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

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-110-2011-0010-EA

CASEFILE/PROJECT NUMBER: COC-73708
COC74845 – access ROW

PROJECT NAME: BOPCO Unit Obligation Well: YCF 31-23-1

LEGAL DESCRIPTION: Sixth Principal Meridian
T.1N., R.97W.,
sec. 31 lots 9, 10, 11, NE¼SW¼, NW¼SE¼,
sec. 32, lot 1.
T.1S., R.97W,
sec. 5, lot 8,
sec. 6, lots 8, 9, 10, 11.
T.1S., R.98W,
sec. 1, lot 5.

APPLICANT: BOPCO, L.P.

ISSUES AND CONCERNS (optional): Drilling the proposed well by September 2011 is critical to the operator's unit obligations.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: An onsite for this location was conducted by the White River Field Office (WRFO) Bureau of Land Management (BLM) on October 15, 2010.

Proposed Action:

BOPCO, L.P. proposes to construct a 400 ft. x300 ft. well pad (an estimated 3.92 acres with implementation of stormwater features) and a 4,965 ft. x50 ft. access road (5.7 acres) to access and drill the proposed YCF 31-23-1 well. Construction would begin in August 2011. The right-of-way construction width for the proposed 5,620 ft. long pipeline route is 45 ft. (5.81 acres) and the permanent ROW would be 30 ft. (3.87 acres). A total of 15.5 acres of BLM-administered surface would be impacted by the development.

Construction material would consist of native materials from the location areas. The well pad would be graveled to minimize erosion. Gravel would be purchased from Meeker Sand and Gravel. A permit to place Temporary Living Quarters on the surface of the well pad would be requested from the Rio Blanco Building Department. Cuttings would initially be placed and allowed to dry on a 24 mil black plastic liner placed on the well pad for no longer than six months. A berm would be put around the pile to prevent runoff and to guard against a stormwater event. The operator would construct a 42 ft. x42 ft. x12 ft. cuttings pit on the surface of the pad to bury drill cuttings if toxicity samples prove the regulated material to be at concentrations below allowable State of Colorado thresholds. Temporary tanks to store drilling fluids would be placed on the surface of the pad as part of the proposed closed-loop system. Six 400 bbl tanks would be placed within secondary containment to capture and contain produced condensate and water.

Produced water would be recycled in the field or disposed of at the YCF 4-16-1 injection location. Condensate would be gauged and sold. BOPCO, L.P. would install 1 water line, 4 in. to 6 in. in diameter, rated to 1,500 psi, to transport the produced water for recycling or injection. In the same trench BOPCO would install (at a minimum) an 8 in. steel gas line to transport the natural gas.

The access road would consist of a "crown segment" for 1,000 ft. on the east end of the road, then an "out slope" design for the remaining length of the road. The maximum grade of the road would be 10 percent for 100 ft., and 8 percent for the rest of the access road. Drainage ditches would not be required and the operator would provide BLM an "as-built" plat once the pad is built. One 24 in. culvert would be placed 500 ft. east of the well pad. The operator would place a gate along an existing fence belonging to the BLM, located 1,100 ft. east of the proposed well pad, as was requested by the BLM at the October 2010 onsite.

Two water tankers (110 bbls of water each) would be used each day during construction of the proposed well pad and access road. Approximately 2.3 acre feet of fresh water would be required to drill the site; the water supply for drilling through surface casing, construction, drinking, cement jobs, operations, and dust suppression would be provided by RN Industries Trucking/Dalbo Water Service, which has a permit to withdraw water from the White River. The operator may wish to use the well pad surface to drill additional wells in the future, and proposes to conduct interim reclamation of the well pad once the last well planned for the site is drilled and placed on production, a date the operator is unable to determine at this time and that would be contingent upon commodity prices and production findings related to the herein proposed well. The proposed interim reclamation would consist of recontouring and revegetating portions of the well pad not needed for production (approximately 2.5 acres) to its pre-disturbance topography and vegetative state. The operator plans to reclaim all areas of disturbance to its pre-disturbance condition after the last well on the pad surface is plugged and abandoned.

No Action Alternative: The well would not be drilled and the Yellow Creek Unit would contract.

PURPOSE & NEED FOR THE ACTION: The purpose of the Proposed Action is to manage the exploration and development of mineral resources on Public Lands in a manner that avoids, minimizes, reduces, or mitigates potential impacts to other resource values.

Decision to be Made: Permit BOPCO to construct a 3.92 acre well pad to drill the YCF 31-23-1 well, construct a 4,965 ft. access road to access the location, and place 5,620 ft. of pipeline to construct, operate, and maintain the well.

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).
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> 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:

NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

AIR QUALITY

Affected Environment: Based on a review of designated non-attainment areas for criteria pollutants, published by the Environmental Protection Agency (EPA 2010), the Proposed Action is an attainment area for national and state air quality standards. The Proposed Action is also located outside a 10-mile radius of any special designation airsheds or non-attainment areas. Non-attainment areas are areas designated by U.S. Environmental Protection Agency (EPA) as having air pollution levels that persistently exceed the national ambient air quality (NAAQ) standards. Projects that could impact special designation areas and non-attainment areas may require special consideration from the air quality regulatory agencies of Colorado Department of Public Health and Environment (CDPHE) and the EPA. The closest special designation areas

are Dinosaur National Monument which is located northwest of the project area (designated Class II airshed with Prevention of Significant Deterioration (PSD) thresholds for sulfur oxides and visibility), and the Mount Zirkel and Flat Tops Wilderness Areas located to east and the north of the Proposed Action (designated Class I areas). General conformity regulations require that federal activities do not cause or contribute to a new violation of NAAQ standards; that actions do not cause additional or worsen existing violations of the NAAQ standards; and that attainment of these standards is not delayed by federal actions in non-attainment areas.

The Proposed Action is in the White River Basin where industrial facilities include coal mines, soda ash mines, oil shale research and development and natural gas processing and compression plants. Emissions of air pollutants due to exhaust emissions; Volatile organic compounds (VOCs), nitrogen oxides (NOx), and dust (particulate matter) are likely to increase into the future due to industrial uses, increased population, power plants and oil and gas development in the White River and in the nearby Unita and Yampa River Basins. However, with the exception of ozone, overall air quality conditions in the White River Basin are likely to continue to be in attainment of NAAQ standards due to effective atmospheric dispersion and limited transport of air pollutants from outside the area. Ozone is a secondary pollutant, formed photochemically (by the sun) by combining VOCs and nitrogen oxides (NOx) emissions. Data collected in Dinosaur, Meeker, and Rangely have measured exceedance in standards for 1-hour and 8-hour values for ozone (120 ppb and 75 ppb, respectively). To date, these exceedences have not been persistent enough to result in a violation of NAAQ standards.

Regional air quality parameters including ozone, nitrogen oxides, and dust are being measured at monitoring sites located at Meeker, Rangely, Dinosaur, and Ripple Creek Pass near the Flat Tops Wilderness Area. The BLM recently established the two Federal reference air quality monitoring stations in Rangely and Meeker. The cities of Grand Junction (southwest), Steamboat Springs (northeast), Rifle (east), and Parachute (south) all host air quality-monitoring stations. The Proposed Action is located in the Western Counties monitoring region and the 2010 CDPHE monitoring assessment showed there were 4 gaseous pollutant monitors and 11 particulate monitors in this area (CDPHE, 2010); this number did not include the two BLM sponsored sites. The majority of dust pollution in Colorado is from miscellaneous sources (CDPHE, 2009), which are mainly fugitive dust sources.

Environmental Consequences of the Proposed Action: Construction of the proposed facilities would result in low and short-term impacts on air quality during construction, drilling, completion and, to a lesser extent, from vehicles and gas processing and compression facilities during the production phase. Increases in the following criteria pollutants would occur due to combustion of fossil fuels during construction activities: carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants (NAAQ standards have not been set for non-criteria pollutants) such as nitric oxide, air toxics (e.g. benzene), and total suspended particulates may also experience slight, temporary increases as a result of the Proposed Action.

Additional low, short-term impacts to air quality may occur due to venting or flaring of gas from the wells and VOCs from pit and tank completion activities. Venting and/or flaring of natural gas is typically done for short periods of time in order to determine potential production amounts and characterize the quality of the gas. During the drilling and completion stages VOCs would be

released from pits or tanks and during completion activities. VOCs will also be released during production activities, from tanks, separation equipment, and due to transportation of natural gas, produced water, and condensate by pipeline or trucks.

There is the potential in the next three to five years to have violation of the ozone standards at the Rangely or Dinosaur monitoring sites, due to more persistent high ozone levels measured at these sites from emission in the White River Basin and from the nearby Unita and Yampa River basins and inversions. However, since this project is located at least 50 miles southwest of these sites it is unlikely to contribute to future violations for ozone standards. Even with increases in criteria and non-criteria pollutants, the project would be unlikely to result in an exceedance of NAAQ standards and Colorado ambient air quality (CAAQ) standards and would most likely be under PSD thresholds.

Soil disturbance resulting from construction, heavy equipment, and drill rigs is expected to cause increases in fugitive dust and inhalable particulate matter, specifically for particulate matter (PM) 10 microns (μm) or less in diameter (PM_{10}) and particles 2.5 μm or less in diameter ($PM_{2.5}$). During construction phases, dust production is likely, especially when conditions are dry and/or windy. Once the wells go into interim reclamation all the topsoil removed during road construction should be redistributed and stabilized alongside the road, the pipelines should be in final reclamation, and the pads should be recontoured and stabilized. As vegetation establishes in the reclaimed areas, the only dust production will occur when vehicles travel on the access roads to service the wells. The increase in airborne particulate matter from this project and the other wells previously approved is not expected to exceed CAAQ or NAAQ standards on an hourly, 8-hour average or daily basis. Fugitive dust emissions due to drilling would cause low, short-term impacts to local air quality, specifically visibility. Dust particles are the major contributors to visibility problems because of their ability to scatter or absorb light.

In summary, soil disturbance resulting from construction of pads and roads, pipeline construction, and drilling is expected to cause increases in fugitive dust and inhalable particulate matter (specifically PM_{10} and $PM_{2.5}$) in the project area and immediate vicinity, and may contribute to reductions in visibility from this action. In addition, increases in the following criteria pollutants: carbon monoxide, VOCs, ozone, nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during exploration and production activities. Non-criteria pollutants such as carbon dioxide, methane, and nitrous oxide (greenhouse gases), air toxics (e.g., benzene), total suspended particulates (TSP), and increased impacts to visibility and atmospheric deposition may also increase as a result of exploration and development (no national ambient air quality standards have been set for non-criteria pollutants). Even with these increased pollutants the Proposed Action is unlikely to result in an exceedance of NAAQ and CAAQ standards, and is likely to comply with applicable PSD increments and other significant impact thresholds.

Environmental Consequences of the No Action Alternative: No impacts to air quality would result from the No Action Alternative.

Mitigation: The following should be added as conditions of approval (COAs):

1. All access roads will be built and maintained according to BLM Manual Section 9113 standards for road shape and drainage features at all times during pad construction, drilling, and production.

2. The operator shall employ dust suppression techniques as outlined in the surface use plan whenever there is a visible dust trail behind vehicles during the construction and drilling phases of the Proposed Action. Any technique other than the use of freshwater as a dust suppressant will require prior written approval from BLM.

SOILS

Affected Environment: The classification of soils within 30 meters of the proposed surface disturbance that may be impacted by the Proposed Action are shown in Table 1. The pad sites are in fairly flat terrain on a ridge. There are no fragile soils or lands prone to landslides on Federal lands that will be impacted by this project.

Table 1. Soil Classifications within 30 Meters of the Surface Disturbance Proposed and/or the Centerline of Roads and Pipelines

Soil Classification	Range Site Description	Potentially Impacted Acres
Rentsac channery loam, 5-50% slopes	Pinyon Juniper Woodlands	44
Forelle loam, 3-8% slopes	Rolling Loam	8
Glendive fine sandy loam	Foothills Swale	4

According to Onshore Order #1, earthwork for interim reclamation (Phase II) is required to be completed six months after the well is completed. The Surface Use Plan (SUP) leaves open the timeline for interim reclamation. If the topsoil is stored for over a year it is likely to lose productivity and be less effective for reclamation. The SUP does not indicate the amount of topsoil that will be salvaged during road construction, but specifies that the topsoil for the well pad will be stabilized by roughing, mulching, broadcast seeding, and the use of blankets. A cuttings pit will be constructed to dispose of cuttings for the drilling operations. Interim reclamation will be required for the area outside the rig anchors and other areas that are not specifically needed for the operation of the well. The SUP describes drill seeding or "dozer track-walking" and broadcast seeding for soil preparation and seeding.

Environmental Consequences of the Proposed Action: Building the wellpad and road and installing the pipeline would directly disturb an estimated as 15.5 acres including drilling/production facility pad, access road, pipelines, and installation of stormwater management BMPs. Compaction due to construction activities would reduce aeration, permeability, and water-holding capacities of soils. An increase in surface runoff could be expected from these areas and they are likely to be less resilient to erosion from surface runoff after disturbance. Due to BMPs for stormwater, construction practices, and reclamation practices, impacts off the pad site are not expected.

Direct impacts from the construction of the well pad, the access road, and pipeline installation would include removal of vegetation, exposure of the soil, mixing of horizons, the loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. These direct impacts could result in increased indirect impacts off the site such as runoff and erosion. Implementation of BMPs for stormwater and reclamation will reduce impacts from this project and should be limited to the disturbed areas. However, there is a possibility of an extreme storm event damaging soils due to surface runoff or BMPs that are not as effective as intended. Impacts from an extreme storm and/or failure of stormwater BMPs would include gully initiation and potentially sediment deposition on or off the site.

