U.S. Department of the Interior
Bureau of Land Management
Royal Gorge Field Office
3028 E. Main Street
Canon City, CO 81212

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-2012-0011 EA

CASEFILE/PROJECT NUMBER (optional):

PROJECT NAME: McKay Federal AB-02-15 Application to Drill.

PLANNING UNIT:

LEGAL DESCRIPTION: Weld County, T.7N., R. 64W., Sec. 2.,

APPLICANT: Noble Energy for Jack Grynberg Energy

ISSUES AND CONCERNS:

a) Oil and Gas development on private surface/federal mineral estate in an ozone nonattainment area
b) Ground water protection
c) Development of non-renewable resources for American Public benefit

INTRODUCTION/BACKGROUND:
The BLM has received Application Permit to Drill (APD) and associated well pad locations and access road construction located in the central part of Weld County, 13 miles east of the City of Ault. The federal mineral estate within the project boundary is leased and subject to oil and gas development.

The general area description would be defined as rural farmland and ranchland north of the South Platte River Basin. There are few county roads in the project area, and most access is limited to private landowner or oil and gas developed roadways. The roadways vary in development but most are dirt/primitive roads.

Extensive oil and gas development has occurred on the private mineral estate in the western and southern portion of the field as related to the proposed project area. The actual Wattenberg oil and gas field is extensive, predominantly extending from the project area 15 miles west, near the foothills of the Rocky Mountains. To the north the field extends past Greeley and south to Denver.

Details common to all alternatives

1) A drilling well will normally disturb about 2-4 acres of land for access, drill pad area, and reserve pit. An additional 0.5 acres of linear disturbance can be expected if the well is completed as a producer for installation of gathering pipelines. Once a well is completed and producing, an acre or more of the area is generally returned to native vegetation. Normally recovery occurs in 3 to 4 years. A well completed as a dry hole is normally plugged immediately, with reclamation work completed within 6 months of plugging.

The proposed wells will be serviced by a production facility which typically consisting of a well house and a meter run, a heat treater/separator, a tank, and a small pit for water disposal. Some use small earthen pits and some use 150 barrel fiberglass tank for produced water storage and/or disposal purposes. When necessary, some water is hauled from location for purposes of disposal in injection wells or pit evaporation. All such disposal must be approved by the Colorado Oil and Gas Conservation Commission (COGCC).

BLMs PURPOSE AND NEED: The purpose of the action is to provide the applicant the opportunity to develop their leases for the production of oil and gas. The need for the action is to develop oil and gas resources on Federal Lease COC74966 consistent with existing Federal lease rights provided for in the Mineral Leasing Act of 1920, as amended.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:
Proposed Action: The proposed action is to construct a well pad and access road in order to drill and develop federal minerals from a private surface. Access to the proposed McKay Federal AB-02-15 well pad would be gained by traveling on existing county and rural roads.

McKay Federal AB-02-15 proposed well pad is located approximately 13 miles east of the City of Ault, Colorado.

