

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-110-2011-0169-EA

**CASEFILE/PROJECT NUMBER:** COC-65557

8503F-36 D36 496  
8504A-36 D36 496  
8504B-36 D36 496  
8504D-36 D36 496  
8504E-36 D36 496  
8504G-36 D36 496

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**PROJECT NAME:** EnCana Oil and Gas (EnCana) 28 APDs on new well pad D36 496

**LEGAL DESCRIPTION:** T4S, R96W, NWNW S36 (Surface)

**APPLICANT:** EnCana Oil and Gas

**PURPOSE & NEED FOR THE ACTION:** The purpose of the Proposed Action is to provide EnCana access to a single surface location to drill and develop Federal minerals to determine if drilling can result in established commercial production. The need for the Proposed Action is to

respond to the Form 3160-3s (APDs) requests submitted by the proponent to construct one natural gas well pad and drill 28 natural gas wells on private surface with federal minerals administered by the BLM White River Field Office.

Decision to be Made: The BLM will decide whether or not to approve the APDs, and if so under what conditions.

### **SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:**

**Scoping:** Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 8/16/2009. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 8/30/2011.

**Issues:** No issues were identified during public scoping.

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

**Background/Introduction:** The following is the Proposed Action as proposed in the Surface Use Plan (SUP) in the APD submitted by EnCana: The surface ownership at the location is privately owned by EnCana. The minerals the applicant is seeking to develop are administered by the BLM. The D36 496 location was onsite on 8/12/2009 with representatives of EnCana, the BLM White River Field Office and the Colorado Division of Wildlife (now named Colorado Parks and Wildlife). On 6/29/2011 EnCana submitted 28 APDs for the locations with APDs found to be complete on 8/11/2011.

**Proposed Action:** Due to timing of the drilling rig, construction of the well pad is proposed to start in September 2011.

EnCana proposes to construct one gas well pad (D36 496), two pipeline corridors, and improve an existing road to access the well pad (See Figures 1 and 2). The well pad is proposed to have working surface dimensions of 778 feet long by 302 feet wide for total well pad surface disturbance of 9.7 acres. Following interim reclamation 2.2 acres will be needed for production. One pipeline corridor of 3,073 feet long by 120 feet wide will be constructed to support the wells for a total disturbance of 8.5 acres. Maximum width of the pipeline corridor will be 120 feet wide and will be minimized at 50 feet when possible. Following successful surface reclamation of the pipeline, total surface disturbance is estimated at 0.0 acres. An additional pipeline corridor of 1,525 feet long by 75 feet wide for total disturbance of 2.6 acres is also proposed. Following successful surface reclamation of the pipeline, total surface disturbance is estimated at 0.0 acres. The length of the existing road that will be upgraded is 2,155 long. Construction width is 30 feet, with 18-22 feet surface width making the acreage disturbance for the road 1.5 acres. As per EnCana's Surface Use Plan in the planned access roads section of the Surface Use Plan, all cut and fill slopes will be seed bed prepped and revegetated but specifics of reclaimed acres for the road are not included as part of the Proposed Action. Details of the proposed construction are included in Table 1.

Table 1 – Acreage disturbance of Proposed Action D36 496

	Dimensions (length x width) feet	Surface disturbance prior to interim reclamation (acres)	Surface disturbance following interim reclamation (acres)
Well pad	778 x 302 (working area)	9.7 (total well pad construction disturbance)	2.2
Pipeline	3,073 x 120	8.5	0.0
Pipeline	1,525 x 75	2.6	0.0
Road upgrade	2,155 x 30	1.5	1.5
Total		22.2	3.7

Timing of interim reclamation will follow one of three scenarios:

Upon completion of the initial 16 wells, EnCana will evaluate the economics of the area. There is a possibility of three different scenarios:

- a) Assuming the area proves to be economic, EnCana may return to drill the remaining 12 wells that are planned for this location. Interim reclamation will be applied within six months of the completion of the 28th well to all wells.
- b) If the area is not economic enough at this time to warrant drilling the remaining 12 wells within a reasonable timeframe (one year), then interim reclamation will be applied to the first 16 wells within the one year.
- c) If the wells are not economic at all, then the wells may be plugged, and final reclamation standards will be applied to the pad.

The pad will be reclaimed except the working area which is usually 100 feet off wellheads and 10-15 feet around production equipment. The proposed reclaimed pad is approximately 2.2 acres.

**DESIGN FEATURES:**

Details of the Surface Use Plan for Planned Access Roads, Location of Existing and/or Proposed Facilities, and Plans for Reclamation of the Surface follow below with the remainder of the specifics located in the well file.

**Planned Access Roads:**

- A. The roadway length from its turnoff from the F25 access to the SG D36 496 pad (2,155 feet) will be improved to all weather condition for safety considerations and the nature of anticipated truck traffic. All road work will be done according to BLM Manual Section 9113 standards.
- B. The entire roadway will be increased to approximately 18-22 foot width, with a 30 foot construction width. Wing ditches will be placed at the turn off to the D36 access road and bar ditches will be implemented.
- C. The average grade on the access road will be about 2%, with portions no greater than a 4% grade.
- D. The topsoil along the road will be stripped. Topsoil berms will be constructed generally parallel to the improved road.
- E. All cut and fill slopes will be seed bed prepped and revegetated.
- F. Up to a 24 inch culvert will be installed at the entrance of the pad, as shown on Topo B.
- G. Capping or sloping and dipping the roadbed will be done as necessary to provide a well-constructed and safe road.
- H. Prior to upgrading the roadway, it shall be cleared of any snow cover and allowed to dry

completely.

I. No gates, cattle guards, or fence cuts are required.

J. During the drilling and production phase of operations, the road surface and shoulders will be kept in a safe and legal condition and will be maintained in accordance with the original construction standards. The access road will be kept free of trash during operations.

K. Dust will be controlled on the roads and locations during construction and drilling by periodic watering of the roads and locations.

L. If the well is a producer, EnCana will upgrade and maintain access roads as necessary to prevent soil erosion, and accommodate year around traffic.

**Location Of Existing And/Or Proposed Facilities:**

A. At each drill location, surface disturbance will be kept to a minimum. The drill pad will be leveled using cut and fill construction techniques as noted in the attached survey.

B. Should drilling result in established commercial production, the following will be submitted:

1. Proposed location and attendant lines, by flagging, if off well pad.

2. Dimensions of facilities.

3. Construction methods and materials.

4. Protective measures and devices to protect livestock and wildlife.

5. All buried pipelines will be buried to a depth of 3 feet, except at road crossing where they will be buried to a depth of 4 feet. The maximum right-of-way for the pipeline route will be 120 feet wide and will be minimized at 50 feet when possible. The right-of-way will be minimized by utilizing existing roads and existing right-of-ways when possible and when fewer pipes will be installed in the same trench when surrounding topography is flatter and does not require significant side cuts.

6. Pipeline location warning signs shall be installed within 90 days after construction is completed.

7. EnCana shall condition pipeline right-of-ways in a manner to preclude vehicular travel upon said rights-of-way, except for access to pipeline drips and valves.

8. During the drilling, completing, and production of the wells on this pad EnCana will need to install pipes in two rights-of-way:

i. +/- 3073 feet long x 120 feet width = 8.5 estimated acres of disturbance cross country in this ROW EnCana will install:

1. Up to 12 inch steel three Phase Line

2. Up to 10 inch steel Fresh Water Line

3. Up to 6 inch steel High Pressure Frac Line

4. Up to 10 inch Gas Lift Line

5. Up to 12 inch Produced Water Line

ii. +/- 1,525 feet long x 75 feet width = 2.6 estimated acres of disturbance. In this ROW EnCana will install:

1. Up to 6 inch steel High Pressure Frac Line

2. Up to 10 inch Flow back Line

The first pipeline route will run from the D36 496 pad to a single tie-in point with existing pipelines located at the CDP site in the NWSE Section 25, Township 4 South, Range 96 West.

The second pipeline route will run from the J25 frac pad to the tie-in point with existing pipelines located at the CDP site in the NWSE of Section 25, Township 4 South, Range 96 West.

It is EnCana's intention to bury these pipelines. All disturbances will be reclaimed according to BLM requirements. The area used to contain the proposed production facilities will be built using native materials. If these materials are not acceptable, arrangements will be made to acquire appropriate materials from private sources.

9. A dike will be constructed completely around any production facilities which contain fluids (i.e., production tanks, produced water tanks, etc.) These dikes will be constructed of compacted subsoil, be impervious, hold 110 percent of the capacity of the largest tank, and be independent of the back cut.

10. All permanent (onsite for six months or longer) above-the-ground constructed or installed facilities, including pumping units, will be painted a flat non-reflective, earth tone color to match one of the standard environmental colors as determined by the Rocky Mountain Interagency committee. All production facilities will be painted within six months of installation. Facilities that are required to comply with Occupation Health and Safety Act Rules and Regulations will be excluded from this painting requirement.