The SUP anticipated small amounts of topsoil and describes taking an estimated 6 inches of topsoil for the well pad construction along the access road and does not specify how much topsoil will be removed before road construction. If the topsoil productivity is diminished due to storing it for more than one year soil productivity and vegetation establishment will not be as successful during interim and final reclamation. If not enough topsoil is retrieved during road and access road construction, reclamation will not be as successful as it should be and soil productivity will be impacted. Soils with surface compaction will not be as successful for reclamation and are more likely to generate surface runoff due to the loss of aeration. Therefore, mitigation requiring a minimum amount of topsoil to be removed and requiring decompaction of soils prior to seeding should reduce these potential impacts and improve reclamation potential.

This project could result in contamination of surface and subsurface soils due to unintentional leaks or spills from pipelines, construction equipment, storage tanks production equipment and if these spills occurred they would affect the productivity of soils.

Environmental Consequences of the No Action Alternative: No impacts to soils would occur.

Mitigation: The following should be attached as Conditions of Approval (COAs):

1. All construction activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or activities are otherwise approved by the Authorized Officer.

2. In order to protect rangeland health standards for soils, erosion features such as rilling, gullying, piping, and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the AO and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.

3. All topsoil will be removed in areas of surface disturbance to a minimum depth of 6-8 inches or as determined on-site by BLM soil specialist. Topsoil piles will be covered, seeded, labeled and stored unmixed with other soils for spreading during reclamation.

4. Interim reclamation will be conducted within six months of the well completion as per mitigation in the vegetation section and stored topsoil will be spread on all reclaimed surfaces at

this time. If soil productivity is diminished from its pre-disturbance condition, then reseeding, hydro-mulching or other efforts will be initiated to re-establish soil productivity during reclamation activities.

5. All areas where the topsoil has been removed and soils have become compacted will be ripped below the finished grade or to bedrock. Another suitable method of de-compaction may be used before topsoil is re-spread with approval of the BLM AO. Areas where the topsoil has not been removed, but have been compacted, must be de-compacted by disking or other methods to prepare the soils for reclamation. This soil preparation should be done before spreading the topsoil and seeding and be part of the earthwork for interim and final reclamation.

6. Soil storage areas will be clearly marked to restrict vehicle/equipment use to only what is necessary to move the soil.

7. During pipeline construction, the ROW will remain undisturbed to the maximum extent possible. That is, only the minimum necessary disturbance will occur to make the working surface safe and passable. Topsoil will not be removed under areas used for the storage of soils and, if possible, topsoil will not be removed from working surfaces.

8. Under no circumstances will topsoil, soil material below or adjacent to the trench spoils or subsoil excavated from the trench down to the ERD (Effective Rooting Depth) for the reclamation plants (Reclamation ERD) be used as padding in the trench, to fill sacks for trench breakers, or for any other use as construction material. Reclamation ERD will be a minimum of 16 inches and a maximum of 24 inches below the ground surface for all soils.

9. After pipeline construction activities are completed BOPCO LLC. will be responsible for taking measures to prevent off-road vehicle use along the pipeline ROW until reclamation has been successful or as directed by the AO.

Finding on the Public Land Health Standard for upland soils: With mitigation this action is unlikely to reduce the productivity of soils on public lands.

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: The proposed activities will use regulated materials and will generate some solid and sanitary wastes. The potential for harm to human health or the environment is presented by risks associated with spills of fuel, oil and/or hazardous substances during oil and gas operations. Accidents and mechanical breakdown of machinery are also possible.

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

Mitigation:

1. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.

2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.

3. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.

4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.

5. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

6. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.

7. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

8.With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever

occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.

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

Affected Environment: Surface Water: This project is in the headwaters of an ephemeral tributary to Yellow Creek. Table 2 describes water segments that may be impacted by this project.

Table 2. Water Quality Classification Table*

Segment	Segment Name	Use Protected	Protected Beneficial Uses		
			Aquatic Life	Recreation	Agriculture
13b	Mainstem Yellow Creek form the source to the confluence with Barcus Creek and tributaries	No	Warm 2	Not Primary Contact Recreation	Yes

* Colorado Department Of Public Health And Environment, Water Quality Control Commission, Regulation No. 37 Classifications and Numeric Standards For Lower Colorado River Basin, Effective June 30, 2011

Segment 13b is protected for warm water aquatic life (Warm 2). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures frequently exceed 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. This segment also has standards that are protective of recreation and agriculture.

Groundwater: Precipitation in this area generally moves from areas of recharge to surface waters via alluvial aquifers and on the surface during spring melt and rain storms. A substantial portion of annual precipitation infiltrates to deeper bedrock aquifers that contribute to contact springs. Springs and ground water inputs generally occur in both bedrock and alluvial aquifers along valley bottoms.

Contact springs are common in the area and are often the result of upper bedrock aquifers consisting of fractured, lean oil shale zones and siltstones of the Green River Formation above and below the Mahogany Zone or from fractured marlstone and sandstones of the saturated portions of the overlying Uinta Formation. Perched groundwater zones occur locally within the Uinta Formation when these saturated zones contact the surface. These perched zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas.

Environmental Consequences of the Proposed Action: Surface Waters: Clearing, grading, and soil stockpiling activities associated with the Proposed Action would alter overland flow and natural groundwater recharge patterns. Potential impacts include surface soil compaction caused by construction equipment and vehicles, which would likely reduce the soil's ability to absorb water and increase the volume and rate of surface runoff, which in turn would cause increased surface erosion.

Runoff associated with storm events may increase sediment/salt loads in surface waters down gradient of disturbed areas. Sediment can be deposited and stored in minor drainages where it would be moved into Yellow Creek during heavy convection storms. Surface erosion for this project is most likely during the construction and early production phases of the project and would be mitigated using BMPs for stormwater as discussed in the soils section.

The SUP shows a small drainage bisecting the access road just before the entrance to the pad and sheet 8 shows a culvert before the pad, however this appears to be for a different drainage. Also, sheet 3 has the access road coming into 7 feet of cut, where the future tank battery will be located. It is likely that the drainage form the road will flow down this access road into the pad and the area proposed for locating the tank battery. A better design is to have the access road to come into the pad at the balance line for cut and fill and put in a culvert just before the pad entrance to make sure the road does not concentrate water onto the pad during storm events. The mitigation below to the proposed design should fix this problem and avoid impacts that would occur such as erosion and changes in surface hydrology that could occur without these changes.

The SUP discloses the source of freshwater for drilling as the White River near the confluence of Piceance Creek or the town of Meeker. Water withdrawals directly from the White River could be a potential source of contamination and impact water quality. These impacts would occur if water trucks are not properly rinsed and if there is not a backflow preventer on the intake hoses. Documentation of the use of a backflow preventer is required as mitigation.

Groundwaters: Two zones of potential water (A-groove called "Greenriver" in the SUP and the B-groove) are anticipated to be drilled through; the deepest of these zones is estimated at 884 feet below the surface. These zones would be protected by installing a surface casing to a depth of approximately 3,600 feet and cementing behind this casing to the surface.

If drilling additives such as diesel fuel are used during drilling of the surface casing and drilling fluids are lost groundwater aquifers, aquifers may be contaminated. Using bentonite, freshwater, and other additives that cannot contaminate groundwater mitigates the loss of drilling fluids that can be common during drilling since the introduction of these substances would not impact the quality of these groundwater features.

Impacts to groundwater resources could occur due to failure of well integrity, surface spills, and/or the loss of drilling, completion and hydraulic fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known since different mixtures can be used

for different purposes in gas development and even in the same well bore. Loss of drilling fluids may occur at any time in the drilling process due to changes in porosity or other properties of the rock being drilled through for both the surface casing and the production hole. When this occurs, drilling fluids may be introduced into groundwater and freshwater zones.

Hydraulic fracturing is designed to change the producing formations' physical properties by increasing the flow of water and gas around the well bore. Hydraulic fracturing may also introduce chemical additives into the producing formations. Chemical additives used in completion activities for the well will be introduced into the producing formations, but should mostly be pumped back out before production. Producing formations would be from the Williams Fork down (estimated at about 7,800 feet). The production zones are all in the Mesaverde Group and are between 7,829 to 13,369 feet below the surface. The production zones do not contain any known freshwater.

Known groundwater bearing zones in the project area would be protected by drilling plan as described. Groundwater resources (including the contact springs, perched aquifers, and groundwater zones described in the Affected Environment) are all in elevations above the surface casing. With proper drilling and completion practices contamination of groundwater resources is unlikely.

Environmental Consequences of the No Action Alternative: No fluids would be released into aquifer zones and there would be no generation of produced waters, therefore there are no impacts to be identified.

Mitigation: The following should be added as COAs:

1. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of the White River. Trucks used for hauling produced water or waste disposal will not be used for freshwater delivery for this project without prior written approval from BLM.

2. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.

3. Relocate the access road for the well pad to be on the balance line for the cut and fill and place an 18-inch diameter culvert in the drainage to avoid concentrating water from the access road on to the pad surface. Move the Tank battery to the NE to be adjacent to the road; this will allow more of the cut on location to be reclaimed during interim reclamation. Changes should be submitted via sundry notice.

4. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human

health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).

5. The operator will submit via Sundry Notice (SN) to the Natural Resource Specialist (NRS) for review by the WRFO Hydrologist that describes the backflow preventer or other method used to protect water quality at the White River diversion site.

Finding on the Public Land Health Standard for water quality: It is unlikely that construction of the well pads and the access roads and installation of the pipeline would result in an exceedence of state water quality standards.

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

Affected Environment: The bulk of the project proposal is separated from the nearest riparian and wetland vegetation (Colorado Division of Wildlife-owned reach of Yellow Creek) by a minimum 1.25 miles of ephemeral channel. The nearest approach to Yellow Creek is the western terminus of the proposed pipeline, which crosses a low gradient ephemeral tributary about 0.8 miles above its entry to Yellow Creek. Since fencing was established to better control livestock grazing use of this valley, the vegetation associated with the Yellow Creek channel and its associated wetlands are well developed and extensive.

Environmental Consequences of the Proposed Action: The proposed project, as conditioned, would have no reasonable risk of measurably elevating sediments delivered to Yellow Creek. The majority of the project is well separated from Yellow Creek and it is expected that fugitive sediment originating from the pad, access road, and pipeline would be confined on-site or incorporated in upland vegetation communities, if effectively and promptly reclaimed and stabilized. Properly reclaimed surface disturbances would be resistant to invasive or noxious weed establishment, not only reducing the risks of downstream transport and proliferation of weeds, but minimizing the need for routine herbicide use. The ephemeral wash crossing would be routine and trenching/backfilling across the broad barren channel would have no effective influence on channel features or processes.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to affect riparian or wetland communities.

Mitigation: Gravel placement on the pad should be confined to the minimum area necessary for well maintenance. As the most effective long-term means of minimizing invasive weed and sediment contributions to well developed riparian and wetland systems administered by the Colorado Parks and Wildlife (CPAW), reclamation practices and success criteria established in the WRFO Surface Reclamation Protocal and appropriate to this project (see *Vegetation* section) should be applied to remaining disturbed soils, including storm water control features.

Finding on the Public Land Health Standard for riparian systems: That portion of Yellow Creek potentially influenced by the proposed action is owned by CPAW. This system is

not evaluated in terms of the BLM's Public Land Health Standards, but in their current state would exceed BLM land health standards. Effective application of WRFO reclamation practices and standards to disturbed lands associated with the proposed action would reduce fugitive sediment and invasive/noxious weed contributions to Yellow Creek to discountable levels and would not be expected to interfere with the current state of this system.

VEGETATION (includes a finding on Public Land Health Standard 3)

Affected Environment: The project area is located within three different range sites identified by the USGS soil surveys. The entire length of the access road is primarily located within a pinyon-juniper woodland range site except for the last 500 feet where it comes to the proposed pad. The remaining portion of the access road along with the entire well pad is located in a rolling loam range site. The pipeline is located entirely within the pinyon-juniper woodlands range site except for the last 750 feet where it comes into the bottom before tying in with an existing pipeline. This portion of the pipeline is located within the foothill swale ecological site.

Vegetation in the area is generally classified as mid-late seral and is currently meeting land health standards for plant and animal communities. The one segment of the project that is experiencing an increased level of invasive annuals is the last 750 feet of the pipeline in the foothill swale range site. This area does have a high component of cheatgrass (*Bromus tectorum*) and is on the edge of being classified as not meeting land health standards. Previous projects in this area have been seeded with crested wheatgrass, and these areas are generally competing with the cheatgrass and keeping it at lower levels, however crested wheatgrass is not a preferred species for seeding in the area.

Environmental Consequences of the Proposed Action: The proposed action would require the removal of a mid-late seral class of pinyon-juniper woodland, shrub, and grass community for a total of 15.5 acres, which occurs entirely on BLM surface. Disturbance for roads and well pads on 9.62 acres would be considered a long-term vegetative loss.

Acreage associated with long-term vegetative loss would temporally decrease with interim reclamation outside of the operational area. Without successful reclamation of seeded species within this landscape, a potential exists to increase the ground cover of undesirable plant species (i.e. cheatgrass) that invade disturbed sites.

Disturbance for pipelines on 5.81 acres would be considered short-term vegetative loss. Short-term soil and vegetation disturbances would be offset in the long-term by successfully reclaiming the disturbed area with a seed mix that is suited for the ecological site. As this area has a component of cheatgrass and other undesirable species within the plant community, successful re-vegetation efforts would slightly increase desirable plant species within the rangelands.

