considered an incremental addition to those lands dedicated to mineral development, but would not detract measurably from continued meeting of the land health standard at the landscape scale.

**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		
Fire Management	X		
Forest Management	X		
Geology and Minerals			X
Hydrology/Water Rights			X
Law Enforcement		X	
Noise		X	
Paleontology			X
Rangeland Management		X	
Realty Authorizations		X	
Recreation			X
Socio-Economics		X	
Visual Resources			X
Wild Horses	X		

## ACCESS AND TRANSPORTATION

*Affected Environment:* Rio Blanco County road 3 and BLM 1161 will be impacted by this proposed action.

*Environmental Consequences of the Proposed Action:* It is likely with the continued increase in traffic of all types to service and construct these wells that road surface damage may occur as a result if road maintenance activities are not commensurate with the levels of road usage. An increase in route proliferation is also likely due to the increase in new roads being developed.

*Environmental Consequences of the No Action Alternative:* None.

*Mitigation:* All roads shall be constructed and maintained by permittee per “Gold Book” standards.

## **GEOLOGY AND MINERALS**

*Affected Environment:* The surface geologic formation of the wells is the Uinta formation. Targeted zone is in the lower Mesaverde. During drilling potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. Fresh water aquifers that will be encountered during drilling are; the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. These geologic zones along with upper portion of the Wasatch are known for difficulties in drilling and cementing. The wells will develop the natural gas resources on Federal oil and gas lease COC-061047.

*Environmental Consequences of the Proposed Action:* Drilling and completion of this well may adversely affect the aquifers if there is loss of circulation or problems cementing the surface casing. However, the proposed cementing and completion procedure of the proposed action isolates the formations and will prevent the migration of gas, water, and oil between formations. Development of these wells will deplete the hydrocarbon resources in the targeted formation.

*Environmental Consequences of the No Action Alternative:* The natural gas resources in the targeted zones will not be developed at this time.

*Mitigation:* None

## **HYDROLOGY AND WATER RIGHTS**

*Affected Environment:* The proposed action is located in the Middle Piceance and Lower Piceance Creek Fifth level watersheds. 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 water rights have been identified in the headwaters of East Fork Dry Prong Gulch approximately 900 meters southwest of proposed project area. A search of water rights through Colorado’s Decision Support Systems web site (CDSS, 2006) and the BLM water rights data bases was done to identify basic water quality and water rights information for the identified springs. Table 3 summarizes information found in the search.

**Table 3:**

Map Code	Quarter	Section	Township	Range	Water Right Case #	SC	pH	Allocated Rate (cfs)	Use Type	Date
170-03	NENE	20	2S	95W	W0467	1011	7.2	0.002	Stock, Wildlife	9/30/1983
170-04	SWNW	21	2S	95W	85CW440	916	7.1	0.01	Stock, Storage	9/30/1983
170-05	SWNW	21	2S	95W	W0467	592	7.2	0.002	Stock, Wildlife	9/30/1983

BLM springs 170-03 and 170-05 discharge from the south side (left bank) of East Fork Dry Prong Gulch and the proposed project will have no impact on these two sources. However, BLM spring 170-04 discharges from colluvial material in the channel bottom of East Fork Dry Prong Gulch. The proposed project area is situated along the upper margins of the entire north side of a potential recharge area for BLM spring 170-04.

*Environmental Consequences of the Proposed Action:* Construction/drilling 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 of alluvial wells and springs (specifically BLM spring 170-04), riparian areas and aquatic life in East Fork Dry Prong Gulch, Dry Fork Piceance Creek and Piceance Creek.

*Environmental Consequences of the No Action Alternative:*

*Mitigation:* For additional mitigation, concur with mitigation outlined in the Water Quality portion of this document.

## **PALEONTOLOGY**

*Affected Environment:* The proposed well pads, access road and well tie pipeline are all located in an area generally mapped as the Uinta Formation (Tweto 1979) which the BLM, WRFO has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

*Environmental Consequences of the Proposed Action:* Should it become necessary to excavate into the underlying rock formation to level the well pads, excavate the reserve/bloolie pit, construct the roads or bury the pipeline there is a potential to adversely impact 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. All exposed outcrops of the Uinta Formation in the project area must be examined by an approved paleontologist and a report detailing the results of the inventory and any recommended mitigation must be submitted to the BLM prior to the initiation of construction.

2. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing 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.

3. A paleontological monitor shall be present any time it is necessary to excavate into the underlying rock formation for leveling of the well pad, excavation of the reserve pit or burying of the well tie pipeline.

## **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 4 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 actions would be located in an area with a VRM III classification. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

*Environmental Consequences of the Proposed Action:* One well pad and most of the access roads and pipelines would be located on private surface, and not subject to VRM

management objectives. That portion of the access road and pipeline located on BLM lands would be on the sides of a slope below the crown of a knob and not visible from county road 3, which would be the route traveled by a casual observer. Part of one well pad (#2S-95-16-33DP) would be located on the crest of a ridgeline on BLM lands. A casual observer traveling along RBC #3 would be able to view the proposed action at a distance of approximately 2.5 miles. Since both well pads would be near the tops of ridges, the production facilities should be painted Juniper Green to blend with and mimic the surrounding and distant vegetation types. The level of change to the characteristic landscape would be low and the objectives of the VRM III 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 on BLM lands placed above ground shall be painted Munsell Soil Color Chart *Juniper Green* within six months of installation. It is also suggested that all permanent (onsite for six [6] months or longer) structures, facilities and equipment on private lands also be painted Munsell Soil Color Chart *Juniper Green*.

**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.

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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:**

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

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

## **CO-110-2006-260-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 development of the proposed wells and associated pipelines as described in the proposed action, with the addition of the mitigation measures listed below. This development, with mitigation, is consistent with the decisions in the White River ROD/RMP.

### **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. 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 the project area for a minimum of five years post disturbance and eradicate all noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.

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 solid waste generated by the proposed actions.

8. Surface Water: All surface disturbing activities on BLM administered lands will strictly adhere to “Gold Book” (fourth edition) surface operating standards for oil and gas exploration and development (copies of the “Gold Book” can be obtained at the WRFO). Corrugated metal pipes (CMPs) and drainage dips shall be located in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. CMPs are not recommended on roads that have gradients less than 10 percent. Based on the nature of the affected soils, drain dips will be utilized in place of CMPs in these locations. The use of drain dips on road gradients greater than 10 percent should be avoided. Energy dissipaters such as large gravels/small cobbles will be

used at culvert and drainage dip inlets/outlets to minimize additional erosion. To mitigate water being channelized down the roadway, all activity will stop when soils or road surfaces become saturated to a depth of three inches. Mud blading will be prohibited in attempts to reduce further soil displacement (unless otherwise approved by the BLM).

9. The operator will consult with the State of Colorado Water Quality Control Division (contact Matt Czahor at: 303-692-3575 or [matthew.czahor@state.co.us](mailto:matthew.czahor@state.co.us)) regarding Stormwater Discharge Permits prior to commencing construction activities. All 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. XTO has filed a General Permit Application with the Colorado Department of Public Health and Environment (CDPHE) to permit stormwater discharges associated with construction of well pads, access roads, pipelines, storage areas and related disturbances. This permit was approved, assigned certification number COR-038830, and is on file at the BLM-WRFO. The SWMP contains an appendix for each site, one acre or more, where surface disturbance is required that will outline additional site specific mitigation measures aimed at minimizing the impacts of stormwater runoff. For further information contact Nate Dieterich, WRFO Hydrologist at 970-878-3831 or [Nathan\\_Dieterich@blm.gov](mailto:Nathan_Dieterich@blm.gov).