11. If different production facilities are required, a sundry notice will be submitted.

12. Run off and sediment Best Management Practices will be implemented and maintained according to the Piceance Creek Storm Water Management Plan.

13. EnCana Oil & Gas (USA) Inc. shall protect all survey monuments, witness corners, reference monuments, and bearing trees in the affected areas against disturbance during construction, operation, maintenance and termination of the facilities authorized herein. EnCana Oil & Gas (USA) Inc. shall immediately notify the Authorized Officer in the event that any corners, monuments, or markers are disturbed or are anticipated to be disturbed. If any monuments, corner, or accessories are destroyed, obliterated, or damaged during construction, operation, or maintenance, EnCana shall secure the services of a Registered Land Surveyor to restore the disturbed monuments, corner, or accessories, at the same location, using surveying procedures found in the Manual of surveying Instructions for the Survey of the public Lands of the United States, latest edition. EnCana shall ensure that the Registered Land Surveyor properly records the survey in compliance with the Colorado Revised Statutes 38-53-101 through 38-53-112 (1973) and shall send a copy to the Authorized Officer.

C. During drilling and subsequent operations, all equipment and vehicles will be confined to the access road right-of-way and any additional areas as specified in the approved Application for Permit to Drill.

D. Interim reclamation of disturbed areas no longer needed for drilling/completion operations will be accomplished by grading, leveling, and seeding as recommended by the Bureau of Land Management.

E. EnCana Oil & Gas (USA) Inc. will be responsible for road maintenance from the beginning of to completion of operations.

F. *See Sheet 6 of 11* for proposed location of Production Facilities.

G. The production facility may consist of one 500 bbl water tank, pad sales meters, one approximately 6' x 6' building for each quad (four wells), and 32 gas lift meters with six meters per house (total of six).

**Plans For Reclamation Of The Surface:**

- 1) The BLM will be contacted prior to commencement of any reclamation operations.
- 2) Immediately upon well completion, the well location and surrounding areas(s) will be cleared of all debris, materials, trash, and junk not required for production.

**No Action Alternative:** The D36 496 well pad would not be constructed, the 28 wells would not be drilled, the pipeline corridors would not be constructed, the pipelines would not be installed, and the existing road would not be upgraded.

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

**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 (White River ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: Page 2-5

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

**AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES**

**Standards for Public Land Health:** In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status 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 (EA). These findings are located in specific elements listed below.

**Cumulative Effects Analysis Assumptions:** Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Table 2 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Natural Resources Conservation Service (NRCS) 5<sup>th</sup> Level Watershed. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 2 - Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X		X
Wild Horse Gathers			
Recreation			
Invasive Weed Inventory and Treatments	X	X	X
Range Improvement Projects : Water Developments Fences & Cattleguards	X	X	X
Wildfire and Emergency Stabilization and Rehabilitation	X	X	X
Wind Energy Met Towers			X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities	X	X	X
Power Lines	X	X	X
Oil Shale	X	X	X
Seismic	X	X	X
Vegetation Treatments	X	X	X

**Affected Resources:**

The CEQ Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 3 lists the resources considered and the determination as to whether they require additional analysis.

Table 3 - Resources and Determination of Need for Further Analysis

Determination <sup>1</sup>	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	See discussion below.
PI	Geology and Minerals	See discussion below.
PI	Soil Resources*	See discussion below.
PI	Surface and Ground Water Quality*	See discussion below.
Biological Resources		

Determination <sup>1</sup>	Resource	Rationale for Determination
NP	Wetlands and Riparian Zones*	The BLM is not aware of any lotic systems that support riparian vegetation within at least 1.5 miles of the Proposed Action (Schutte, Davis, East Fork of Stewart Creeks). The land surrounding the Proposed Action are owned and actively managed by the applicant. The nearest BLM-administered riparian system downstream of the Proposed Action is over 20 channel miles distant in lower Piceance Creek.
PI	Vegetation*	See discussion below.
PI	Invasive, Non-native Species	See discussion below.
PI	Special Status Animal Species*	See discussion below.
NP	Special Status Plant Species*	There are no special status plant species concerns associated with the proposed project.
PI	Migratory Birds	See discussion below.
NP	Aquatic Wildlife*	The BLM is not aware of any lotic systems that support vertebrate aquatic communities within at least 4.5 valley miles of the Proposed Action (Colorado River drainage; Middle Fork Parachute Creek). The nearest, the East and East Middle Forks of Parachute Creek, harbor a relatively pure strain of Colorado River cutthroat trout. This entire system, about 18 valley miles to the Colorado River, is composed of privately-controlled lands. The nearest BLM-administered channel is about 10 additional river miles below Parachute on the Colorado River. The nearest occupied habitat in the White River drainage is Piceance Creek, which holds BLM-sensitive flannelmouth and mountain suckers. This fishery is a minimum 9.5 valley miles north of the Proposed Action and an additional 20 valley miles upstream of the nearest BLM-administered channel. The land surrounding the Proposed Action is owned and actively managed by the applicant.
PI	Terrestrial Wildlife*	See discussion below.
NP	Wild Horses	This project is not located within the Piceance-East Douglas Herd Management Area or either of the Herd Areas and no wild horses are currently known to be in the area.
<b>Heritage Resources and the Human Environment</b>		
NP	Cultural Resources	A Class III inventory of the proposed pad location and associated linear route identified no cultural resources (Conner and Davenport 2009, compliance dated 12/3/2009.)
PI	Paleontological Resources	See discussion below.
NP	Native American Religious Concerns	No Native American religious concerns are known in the area, and none have been noted by Northern Ute tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.

Determination <sup>1</sup>	Resource	Rationale for Determination
NP	Visual Resources	Project occurs entirely on private land thus BLM Visual Resource Management classifications do not apply.
PI	Hazardous or Solid Wastes	See discussion below.
NP	Fire Management	Occurs completely on private ground. Federal fire management plan does not apply.
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NP	Environmental Justice	According to the most recent Census Bureau statistics (2000), there are no minority or low income populations within the WRFO.
<b>Resource Uses</b>		
NP	Forest Management	There are no woodlands within the project area.
NP	Rangeland Management	Project occurs entirely on private land where there is currently no livestock grazing occurring.
PI	Floodplains, Hydrology, and Water Rights	See discussion below.
NP	Realty Authorizations	Proposed access road and pipelines are on private surface; therefore no right-of-way is required.
NP	Recreation	Project occurs entirely on private surface land and thus there is no public access for recreation.
PI	Access and Transportation	See discussion below.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
<b>Special Designations</b>		
NP	Areas of Critical Environmental Concern	There are no Areas of Critical Environmental Concern in the vicinity of the project area.
NP	Wilderness	Project occurs entirely on private land, thus there are no Wilderness Study Areas present.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the WRFO.
NP	Scenic Byways	There are no Scenic Byways within the project area.

<sup>1</sup> NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.

\* Public Land Health Standard

## AIR QUALITY

*Affected Environment:* Based on a review of designated non-attainment areas for criteria pollutants, published by the U.S. Environmental Protection Agency (EPA 2011), 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 the 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) with 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 located in Garfield County near Rio Blanco County, which is called the two counties area within the western counties monitoring region. The 2010 CDPHE monitoring assessment for this area showed there were 11 particulate monitors in this region (APCD 2010). This regional assessment did not include two BLM sponsored sites established in 2010 in Rio Blanco County. Local air quality parameters including particulates are being measured at monitoring sites located at Meeker, Rangely, Dinosaur, and Ripple Creek Pass near the Flat Tops Wilderness Area. Ozone data have been obtained in Meeker and Rangely since 2010 and at Colorado National Monument in Mesa County since 2007. Monitors were established in Palisade (Mesa County) and Rifle in the two county area in 2008. The closest location for wet deposition is the cooperative National Atmospheric Deposition Program (NADP) near the Flat Tops Wilderness northeast of the project area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: 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 (secondary pollutant formed photochemically from volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>)), 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 pits and tanks during 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. VOCs, including hazardous air pollutants (HAPs), commonly associated with oil and gas production (benzene, toluene, ethylbenzene, xylene, and n-hexane) will 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. Ozone levels are influenced by emissions in the White River Basin and from the nearby Uinta and Yampa River basins. However, since this project is located at least 50 miles southeast of these sites it is unlikely to contribute to future violations for ozone standards. This

project could contribute to ozone formation in the I-70 corridor and would be measured at the Rifle Air Quality Site. 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 for ozone.

The majority of dust pollution in Colorado is from miscellaneous fugitive dust sources (CAQCC 2010). Soil disturbance resulting from construction, heavy equipment, and drill rigs is expected to cause increases in fugitive dust and inhalable particulate matter (PM), specifically for PM 10 microns ( $\mu\text{m}$ ) or less in diameter ( $\text{PM}_{10}$ ) and particles 2.5  $\mu\text{m}$  or less in diameter ( $\text{PM}_{2.5}$ ). During construction and drilling phases, dust production is likely, especially when conditions are dry and/or windy. Fugitive dust emissions due to construction and 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 and can have human health effects.