During the critical period (i.e., two growing seasons) that reclaimed plant species are trying to establish within the proposed action's disturbed environment, the plants provide a vegetation community that is succulent, green, and readily available. These areas can be sought out by livestock and/or wildlife (e.g., elk, deer, etc.) and grazed as the reclaimed plants are sprouting

and attempting to establish a root system and above ground growth. This situation of heavy livestock/wildlife grazing use on newly reclaimed areas lessens the ability of plant species to establish within the rangelands. Therefore, without proper reclamation there is a greater opportunity for less desirable and invasive plants, such as cheatgrass, to establish and dominate the disturbed sites.

Environmental Consequences of the No Action Alternative: No vegetation loss would occur on the site. The no action alternative would result in no changes from the current state of the vegetative communities.

Mitigation:

1. Reclamation will be implemented in distinct phases; Phase I interim reclamation, Phase II interim reclamation, and Final reclamation. Pipelines will not have interim reclamation and will go directly to final reclamation. Phase I reclamation will begin within 24 hours of completion of surface disturbing activities. Requirements for Phase I reclamation are below:

a. Trees or shrubs that must be removed for construction or ROW preparation will be cut down or masticated to a stump height of six inches or less prior to other heavy equipment operation. Trees removed for construction that are not needed for reclamation purposes will be cut in four foot lengths (down to four inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public. Woody materials required for reclamation will be stockpiled and stored separately from stockpiled topsoil and may be positioned along the margins of the authorized use area. Smaller limbs and trees may be chipped and stockpiled if needed for reclamation but, unless otherwise directed by the AO, operators should avoid incorporating this debris into the topsoil. The boles and limbs of the larger trees should be retained for redistribution not to exceed 20 percent total ground cover.

b. During site construction all topsoil will be stripped from the location, handled separately from subsoil materials, and stored for reuse during Phase II interim reclamation and/or Final reclamation.

c. Balance cut and fill to the maximum extent possible in order to minimize excess spoils piles and facilitate Phase II interim reclamation.

d. Topsoil must be salvaged during road construction and respread to the greatest degree practical on cut slopes, fill slopes, and borrow ditches prior to seeding. Road shape will be built using the borrow ditch subsoil. Topsoil may be stabilized with mulch as needed.

e. Topsoil will only be used as a seed bed for reclamation. Under no circumstances will topsoil be used as a pipe bedding material, to fill sacks for trench breakers, or for any other use as construction material. Fines and organics will not be shaken out the effective rooting zone soils for pipeline bedding.

f. Vegetative and structural soil stabilization practices will be required on cut and fill slopes off the working surfaces and in areas near water features, e.g., streams (including

ephemeral drainages, ponds, and wetlands), or in other situations where wind or water erosion may otherwise accelerate movement of sediments.

g. All disturbed surfaces, including cut and fill slopes and drainage ditches along roads, will be seeded with a BLM approved seed mix (See Below). On roads, topsoil will be spread where successful revegetation is likely (e.g., along appropriate cut and fill slopes or at the top edge of the borrow ditches) and where it will not be disturbed during regular road maintenance activities.

2. Phase II interim reclamation will be initiated when one of the following applies:

- The last well on a pad has been drilled and has undergone completion.
- There are no drilling activities expected on the pad for the next six months.
- There has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.

Requirements for Phase II reclamation are listed below:

a. Recontour to maximize the extent of disturbance available for reclamation. Soils must be returned to their respective positions in the predisturbance soil profile. Recontoured surfaces must be stable and have adequate surface roughness to reduce surface run-off.

- For well pads, place rock into cut first where it can be buried below the surface. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).
- After placement of subsoil, decompaction (ripping) or other preparation of subsoils must occur prior to spreading topsoil over the ground surface. Generally, all topsoil should be redistributed across all surfaces subject to Phase II interim reclamation. Topsoil will not be spread when the ground or topsoil is frozen or too wet to adequately support construction equipment. Soil is deemed "too wet" if equipment creates ruts greater than three inches.
- All topsoil that has been stockpiled for an extended period of time (six months or greater) will be tested to determine topsoil viability before it is re-spread. Analytical results will be compared to data obtained for soil characteristics prior to disturbance. If the comparison indicates problems with soil productivity, topsoil may be treated with amendments approved by the AO to meet the physical, chemical, and biological properties necessary for successful reclamation.

b. After topsoil has been redistributed, all disturbed areas will be seeded using a BLM approved seed mix (See Below).

c. Once the disturbance has been recontoured and the seedbed has been prepared and seeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Chipped material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation.

Redistribution of large woody debris will not exceed 20 percent ground cover and excess material will be removed from the site. Large woody material will be distributed in a manner that helps deter vehicle use. Materials would be distributed in such a way to avoid concentrations of heavy fuels that constitute a fire hazard or suppress adequate vegetation growth.

d. Disturbed and reclaimed areas will be managed to control dust and must be kept free of State of Colorado A and B listed noxious weeds.

e. Ensure that weed treatments are conducted in an effective manner that is compatible with approved seed mixes. To reduce the need for repeated bare ground herbicide treatments around facilities, alternative methods such as gravel, weed barrier fabric, or low-growing, disturbance-tolerant herbaceous vegetation may be used as authorized for a specific site by the BLM.

3. Final Reclamation will be initiated when one of the following applies:

- The operator encounters a "dry hole" and no further exploration or production is planned at the location.
- The final well on a pad has been plugged and abandoned.
- Facilities or infrastructure are no longer used in operations.
- The facilities that an access road serves have ceased operations and the road will be obliterated.

Requirements for final reclamation are listed below:

a. All reclaimed areas are kept free of noxious and undesirable invasive weeds, construction debris and trash.

b. There is no evidence of excessive erosion such as slope or soil instability, subsidence, or slumping at the site or in areas adjacent to the site (as compared to the range/ecological site description.

c. Storm water management structures and drainage features (e.g., culverts and ditches) installed by the operator have been removed and reclaimed.

d. The site has been recontoured to its pre-disturbance contour or a contour that blends with the surrounding landform.

e. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).

f. Roads built for and no longer supporting oil and gas development have been recontoured, obliterated, revegetated, and are no longer distinguishable as a means of vehicle travel (i.e., no ruts or two-tracks).

g. All signs, fences, gates, and cattleguards associated with livestock exclosures have been removed from the site, unless in specific predetermined instances the AO directs that livestock exclosures be retained for extended periods to meet other resource objectives.

h. Final reclamation is considered successful when the entire reclamation site (including obliterated roads) has attained 90, 80, or 70 percent (depending on RMPA alternative selected) of the DPC's vegetation cover and composition (early seral state) as defined by the range/ecological site description or in relation to the approved seed mix. On woodland or shrub sites, this would equate to the capability of those sites in an herbaceous state. These attributes (i.e., cover and composition) will be assessed using quantitative methods such as those presented in BLM Technical Reference 1730-1, 1734-4, or other preapproved methods.

i. The vegetation community established on the reclaimed site stabilizes soils, is capable of persisting without continued intervention (excluding routine weed management), and will allow plant community successional processes to progress toward advanced community states.

j. Bare ground does not exceed the range/ecological site description or if not described, bare ground does not exceed that of a representative undisturbed DPC meeting the Colorado Standards for Public Land Health.

k. Reclamation success in areas affected by cheatgrass and/or other invasive annuals will be qualified based on the condition of the project site (i.e., the relative vegetative cover) prior to disturbance.

- If the project site contains less than 25 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 5 percent.
- If the project site contains 25 percent to 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 10 percent.
- If the project site contains more than 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed the level defined by site-specific criteria established in the reclamation plan developed for that site.

4. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning any BLM approved construction-related activities, regardless of size, that result in disturbance of surface soils.

5. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning reclamation activities. Reclamation activities may include, but are not limited to recontouring, seed bed preparation, seeding, or construction of livestock exclosures.

6. All equipment that may act as a vector for weeds will be cleaned using approved methods before entering the WRFO. Equipment will also be cleaned when leaving and/or moving

between work-sites if the pre-disturbance weed inventory indicated the presence of undesirable invasive or noxious weeds and there is a risk of transporting weed seeds or propagules.

7. The operator will be required to meet with the WRFO reclamation staff in March or April of each calendar year and present a comprehensive work plan. The purpose of the plan is to provide information pertaining to reclamation activities that are expected to occur during the coming year. Operators will also provide a map that shows all sites where some form of reclamation activity is expected to occur during the coming year.

8. A Reclamation Status Report (see Section 4) for each site will be submitted electronically to the WRFO annually (due September 30th) until it is determined that reclamation of the site has met all required objectives of Phase I interim reclamation.

9. To track Phase I and Phase II interim and Final reclamation, the operator will submit Geographic Information System (GIS) data to the WRFO Reclamation Coordinator for any post construction (i.e., "as-built") polygon feature that is associated with the project. GIS data will be submitted within 30 days from when construction has completed for all geographic features associated with the project. The operator will submit updated GIS data to the WRFO for any location or orientation changes within 14 calendar days of the change. GIS data will include constructed access roads, existing roads that were upgraded, pipeline corridors, temporary work areas, well pad footprints, and ancillary facilities.

10. Seeding will be completed with two different seed mixes as shown in Tables 3 and 4 below. The Pinyon Juniper and rolling loam range sites encompass the entire access road, pad, and pipeline except for the last 750 ft of the pipeline before it ties into the existing pipeline. This area will be seeded with Seed Mix #1 (in Table 3 below). The last 750 ft of the pipeline is in the foothill swale range site and will be seeded with Seed Mix #2 (in Table 4 below). Seeding rates are shown in PLS pounds and are the drill seed rates. Broadcast seeding should be done at double the rate shown.

Table 3. Seed Mix #1 (Pinyon Juniper Woodland and Rolling Loam Range Sites)

Variety	Common Name	Scientific Name	Rate (PLS lbs/acre)
Rosana	Western Wheatgrass	*Pascopyrum smithii*	4
Whitmar	Bluebunch Wheatgrass	*Achnatherum hymenoides*	3.5
Rimrock	Indian Ricegrass	*Pseudoroegneria spicata*	3
	Needle and Thread	*Hesperostipa comata*	2.5
Maple Grove	Lewis Flax	*Linum lewisii*	1
	Scarlet Globemallow	*Sphaeralcea coccinea*	0.5

Table 4. Seed Mix #2 (Foothill Swale Range Site)

Variety	Common Name	Scientific Name	Rate (PLS lbs/acre)
Magnar	Basin Wildrye	*Leymus cinereus*	3.5
Rosanna	Western Wheatgrass	*Pascopyrum smithii*	3.5
San Luis	Slender Wheatgrass	*Elymus trachycaulus*	3
Critana	Thickspike Wheatgrass	*Elymus lanceolatus*	3
Timp	Northern Sweetvetch	*Hedysarum boreale*	4.5
Maple Grove	Lewis Flax	*Linum lewisii*	1

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial)*:* The project area is currently meeting land health standards for plant and animal communities. There is a portion of the pipeline in the foothill swale range site which does have an increased level of cheatgrass and other invasive annuals. This area is close to not meeting standards, but prompt successful reclamation of the area would improve vegetative communities in the area.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Grasslands Consulting conducted surveys for special status plants and noxious weeds in the project area. Cheatgrass (*Bromus tectorum*) and common mullein (*Verbacum thapsus*) were both found within 50 meters of the project area and both are classified as List C species on the state of Colorado noxious weed list.

Cheatgrass is an undesirable, annual, invasive, and non-native plant which readily invades disturbed sites and out-competes native cool-season grasses and forbs. Common mullein is a non-native biennial that establishes on disturbed sites. It rarely becomes aggressively invasive because it is not highly competitive and does not tolerate shade from other vegetation.

Environmental Consequences of the Proposed Action: Activities and disturbances associated with the proposed well pad, road, and pipeline may enable the establishment of invasive, non-native species. This occurrence is related to the off-site transportation of seed sources by equipment and by the elimination of native plant communities (i.e., disturbed soils) which compete with undesirable vegetation.

Weed species found in the area are effectively controlled by mechanical treatments, herbicide application, and the establishment of seeded species within disturbed areas. Limiting factors for successful reclamation of the site includes drought, excessive grazing use, and cheatgrass establishment on the adjacent rangelands.

Prompt reclamation with successful establishment would help prevent cheatgrass from establishing on the 15.5 acres of disturbance. If other noxious weeds were to invade the locality of the proposed action, prompt control would help prevent movement into the adjacent plant communities.

There is also a risk of off-site transportation of weed seeds and propogules on construction equipment. This would lead to the potential establishment of new weed species in the project area.

Environmental Consequences of the No Action Alternative: By not disturbing soils and removing native vegetation which competes with non-native/invasive weeds, there is a decrease in the potential for weeds to spread within the project area and in the adjacent plant communities.

Mitigation: See Vegetation Section

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

Affected Environment: Grasslands Consulting surveyed 140 acres around the proposed well pad for the presence of Dudley Bluffs bladderpod (*Physaria congesta*) and Dudley Bluffs twinpod (*Physaria obcordata*). The formations of the Thirteen Mile Tongue member of the Green River Formation were not found in the surveyed area; therefore, no new potential habitat for special status plant species was found. The survey area is dominated by sagebrush and pinon-juniper woodland communities. Grassland Consulting found the noxious weeds cheatgrass (*Bromus tectorum*) and common mullein (*Verbascum thapsus*) within 50 meters of the proposed project area.