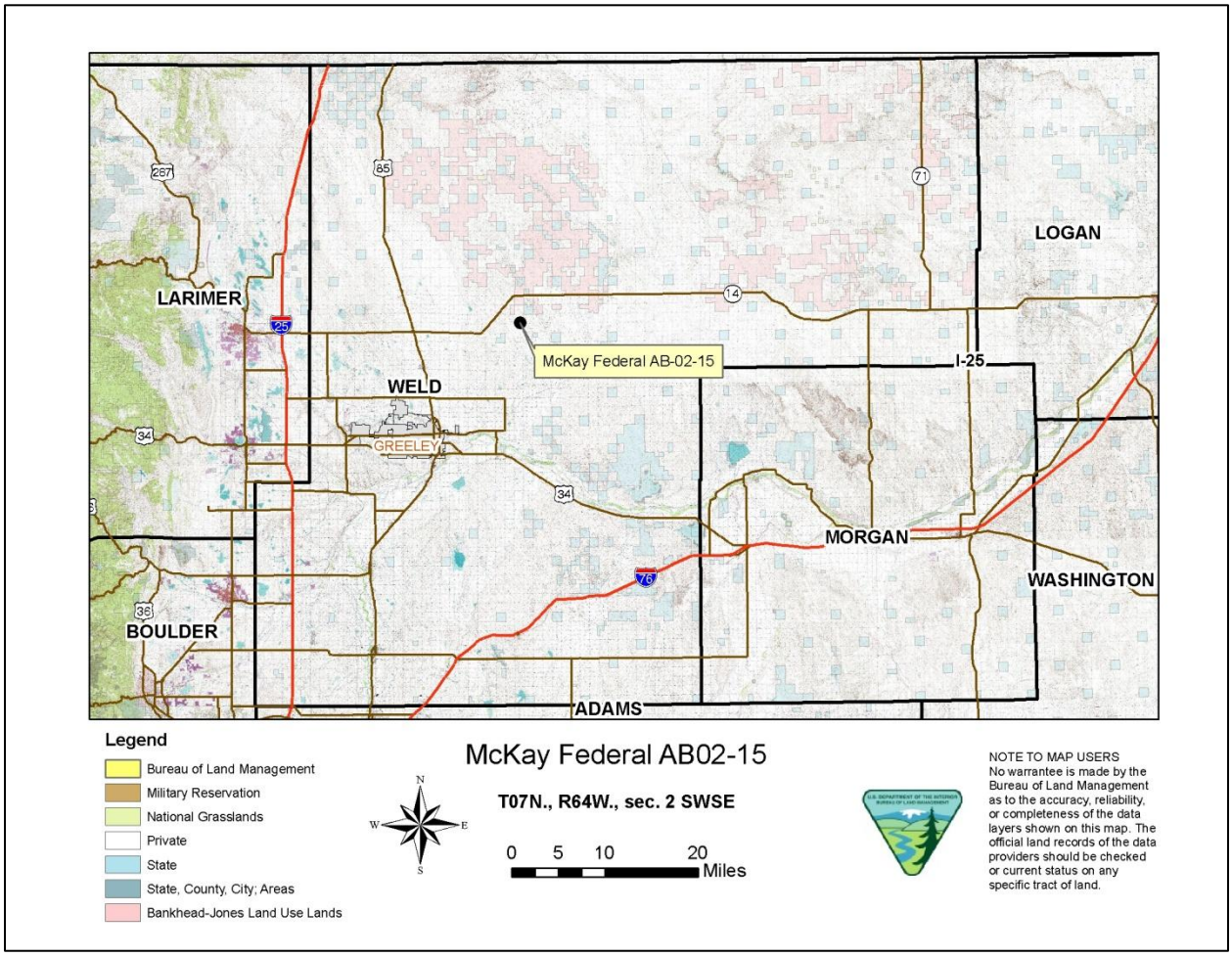
McKay Federal AB-02-15 pad would have a maximum cut of 4.47 feet at the southwest corner and a maximum fill of 4.13 feet at the northeast pad corner. Construction of the well pad would result in approximately 4.2 acres of new surface disturbance, which would be reduced to approximately 1 acre after successful interim reclamation. Left over top and sub soil piles not used in the interim reclamation, will be hydro-mulched and seeded in order to prevent erosion and maintain soil viability.

To accommodate access to the pad, a new road is also proposed located on previously undisturbed surface. The proposed access road is located on private surface, and would be available for use by the surface owner. The proposed road would be 500 feet in length and would have a finished surface width of 14 feet. The projected disturbance area for the road would be approximately 0.2 acre after construction and interim reclamation measures have been implemented. This access road and the existing connecting road would be constructed and/or maintained to standards for a resource class road as described in *BLM Road Standards Manual 9113.*