10. 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. 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 Field Manager). Reclamation efforts on all pipelines will be final. Interim reclamation of well pads and final reclamation of pipeline right of ways (ROW) on BLM administered surfaces 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.
- 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 pads*. To eliminate livestock utilization of reclaimed areas prior to successful reclamation, a 4-strand BLM Type-D barbed wire fence with braced wooden corners or net wire fence brought to the ground surface built to BLM specifications will be constructed around all reclaimed portions of the well pad including cut and fill slopes immediately after interim reclamation is concluded (within 2 weeks) unless otherwise instructed by the BLM. A BLM specified cattleguard will be placed at the time of fence construction where the well access road bisects the fenceline that surrounds the well pad's disturbance imprint. Once reclaimed plant species are fully established on disturbed sites as determined by the BLM (e.g. Desired Plant Community (DPC), Public Land Health Standards), the fence and cattle guard will be completely removed by the applicant after a minimum of two growing seasons. This will allow for reclaimed plant species to establish without grazing pressure from livestock.
- The operator will be responsible for achieving a reclamation success rate for interim reclamation and final abandonment (on all disturbed areas associated with well pads, pipelines, and access roads) of sufficient vegetative ground cover from reclaimed plant species within three growing seasons after the application of seed. Additional reclamation efforts will be undertaken at the operators expense if: after the first growing season there is no positive indicators of successful establishment of seeded species (e.g. germination); after the second year seeded species are not yet established (e.g. producing seed); and after the third growing season seeded vegetative communities lack persistence (e.g. reproductively capable of enduring drought conditions and sustaining the seeded community). Following the third growing season, ground cover of reclaimed seed species shall be at a Desired Plant Community (DPC) in relation to the seed mix as deemed appropriate by the BLM. Reclamation achievement will be evaluated using the Public Land Health Standards that include indicators of rangeland health. Rehabilitation efforts must be repeated if it is concluded that the success rate is below an acceptable level as determined by the BLM.

11. Upon final abandonment of the 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).

12. 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 Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. 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 for all locations to intercept contaminants prior to contacting soils and infiltrating into groundwater. Furthermore, all pits shall be lined to protect shallow ground water from pit contents. All wastes associated with construction and drilling will be properly treated and disposed of.

13. Mitigate soil loss from roadway and surrounding area by restricting road access to authorized personal only (e.g. gate and sign newly constructed access roads as discussed at the on-site). 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 upland areas are stabilized.

14. 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. All pits shall be lined to prevent contents from reserve pits from seeping into surrounding soils, contaminating local ground water, reducing soil productivity and compromising reclamation success.

15. Promptly revegetate all disturbed areas including roadside and pad cut and fill slopes with Native Seed mix #2. Revegetation will commence immediately after construction and will not be delayed until the following fall. Debris will not be scattered on the pipeline until after seeding operations are completed. Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application.

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	

16. 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.

17. The use of interim reclamation techniques will be used to the extent practicable on the pad such that:

- a) 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),
- b) Production facilities are located to maximize the extent of surface disturbance available for recontouring and reclamation after completion operations and through the productive life of the well (e.g., where access road enters pad), and
- c) All disturbed areas are reseeded and, if necessary, effectively fenced to control livestock use once well completion activities have been finalized (this includes cut and fill slopes of roads). In the event newly constructed access roads on BLM surface are no longer needed for well maintenance or development the roads will be recontoured to original grade.

18. All roads shall be constructed and maintained by permittee per “Gold Book” standards.

19. All exposed outcrops of the Uinta Formation in the project area must be examined by an approved paleontologist and a report detailing the results of the inventory and any recommended mitigation must be submitted to the BLM prior to the initiation of construction.

20. 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.

21. A paleontological monitor shall be present any time it is necessary to excavate into the underlying rock formation for leveling of the well pad, excavation of the reserve pit or burying of the well tie pipeline.

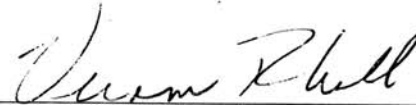
22. All permanent (onsite for six [6] months or longer) structures, facilities and equipment on BLM lands placed above ground shall be painted Munsell Soil Color Chart *Juniper Green* within six months of installation. It is also suggested that all permanent (onsite for six [6] months or

longer) structures, facilities and equipment on private lands also be painted Munsell Soil Color Chart *Juniper Green*.

**NAME OF PREPARER:** Keith Whitaker

**NAME OF ENVIRONMENTAL COORDINATOR:** Caroline P Hollowed

**SIGNATURE OF AUTHORIZED OFFICIAL:**



Field Manager

**DATE SIGNED:**

11/28/06

**ATTACHMENTS:** General Location Map of the Proposed Action

# Location of Proposed Action CO-110-2006-260-EA