Based on the plant surveys completed by Grassland Consulting, the nearest occupied habitats for the threatened plant species bladderpod are located approximately 790 m northwest of the access road portion and approximately 1,100 m west of the well portion of the proposed action. Direct impacts should not occur on individual special status plants or suitable special status plants' habitat at this distance, which exceeds the 300 meters suggested buffer.

However, due to construction traffic along CR 20, indirect effects are expected from dust from vehicle traffic on pollinators and suitable and occupied habitats for the bladderpod. Incoming vehicle traffic would be within the 1 km buffer suggested by Tepedino (2009) for protection of ground-nesting bees (a primary pollinator).

Environmental Consequences of the Proposed Action: Indirect impacts on special status plant species and their suitable habitat could include increases in invasive species and increases in fugitive dust. Increased vehicle traffic in the project area could lead to loss or modification of plant habitat due to the spread of invasive weed species and an increase in fugitive dust.

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: The use of dust abatement during construction is required on CR 20, BLM 1145, and the access road to the well site to avoid fugitive dust affects on individual special status plants, suitable special status plants' habitat, and potential primary pollinators in the area.

Finding on the Public Land Health Standard for Threatened & Endangered species: The proposed and no-action alternatives would have no direct influence on populations or habitats of plants 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. Indirect effects of fugitive dust and invasive weeds has the potential to impact populations or habitats of plants associated with the Endangered Species Act or BLM sensitive species, however through mitigation no adverse impacts are expected.

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

Affected Environment: There are no Endangered Species Act listed, proposed, or candidate animals that occupy or are known to derive important benefit from the project area. The White River below Rio Blanco Lake is designated critical habitat for Colorado pikeminnow populations that are currently confined to the river below Taylor Draw dam. The proposed action is separated from the White River's critical habitat by a minimum of 1 mile of ephemeral wash and 14 valley miles of Yellow Creek, and from occupied pikeminnow habitat by an additional 21 miles of river. The endangered bonytail, humpback chub, and razorback sucker do not occur in Colorado portions of the White River, but water depletions in the White River system may affect downstream habitats occupied by these species in the Green River.

Two BLM-sensitive animals that have potential to be affected by the proposed action: the northern leopard frog and Brewer's sparrow. The northern leopard frog is fairly common and well distributed along perennial reaches of Yellow Creek, including a 0.35 mile reach immediately downstream of the proposed western terminus of the pipeline. The Brewer's sparrow is common and broadly distributed in virtually all sagebrush and mixed shrub communities throughout the WRFO.

All elements of the proposed action would involve habitats suitable for or occupied by nesting pairs of this sagebrush obligate. These birds return to the WRFO by mid-May to nest, with initial nesting activities normally complete by the middle of July.

Environmental Consequences of the Proposed Action: Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued existence of the Colorado pikeminnow, as well as downstream populations of humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, the U.S. Fish and Wildlife Service (FWS) prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. The reasonable and prudent alternative authorized BLM to solicit a one-time funding contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in an amount based on the average annual acre-feet depleted by fluid minerals activities on BLM lands. This contribution was ultimately provided to the Recovery Program through an oil and natural gas development trade association. The proposed action is covered by this agreement and water-use figures associated with this project (see *Hydrology and Water Rights* section) would be entered into the White River Field Office fluid minerals water depletion log that will be submitted to the Colorado State Office at the end of the Fiscal Year.

As addressed in the riparian and wetland section above, the conditioned project would have no reasonable risk of measurably elevating sediments delivered to Yellow Creek. Comprised of alluvial soils that are susceptible to erosion, excessive sediment delivered to the Yellow Creek system would have potential to disrupt both lateral channel stability and degrade habitats suited for use by northern leopard frogs. However, effectively and promptly reclaimed and stabilized, low levels of fugitive sediment originating from the pad, access road, and pipeline would be confined on-site or incorporated in upland vegetation communities.

The proposed action would involve the direct removal of about 15 acres of sagebrush or mixed shrub habitat as nesting substrate for Brewer's sparrow. Because the proposed action is an obligation well for the Unit, there is strong incentive for the company to complete the well in the timeframes proposed (i.e., late summer/fall 2011). As such, project-related dirt work and vegetation clearing may involve the later stages of the core breeding season such that current year reproductive efforts would be nullified. A brief deferral of construction activity (through 15 July) would allow primary nesting attempts to progress through fledging and dispersal of young.

Upgraded access to the pad would impose long term behavioral consequences on the utility of adjoining habitats for subsequent nesting use. Nest densities of sagebrush obligates, including Brewer's sparrow, were found to be reduced by 60 percent within 100 meters of improved roads (Ingelfinger and Anderson 2004). Avoidance-induced reductions in suitable nest habitat

attributable to pad access would involve an additional 34 acres, in addition to about 7 acres around the perimeter of the pad. Total reductions in suitable Brewer's sparrow nest habitat is estimated at 56 acres, with the bulk of those influences (road-related) persisting over the life of the project (several decades). At typical nest densities, the area influenced by the proposed action would displace about 15 pairs of Brewer's sparrow. Once this location is producing (lower levels of activity), gating proposed in the Terrestrial Wildlife section would be capable of reducing bird displacement by half. The proposed action would add incrementally to the adverse modification of sagebrush habitats capable of supporting Brewer's sparrow, but relative to the widespread availability of habitat and abundance of birds throughout the Yellow Creek watershed, it would not impose direct, indirect, or cumulative impacts that would compromise the overall distribution or viability (i.e., recovery potential) of Brewer's sparrow populations at the local or regional scale in the long or short term. Prompt and effectively applied reclamation that does not interfere with the natural re-establishment of big sagebrush remains an important best management practice that reduces the long term and cumulative loss of these habitats for Brewer's sparrow reproductive activities.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence special status animals or their habitat.

Mitigation:

1. A native seed mix that specifically excludes highly competitive introduced or naturalized grasses or shrubs would be used in all seed mixes used in the reclamation of disturbed lands, including storm water control features, in order that successional processes that allow for the natural reestablishment of big sagebrush is not compromised.

2. To maintain current year production of Brewer's sparrows in the project area, vegetation clearing and earth work associated with the proposed action would not commence until after July 15, 2011.

3. See also that prescribed in Wetlands and Riparian Zones sections above.

Finding on the Public Land Health Standard for Threatened & Endangered species: The project area currently meets the land health standard by providing extensive sagebrush habitats that support a strong breeding population of Brewer's sparrow. The proposed action would add incrementally to the adverse modification of sagebrush habitats capable of supporting their nesting functions, but particularly with the application of effective and timely reclamation, would not impose impacts that would compromise the overall distribution or viability (i.e., recovery potential) of local populations in the long or short term and would, therefore, remain consistent with continued meeting of the land health standard.

That portion of Yellow Creek potentially influenced by the proposed action is owned by Colorado Parks and Wildlife (CPAW). This system is not evaluated in terms of the BLM's Public Land Health Standards, but in their current state would meet BLM land health standards in terms of providing suitable habitat for northern leopard frog. Effective application of WRFO reclamation practices and standards to disturbed lands associated with the proposed action would

reduce fugitive sediment and invasive/noxious weed contributions to Yellow Creek to discountable levels and would not be expected to interfere with the current status of this system as leopard frog habitat (see discussion in Riparian and Wetland section).

MIGRATORY BIRDS

Affected Environment: The species associated with the project area's woodland and shrubland bird communities are common and broadly distributed in extensive suitable habitat throughout the WRFO. Sagebrush and mixed shrub associates include such species as Brewer's sparrow, green-tailed and spotted towhee, vesper sparrow, and blue-gray gnatcatcher; woodland associates include juniper titmouse (a FWS Bird of Conservation Concern), black-throated gray warbler, and Bewick's wren. Migrants and resident birds generally begin nesting in this area by mid-May with initial nesting activities normally complete by the middle of July.

Environmental Consequences of the Proposed Action: The proposed action would remove about 15 acres of sagebrush or mixed shrub habitat and about 1 acre of pinyon-juniper woodland as migratory bird nesting habitat. Because the proposed action is an obligation well for the Unit, there is strong incentive for the company to complete the well in the timeframes proposed (i.e., late summer/fall 2011). As such, project-related dirt work and vegetation clearing may involve the later stages of the core breeding season such that current year reproductive efforts would be nullified. A brief deferral of construction activity (through 15 July) would allow primary nesting attempts to progress through fledging and dispersal of young.

Upgraded access to the pad would impose long term behavioral consequences on the utility of adjoining habitats for subsequent nesting use. Nest densities of sagebrush associated birds were found to be reduced by 50-60 percent within 100 meters of improved roads (Ingelfinger and Anderson 2004). Avoidance responses attributable to pad access would be most prevalent on about 40 acres along the access road in addition to about 7 acres around the perimeter of the pad. Estimated total reductions in effective nest habitat would be about 60 acres, with the bulk of those influences (road-related) persisting over the life of the project (several decades). At typical nest densities, proposed well development activity would displace up to 50 pairs of birds. Once this location is producing (lower levels of activity), gating proposed in the *Terrestrial Wildlife* section would be capable of reducing bird displacement by half. It is assumed that vehicle use of the existing utility corridor south and west of the proposed pad and its influence on nesting birds would remain similar to present. The proposed action would add incrementally to the adverse modification of sagebrush and woodland habitats capable of supporting these birds, but relative to the widespread availability of habitat and abundance of birds throughout the Yellow Creek watershed, it would not impose direct, indirect, or cumulative impacts that would compromise the overall distribution or viability (i.e., recovery potential) of any species' population at the local or regional scale in the long or short term. Although woodland modifications would be extremely protracted, prompt and effectively applied reclamation that complements the natural re-establishment of big sagebrush remains an important best management practice that reduces the long term and cumulative loss of shrubland habitats for migratory bird reproductive activities.

The development of reserve pits that contain drilling, production, or frac fluids attract many types of migratory birds regardless of topography or vegetation association. Contact with these fluids usually results in mortality in violation of the Migratory Bird Treaty Act.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence migratory birds or their habitat.

Mitigation:

1. See the first two conditions of approval in the Endangered, Threatened, and Sensitive Animal section.

2. The operator shall prevent migratory bird access to facilities that store or are expected to store fluids which may pose a risk to such birds (e.g., toxicity, compromised insulation). Features that prevent access to such fluids must be in place and functional within 24 hours of the drilling rig moving off the location and shall remain effective until such pits are removed or incapable of storing fluids. Deterrence methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval (the use of "bird balls" is discouraged). 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 BLM Petroleum Engineer Technician immediately.

WILDLIFE, AQUATIC (includes a finding on Public Land Health Standard 3)

Affected Environment: See pertinent discussions in *Threatened, Endangered, and Sensitive Animal Species* (northern leopard frog) and *Wetlands and Riparian Zones* sections above.

Environmental Consequences of the Proposed Action: See pertinent discussions in *Threatened, Endangered, and Sensitive Animal Species* (northern leopard frog) and *Wetlands and Riparian Zones* sections above.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence aquatic communities.

Mitigation: See those prescribed in *Wetlands and Riparian Zones* sections above.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): See pertinent discussions in *Threatened, Endangered, and Sensitive Animal Species* (northern leopard frog) and *Wetlands and Riparian Zones* sections above.

WILDLIFE, TERRESTRIAL (includes a finding on Public Land Health Standard 3)

Affected Environment: The entire project is encompassed by big game severe winter range that is used primarily from October through May. Severe winter ranges are, by definition, that area where 90 percent of a herd's population is distributed during the worst 2 winters of 10. These areas, by merit of elevation, topography, and vegetation, moderate severe winter conditions and their influence on animal condition during the most energetically-demanding period of the year (i.e., coincident demands for survival, winter recovery, and gestation). Elk use the area in low densities throughout the remainder of the year.

Raptor surveys conducted in 2010 documented sparing use of the project area's cliff and woodland habitats as raptor nesting habitat. No recent or historical raptor nest activity was indicated in habitats potentially influenced by the proposed action.

There are no highly specialized or narrowly endemic terrestrial wildlife species, particularly small mammals, known to inhabit the project area.

Environmental Consequences of the Proposed Action: Newly constructed (about 0.5 mile) or significantly upgraded (about 0.5 mile) access required for development of this location represents substantial encroachment (involving a 200-acre basin) onto important late winter/early spring big game ranges that would add incrementally to road density-related effects (i.e., habitat disuse adjacent to disturbance and elevated energetic demands associated with harassment). Increased frequency and duration of vehicle-related disturbance, both as shorter-term well development and longer-term public access, would add to cumulative deterioration in the capacity of these ranges to sustain former levels of big game use. With the application of vehicle control measures on the access and pipeline, increases in new open road length would be reduced by nearly 50 percent. Assuming vehicle control provisions are effectively employed; long term disturbance-related effects over the productive life of the well would likely have minor additive influence on current big game use patterns.

Longer term occupation of these lands and the reduction in the herbaceous and woody forage base for big game and small mammals would be minor in extent, but in the cumulative context, important in maintaining the nutritional status of deer during the late winter and early spring periods. Herbaceous forage availability would be largely regained on much of this acreage in the short term with the effective and timely application of WRFO-established reclamation practices and standards.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to adversely influence the utility or availability of terrestrial wildlife habitat.

Mitigation:

1. To limit unrestricted vehicular use on resource roads traversing deer severe winter ranges, general access to the location will be restricted by means of a lockable gate (e.g., may require fence wings) placed along the proposed access integral with the existing fenceline at or near

UTM NAD 83 Zone 12 Northing 0728851/Easting 4432064. The proponent would be responsible for constructing and maintaining these structures and meeting vehicle control objectives through the life of the project. The selected control point would be subject to the approval of the authorized officer with the objectives of effectively deterring unauthorized vehicle use of the well access (i.e., vehicle use not associated with natural gas development and production) and preventing bypass of the control. This gate would be installed by the time initial well completion activities are complete and are to remain locked throughout the year (except during well workover or high-traffic maintenance activities).