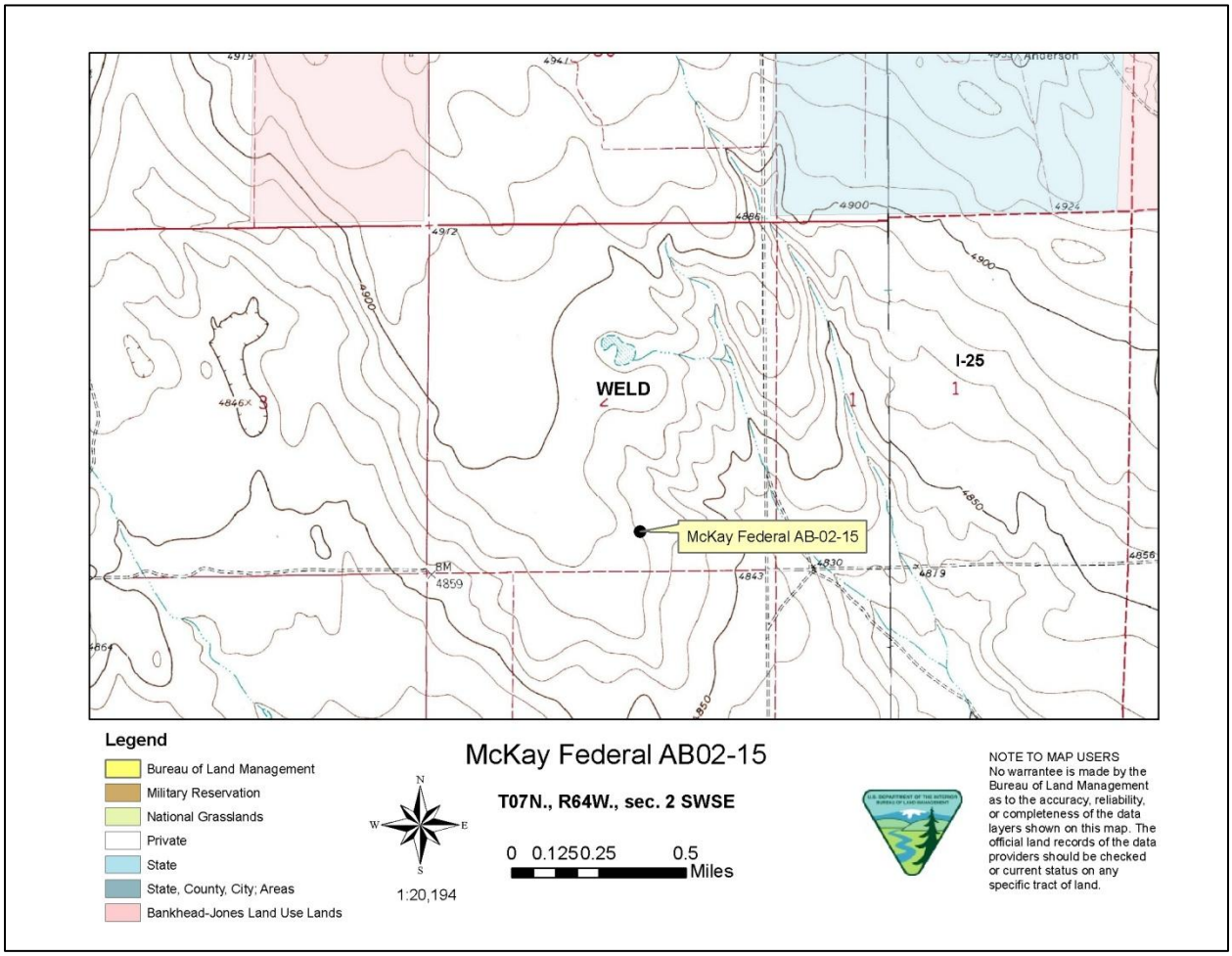
In the event of a dry hole the pads and access roads will be graded to original contour, topsoil replaced and the entire area reseeded. Rehabilitation of the well pads and access roads are bonded to ensure compliance with BLM reclamation requirements. The proposed action would include well drilling and completion operations, which would take approximately 50 days for the well, and interim and final reclamation measures. The Application for Permit to Drill (APD) for each new well includes a drilling program and a multi-point surface use and operations plan that describe details of well pad construction and interim and final reclamation. The proposed action would be implemented consistent with the terms of Federal Lease COC 74966 and with Conditions of Approval (COAs) attached to the APDs.

No Action Alternative: The proposed action involves Federal subsurface minerals that are encumbered with Federal oil and gas leases, which grant the lessee a right to explore and develop the leases. Although BLM cannot deny the right to drill and develop the leasehold, individual APDs can be denied to prevent unnecessary and undue degradation. The no action alternative constitutes denial of the APDs associated with the proposed action. Under the no action alternative, therefore, none of the proposed developments described in the proposed action would take place.

Regional Map.



Site Specific Map (Proposed Well Pad Locations, Access, and Facilities).