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 is not expected to exceed CAAQ or NAAQ standards on an hourly, 8-hour average or daily basis.

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  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ ) 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, air toxics (e.g., benzene), total suspended particulates (TSP), and increased impacts to visibility and atmospheric deposition may also increase as a result of natural gas exploration and development activities (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.

Cumulative Effects: The Proposed Action is in Garfield County near the border of Rio Blanco County; principal air pollution sources include emissions from motor vehicles, oil and gas development, coal-fired power plants, coal mines, sand and gravel operations, windblown dust, wildfires, and prescribed burns (CAQCC 2010). Facility emissions in the two county area are dominated by emissions related to oil and gas exploration, processing, or transportation. Due to these emission sources in the Colorado River, White River, and in the nearby Uinta and Yampa River Basins, VOCs, nitrogen oxides, and dust (particulate matter) are likely to increase into the future. 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. 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 exceedances have not been persistent enough to result in a violation of NAAQ standards.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No impacts to air quality would result from the No Action Alternative.

Cumulative Effects: There would be no additional impacts to existing air quality from the no action alternative.

*Mitigation:* 1. 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 on BLM lands will require prior written approval from BLM.

## **GEOLOGY AND MINERALS**

*Affected Environment:* Surficial geology formation of the well location is the Uinta of the Green River Formation. EnCana's targeted zone is in the Mesa Verde. During drilling potential water, oil shale, oil, gas, and coal resources will be encountered from surface to the targeted zone. Fresh water aquifer zones that may be encountered during drilling are the Perched in the Uinta, the A-groove, B-groove, and dissolution surface in the Green River formation. These geologic zones along with upper portion of the Wasatch are known for difficulties in drilling and cementing. All minerals, including oil shale, from the surface to 200 feet below the Orange Marker Bed of the Green River Formation are fee minerals. Minerals located below this zone are federal minerals. D36-496 is in EnCana's Story Gulch Federal Oil and Gas Exploratory Unit COC-69333X.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: There is potential for commingling of the aquifer zones, however, the cementing procedure of the Proposed Action isolates the formations and will prevent the migration of gas, water, and oil between formations including the oil shale zones. Conventional recovery of the coals is not considered feasible at the depths encountered in the wells. Development of these wells will deplete the hydrocarbon resources in the targeted formation. Future development potential of the oil shale resources near the existing wells may be limited; however, EnCana is the surface owner and presumably the mineral owner of the oil shale resources.

Cumulative Effects: Colorado Oil and Gas Conservation Commission (COGCC) database identifies 84 oil and gas well bottom hole locations, including the 28 proposed wells, within a one mile radius of well pad D36-496. Maintaining current bottom hole spacing of 10 acres could require future development of approximately an additional 117 wells for full development of the natural gas resource within this one mile radius. Full development of the natural gas resource could preclude the future recovery of oil shale resources until the existing natural gas resources are exhausted.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: The natural gas resources in the targeted zones will not be developed at this time.

Cumulative Effects: There would be no contribution to conflicts between recovery of oil shale and natural gas resources.

*Mitigation:* None.

## **SOIL RESOURCES**

*Affected Environment:* The classifications of soils within 30 meters of the proposed surface disturbance and maybe impacted by the Proposed Action are shown in Table 4 below. All surface disturbances will occur on privately owned lands. There are no fragile soils or lands prone to landslides on Federal lands that will be impacted by this project. The pipeline will cross a section of steep slopes and the pad will be adjacent to slopes over 35%. The majority of the project will impact Parachute-Rhone loam soils on ridge-tops; these soils have moderate runoff characteristics and the hazard to water erosion is moderate.

Table 4 – Soil Classification within 30 Meters of the Surface Disturbance Proposed and/or the Centerline of Roads and Pipelines

Soil Classification	Range Site Description	Potentially Impacted Acres
Parachute-Rhone loams, 5-30% slopes	Mountain Loam	40
Parachute loam, 25-65% slopes	Brushy Loam	10

Topsoil will be stored along the disturbance perimeter during drilling at a depth that could vary from between 6 inches to 10 feet. Cuttings will be processed onsite and disposed of in the cut of the pad during interim reclamation.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would directly disturb an estimated 22.2 acres including drilling/production facility pad, access road, pipelines and installation of stormwater management Best Management Practices (BMPs). With proper BMPs for stormwater, construction practices and reclamation practices, impacts outside the maximum disturbance area is not expected.

Direct impacts from the construction of the well pad, the access road, and pipeline installation would include compaction of soils, removal of vegetation, exposure of subsoil, mixing of soil horizons, loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. Compaction due to construction activities would reduce aeration, permeability, and water-holding capacities of soils in some locations. An increase in surface runoff could be expected from compacted soils and these soils are likely to be less resilient to erosion from surface runoff after disturbance. Removal of vegetation exposes soils to erosion from rainfall, wind, and surface runoff. Exposure of subsoil and mixing of soil horizons can change the physical characteristics of subsoil and may reduce the productivity of these soils into the future.

Loss of topsoil productivity can occur during storage due to nutrient loss through percolation of precipitation through the soils, physical loss, mixing of less productive soil layers during moving, and a loss of structure.

These direct impacts could result in increased indirect impacts to soils off the site such as increased runoff and erosion. Implementation of BMPs for stormwater and reclamation will reduce impacts from this project and should limit impacts to the disturbed areas. However, there is the potential for intense storm events and BMP failures resulting in erosion off the site. This is most likely to occur on the steep slopes adjacent to the well pad. Monitoring of areas around the pad as outlined in the stormwater management plan should identify any failure of BMPs or unanticipated erosion.

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. Earthen berms are proposed for secondary containment of tank batteries. Without a liner these secondary containments may fail and result in releases of hydrocarbons into the soils in the advent of a leak or spill from the tanks.

Cumulative Effects: Well pads in the general area are likely to occur at about a two to three well pads per square mile and will include surface disturbance and reclamation of other well pads, pipelines, roads and support facilities. No other impacts other than oil and gas development are expected near the project area. In general, soil disturbance in the Proposed Action is likely to reduce soil productivity and may lead to increased erosion and instability of soils in local areas.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No impacts to soils would occur.

Cumulative Effects: There would be no additional impacts to soils from the no action alternative.

*Mitigation:* None.

*Finding on the Public Land Health Standard #1 for Upland Soils:* This action is unlikely to reduce the productivity of soils on public lands.

## **SURFACE & GROUND WATER QUALITY**

*Affected Environment:* Surface Water: This project is in the headwaters of an ephemeral tributary to Davis Gulch which drains into the Middle Fork of Parachute Creek. Table 5 describes water segments that may be impacted by this project.

Table 5 - Water Quality Classification Table\*

Segment	Segment Name	Use Protected	Protected Beneficial Uses			
			Aquatic Life	Recreation	Agriculture	Water Supply
11c	Mainstem of Middle Fork of Parachute Creek from the source (including Davis Gulch) to S19, T5S, R95W.	No	Cold 2	Not Primary Contact Recreation	Yes	No

\* 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 11c is protected for cold water aquatic life (Cold 2). The cold designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures do not frequently exceed 20 °C. The Cold 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of cold water biota. This segment also has standards that are protective of recreation and agriculture, but not water supply.

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:*

Direct and Indirect Effects: Surface Waters: Clearing, grading, and soil stockpiling activities associated with the Proposed Action would alter overland flow and natural infiltration patterns. Potential direct impacts include surface soil compaction caused by construction equipment and vehicles, removal of vegetation and disturbance of surface soils, which would increase rainsplash erosion and reduce the soil's ability to absorb water and increase the volume and rate of surface runoff, which in turn would increase surface erosion. Steep-sloped hillsides adjacent to the well pad site are the most likely area for this surface erosion to occur. Stormwater measures include periodic monitoring of the perimeter and any erosion problems noted would be repaired.

Surface 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 Davis Gulch 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. The Proposed Action will include a soil berm, topsoil berm and waddle around the perimeter of fill slopes. These areas will be patrolled often and sediment movement off the site is likely to be detected. These features could fail in a heavy convective storm or rain on snow event in the spring, where this to occur sediment could be lost from the site.

The SUP describes using freshwater from Piceance Creek, but does not describe the location of these water withdrawals. Freshwater from the Parachute Drainage would come via pipeline or truck with withdrawals from storage ponds. Water withdrawals directly from surface waters 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.

Groundwaters: Three zones of potential water (Unita, A-groove, and the B-groove) are anticipated to be drilled through; the deepest of these zones is estimated at 1,400 feet below the surface. These zones would be protected by installing a surface casing to a depth of approximately 3,000 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 to 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, failed cement, 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 the surrounding formations which could include freshwater aquifers, if it occurs when drilling the surface casing.

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 Mesaverde down (estimated at about 8,000 feet). The production zones are all in the Mesaverde Group and are between 8,000 to 13,500 feet below the surface. The production zones do not contain freshwater.