2. Retention and maintenance of a permanent travel lane is not authorized along the pipeline corridor in the following legal subdivisions:
T1N R97W section 31: Lot 9 (about 575 feet from the pad to the existing fenceline to the south)
T1S R97W section 6: Lot 11 (about 1870 feet from the point of deviating from the existing pipeline corridor southwest to the descent into Yellow Creek).
On these segments, the proponent will be responsible for effectively deterring unauthorized vehicle use along the right-of-way, including maintenance of any physical control and monitoring to assess the controls' efficacy and/or need for supplementing the means for vehicle control.

3. To better offset long-term losses in herbaceous and woody forages on these big game ranges, gravel placement on the pad should be confined to the minimum area necessary for well maintenance. Reclamation practices and success criteria established in the WRFO Surface Reclamation Protocol and appropriate to this project (see *Vegetation* section) should be applied to remaining disturbed soils, including storm water control features. A native seed mix that specifically excludes highly competitive introduced or naturalized grasses or shrubs would be used in all seed mixes used in the reclamation of disturbed lands, including storm water control features, in order that successional processes that allow for the natural reestablishment of big sagebrush is not compromised.

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 currently meets the public land health standards for terrestrial animal communities, although the general area is becoming increasing industrialized as development of the natural gas field progresses. The proposed action represents an incremental loss of habitat that, as conditioned, it is not expected to measurably detract from continued meeting of the land health standard at the landscape scale.

WILD HORSES

Affected Environment: The proposed action is not located within a designated wild horse management area. A designated wild horse area is located approximately 8 miles west of the proposed project.

Environmental Consequences of the Proposed Action: The proposed action would have no impacts on the wild horse management area.

Environmental Consequences of the No Action Alternative: None.

Mitigation: None.

CULTURAL RESOURCES

Affected Environment: The proposed well pad location, access road and well tie pipeline have been inventoried at the Class III (100 percent pedestrian) level (Stahl 2011 Compliance dated 6/24/2011). The inventory did not result in the location of any previously unknown cultural resources. There are no known cultural resources located within the 308 meters of the project area.

Environmental Consequences of the Proposed Action: The proposed well pad, access route, and well tie pipeline will not impact any known cultural resources. If there should be unrecorded resources outside of the project inventory area and within 308 meters of the project it is possible these resources could be impacted by increased access and human activity in the area.

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

Mitigation:
1. The operator is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.

2. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the AO. The operator will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The operator, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

3. 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.

PALEONTOLOGY

Affected Environment: The proposed well pad, access road, and well tie pipeline project area has been generally mapped as the Uinta Formation (Tweto 1979) which the BLM, WRFO has classified as a PFYC 4/5 formation meaning it is known to produce scientifically noteworthy fossil resources (c.f. Armstrong and Wolny 1989).

Environmental Consequences of the Proposed Action: If it becomes necessary to excavate into the underlying sedimentary rock formations there is a high potential to impact scientifically noteworthy fossil resources.

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

Mitigation:

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.

2. If any paleontological resources are discovered as a result of operations under this authorization, the operator or any of his agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

3. Any excavations into the underlying native sedimentary stone must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

ELEMENTS NOT PRESENT OR NOT AFFECTED:

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

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

Table 5. Other Resource Elements Considered			
Other Element	**NA or Not Present**	**Applicable or Present, Not Brought Forward for Analysis**	**Applicable & Present and Brought Forward for Analysis**
Visual Resources			X
Fire Management			X
Forest Management			X
Hydrology/Water Rights			X
Rangeland Management			X
Realty Authorizations			X
Recreation			X
Access and Transportation			X
Geology and Minerals			X
Areas of Critical Environmental Concern	X		
Wilderness	X		
Wild and Scenic Rivers	X		
Cadastral	X		
Socio-Economics	X		
Law Enforcement	X		

VISUAL RESOURCES

Affected Environment: The proposed action would be located in an area with a Visual Resource Management (VRM) III classification. The objective of the VRM III class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate and management activities may attract attention but should not dominate the view of the casual observer. Any changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Environmental Consequences of the Proposed Action: The proposed action is located in a remote area and the well pad would likely be visible to the casual observer from one existing unpaved road in the area. The nearest paved road would be RBC 5, which is located several miles away, and the proposed action would not be visible to a casual observer traveling along this route. Ranchers or seasonal big game hunters in the immediate area would be the most likely persons, other than energy related activity, to view the Proposed Action. The proposed action would be located either in pinyon/juniper trees and sagebrush in the immediate surrounding area, or in the distant background. Any above ground facilities should be painted Juniper Green to blend with and mimic 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 new activity in the area that would impact visual resources.

Mitigation: All permanent (onsite for six [6] months or longer) structures, facilities and equipment on BLM lands placed above ground shall be painted BLM Standard Environmental Color Chart *Juniper Green* within six months of installation, unless otherwise directed by the White River Field Office Visual Resources Specialist.

FIRE MANAGEMENT

Affected Environment: The proposed action is within both the B6 Yellow Creek and C6 Lower Piceance Basin fire management polygons. The vegetation for the B6 polygon is a mix of pinion juniper (PJ) woodland, Wyoming big sagebrush, and greasewood. The C6 polygon is a mix of PJ woodland and Wyoming big sagebrush. The resource objectives within the B6 polygon are to manage naturally ignited wildfires to promote a vegetation mosaic representing natural distributions of plant communities of varying successional stages. The resource objectives within the C6 polygon are to manage naturally ignited fires of up to 200 acres in size in PJ and up to 500 acres in size in sagebrush types throughout the unit to promote vegetation mosaic. A less aggressive suppression strategy may be appropriate, emphasizing disturbances of 30-40 acres (optimal size) in mature PJ, to enhance deer habitat. Additional desired conditions within the C6 polygon are to manage fire in order to maintain the continuing development of mature PJ stands on 40 percent of the large Piceance and Yellow Creek chainings.

Resource constraints within the B6 polygon are to 1) protect known cultural sites and vegetation types with high potential for occurrence of cultural sites (PJ type) and 2) employ a modified suppression strategy which may be appropriate for fires with the potential to burn <200 acres in PJ or sagebrush, whereas a full suppression response may be appropriate when the incident is capable of exceeding 200 acres. Resource constraints within the C6 polygon are to limit fires to 200 acres in PJ and 200-500 acres in the sagebrush type.

Fires in the vicinity of the proposed action are historically lightning caused and typically range in size from 0.1 to 5 acres. Large fire occurrence in the vicinity has been minimal over the past ten years; with only one incident of significance, the Tower fire in 2003 (9 acres).

Environmental Consequences of the Proposed Action: The proposed action will require the operator to clear the existing vegetation. If not adequately treated, the woody debris and slash associated with clearing will result in elevated hazardous fuels conditions and remain on-site for many years. Vegetation removal and soil disturbance could provide an opportunity for noxious weeds and cheatgrass to establish or expand in the area, which would increase fuel loads. These accumulations of dead material are very receptive to fire brands and spotting from wind driven fires and can greatly accelerate the rate of spread of the fire front. The access road associated with this project may be used by the general public for a variety of uses, including access for fire wood gathering, hunting, and other dispersed recreational activities. Public use of the area could likely result in an increased potential for man-caused wildland fires. If not treated the remnant slash and woody debris will generate an elevated hazardous dead fuel loading which

could pose significant control problems in the event of a wildfire. Additionally there would be greater threat to the public, industry personnel, and responding fire suppression personnel.

The National Fire Plan calls for "firefighter and public safety" to be the highest priority for all fire management activities. During the construction process associated with the proposed project, fire management may have little choice but to suppress all fires within close proximity to the project area. This aggressive fire suppression response will prevent fire from playing a natural role in creating a vegetation mosaic.

Environmental Consequences of the No Action Alternative: There would be no clearing of the existing fuels and no increase in dead fuel loading.

Mitigation:

1. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire.

a) The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information.

b) The reporting party, or a representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards an appropriate management response.

c) The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.

d) Natural ignitions caused by lightning will be managed by Federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

2. See Forest Management Section below for direction on removal of woody material.

FOREST MANAGEMENT

Affected Environment: The proposed action is located within varying stand classes of pinyon/juniper woodland as defined by a survey performed by WRFO personnel from 2003-2005. Productive exposure types occur on primarily lower gradient slopes and north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use

of precipitation. This habitat type is further broken down based on the age class of the stand. In this case the affected stands are both mature and young. Mature pinyon/juniper trees on productive exposure establish themselves as the dominant plant community on the site. Young pinyon/juniper trees are a component of the plant community. Young trees tend to replace stands of plants such as sagebrush or mountain shrub communities over time. Young pinion trees are stem dominated promoting a conical Christmas tree like appearance. Young juniper trees tend to have branches down to the ground and the duff layer may even cover the lowest branches. Both the young and mature stands are valuable locally as a source of fire wood and posts for fence construction. Encroachment sites of young pinion trees are valuable for Christmas tree harvest. This area is considered "commercial" under the current White River ROD/RMP.

Environmental Consequences of the Proposed Action: Table 6 shows the estimated loss of woodland acres as a result of the Proposed Action. Following reclamation, it is expected that pinyon and juniper will invade the site within 50-70 years and would develop a mature stand within 250-350 years. Under the Proposed Action about 2.64 acres of woodlands would be removed. Impacts would be long-term until woodlands regenerate successfully. Removal of mature and middle-aged pinyon and juniper trees would reduce the potential for outbreak of woodland diseases and pest infestations. Acceptance of mitigation measures outlined for fire management would reduce the build-up of cleared woody material from the project area, reducing the likelihood of slash contributing to possible large fire events.

Table 6. Acreage of Woodland Disturbed by the Proposed Action

Well Name	Acreage In Woodlands					
	Pad Acres	**Access Rd. (Ac)**	**Pipeline**	**Acres Disturbed (Total)**	**Stand Class**	**Total Cords**
YCF 31-23-1	0	0.14	0	0.14	Young Productive Exposure	0.42
	0.3	0.9	1.3	2.5	Mature Productive Exposure	12.5
	0.3	1.04	1.3	2.64	**TOTAL**	**12.92**

Environmental Consequences of the No Action Alternative: Under this alternative there would be no construction of a wellpad, pipeline, or access road and no removal of pinyon and juniper woodlands.

Mitigation: In accordance with the 1997 White River ROD/RMP, all trees removed in the process of construction shall be purchased from the BLM. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.

1. Woody materials required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be

scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.

2. Trees that must be removed for construction and that are not required for reclamation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

HYDROLOGY AND WATER RIGHTS

Affected Environment: An estimated 2.3 acre feet of freshwater will be needed for this project for construction and drilling and the White River and/or the town of Meeker have been identified in the Proposed Action and the SUP as the potential sources of this water.

Environmental Consequences of the Proposed Action: The White River and the groundwater sources that supply the town of Meeker are tributary to the Colorado River. Depletions to the Colorado River system are considered in a programmatic consultation with the FWS that addresses the recovery program for Colorado River fish species. Field-wide estimates for freshwater use in this programmatic consultation are for 2.6 acre feet per well in the WRFO. Since BOPCO, L.P estimates freshwater use below this rate, the programmatic consultation for depletions will be adequate to account for aquatic habitat impacts to Colorado River endangered fish.

Environmental Consequences of the No Action Alternative: No water would be used to develop fluid minerals on the leases under the no action alternative.

Mitigation: None.

RANGELAND MANAGEMENT

Affected Environment: The project area is completely located in the lower Yellow Creek pasture of the Square S allotment (06027). This pasture of the allotment is used by LOV Ranch (0504241) for cattle. The authorization for LOV Ranch is outlined in the table below.

Table 7. LOV Ranch Rangeland Use Authorization

ALLOTMENT		LIVESTOCK		GRAZING PERIOD				
Number	**Name**	**Type**	**Number**	**Begin**	**End**	**%PL**	**Type Use**	**AUMs**
6027	Square S	Cattle	100	1-Mar	15-May	96	Active	240
		Cattle	500	16-May	10-Jun	96	Active	410

		Cattle	600	11-Jun	30-Jun	18	Active	178
		Cattle	300	16-Oct	15-Dec	96	Active	578
		Cattle	100	16-Dec	28-Feb	96	Active	237

Environmental Consequences of the Proposed Action: The individual proposed action would have minimal impacts on the authorized grazing use because the amount of new surface disturbance (15.5) is nominal in regards to the scale of the allotment (79,419).

The 9.62 acres of disturbance for well pad and road construction is considered long-term, but that will slightly decrease in size due to interim reclamation on the well pad outside the operational area.

Long-term forage losses associated with the proposed action are estimated at one active Animal Unit Month (AUM) due to a reduction of forage availability. An AUM is the amount of forage necessary for the sustenance of one cow and calf for a period of one month. Although this one action will have minimal impact on livestock grazing, the cumulative impacts from past, present, and possible future oil and gas activities may have a long-term effect on the native range's carrying capacity, thus influencing the authorized AUMs. This possible affect would be determined during the grazing permit renewal process which includes an evaluation of forage capacity available for livestock. It is foreseeable that the grazing permit holder could lose a portion of permitted active AUMs due to a loss of forage associated with oil and gas development within the authorized BLM grazing allotment.