PLAN CONFORMANCE REVIEW:

Name of Plan: Northeast Resource Area Plan and Record of Decision as amended by the Colorado Oil and Gas Final EIS and Record of Decision (RD)

Date Approved: 09/16/86 amended 12/06/91

Decision Number: O&G Resources, Issue 21
Decision Language:

Standards for Public Land Health: In January 1997, Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below.

AFFECTED ENVIRONMENT / ENVIRONMENTAL EFFECTS / MITIGATION MEASURES:

PHYSICAL RESOURCES

AIR RESOURCES

Affected Environment:
The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and to the environment. The CAA established 2 types of national air quality standards:

- **Primary standards** – Primary standards set limits in order to protect public health, including the health of "sensitive" populations (such as asthmatics, children, and the elderly).

- **Secondary standards** – Secondary standards set limits in order to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings (EPA 2009).

Table 1: National Ambient Air Quality Standards (EPA 2011)

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		
Lead	0.15 µg/m^3 (2)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour (4)	None	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour (5)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (6) (Arithmetic Average)	Same as Primary	
	35 µg/m^3	24-hour (7)	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour (8)	Same as Primary	
	0.08 ppm	8-hour (9)	Same as Primary	

Pollutant	Averaging	Current Standard	Representative Ambient

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
	(1997 std)			
	0.12 ppm	1-hour [10]	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour [1]
	0.14 ppm	24-hour [1]		
	75 ppb [11]	1-hour	None	

[1] Not to be exceeded more than once per year.
[2] Final rule signed October 15, 2008.
[3] The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard
[4] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
[5] Not to be exceeded more than once per year on average over 3 years.
[6] To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
[7] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
[8] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
[9] (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) EPA is in the process of reconsidering these standards (set in March 2008).
[10] (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
[11] (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Table 2: Concentrations of Criteria Air Pollutants—Nearest Representative Values Near the Proposed Well Site Location

	Time		Background Concentration[1]
Carbon Monoxide (CO)	1-hour maximum	35ppm	1 ppm[1]
Carbon Monoxide (CO)	8-hour maximum	9ppm	1 ppm[2]
Inhalable Particulate Matter (PM_{10})	24-hour	150 µg/m^3	45 µg/m^3 [3] [3]
Inhalable Particulate Matter (PM_{10})	Annual	50 µg/m^3 (state)	19 µg/m^3 [4]
Fine Particulate Matter ($PM_{2.5}$)	Annual	35 µg/m^3	7 µg/m^3 [5]
Nitrogen Dioxide (NO_2)	1-hour	.10 ppm	.011 ppm [6]
Nitrogen Dioxide (NO_2)	Annual	.053 ppm	.002 ppm
Sulfur Dioxide (SO_2)	1-hour	.075 ppm	.004 ppm [7]
Sulfur Dioxide (SO_2)	3-hour	.5 ppm (secondary standard)	.003 ppm [8]
Sulfur Dioxide (SO_2)	24-hour	.14 ppm	.001 ppm [9]
Sulfur Dioxide (SO_2)	Annual	.03 ppm	.001 ppm
Ozone (O_3)	1-hour	.12 ppm	.078 [10]
Ozone (O_3)	8-hour	.075 ppm	.063 ppm [11]

1 Rural Default Value. Based on second maximum.
2 Rural Default Value. Based on second maximum.
3 Based on 24-hour Second Maximum
4 Arithmetic Mean
5 The 98th percentile PM 2.5 is 22 µg/m^3
6 Based on Second Maximum
7 Based on Second Maximum
8 Based on Second Maximum
9 Based on Second Maximum
10 Based on Second Maximum
11 Based on Fourth Maximum

[1] Ambient Background Concentrations Provided by Nancy Chick, of CDPHE, in a September 20, 2011 memo to BLM. Background concentrations are representative of Barnesville, CO as of September 2011. Barnesville is a community northwest of the proposed well site location.

These estimates are derived from ambient monitored concentrations that are available to the CDPHE to represent background level in cumulative ambient air impacts for comparison to the NAAQS. They are not suitable for applications beyond that scope of use. The quantity of data is sometime limited an may be of uncertain quality. The ambient background concentrations: 1.) Do not necessarily substitute for on-site monitoring data, 2.) Indicate the ambient levels in general geographic areas, not a specific location; this is particularly true for particulate concentration values, and 3.) Are subject to change without notice as new information is acquired.