Known groundwater bearing zones in the project area would be protected by the 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.

Cumulative Effects: Well pads in the general area are likely to occur at an average density of 2-3 well pads per square mile and drilling of additional wells will include surface disturbance and reclamation of other well pads, pipelines, roads and support facilities. No other impacts other than oil and gas development are expected near the project area. In general, the Proposed Action and other activities could increase sedimentation, but it is unlikely that water quality would be impacted in Davis Gulch or the Mainstem of Parachute Creek.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Neither ground nor surface water quality would be impacted by the No Action Alternative.

Cumulative Effects: There would be no additional affects to ground or surface water quality from the no action alternative.

*Mitigation:* 1. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of surface waters.

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 runoff and summer convective storms. Provide adequate drainage 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. 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).

*Finding on the Public Land Health Standard #5 for Water Quality:* It is unlikely that construction of the well pad, the access roads and installation of the pipeline would result in an exceedence of state water quality standards.

## **VEGETATION**

*Affected Environment:* There is no BLM surface involved with the Proposed Action. The Proposed Action would occur in and traverse through mostly mountain loam and some brushy loam ecological sites with mature mountain shrub plant communities. The plant communities in the area of the Proposed Action are composed of native plants in a late seral state. Table 6 shows the plant community composition on each of these ecological sites.

Table 6.

Ecological Site / Woodland Type	Plant Community Appearance	Predominant Plant Species in the Plant Community
Brushy Loam	Deciduous Shrub / Grass Shrubland	Serviceberry, oakbrush, snowberry, mountain brome, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses
Mountain Loam	Grass / Open Shrub Shrubland	Mountain brome, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses, mountain big sagebrush, bitterbrush, low rabbitbrush, snowberry, serviceberry

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would remove all vegetation from the project areas (well pad and pipelines). About 22.2 acres of vegetation removal would occur in association with the road upgrade, pad, and pipeline construction. The entire disturbance occurs on private lands owned by the applicant. Re-vegetation of disturbed areas is severely hampered if livestock are allowed to graze the seeded areas in the first two to three growing seasons after reclamation.

The total disturbance associated with construction of the well pad and the pipelines, would be short-term. The majority of the pad would remain non-vegetated during the drilling phase but would be reclaimed after completion of drilling. The pipelines would be completely reclaimed following installation. More than 80 percent of the overall original disturbance could be returned to production of desirable herbaceous vegetation within three to five years of the initial disturbance. Only the production area of the well pad and the road travel surface totaling about 3.7 acres would remain non-vegetated for the life of the project, which could vary depending upon the success and life expectancy of the wells.

The greatest long-term impact on vegetation would be the loss of the native shrub component of the plant communities impacted. The mountain sagebrush would likely begin to return to reclaimed areas within 10 years; current cover levels would be regained within 20 to 25 years. However, serviceberry and bitterbrush are not likely to return to the reclaimed areas for at least 50 years. Attempts in the past to re-establish these shrub species have had only marginal success.

Cumulative Effects: The Proposed Action would not add substantially to current or future disturbances within the project area. This project area currently has healthy and diverse plant community composition; therefore the removal of 22.2 acres of big sagebrush and mountain shrub vegetation is not expected to have any measurable influence on the overall plant community.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no action authorized that could influence the upland vegetation on these sites.

**Cumulative Effects:** There would be no additional contribution to previous, existing, or future disturbances under this alternative.

**Mitigation:** The seed mix below is recommended for reclamation actions. Seed must be certified free of noxious weed seed.

Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)
UP Plateau	Sandberg bluegrass	<i>Poa secunda ssp. Sandbergii</i>	0.5
San Luis	Slender Wheatgrass	<i>Elymus trachycaulus ssp. trachycaulus</i>	2
Sherman	Big Bluegrass	<i>Poa secunda ssp. ampla</i>	1
Bromar	Mountain Brome	<i>Bromus marginatus</i>	2
Maple Grove	Lewis Flax	<i>Linum lewisii</i>	1
Bandera	Rocky Mountain Penstemon	<i>Penstemon strictus</i>	0.5

Currently there is no livestock grazing use of this area but in the future if it appears that livestock grazing would hamper re-vegetation efforts the following recommendations could benefit reclamation success.

- Fencing the well pad (including cut and fill slopes) to exclude livestock from the reclaimed areas. Installing a cattle guard at the pad entrance is more effective than a gate.
- Fencing of the pipelines should be done in a manner that would not impede livestock or wildlife movement through the general area (e.g., provide pass-through areas at appropriate distances along the pipeline).
- All fencing should consist of a 4-strand barb wire fence with braced corners.

Once seeded species are fully established on the reclaimed areas, fences and cattle guard should be completely removed by the applicant. In the interim the applicant would need to maintain these fences and cattle guard in a safe and functional condition.

**Finding on the Public Land Health Standard #3 for Plant and Animal Communities:** (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The Public Land Health standards are not applicable to non-BLM surface.

## **INVASIVE, NON-NATIVE SPECIES**

**Affected Environment:** No specific infestations of noxious or invasive weed species are known to occur in the areas of the Proposed Action. Although, throughout this general area of the Piceance Basin there are occurrences of houndstongue, musk thistle, yellow toadflax, leafy spurge, black henbane and spotted knapweed. There are also scattered occurrences of cheatgrass on disturbed areas along roadsides throughout the general area. Other than the cheatgrass all other weeds are actively being treated by BLM, local ranchers, and others. Disturbances associated with the proposal would be subject to invasion by competitive weedy plants. Once any disturbance becomes dominated by weedy species, reclamation with desirable native perennial species becomes much more difficult.

**Environmental Consequences of the Proposed Action:**

Direct and Indirect Effects: The disturbances associated with the Proposed Action could result in the spread of noxious weeds. Noxious weed seed could be transported on vehicles and/or equipment from existing noxious weed occurrences. The cheatgrass that is likely to establish to some extent on the newly disturbed sites would pose minimal threat to the adjacent healthy plant communities, but would pose a threat to the success of reclaiming disturbed areas.

Cumulative Effects: The Proposed Action would contribute to incremental fragmentation of native plant communities, which puts these areas at greater risk for establishment and spread of noxious and invasive weed species. If noxious weeds establish in these plant communities the health of the upland plant communities and the associated ecological function would decline. With timely and successful reclamation the risk of weed establishment and the effects of fragmentation would be minimized.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no action authorized that would influence the native vegetation of this area.

Cumulative Effects: There would be no additional contribution to previous, existing, or future disturbances under this alternative.

*Mitigation:* Clean all construction equipment to remove seed and soil prior to bringing equipment into the project area.

## **SPECIAL STATUS ANIMAL SPECIES**

*Affected Environment:* There are no threatened or endangered animal species that are known to inhabit or derive important benefit from the project area. On March 5, 2010, the US Fish and Wildlife Service (FWS) concluded that the greater sage-grouse warranted listing as an endangered species under the Endangered Species Act, but that listing was precluded by the need to complete listing actions of higher priority. Range-wide, this species is considered a candidate for listing – a designation that affords management attention equivalent to that of species considered “sensitive” by the BLM. The project area is associated with the Parachute-Piceance-Roan (PPR) population of greater sage-grouse. On lands within the WRFO, these birds are largely distributed in two distinct clusters. The project area lies on the eastern margin of the easternmost subpopulation (i.e., Barnes Ridge). Colorado Parks and Wildlife (CPAW) is presently tracking a number of telemetered birds associated with Barnes Ridge leks that lie a minimum 2.6 miles west of the project area. These birds tend to remain in the Stewart Gulch and West Fork of Parachute drainages. Locations accumulated in the drainages encompassing the project area (e.g., Middle Fork of Parachute, Story Gulch) over this time frame are sparse (e.g., one nesting hen). Sagebrush dominated habitats suitable for use by sage-grouse in the Story Gulch drainage are confined to narrow ridgelines and upper drainage basins, whose continuity is often interrupted by tall deciduous shrub canopies (e.g., Utah serviceberry, Gambel oak).

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 nearest occupied critical habitats delineated for the endangered fishes of the Upper Colorado River Basin

are about 18 miles (Colorado River at Parachute) and 70 miles (White River at Taylor Draw dam) downstream of the project area. 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.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would initially clear and occupy approximately 22.2 acres of sagebrush and mixed shrub habitat that has demonstrated minimal utility for a small number of sage-grouse associated with the Barnes Ridge lek complex. The proposed location would be superimposed on suitable habitat across the entire width (about 400-500 feet) of a short spur ridge near its distal end. Due however to an interval of heavy serviceberry cover midway down the ridgeline, it is suspected that the far end of the ridge experiences limited sage-grouse use.

Sage-grouse oriented reclamation (e.g., specialized seed mix, lengthened cut and fill slopes) is expected to involve all pipeline acreage and about  $\frac{3}{4}$  of pad acreage (about 18 acres). Depending on subsequent ungulate use, this reclaimed acreage would serve increasingly effective brood and summer habitat function prior to the redevelopment of a suitable sagebrush canopy (10-15 years).