Short-term soil and vegetation disturbances (5.81 acres) from the pipeline right-of-way would be offset in the long-term by successfully reclaiming the disturbed area with a seed mix that is suited for this range site. As this area has a component of cheatgrass and common mullein within the plant community, successful re-vegetation efforts would slightly increase desirable forage species within the rangelands.

If the Proposed Action was authorized during the grazing period, there could be some impacts while cattle are in the pasture. This is in part due to the increased activity associated with the development of the proposed action and decrease in rangelands available for grazing. BLM grazing permit holders have experienced injury and loss of livestock due to inadequate fencing of disposal pits at the pads and open pipeline trenches. Other impacts to livestock grazing may include such influences as a modification in livestock distribution, reduction in available forage, injury to livestock, and impediments to livestock grazing and movement.

Environmental Consequences of the No Action Alternative: The no action alternative will have no impacts to rangeland management in the area.

Mitigation:
1. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition.

2. The applicant will install a cattleguard or gate to BLM specifications in any fences which they encounter.

3. The applicant will be held responsible for maintenance of livestock control facilities, such as cattleguards, in a proper functioning condition which they encounter or affect during operation.

RECREATION

Affected Environment: The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA). The 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 site is located in the Recreation Opportunity Spectrum (ROS) classification area of Semi-Primitive Motorized. Areas within this classification are characterized by a largely natural appearance and are accessible by foot, horseback, bike or motor vehicle generally on native-surfaced roads or gravel. Interaction with other visitors is relatively low. There are minimum on-site controls and restrictions, and the area provides for a moderate probability of experiencing isolation, remoteness, and closeness to nature. The primary recreation activity in this area is upland big game hunting. The Proposed Action is located within the CPAW Game Management Unit (GMU) 22, which is a popular big game hunting area where the hunter has good opportunities to pursue both mule deer and elk.

Environmental Consequences of the Proposed Action: Due to the proposed action, there would be a direct loss of approximately 15.5 acres of land available for dispersed recreation during construction and operation. Some displacement of recreationists may occur during construction, particularly to those seeking a more primitive oriented backcountry recreation experience. Post construction, big game hunters are still expected to hunt in the general vicinity of the well assuming big game is present in the area. If pad development and drilling activities coincide with the various hunting seasons (late August through December), there may be a disruption to the hunting experience, however this disruption will be temporary in nature and of short duration. As such, this could be considered a minor impact.

Environmental Consequences of the No Action Alternative: There would be no activities that would redirect recreational use in the area.

Mitigation: Avoid, if possible, constructing well pads and roads during fall big game hunting seasons primarily in the months of October and November.

ACCESS AND TRANSPORTATION

Affected Environment: The Proposed Action will occur wholly within Open Motorized areas of BLM land. The primary access for the Proposed Action will be via Rio Blanco County (RBC) Roads 5, 20 and 83 as well as BLM road 1145 in addition to several unnumbered/unnamed two-track routes. Affected roads in the project area are generally maintained, native surface roads with the exception of RBC 5 which is a paved surface road.

Environmental Consequences of the Proposed Action: Approximately one mile of new road will be constructed as part of the proposed action. It is likely that with the continued increase in oil and gas development, there will also be an associated increase in use of the local roads. Use of BLM roadways in dry conditions may result in an increase of fugitive dust and may reduce visibility along the roadway when encountering oncoming traffic. Frequent use during wet conditions may cause road damage in the form of ruts that may require repairs.

Environmental Consequences of the No Action Alternative: Under the No Action Alternative, there would be no increase in traffic along the county roads.

Mitigation: Damage to existing roads as a result of the Proposed Action will be repaired to a condition that is similar to the original state or better than what existed prior to the commencement of construction or recoating.

REALTY AUTHORIZATIONS

Affected Environment: The proposed action is located in an area that has not been developed for oil and gas except for a transmission pipeline, natural gas treatment plant, and gathering lines, all held by the proponent. The well and proposed pipeline route is located on-unit, but the proposed access road from RBC 83 crosses off-unit surface before entering the Yellow Creek Unit. The proposed pipeline generally follows the existing pipeline.

Environmental Consequences of the Proposed Action: Construction of the proposed action has the potential of impacting the existing line, but standard construction techniques and procedures would minimize any effect. State and local governments have permits and regulations that may apply. The off-unit segment of the access road would require a ROW for approximately 2,280 ft with a width of 50 ft. The case has been serialized as COC74845 and would encumber 2.62 acres, more or less.

Environmental Consequences of the No Action Alternative: There would be no potential of impacting the existing line. There would be no ROW authorized, and a pipeline trench would not be constructed.

Mitigation:
1. All activities shall comply with all applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This includes acquiring all required state and/or local permits, effectively coordinating with existing facility ROW holders, and implementing all applicable mitigation measures required by each permit.

2. At least 90 days prior to termination of the ROW, the holder shall contact the authorized Officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination and rehabilitation plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, removal of surface material; recontouring, topsoiling, or seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.

3. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the ROW.

GEOLOGY AND MINERALS

Affected Environment: Surficial geologic formation of the proposed well location is Uinta and BOPCO's targeted zone is located in the Mesaverde. Potential water, oil shale, sodium, and gas zones will be encountered from the surface to the targeted zone during drilling. 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 aquifer zones and portions of the Wasatch are known for difficulties in drilling and cementing. Oil shale and sodium resources are located in the Green River formation. The well pad is located in the area identified in the White River ROD/RMP as available for multi-mineral leasing. The proposed well is located in the Federal Yellow Creek Exploratory Oil and Gas Unit COC68957X.

Environmental Consequences of the Proposed Action: Loss circulation during drilling operations or difficulties in cementing the surface casing in the proposed well may affect the freshwater aquifer zones in the Green River formation. Properly followed cementing procedure of the proposed action isolates the formations and should prevent the migration of gas, water, and oil between formations and hydrologic zones. Conventional recovery of the coal resources in the Mesaverde is not considered feasible due to the depths the coal zones are encountered in the well. Development of the well will deplete the natural gas resources in the targeted formation.

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

Mitigation: None.

CUMULATIVE IMPACTS SUMMARY:

This action is consistent with the scope of impacts addressed in the White River ROD/RMP. The cumulative impacts of oil and gas activities are addressed in the final EIS for each resource value that would be affected by the proposed action.

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2011 BOPCO: A Class III Cultural Resource Inventory of the Proposed Well pads, Access roads, and Pipeline for Yellow Creek Federal 3-34-0364 and 31-23-1 in Rio Blanco County, Colorado. Metcalf Archaeological Consultants, Inc., Grand Junction, Colorado. (11-54-04: SHPO#RB.LM.R1249)\

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

INTERDISCIPLINARY REVIEW: The proposed action was presented to, and reviewed by the White River Field Office interdisciplinary team (Table 8) on 2/15/2011.

Table 8. Interdisciplinary Review			
Name	**Title**	**Area of Responsibility**	**Date Signed**
Bob Lange	Hydrologist	Air Quality, Water Quality (Surface and Ground), Hydrology and Water Rights, and Soils	7/11/2011
Zoe Miller	Botanist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species	6/23/2011
Michael Selle	Archaeologist	Cultural Resources, Paleontological Resources	6/27/2011
Matthew Dupire	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation , Rangeland Management	7/15/2011
Ed Hollowed	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Terrestrial and Aquatic Wildlife, Wetlands and Riparian Zones	6/24/2011
Christina Barlow	Natural Resource Specialist/HazMat Coordinator	Wastes, Hazardous or Solid	3/7/2011
Chad Schneckenberger	Outdoor Recreation Planner	Wilderness, Access and Transportation, Recreation,	7/1/2011
Jim Michels	Supervisory Natural Resource Specialist / Forester	Forest Management	6/22/2001
Garner Harris	Zone Fire Management Officer	Fire Management	5/26/2011
Paul Daggett	Mining Engineer	Geology and Minerals	6/6/2011
Linda Jones	Realty Specialist	Realty Authorizations	3/24/2011
Chad Schneckenberger	Natural Resource Specialist / Outdoor Recreation Planner	Visual Resources	7/1/2011
Melissa J. Kindall	Range Technician	Wild Horses	6/9/2011

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

DOI-BLM-CO-110-2011-0010-EA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE: The environmental assessment and analysis of 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 construction, operation, and maintenance of the well, pipeline, and access road. The environmental analysis indicates that the change in the environment associated with the proposed action is limited in both duration and intensity; that is, the proposed oil and gas development will have a life cycle of approximately thirty years at which time the land will be re-contoured and re-vegetated. The Federal Land Policy Management Act provides that the public lands be managed in a manner that recognizes the Nation's need for domestic sources of natural resources and utilized in the combination that will best meet the present and future needs of the American people, 43 U.S.C. §§1701(a) (12) and 1702 (c). It is therefore my decision to approve the Application for Permit to Drill and permit the associated and ancillary oil and gas development (e.g. pad, road, pipeline), with the mitigation measures listed below. The operator will not be required to relocate the access road but will be required to install a culvert at the intersection of the well pad and access road to avoid concentrating water from the access road onto the pad surface.

MITIGATION MEASURES:

AIR QUALITY

1. All access roads will be built and maintained according to BLM Manual Section 9113 standards for road shape and drainage features at all times during pad construction, drilling, and production.

2. The operator shall employ dust suppression techniques as outlined in the surface use plan whenever there is a visible dust trail behind vehicles during the construction and drilling phases of the Proposed Action. Any technique other than the use of freshwater as a dust suppressant will require prior written approval from BLM.

SOILS

1. All construction activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or activities are otherwise approved by the Authorized Officer.

2. In order to protect rangeland health standards for soils, erosion features such as rilling, gullying, piping and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the AO and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.

3. All topsoil will be removed in areas of surface disturbance to a minimum depth of 6-8 inches or as determined on-site by BLM soil specialist. Topsoil piles will be covered, seeded, labeled and stored unmixed with other soils for spreading during reclamation.

4. Interim reclamation will be conducted within six months of the well completion as per mitigation in the vegetation section and stored topsoil will be spread on all reclaimed surfaces at this time. If soil productivity is diminished from its pre-disturbance condition, then reseeding, hydro-mulching or other efforts will be initiated to re-establish soil productivity during reclamation activities.

5. All areas where the topsoil has been removed and soils have become compacted will be ripped below the finished grade or to bedrock. Another suitable method of de-compaction may be used before topsoil is re-spread with approval of the BLM AO. Areas where the topsoil has not been removed, but have been compacted, must be de-compacted by disking or other methods to prepare the soils for reclamation. This soil preparation should be done before spreading the topsoil and seeding and be part of the earthwork for interim and final reclamation.

6. Soil storage areas will be clearly marked to restrict vehicle/equipment use to only what is necessary to move the soil.

7. During pipeline construction, the ROW will remain undisturbed to the maximum extent possible. That is, only the minimum necessary disturbance will occur to make the working surface safe and passable. Topsoil will not be removed under areas used for the storage of soils and, if possible, topsoil will not be removed from working surfaces.

8. Under no circumstances will topsoil, soil material below or adjacent to the trench spoils or subsoil excavated from the trench down to the ERD (Effective Rooting Depth) for the reclamation plants (Reclamation ERD) be used as padding in the trench, to fill sacks for trench breakers, or for any other use as construction material. Reclamation ERD will be a minimum of 16 inches and a maximum of 24 inches below the ground surface for all soils.

9. After pipeline construction activities are completed BOPCO LLC. will be responsible for taking measures to prevent off-road vehicle use along the pipeline ROW until reclamation has been successful or as directed by the AO.

SOLID and HAZARDOUS WASTES

1. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.

2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.

3. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.

4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.

5. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

6. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.

7. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

8.With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.

WATER QUALITY

1. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of the White River. Trucks used for hauling produced water or waste disposal will not be used for freshwater delivery for this project without prior written approval from BLM.

2. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.

3. Install a culvert at the intersection of the well pad and access road to avoid concentrating water from the access road on to the pad surface. Move the Tank battery to the NE to be adjacent to the road; this will allow more of the cut on location to be reclaimed during interim reclamation. Changes should be submitted via sundry notice.

4. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).

5. The operator will submit via Sundry Notice (SN) to the Natural Resource Specialist (NRS) for review by the WRFO Hydrologist that describes the backflow preventer or other method used to protect water quality at the White River diversion sites.

WETLANDS AND RIPARIAN ZONES

1. Gravel placement on the pad should be confined to the minimum area necessary for well maintenance. As the most effective long-term means of minimizing invasive weed and sediment contributions to well developed riparian and wetland systems administered by the Colorado Parks and Wildlife (CPAW), reclamation practices and success criteria established in the WRFO Surface Reclamation Protocal and appropriate to this project (see *Vegetation* section) should be applied to remaining disturbed soils, including storm water control features.