The Colorado Air Quality Control Commission has adopted state ambient air quality standards that generally are equal to current or former federal standards. The Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE) implements regulatory and planning programs based on federal and state regulations. The CAA and the Federal Land Policy and Management Act of 1976 (FLPMA) require BLM and other federal agencies to comply with federal, state, tribal, and local air quality standards and regulations. FLPMA further directs the Secretary of the Interior to take any action necessary to prevent unnecessary or undue degradation of the lands [Section 302 (b)], and to manage the public lands "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values" [Section 102 (a)(8)].

The State of Colorado implements the NAAQS, and develops air quality attainment and maintenance plans, in order to ensure Colorado is in compliance with the Federal NAAQS. The proposed wells are located within the Northern Front Range Region for air quality planning (CDPHE 2008). Portions of this region are currently in non-attainment for ozone.

Ground-level ozone is not emitted directly into the air, but forms when emissions of nitrogen oxides (NOx) and volatile organic compounds (VOCs) react with sunlight to form the pollutant. Weather is often considered the most significant factor of ozone formation. Hot, stagnant days with upper atmospheric high-pressure tend to favor ozone production. This is why the hot summer months are typically considered the 'ozone season.' Power plants, motor vehicle exhaust, industrial facilities, oil and gas operations, gasoline vapors and chemical solvents are the major human-made sources of the NOx and VOC emissions.

Other portions of the Northern Front Range Region are designated as maintenance areas for carbon monoxide and particulate matter less than 10 microns in diameter (PM_{10}). However, the proposed well sites locations are not located within either of these maintenance areas. Section 20, the proposed well site location, is in attainment for all other NAAQS.

When a Federal agency proposes an action within a designated nonattainment or maintenance area, the Clean Air Act requires that the Federal agency conduct a general conformity analysis prior to authorizing activities within that area. Federal agencies are first required to analyze if the action is subject to the General Conformity Rule; if so, agencies must demonstrate that the action will not cause or contribute to a new violation, or will not delay the timely achievement of applicable air quality standards. This process includes an applicability analysis, and, if necessary, a conformity determination. This ensures that a Federal action conforms to a State, Tribal, or Federal Implementation Plan. Since the proposed APDs are located with the ozone nonattainment area, BLM is required to conduct this analysis for ozone precursors. The proposed wells are not located within the CO or PM_{10} maintenance areas. Therefore, conformity analysis requirements for those pollutants do not apply. An ozone conformity analysis was completed for this proposed activity and was determined presumed to conform. See direct and indirect impacts section below for more detail.

The lease area is designated as a Class II Area, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the CAA. The PSD Class II designation allows for

moderate growth or degradation of air quality within certain limits above baseline air quality. The closest Class I area to the proposed well site location is Rocky Mountain National Park, which lies approximately 55 miles to the west.

Exhaust emission from cars, drilling rigs, other vehicles, and oil and gas development activities, as well as fugitive dust from roads, agriculture, and energy development, are the primary sources of air pollutant emissions in this region.

Environmental Effects:

Proposed Action

Direct and Indirect Impacts: Implementation of the Proposed Action Alternative would result in emissions of some criteria pollutants as well as greenhouse gases. Emissions sources from oil and gas development sites typically include drilling rigs, condensate tanks, dehydrators, reciprocating internal combustion engines, vehicle exhaust, and valves. Particulate matter would be emitted when drill rigs and other vehicles developing the three wells travel on existing dirt roads or overland access routes to the drilling locations.

Because ozone formation is complex and typically results from a variety of sources, it is typically not appropriate to assess potential ozone impacts of a single project (such as 1 or a few gas wells) on potential regional ozone formation and transport. Rather, BLM Colorado assesses potential ozone impacts from its authorized activities on a regional basis, when adequate data are available and where such analysis has been deemed appropriate.

Emission estimates from the proposed activity were calculated for this EA, and are disclosed in Table 3 below. The emissions inventory (EI) considered reasonably foreseeable oil and gas development activities for three well site APDs within the Denver-metropolitan Northern Front Range nonattainment area, and includes emission from both construction and production operations. The following pollutants were inventoried: CO, NOx (including NO_2), $PM_{2.5}$, PM_{10}, SO_2, and VOCs. From combustion sources, greenhouse gas emission were calculated as follows: CO_2 emissions equal 525 times CO emissions; CH_4 emission equal .016 times VOC emissions; and N_2O emission equal .002 times NOx emissions.