In an effort to accommodate existing lease rights and maintain viable populations of sage-grouse in development areas, a cooperatively developed pilot strategy is being employed that attempts to exploit the strong fidelity of adult sage-grouse to previously used reproductive habitats, tempered by considerations for the average 4-5 year life-span of sage-grouse and the propensity of yearling grouse to abandon areas disturbed by natural gas development. By allowing concentrated development pressure in pre-defined subunits of a subpopulation for a period not to exceed three consecutive breeding seasons, and then vacating that subunit of all possible activity for no less than two consecutive breeding seasons, it is hoped that one or two years' recruitment associated with resident adult birds would allow those broods to develop sufficient site fidelity to perpetuate occupation and reproductive use of that subunit. The proposed location is thought to carry few birds and represents relatively low risk in testing the efficacy of this development strategy. This strategy, as applied to the applicant's leases in the PPR population area, is addressed in an existing agreement between EnCana and CPAW. The agreement also incorporates a number of applicant-committed grouse management measures that constrains construction and maintenance/operation activities to less critical timeframes and, where possible, uses extraordinary means to avoid grouse habitat altogether.

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, 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.

Cumulative Effects: The Proposed Action would not add substantially to current or future disturbances within the project area. This project area currently has limited potential for year-round occupation by sage-grouse; therefore the removal of 22.2 acres of big sagebrush and mountain shrub communities along the margins of overall sage-grouse habitat is not expected to have any measurable influence on the PPR population.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no action authorized that would influence sage-grouse occupation of this area. On the other hand, selection of alternate areas for development may increase the likelihood of involving lands that support greater numbers of birds and increase the risk of testing science-based mitigation strategies.

Cumulative Effects: There would be no contribution to previous, existing or future disturbances under the No Action Alternative.

*Mitigation:* None that require imposition of measures as Conditions of Approval. The project area represents suitable nest habitat that is subject to White River ROD/RMP-approved timing limitations designed to reduce disruption of nest and early brood activities of sage-grouse. These measures, which cannot be practically applied to year-round drilling practices, can be ‘excepted’ by the WRFO Manager pending consultation with CPAW. Based on this analysis, this circumstance warrants an exception to BLM White River ROD/RMP TL-06-Timing Limitation for Sage Grouse Nest Habitat. With input by the BLM WRFO, all sage-grouse oriented best management practices and mitigation strategies have been integrated into the Proposed Action via a formal agreement between CPAW and EnCana.

*Finding on the Public Land Health Standard #4 for Special Status Species:* This parcel of land is privately owned and BLM has little influence over its ultimate character or function as wildlife habitat. The project area currently has limited capacity to serve year-round sage-grouse activities due primarily to terrain and vegetation constraints on the extent, continuity, and suitability of proper habitat. The project offers a relatively low risk opportunity to test the efficacy of a development strategy that may ultimately allow for viable populations of sage-grouse to co-exist with energy-mineral development. In this vein, the Proposed Action would remain consistent with and may help to elevate achievement of the land health standard.

## MIGRATORY BIRDS

*Affected Environment:* The project area is composed primarily of narrow high-elevation (about 8,200 feet) mountain big sagebrush ridge tops and valleys with steep intervening slopes composed of mountain shrub (Utah serviceberry, Gambel oak) with small inclusions of aspen (about 300 feet of pipeline in 2 parcels). A large array of migratory bird nest in these habitats beginning with their arrival in mid-April and extending through July. Typically, these shrublands possess well developed herbaceous understories that are only lightly influenced by livestock grazing through the migratory bird nesting season. Birds most common and widely distributed in the sagebrush communities include the Brewer's sparrow (the only local breeder listed as a FWS Bird of Conservation Concern) and green-tailed towhee; those associated with the deciduous shrublands include dusky flycatcher, orange-crowned and MacGillivray's warblers, and spotted towhee.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would result in the initial loss of about 22 acres of sagebrush and mountain shrub communities, all of which would be conducted on surface owned by the applicant (i.e., ultimately, vegetation management strictly up to landowner's discretion). Vegetation clearing and drilling activity associated with the Proposed Action is expected to commence in September 2011—well beyond the migratory bird nesting period. Direct removal of woody vegetation structure (the primary determinant of migratory bird occupancy of these habitats) would result in incremental reduction in the available habitat base, which, based on average reported and BLM-derived nest density information, is capable of supporting up to 12 pairs of migratory birds. Depending on ongoing development activity, shrubland birds would be expected to avoid locating nests within 100 meters of ongoing disturbance. This response could temporarily (1 and possibly 2 nest seasons) reduce breeding bird densities in the immediate project area (about 83 acres) by about 50 percent, a figure that would involve an additional 20 pairs of breeding birds. Areas subject to direct habitat modification would be unavailable for nesting by shrubland birds in the longer term (10-15 years on about 18 reclaimed acres; entire production life on ~4 acres). That nesting use displaced from intact shrublands in the vicinity of concentrated activity would be expected to resume at comparable densities after these operations were complete. As proposed, short and long term project-related impacts to these habitats would not compromise the continued support of viable breeding bird populations in the project area, including the BOCC Brewer's sparrow.

Open pits that store drilling fluids and produced water pose a risk to migratory birds that contact hazardous pit contents (e.g., for bathing or drinking). The applicant has made a commitment through its agreement with CPAW that all fluid pits would be fenced and netted as appropriate to exclude wildlife.

Cumulative Effects: Nearly all of the disturbance within the vicinity of the project area (two-mile radius) is associated with ongoing oil and gas development; with less than one pad per section. The initial removal of 22 acres of big sagebrush and mountain shrub habitat is not expected to contribute substantially to current or proposed disturbances nor would it be expected

to have any measureable influence on local bird populations. Habitat loss associated with the Proposed Action is likely discountable when compared to available habitat within a two-mile radius of the project area (< one percent).

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no direct or indirect influence on migratory birds or associated habitats under the No Action Alternative.

Cumulative Effects: There would be no contribution to previous, existing or future disturbances under the No Action Alternative.

*Mitigation:* None. Mitigation developed cooperatively by the applicant and the CPAW will be incorporated. Additional BLM-generated Conditions of Approval are unnecessary.

## **TERRESTRIAL WILDLIFE**

*Affected Environment:* The larger project area serves primarily as big game summer range, though limited use normally extends into the early winter period. These higher elevation ranges are specifically categorized as an elk production area, but post-partum functions are served for both deer and elk under these circumstances where moist aspen copses and water sources are well interspersed in the shrubland matrix.

Aspen woodlands are well distributed as relatively small, elongated stands on northerly aspects across Piceance Basin's higher elevations, including those portions of Story Gulch and the Roan Plateau associated with this project. Raptor nesting activity, primarily red-tailed hawk, Cooper's hawk, and sharp-shinned hawk, is evidenced in many, if not the majority, of these typically stunted and small-diameter stands. Raptor nest surveys conducted through the applicant documented roughly three structures per square mile. The specific nest location at any given time is generally subject to much flux, particularly the accipiters, but both Cooper's hawk and red-tailed hawks tend to maintain stable nest territories over extended periods of time. There is a known Cooper's hawk nest (last active in 2007) roughly 260 meters from the pipeline.

The distribution and abundance of small mammal populations are poorly documented within the project area however; these higher elevation mixed shrublands and interspersed aspen stands, considered together with these private lands' well-developed herbaceous understories, offer a rich habitat complex that probably supports an equally rich small mammal community that includes more specialized species such as montane shrew; red-backed, sagebrush, and long-tailed voles; and northern pocket gophers. Trapping efforts undertaken outside of the project area (i.e., northern portions of Piceance Basin) indicate a high tendency in both sagebrush and pinyon-juniper communities for more generalized species such as deer mouse and least chipmunk and it is suspected that these species would be relatively abundant in the project area. There are no small mammal species that are narrowly endemic or highly specialized species known to inhabit the project area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action is scheduled to begin in September and progress continuously for a year or longer. Development activity would coincide with and be expected to disrupt the utility of surrounding summer range resources for big game post-partum and general summer functions. This situation normally invokes a BLM-imposed timing limitation that extends from mid-May through mid-August. However, traditional application of timing limitations cannot be practically applied to year-round drilling practices and, in this case, would contradict use of the development strategy being tested to conserve greater sage-grouse populations in Piceance Basin (see Special Status Animal section above). The present agreement between EnCana and CPAW addresses this situation by allowing deference to sage-grouse issues when in conflict with standard big game considerations. Too, these extensive privately-controlled lands are not subject to widespread and uncontrolled levels of use that prompt sharp concerns related to big game displacement and energy conservation. BLM's White River ROD/RMP-approved timing limitations TL-09 (big game summer range) and TL-07 (elk production areas) allow exceptions to be granted by the WRFO Manager in coordination with CPAW under circumstances involving negotiated compensation and/or conditions that do not interfere with habitat function or animal condition. This circumstance qualifies for full exception of these timing considerations. Direct short and long term reductions in the availability of forage or cover resources for big game in the project area are discountable.