VEGETATION

1. Reclamation will be implemented in distinct phases; Phase I interim reclamation, Phase II interim reclamation, and Final reclamation. Pipelines will not have interim reclamation and will go directly to final reclamation. Phase I reclamation will begin within 24 hours of completion of surface disturbing activities. Requirements for Phase I reclamation are below:

a. Trees or shrubs that must be removed for construction or ROW preparation will be cut down or masticated to a stump height of six inches or less prior to other heavy equipment operation. Trees removed for construction that are not needed for reclamation purposes will be cut in four foot lengths (down to four inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public. Woody materials required for reclamation will be stockpiled and stored separately from stockpiled topsoil and may be positioned along the margins of the authorized use area. Smaller limbs and trees may be chipped and stockpiled if needed for reclamation but, unless otherwise directed by the AO, operators should avoid incorporating this debris into the topsoil. The boles and limbs of the larger trees should be retained for redistribution not to exceed 20 percent total ground cover.

b. During site construction all topsoil will be stripped from the location, handled separately from subsoil materials, and stored for reuse during Phase II interim reclamation and/or Final reclamation.

c. Balance cut and fill to the maximum extent possible in order to minimize excess spoils piles and facilitate Phase II interim reclamation.

d. Topsoil must be salvaged during road construction and respread to the greatest degree practical on cut slopes, fill slopes, and borrow ditches prior to seeding. Road shape will be built using the borrow ditch subsoil. Topsoil may be stabilized with mulch as needed.

e. Topsoil will only be used as a seed bed for reclamation. Under no circumstances will topsoil be used as a pipe bedding material, to fill sacks for trench breakers, or for any other use as construction material. Fines and organics will not be shaken out the effective rooting zone soils for pipeline bedding.

f. Vegetative and structural soil stabilization practices will be required on cut and fill slopes off the working surfaces and in areas near water features, e.g., streams (including ephemeral drainages, ponds, and wetlands), or in other situations where wind or water erosion may otherwise accelerate movement of sediments.

g. All disturbed surfaces, including cut and fill slopes and drainage ditches along roads, will be seeded with a BLM approved seed mix (See Below). On roads, topsoil will be spread where successful revegetation is likely (e.g., along appropriate cut and fill slopes or at the top edge of the borrow ditches) and where it will not be disturbed during regular road maintenance activities.

2. Phase II interim reclamation will be initiated when one of the following applies:

- The last well on a pad has been drilled and has undergone completion.
- There are no drilling activities expected on the pad for the next six months.
- There has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.

Requirements for Phase II reclamation are listed below:

a. Recontour to maximize the extent of disturbance available for reclamation. Soils must be returned to their respective positions in the predisturbance soil profile. Recontoured surfaces must be stable and have adequate surface roughness to reduce surface run-off.

- For well pads, place rock into cut first where it can be buried below the surface. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).
- After placement of subsoil, decompaction (ripping) or other preparation of subsoils must occur prior to spreading topsoil over the ground surface. Generally, all topsoil should be redistributed across all surfaces subject to Phase II interim reclamation. Topsoil will not be spread when the ground or topsoil is frozen or too wet to adequately support construction equipment. Soil is deemed "too wet" if equipment creates ruts greater than three inches.
- All topsoil that has been stockpiled for an extended period of time (six months or greater) will be tested to determine topsoil viability before it is re-spread. Analytical results will be compared to data obtained for soil characteristics prior to disturbance. If the comparison indicates problems with soil productivity, topsoil may be treated with amendments approved by the AO to meet the physical, chemical, and biological properties necessary for successful reclamation.

b. After topsoil has been redistributed, all disturbed areas will be seeded using a BLM approved seed mix (See Below).

c. Once the disturbance has been recontoured and the seedbed has been prepared and seeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Chipped material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Redistribution of large woody debris will not exceed 20 percent ground cover and excess material will be removed from the site. Large woody material will be distributed in a manner that helps deter vehicle use. Materials would be distributed in such a way to avoid concentrations of heavy fuels that constitute a fire hazard or suppress adequate vegetation growth.

d. Disturbed and reclaimed areas will be managed to control dust and must be kept free of State of Colorado A and B listed noxious weeds.

e. Ensure that weed treatments are conducted in an effective manner that is compatible with approved seed mixes. To reduce the need for repeated bare ground herbicide treatments around facilities, alternative methods such as gravel, weed barrier fabric, or low-growing, disturbance-tolerant herbaceous vegetation may be used as authorized for a specific site by the BLM.

3. Final Reclamation will be initiated when one of the following applies:

- The operator encounters a "dry hole" and no further exploration or production is planned at the location.
- The final well on a pad has been plugged and abandoned.
- Facilities or infrastructure are no longer used in operations.
- The facilities that an access road serves have ceased operations and the road will be obliterated.

Requirements for final reclamation are listed below:

a. All reclaimed areas are kept free of noxious and undesirable invasive weeds, construction debris and trash.

b. There is no evidence of excessive erosion such as slope or soil instability, subsidence, or slumping at the site or in areas adjacent to the site (as compared to the range/ecological site description.

c. Storm water management structures and drainage features (e.g., culverts and ditches) installed by the operator have been removed and reclaimed.

d. The site has been recontoured to its pre-disturbance contour or a contour that blends with the surrounding landform.

e. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).

f. Roads built for and no longer supporting oil and gas development have been recontoured, obliterated, revegetated, and are no longer distinguishable as a means of vehicle travel (i.e., no ruts or two-tracks).

g. All signs, fences, gates, and cattleguards associated with livestock exclosures have been removed from the site, unless in specific predetermined instances the AO directs that livestock exclosures be retained for extended periods to meet other resource objectives.

h. Final reclamation is considered successful when the entire reclamation site (including obliterated roads) has attained 90, 80, or 70 percent (depending on RMPA alternative selected) of the DPC's vegetation cover and composition (early seral state) as defined by the range/ecological site description or in relation to the approved seed mix. On woodland or shrub sites, this would

equate to the capability of those sites in an herbaceous state. These attributes (i.e., cover and composition) will be assessed using quantitative methods such as those presented in BLM Technical Reference 1730-1, 1734-4, or other preapproved methods.

i. The vegetation community established on the reclaimed site stabilizes soils, is capable of persisting without continued intervention (excluding routine weed management), and will allow plant community successional processes to progress toward advanced community states.

j. Bare ground does not exceed the range/ecological site description or if not described, bare ground does not exceed that of a representative undisturbed DPC meeting the Colorado Standards for Public Land Health.

k. Reclamation success in areas affected by cheatgrass and/or other invasive annuals will be qualified based on the condition of the project site (i.e., the relative vegetative cover) prior to disturbance.

- If the project site contains less than 25 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 5 percent.
- If the project site contains 25 percent to 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 10 percent.
- If the project site contains more than 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed the level defined by site-specific criteria established in the reclamation plan developed for that site.

4. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning any BLM approved construction-related activities, regardless of size, that result in disturbance of surface soils.

5. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning reclamation activities. Reclamation activities may include, but are not limited to recontouring, seed bed preparation, seeding, or construction of livestock exclosures.

6. All equipment that may act as a vector for weeds will be cleaned before entering the WRFO. Equipment will also be cleaned when leaving and/or moving between work-sites if the pre-disturbance weed inventory indicated the presence of undesirable invasive or noxious weeds and there is a risk of transporting weed seeds or propagules.

7. The operator will be required to meet with the WRFO reclamation staff in March or April of each calendar year and present a comprehensive work plan. The purpose of the plan is to provide information pertaining to reclamation activities that are expected to occur during the coming year. Operators will also provide a map that shows all sites where some form of reclamation activity is expected to occur during the coming year.

8. A Reclamation Status Report (see Section 4) for each site will be submitted electronically to the WRFO annually (due September 30th) until it is determined that reclamation of the site has met all required objectives of Phase I interim reclamation.

9. To track Phase I and Phase II interim and Final reclamation, the operator will submit Geographic Information System (GIS) data to the WRFO Reclamation Coordinator for any post construction (i.e., "as-built") polygon feature that is associated with the project. GIS data will be submitted within 30 days from when construction has completed for all geographic features associated with the project. The operator will submit updated GIS data to the WRFO for any location or orientation changes within 14 calendar days of the change. GIS data will include constructed access roads, existing roads that were upgraded, pipeline corridors, temporary work areas, well pad footprints, and ancillary facilities.

10. Seeding will be completed with two different seed mixes as shown in Tables 3 and 4 below. The Pinyon Juniper and rolling loam range sites encompass the entire access road, pad and pipeline except for the last 750 ft of the pipeline before it ties into the existing pipeline. This area will be seeded with Seed Mix #1 (see Table 3 below). The last 750 ft of the pipeline is in the foothill swale range site and will be seeded with Seed Mix #2 (see Table 4 below). Seeding rates are shown in PLS pounds and are the drill seed rates. Broadcast seeding should be done at double the rate shown.

Table 3. Seed Mix #1 (Pinyon Juniper Woodland and Rolling Loam Range Sites)

Variety	Common Name	Scientific Name	Rate (PLS lbs/acre)
Rosana	Western Wheatgrass	*Pascopyrum smithii*	4
Whitmar	Bluebunch Wheatgrass	*Achnatherum hymenoides*	3.5
Rimrock	Indian Ricegrass	*Pseudoroegneria spicata*	3
	Needle and Thread	*Hesperostipa comata*	2.5
Maple Grove	Lewis Flax	*Linum lewisii*	1
	Scarlet Globemallow	*Sphaeralcea coccinea*	0.5

Table 4. Seed Mix #2 (Foothill Swale Range Site)

Variety	Common Name	Scientific Name	Rate (PLS lbs/acre)
Magnar	Basin Wildrye	*Leymus cinereus*	3.5
Rosanna	Western Wheatgrass	*Pascopyrum smithii*	3.5
San Luis	Slender Wheatgrass	*Elymus trachycaulus*	3
Critana	Thickspike Wheatgrass	*Elymus lanceolatus*	3
Timp	Northern Sweetvetch	*Hedysarum boreale*	4.5
Maple Grove	Lewis Flax	*Linum lewisii*	1

THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES

1. The use of dust abatement during construction is required on CR 20, BLM 1145, and the access road to the well site to avoid fugitive dust affects on individual special status plants, suitable special status plants' habitat, and potential primary pollinators in the area.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES

1. A native seed mix that specifically excludes highly competitive introduced or naturalized grasses or shrubs would be used in all seed mixes used in the reclamation of disturbed lands, including storm water control features, in order that successional processes that allow for the natural reestablishment of big sagebrush is not compromised.

2. To maintain current year production of Brewer's sparrows in the project area, vegetation clearing and earth work associated with the proposed action would not commence until after July 15, 2011.

3. See also that prescribed in Wetlands and Riparian Zones sections above.

MIGRATORY BIRDS

1. See the first two conditions of approval in the Endangered, Threatened, and Sensitive Animal section.

2. The operator shall prevent migratory bird access to facilities that store or are expected to store fluids which may pose a risk to such birds (e.g., toxicity, compromised insulation). Features that prevent access to such fluids must be in place and functional within 24 hours of the drilling rig moving off the location and shall remain effective until such pits are removed or incapable of storing fluids. Deterrence methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval (the use of "bird balls" is discouraged). 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 BLM Petroleum Engineer Technician immediately.

WILDLIFE, TERRESTRIAL

1. To limit unrestricted vehicular use on resource roads traversing deer severe winter ranges, general access to the location will be restricted by means of a lockable gate (e.g., may require fence wings) placed along the proposed access integral with the existing fenceline at or near UTM NAD 83 Zone 12 Northing 0728851/Easting 4432064. The proponent would be responsible for constructing and maintaining these structures and meeting vehicle control objectives through the life of the project. The selected control point would be subject to the approval of the authorized officer with the objectives of effectively deterring unauthorized vehicle use of the well access (i.e., vehicle use not associated with natural gas development and

production) and preventing bypass of the control. This gate would be installed by the time initial well completion activities are complete and are to remain locked throughout the year (except during well workover or high-traffic maintenance activities).

2. Retention and maintenance of a permanent travel lane is not authorized along the pipeline corridor in the following legal subdivisions:
T1N R97W section 31: Lot 9 (about 575 feet from the pad to the existing fenceline to the south)
T1S R97W section 6: Lot 11 (about 1870 feet from the point of deviating from the existing pipeline corridor southwest to the descent into Yellow Creek).
On these segments, the proponent will be responsible for effectively deterring unauthorized vehicle use along the right-of-way, including maintenance of any physical control and monitoring to assess the controls' efficacy and/or need for supplementing the means for vehicle control.

3. To better offset long-term losses in herbaceous and woody forages on these big game ranges, gravel placement on the pad should be confined to the minimum area necessary for well maintenance. Reclamation practices and success criteria established in the WRFO Surface Reclamation Protocol and appropriate to this project (see *Vegetation* section) should be applied to remaining disturbed soils, including storm water control features. A native seed mix that specifically excludes highly competitive introduced or naturalized grasses or shrubs would be used in all seed mixes used in the reclamation of disturbed lands, including storm water control features, in order that successional processes that allow for the natural reestablishment of big sagebrush is not compromised.

CULTURAL RESOURCES

1. The operator is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.

2. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the AO. The operator will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The operator, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

3. 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.

PALEONTOLOGY

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.

2. If any paleontological resources are discovered as a result of operations under this authorization, the operator or any of his agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

3. Any excavations into the underlying native sedimentary stone must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

VISUAL RESOURCES

1. All permanent (onsite for six [6] months or longer) structures, facilities and equipment on BLM lands placed above ground shall be painted BLM Standard Environmental Color Chart *Juniper Green* within six months of installation, unless otherwise directed by the White River Field Office Visual Resources Specialist.

FIRE MANAGEMENT

1. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire.

a) The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information.

b) The reporting party, or a representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards an appropriate management response.

c) The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.

d) Natural ignitions caused by lightning will be managed by Federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

2. See Forest Management Section below for direction on removal of woody material.

FOREST MANAGEMENT

1. Woody materials required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.

2. Trees that must be removed for construction and that are not required for reclamation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

RANGELAND MANAGEMENT

1. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition.

2. The applicant will install a cattleguard or gate to BLM specifications in any fences which they encounter.

3. The applicant will be held responsible for maintenance of livestock control facilities, such as cattleguards, in a proper functioning condition which they encounter or affect during operation.