Based on eventual issuance of well site APD, future development of the lease would lead to surface disturbance from the construction of well pads, access roads, pipelines, and power lines, as well as associated emissions from vehicle use, windblown dust, and engine exhausts. Additional detailed air quality impact analysis may be required prior to construction and operations, which would also be subject to all applicable local, state, and federal air quality laws and regulations.

The analysis includes construction emissions (well pad and access road construction, as well as initial drilling), production emissions (vehicles traffic and on site equipment), and maintenance emissions (periodic pad/road maintenance and well workovers) assumed to occur once during the 20 years of production. It was assumed that a well pad would contain a single well (including separation but no dehydration), natural gas would be piped directly into an existing gathering

system (providing adequate field compression and centralized gas processing facilities). All emissions are reported in tons per year.

The EI was developed using reasonable but conservative scenarios for each activity. Production emissions were calculated based on full production activity. The annual EI combines the construction and production emissions, thereby reasonably and conservatively estimating the overall acidity emissions. Potential emission were first calculated on a per well pad basis, assuming the minimum/basic legally permissible control measures, and the development scenario. The following assumptions were applied consistently to all potential activity assumptions:

- Given the lack of reasonably foreseeable activity on existing roads (lack of location, timing, activity volume, and types of vehicles), it was assumed current emission (represented by the Affected Environment) would continue indefinitely.
- Vehicles would travel via a .5 mile "access/resource" road, equaling 1 mile round trip
- All heavy duty vehicles would travel at an average of 15 mph, and would be diesel-powered.
- All light duty vehicles (pickup trucks) would travel at an average of 15 mph, and would be gasoline-powered.
- Well pad would average 1.5 acres is size (plus an additional .5 acres for road), each containing a single well per pad.
- All roads would receive appropriate application of water (during construction) or dust pallatives (during operations) to achieve a 50 % dust control factor.
- All diesel fuel would have ultra low sulfur content (15ppm) instead of standard #2 grade (500 ppm).
- All produced gas would be sweet (no sulfur), 76% non-reactive VOC, 20 % reactive VOC 4% inert CO_2, 1,250 BTU/scf heat content, and 20 g/scf density.

See Appendix A, the emissions inventory, for more detail on assumptions and the emissions calculations.

Table 3: Estimated Maximum Annual Emissions from Oil and Gas Development, Proposed Action

Pollutant	Maximum Emissions, Tons per Year
CO	1.3
NO_x	.4
PM_{10}	.4
$PM_{2.5}$	.1
SO_2	0
VOC	17.9

Table 4 below demonstrates a relative comparison of the project emissions to Weld County total emissions from 2007. It also shows Weld County's oil and gas area source emissions as well as

its oil and gas point source emissions. Based on the emissions estimates, air quality impacts resulting from the proposed project activity will not be significant.

Table 4
Emissions Comparisons, Proposed Action, Weld County Total Emissions, Weld County Oil and Gas Emissions[2]

	Emissions, Tons per Year			
Pollutant	Proposed Action	Weld County Total Emissions (2007)	Weld County Oil and Gas Area Source Emissions	Weld County, Oil and Gas Point Source Emissions
CO	1.3	95,943	3,760	5,072
NO_x	.4	28,078	5,876	6,555
PM_{10}	.4	26,278	284	2,156
$PM_{2.5}$	.1	n/a	n/a	n/a
SO_2	0	519	43	260
VOC	17.9	92,041	23,320	35,818

Because the proposed action location is with an ozone nonattainment area, a general conformity analysis for ozone was completed for this proposed activity. Potential emissions of VOCs and NOx were calculated, and were determined to conform with the applicable laws and statutes, including the CDPHE Denver Metro Area And North Front Range Ozone Action Plan because the potential total emissions were determined to be below *de minimis* levels. 40 CFR Part 93.153 includes threshold levels for which an action is determined to conform if emissions fall below designated levels. For this area, the threshold levels are less than 50 tons per year of VOCs and less than 50 tons per year of NOx. The emissions estimates fall well below each of these de minimis thresholds. Attached to this EA is the Conformity Analysis Certification Document.