The Proposed Action in and of itself would not remove woodland habitats that serve as nesting substrate for raptors. Drilling activities and increased vehicular traffic may preclude nesting in those stands immediately adjacent to the project area. With construction scheduled to begin in September, there would be no potential to disrupt nesting activities. Birds returning to the area would either avoid the area or nest in the face of ongoing activity.

Facility emplacement would temporarily preclude occupation of up to nine acres by small mammals associated with mountain shrub communities. Upon reclamation of disturbed areas, recolonization by more generalized species would commence; with the appearance of more specialized species occurring only after shrubland cover begins to reestablish (e.g., 10-15 years). Long term facility occupation on approximately two acres would be unavailable for small mammal use through the productive life of the location. Disturbed land represents a small increment of land available for occupation by this small mammal community on a local landscape level and the Proposed Action poses no reasonable risk of compromising population viability or adversely modifying the distribution and extent of habitat available to any species.

Cumulative Effects: Nearly all the disturbance in the vicinity of the project area is associated with ongoing oil and gas activity. The initial removal of 22.2 acres of sagebrush and mountain shrub habitats is not expected to contribute substantially to current or proposed disturbances nor would it be expected to have any measureable influence on big game or nongame wildlife species. While the Proposed Action represents an incremental loss of forage resources, habitat loss associated with the Proposed Action is discountable when compared to available habitats within the vicinity of the project area (< one percent).

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no action authorized that would have any direct or indirect influence on terrestrial wildlife or associated habitats.

Cumulative Effects: There would be no contribution to previous, existing or future disturbances under the No Action Alternative.

*Mitigation:* None. Mitigation developed cooperatively by the applicant and CPAW, with limited input provided by the BLM, will be incorporated. Additional BLM-generated Conditions of Approval are unnecessary. The project, as proposed, involves a number of habitat features and functions that are subject to White River ROD/RMP-approved timing limitations and/or surface occupancy stipulations, including big game summer ranges, elk production areas, and raptor nests and nesting habitat. The intent of BLM-prescribed timing limitations and avoidance measures are served by the applicant's standing agreement with CPAW and it is appropriate for BLM to grant exceptions in each of these instances. This mutually-coordinated approach is, in this case, considered a more appropriate and effective device for accommodating wildlife values on these extensive private landholdings.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:* This parcel of land is privately owned and BLM has little influence over its ultimate character or function as wildlife habitat. The project area currently fulfills local terrestrial wildlife habitat functions at near-optimal levels and would be regarded as fully meeting the land health standard. As conditioned, the near-term effects on game and non-game wildlife are localized and minor; the longer-term effects after reclamation would be negligible. Both alternatives would be considered compatible with continued meeting of the land health standard.

## **PALEONTOLOGICAL RESOURCES**

*Affected Environment:* The proposed well pad location access route and associated flow back, frac water, and gas production lines are located in an area 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:*

Direct and Indirect Effects: Construction of the proposed well pad and ancillary facilities that involves any excavation into the underlying sedimentary rock formation has the potential to impact scientifically noteworthy fossil resources. Any accelerated erosion that may result from project development also has the potential to cause a loss of paleontological data.

Cumulative Effects: Any loss of paleontological data due to development results in an irreversible and irretrievable loss of data for the regional paleontological database. Development tends to accelerate any natural occurring loss due to normal and expected weathering of formations as increased areas are exposed and impacted by the associated construction.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no new or accelerated loss of scientific paleontological data to the regional database under the No Action Alternative.

Cumulative Effects: Normal, expected geological processes would continue under the No Action Alternative which results in a slow exposure and eventual loss of data. The loss is irreversible and irretrievable but is so slow that loss occurs a rate that is only measureable over long periods of time.

*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. If it should become necessary to excavate into undisturbed portions of the underlying sedimentary rock formation a paleontological monitor shall be present before any such excavations begin and shall remain until all excavations have been completed and back filling of the excavations has begun.

## **HAZARDOUS OR SOLID WASTES**

*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.

Direct and Indirect Effects: The proposed activities will pose direct and indirect effects to proximal and distal resources above and below ground depending on where they occur, the size and types of the spills of fuel, oil and/or hazardous substances during oil and gas operations. Accidents and mechanical breakdown may also have direct and indirect effects on proximal and distal resources depending on the type of accidents or mechanical breakdown and where they occur.

Cumulative Effects: Colorado Oil and Gas Conservation Commission (COGCC) database identifies 84 oil and gas well bottom hole locations, including the 28 proposed wells, within a one mile radius of well pad D36-496. Maintaining current bottom hole spacing of 10 acres could require future development of approximately an additional 117 wells for full development of the natural gas resource within this one mile radius. Full development of the natural gas resource could increase the chance associated with spills of fuel, oil and/or hazardous substances during oil and gas operations in the one mile radius area.

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

Direct and Indirect Effects: The regulated materials would not be used, the solid and sanitary wastes would not be generated and accidents and the potential of mechanical breakdown of machinery for the 28 well proposed would not be present thus decreasing the direct and indirect effects.

Cumulative Effects: None

*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 percent 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.

## **FLOODPLAINS, HYDROLOGY, AND WATER RIGHTS**

*Affected Environment:* The proposed well pad, access road and pipeline are located on private lands on ridgetops in the Roan Plateau in the Davis Gulch watershed that drains into the Middle Fork of Parachute Creek.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action will not impact floodplains. Surface hydrology will be modified in the disturbed areas, but is unlikely to contribute to any changes in the hydrology in Davis Gulch or the Middle Fork of Parachute Creek. Freshwater use for drilling and construction will most likely come from off channel storage ponds with water from Parachute Creek used within current water rights. The proponent also indicates that water may be used from the Piceance Creek watershed, but does not give a location for withdrawing water from the watershed. Freshwater use per well is estimated at 5,000 barrels (0.64 acre-ft) and is well below the estimate of 2.6 acre-ft per well listed in the programmatic agreement BLM has with the FWS concerning depletions from the Colorado River System. These wells will be part of annual reports to estimate depletions to the Colorado River System.

The proponent states that they have sufficient and valid water rights to meet freshwater needs for the project, therefore other water rights not likely to be impacted by this project. BLM holds

water rights for livestock and wildlife watering and has proposed instream flows for springs and surface water resources in the area. Depending on the location of withdrawals, water quality and quantity could be impacted by water withdrawn from Piceance Creek. If Piceance Creek is used as a water source, the project proponent should document the method, amount, and location of water withdraws, if they are needed.

Cumulative Effects: Some field-wide infrastructure and other well pads and access roads in the area may be located within the floodplains of drainages. In these locations, limiting the access of flood flows to the full width of the floodplain may increase flood impacts downstream and could lead to flooding of facilities during extreme storm events. The operator will design facilities based on peak flow estimates and engineering practices to limit impacts. The US Army Corp of Engineers will be consulted as appropriate for any of these facilities that may impact waters of the United States. Surface hydrology will be modified in areas with oil and gas development and livestock grazing is likely to continue. These upslope or hillside impacts are not likely to impact the hydrology of drainages downstream, such as Davis Gulch and the Middle Fork of Parachute Creek.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No additional impacts to floodplains, hydrology or water rights would occur.

Cumulative Effects: None

*Mitigation:* 1. The operator will update the SUP via Sundry Notice (SN) and obtain BLM approval, before water rights in the Piceance Creek are used to supply freshwater for construction or drilling. The SN should detail the location of withdrawal, method of transportation, estimated volumes, and the methods for backflow prevention (see the water quality section) if the freshwater is withdrawn from surface waters in the Piceance Creek watershed.

## **ACCESS AND TRANSPORTATION**

*Affected Environment:* The primary access to the project site is from Garfield County Road 401. This road is primarily used by local residents, oil and gas workers, and seasonal hunters.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action will temporarily impact Garfield County Road 401, mainly through the proposed upgrades to the roadway. Once complete, the roadway will be able to better handle heavy truck traffic and be better suited to vehicle traffic of all types. Road improvements may result in temporary delays to vehicle traffic.

Cumulative Effects: No cumulative impacts have been identified.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No improvements will be made to Garfield County Road 401 and it will remain in the same condition as it is currently.

Cumulative Effects: No cumulative impacts have been identified.

*Mitigation:* None.

**REFERENCES CITED:**

Armstrong, Harley J., and David G. Wolny  
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2010 Colorado Air Quality Control Commission Report to the Public 2009-2010, Colorado Dept. of Public Health and Environment, Denver, CO.

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2010 Colorado 5 Year Monitoring Network Assessment. Available online at: <http://www.colorado.gov/airquality/>. Accessed May 13, 2011.

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2011 Currently Designated Non-Attainment Areas for all Criteria Pollutants. Updated as of August 30, 2011. Available online at: <http://www.epa.gov/oaqps001/greenbk/ancl.html>. Accessed September 13, 2011.