RECREATION

1. Avoid, if possible, constructing well pads and roads during fall big game hunting seasons primarily in the months of October and November.

ACCESS AND TRANSPORTATION

1**.** Damage to existing roads as a result of the Proposed Action will be repaired to a condition that is similar to the original state or better than what existed prior to the commencement of construction or recoating.

REALTY AUTHORIZATIONS

1. All activities shall comply with all applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This includes acquiring all required state and/or local permits, effectively coordinating with existing facility ROW holders, and implementing all applicable mitigation measures required by each permit.

2. At least 90 days prior to termination of the ROW, the holder shall contact the authorized Officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination and rehabilitation plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, removal of surface material; recontouring, topsoiling, or seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.

3. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the ROW.

COMPLIANCE/MONITORING: On-going compliance inspections and monitoring of these pipelines will be conducted by the BLM White River Field Office staff during and after construction. Specific mitigation developed in this document will be followed. The operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

NAME OF PREPARER: Christina J. Barlow

NAME OF ENVIRONMENTAL COORDINATOR: Heather Sauls

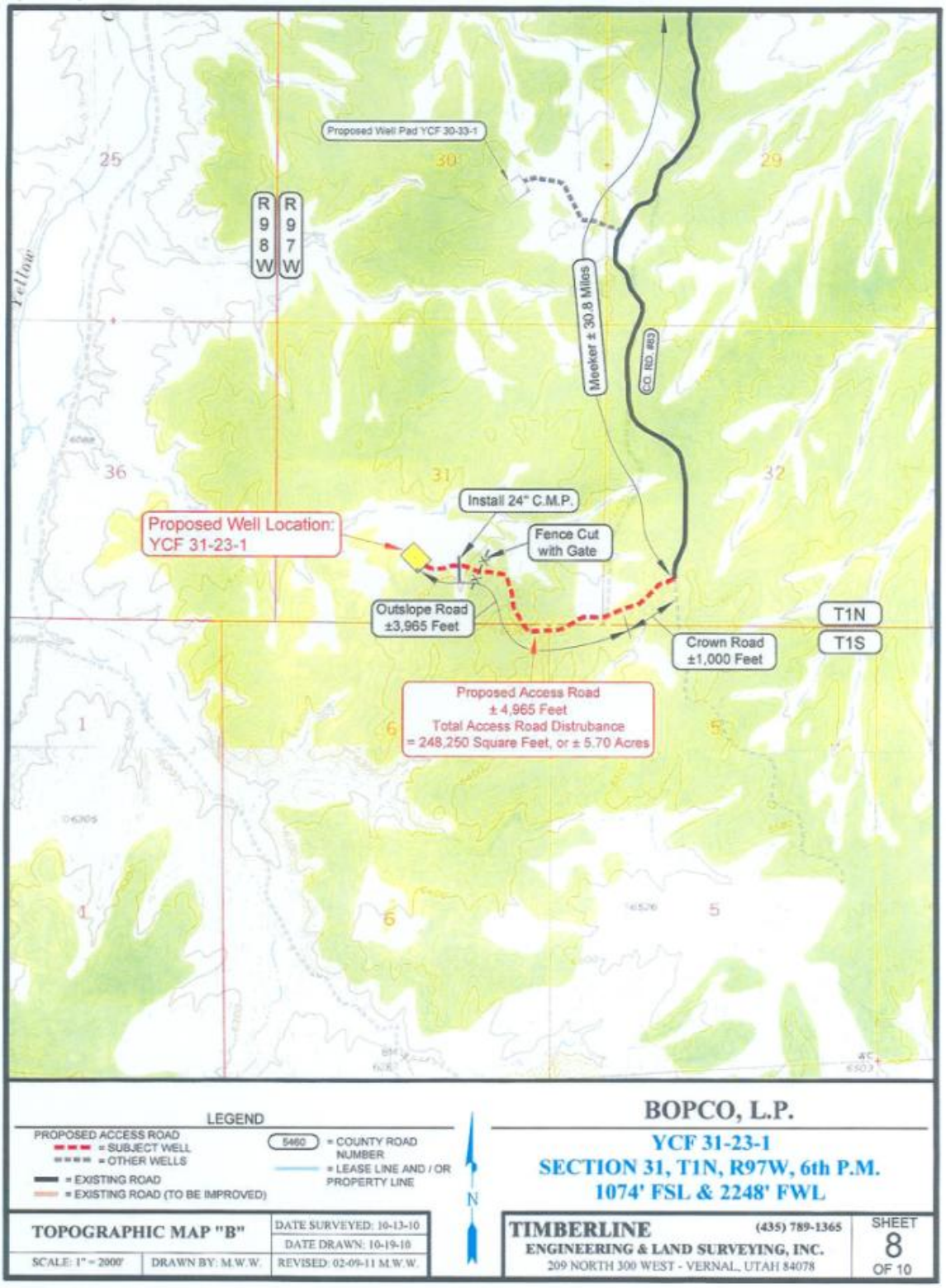
SIGNATURE OF AUTHORIZED OFFICIAL: _____
Acting Field Manager

DATE SIGNED: 8/17/11

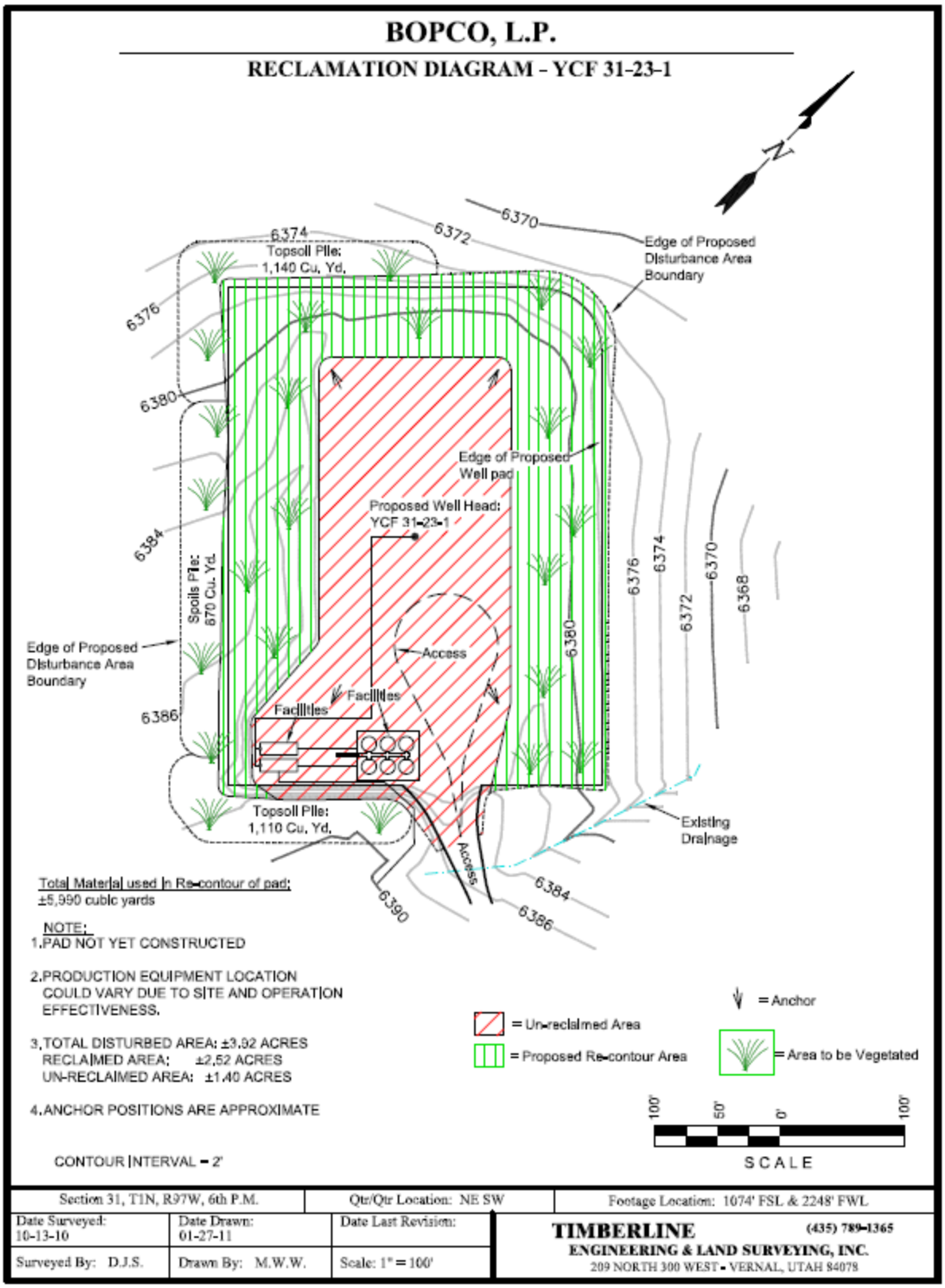
ATTACHMENTS:

Attachment 1. Location Diagram.
Attachment 2. Reclamation Diagram.
Attachment 3. Off-Unit Access to BOPCO YCF 31-23-1.

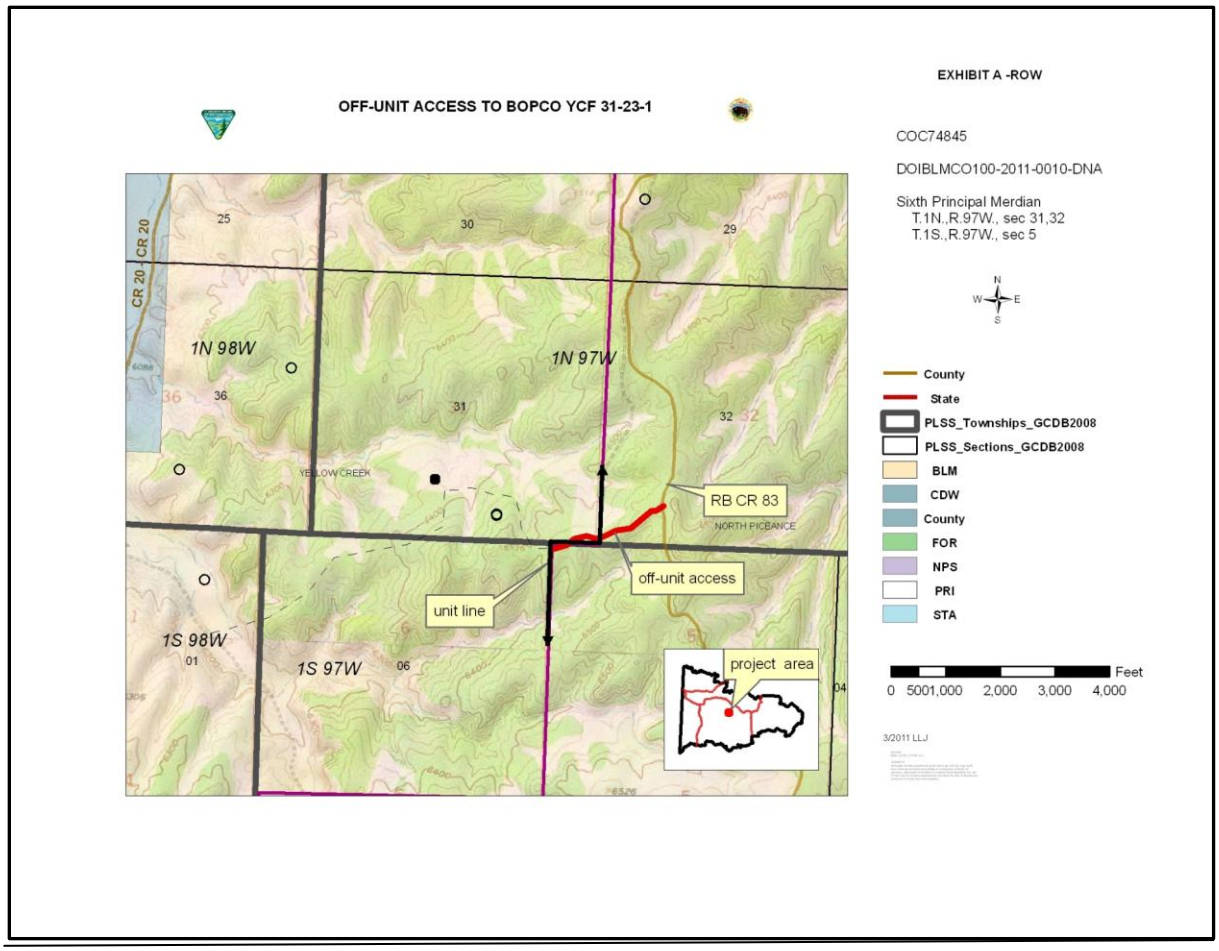
Attachment 1.Location Diagram



Attachment 2. Reclamation Diagram.



Attachment 3. Off-Unit Access to BOPCO YCF 31-23-1


OFF-UNIT ACCESS TO BOPCO YCF 31-23-1
EXHIBIT A -ROW
COC74845
DOIBLMCO100-2011-0010-DNA
Sixth Principal Meridian
T.1N.,R.97W., sec 31,32
T.1S.,R.97W., sec 5
CR 20
1N 98W
1N 97W
1S 98W
1S 97W
YELLOW CREEK
NORTH PICEANCE
RB CR 83
off-unit access
unit line
project area
County
State
PLSS_Townships_GCDB2008
PLSS_Sections_GCDB2008
BLM
CDW
County
FOR
NPS
PRI
STA
0 5001,000 2,000 3,000 4,000
Feet
3/2011 LLJ