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2009 Class III Cultural Resources Inventory Report for four Proposed Liberty Well Locations (M30 495, B36 496, D36-496, and F25-496), and a Central Distribution Point (J25-496), and Related Linear Routes in Garfield County, Colorado for EnCana Oil and Gas (USA) Inc. Grand River Institute, Grand Junction, Colorado. (09-11-36: SHPO #GF.LM.NR914)

(COGCC) Colorado Oil and Gas Conservation Commission  
2011 <http://cogcc.state.co.us>

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

**TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED:** None

**INTERDISCIPLINARY REVIEW:**

Name	Title	Area of Responsibility	Date Signed
Bob Lange	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soil Resources	9/14/2011
Zoe Miller	Ecologist	Areas of Critical Environmental Concern; Special Status Plant Species	8/16/2011

<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>	<b>Date Signed</b>
Michael Selle	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	8/24/2011
Mary Taylor	Rangeland Management Specialist	Invasive, Non-Native Species; Vegetation; Rangeland Management	9/8/2011
Lisa Belmonte	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Wetlands and Riparian Zones	9/22/2011
Jay Johnson	Natural Resource Specialist	Hazardous or Solid Wastes	9/21/2011
Chad Schneckenburger	Outdoor Recreation Planner	Wilderness; Visual Resources; Access and Transportation; Recreation	9/8/2011
Jim Michels	Supervisory NRS	Forest Management	8/30/2011
Will Hutto	Fuels Specialist	Fire Management	8/31/2011
Paul Daggett	Mining Engineer	Geology and Minerals	9/13/2011
Stacey Burke	Realty Specialist	Realty	8/30/2011
Melissa J. Kindall	Range Technician	Wild Horses	8/29/2011
Jay Johnson	Natural Resource Specialist	Project Lead – Document Preparer	9/21/2011
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	9/22/2011

**ATTACHMENTS:**

Figure 1 – Map of D36 496 well pad location and access – Scale 1:100,000

Figure 2 – Map of D36 496 well pad location and pipelines – Scale 1” = 2000’

Figure 1 – Map of D36 496 well pad location and access – Scale 1:100,000

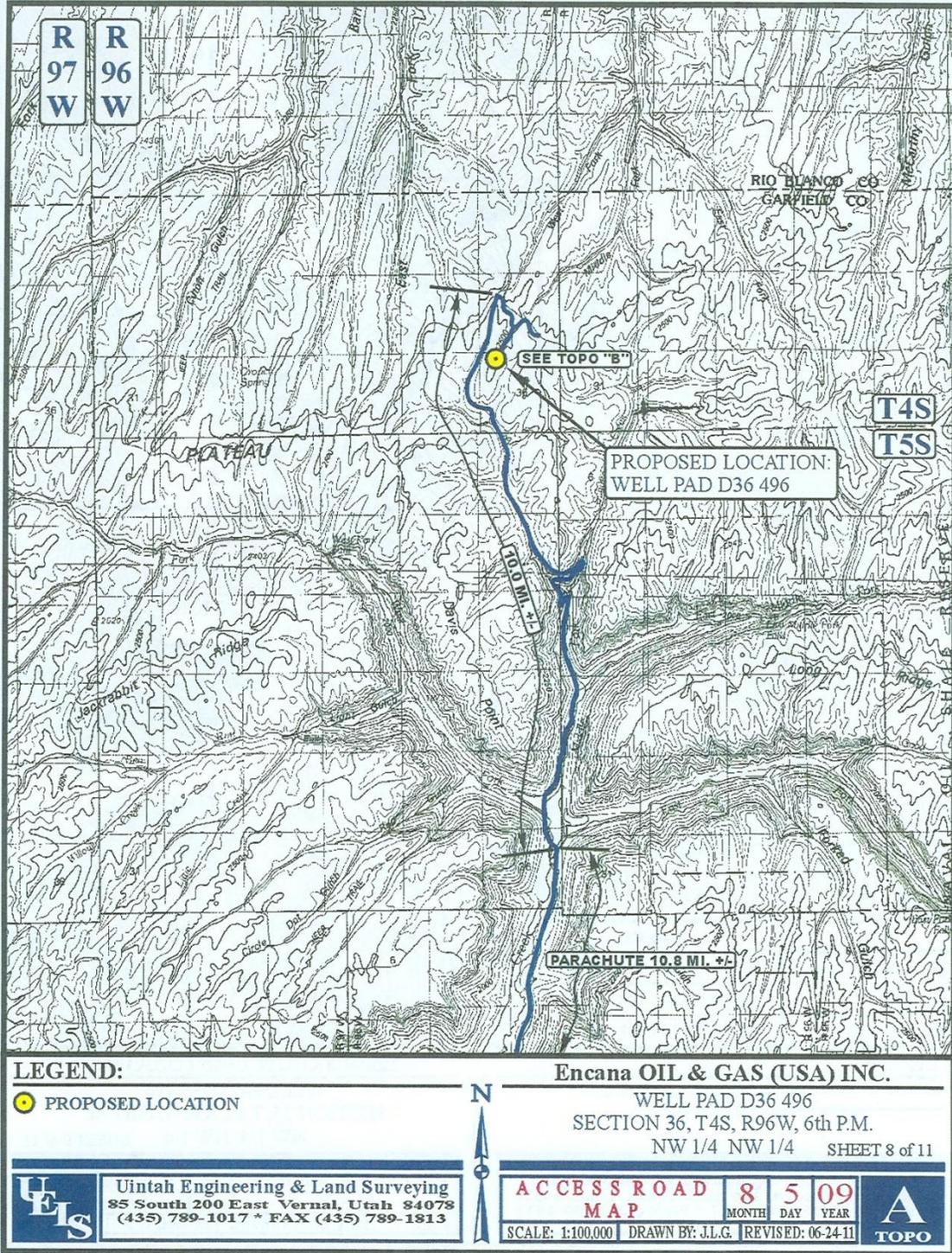
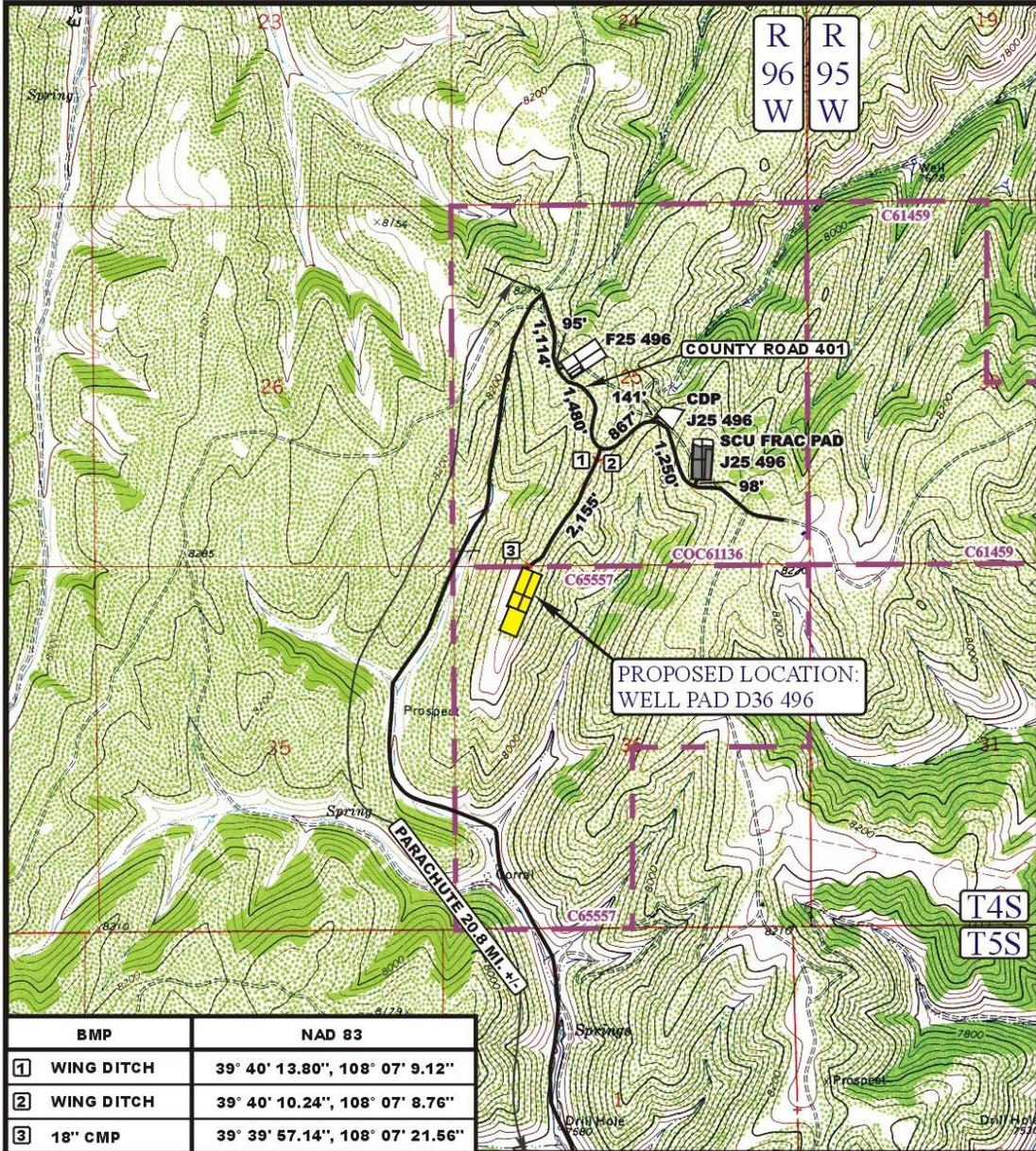


Figure 2 – Map of D36 496 well pad location and pipelines – Scale 1" = 2000'



BMP	NAD 83
① WING DITCH	39° 40' 13.80", 108° 07' 9.12"
② WING DITCH	39° 40' 10.24", 108° 07' 8.76"
③ 18" CMP	39° 39' 57.14", 108° 07' 21.56"

**LEGEND:**

- PROPOSED ACCESS ROAD
- EXISTING ROAD

Encana OIL & GAS (USA) INC.  
 WELL PAD D36 496  
 SECTION 25, T4S, R96W, 6th P.M.  
 NW 1/4 NW 1/4 SHEET 9 of 11

**U&S**  
 Uintah Engineering & Land Surveying  
 85 South 200 East Vernal, Utah 84078  
 (435) 789-1017 \* FAX (435) 789-1813

**TOPOGRAPHIC MAP**

SCALE: 1" = 2000'    DRAWN BY: J.L.G.    REVISED: 06-24-11

**8 5 09**  
 MONTH DAY YEAR

**B**  
 TOPO

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

**Finding of No Significant Impact (FONSI)  
DOI-BLM-CO-110-2011-0169-EA**

**BACKGROUND**

EnCana Oil and Gas proposes to construct one gas well pad (the D36 496) on private surface owned by EnCana. The minerals the applicant is seeking to develop are Federal minerals administered the BLM. The applicant also proposes to upgrade an existing access road that is 2,155 feet long. That road will be upgraded per the Proposed Action and will be widened to 30 feet. The applicant also proposes to install two pipelines. One pipeline is proposed to be 3,073 feet long by 120 feet wide and the other pipeline is proposed to be 1,525 feet by 75 feet wide. The applicant has also submitted 28 APDs for gas wells. For more detailed specifics of the Proposed Action see pages two to six of the EA. Disturbance details are in the table below:  
Acreage disturbance of Proposed Action D36 496

	Dimensions (length x width) feet	Surface disturbance prior to interim reclamation (acres)	Surface disturbance following interim reclamation (acres)
Well pad	778 x 302 (working area)	9.7 (total well pad construction disturbance)	2.2
Pipeline	3,073 x 120	8.5	0.0
Pipeline	1,525 x 75	2.6	0.0
Road upgrade	2,155 x 30	1.5	1.5
Total		22.2	3.7

**FINDING OF NO SIGNIFICANT IMPACT**

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the White River Resource Area Proposed Resource Management Plan and Final EIS (1996). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

**Context**

The project is a site-specific action that does not directly involve BLM administered public lands and does not in and of itself have international, national, regional, or state-wide importance. The project location for the proposed disturbance is located entirely on private surface owned by EnCana Oil and Gas (with Federal minerals).

## **Intensity**

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

**1. Impacts that may be both beneficial and adverse.** Water depletion activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado Water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads may result in cumulative water depletions from the Colorado River Basin. These depletions 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.

**2. The degree to which the Proposed Action affects public health or safety.**

There would be no impact to public health and safety.

**3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.** There would be no known impact to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas.

**4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.** There are no known effects to which the possible effects on the quality of the human environment are likely to be highly controversial.

**5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.**

No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

**6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.**

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration.

**7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.** It is not known that the Proposed Action is related to other actions with individually insignificant but cumulatively significant impacts.

**8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.** It is not known that the Proposed Action may adversely affect districts, sites, highways, structures or objects listed on the National Register of Historic Places or that may cause loss or destruction of significant scientific, cultural or historical resources.

**9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.** 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, 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.

**10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

**SIGNATURE OF AUTHORIZED OFFICIAL:**

*ESL 7117119 Cyl*  
Acting Field Manager

**DATE SIGNED:**

*9/23/11*

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

**DECISION RECORD**

**PROJECT NAME:** EnCana Oil and Gas (EnCana) 28 APDs on new well pad D36 496

**ENVIRONMENTAL ASSESSMENT NUMBER:** DOI-BLM-CO-2011-0169-EA

**DECISION**

It is my decision to implement the Proposed Action as mitigated in DOI-BLM-CO-2011-0169-EA, authorizing the construction, operation, and maintenance of the EnCana Oil and Gas (EnCana) new well pad D36 496, the drilling and operation of 28 wells, the construction and installation of two pipelines for operation of the D36 496 well pad, and the road upgrade.

**Mitigation Measures:**

- 1) 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 on BLM lands will require prior written approval from BLM.
- 2) If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of surface waters.
- 3) 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 runoff and summer convective storms. Provide adequate drainage 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.
- 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 seed mix below is recommended for reclamation actions. Seed must be certified free of noxious weed seed:

<b>Cultivar</b>	<b>Species</b>	<b>Scientific Name</b>	<b>Application Rate (lbs PLS/acre)</b>
UP Plateau	Sandberg bluegrass	<i>Poa secunda ssp. Sandbergii</i>	0.5
San Luis	Slender Wheatgrass	<i>Elymus trachycaulus ssp. trachycaulus</i>	2
Sherman	Big Bluegrass	<i>Poa secunda ssp. ampla</i>	1
Bromar	Mountain Brome	<i>Bromus marginatus</i>	2
Maple Grove	Lewis Flax	<i>Linum lewisii</i>	1
Bandera	Rocky Mountain Penstemon	<i>Penstemon strictus</i>	0.5

- 6) Currently there is no livestock grazing use of this area but in the future if it appears that livestock grazing would hamper re-vegetation efforts the following recommendations could benefit reclamation success.
  - Fencing the well pad (including cut and fill slopes) to exclude livestock from the reclaimed areas. Installing a cattle guard at the pad entrance is more effective than a gate.
  - Fencing of the pipelines should be done in a manner that would not impede livestock or wildlife movement through the general area (e.g., provide pass-through areas at appropriate distances along the pipeline).
  - All fencing should consist of a 4-strand barb wire fence with braced corners.
- 7) Clean all construction equipment to remove seed and soil prior to bringing equipment into the project area.
- 8) 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.
- 9) 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.
- 10) If it should become necessary to excavate into undisturbed portions of the underlying sedimentary rock formation a paleontological monitor shall be present before any such excavations begin and shall remain until all excavations have been completed and back filling of the excavations has begun.
- 11) 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.
- 12) 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.
- 13) 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.
- 14) 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 percent 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.

- 15) 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.
- 16) 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.
- 17) As a reasonable and prudent lessee/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.
- 18) 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.
- 19) The operator will update the SUP via Sundry Notice (SN) and obtain BLM approval, before water rights in the Piceance Creek are used to supply freshwater for construction or drilling. The SN should detail the location of withdrawal, method of transportation, estimated volumes, and the methods for backflow prevention (see the water quality section) if the freshwater is withdrawn from surface waters in the Piceance Creek watershed.

**COMPLIANCE WITH LAWS & CONFORMANCE WITH THE LAND USE PLAN**

This decision is in compliance with the Endangered Species Act and the National Historic Preservation Act. It is also in conformance with the 1997 White River Record of Decision/Approved Resource Management Plan.

**ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT**

The Proposed Action was analyzed in DOI-BLM-CO-2011-0169-EA and it was found to have no significant impacts, thus an EIS is not required.

**PUBLIC INVOLVEMENT**

External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 8/30/2011.

**RATIONALE**

Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health.

**ADMINISTRATIVE REMEDIES**

State Director Review

Under regulations addressed in 43 CFR 3165.3(b), any adversely affected party that contests a decision of the Authorized Officer may request an administrative review, before the State Director, either with or without oral presentation. Such request, including all supporting documentation, shall be filed in writing with the BLM Colorado State Office at 2850 Youngfield Street, Lakewood, Colorado 80215 within 20 business days of the date such decision was received or considered to have been received. Upon request and showing of good cause, an extension may be granted by the State Director. Such review shall include all factors or circumstances relevant to the particular case.

Appeal

Any party who is adversely affected by the decision of the State Director after State Director review, under 43 CFR 3165.3(b), of a decision may appeal that decision to the Interior Board of Land Appeals pursuant to the regulations set out in 43 CRF Part 4.

**SIGNATURE OF AUTHORIZED OFFICIAL:**

*Christina A. Cyl*  
Acting Field Manager

**DATE SIGNED:**

9/23/11