Greenhouse Gas Emissions and Climate Change

According to the U.S. Global Change Research Program (2009), global warming is unequivocal, and the global warming that has occurred over the past 50 years is primarily human-caused. Standardized protocols designed to measure factors that may contribute to climate change, and to quantify climatic impacts, are presently unavailable. As a consequence, impact assessment of specific impacts related to anthropogenic activities on global climate change cannot be accurately estimated. Moreover, specific levels of significance have not yet been established by regulatory agencies. Therefore, climate change analysis for the purpose of this environmental assessment is limited to accounting for GHG emissions changes that would contribute incrementally to climate change.

[2] Weld County data retrieved from http://www.colorado.gov/airquality/county_inventory.aspx

EPA Regulations: In its *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, the EPA determined that GHGs are air pollutants subject to regulation under the CAA. The EPA is in the early stages of determining how to regulate carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. As of September 2011, the EPA has not set GHG emission limits for stationary sources (such as compressor stations). However, the EPA is gathering detailed GHG emission data from thousands of facilities throughout the U.S., and will use the data in order to develop an improved national GHG inventory, as well as to establish future GHG emission control regulations.

The implementation of the Proposed Action Alternative is estimated to contribute 2,821 metric tons of carbon dioxide equivalent (CO_2(e)) annually. In 2007, the state of Colorado's GHG emissions were 124,000,000 metric tons. The proposed action's GHG emissions represent about .0023 % of the state of Colorado's GHG emissions. Predicting the degree of impact any single emitter of GHGs may have on global climate change, or on the changes to biotic and abiotic systems that accompany climate change, is not possible at this time. As such, the extent to which GHG emissions resulting from oil and gas development may contribute to global climate change cannot be quantified or predicted at this time. This analysis is therefore limited to accounting and disclosing the total GHG emissions. However, given the relative magnitude of greenhouse gas emissions associated with the development of three wells as compared to the state's GHG emission levels, the GHG contribution associated with these wells is extremely small.

Table 5
Maximum Annual Project Oil and Gas Greenhouse Gas Emissions, Construction, Production, and Maintenance Activities

Pollutant	Maximum Emissions, Tons per Year
Individual Greenhouse Gas	
CO_2	721
CH_4	48
N_2O	0
CO_2e of Each Greenhouse Gas	
CO_2	721
CH_4	1,008
N_2O	0
Total CO_2e for all Greenhouse Gases	**1,729**

Table 6 Greenhouse Gas Emission Comparisons

Inventory Description	CO_2e Emissions (10^6 mtpy)	Proposed Action Percentage
State Inventories (Year 2007) [1]		
Colorado	124	.0014
Utah	80	.0022
Wyoming	90	.0019
US Inventories (Year 2008) [2]		
Total US Greenhouse Gases	6,957	.00002
US natural gas systems [3]	126	Na
US coal mining	68	Na
US landfills	126	Na
US fossil fuel combustion	5,573	.00003

[1]WRI 2010

[2]*Inventory of US Greenhouse Gas Emissions and Sinks: 1990–2008* (EPA 2010a)

[3]Natural gas systems include natural gas production (e.g., wells), processing, transmission, and distribution.

Cumulative Impacts: The area currently has a high degree of alteration in the form of agricultural fields, roads, houses, and oil and gas production. The addition of the infrastructure needed to construct and drill an additional pad and well would have a cumulative impact to the area's air quality; however, given the existing level of development in the area, the proposed wells' impact would be very minor. In the long term, if economical quantities of oil and gas are found, additional wells can be expected to be drilled on Federal, State, and private lands. This could result in a larger impact to air quality in the future. However, given that the area is currently designated as a nonattainment area for ozone, the state requires additional, more stringent pollution control measures for oil and gas activities in such areas (see Mitigation Measures section below).

Mitigation Measures – Air quality mitigation specific to the development of the proposed well does not differ with other well development in the region. Since the region is in non-attainment for ozone, many well development activities are subject to a specific list of mitigation requirements per the CDPHE Air Quality Control Commission, including Regulation Number 7 (5 CCR 1001-9. See http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-9.pdf). Examples of these requirements include, but are not limited to:

- For atmospheric condensate storage tanks at oil and gas exploration and production operations, a default emission factor of 13.7 pounds of volatile organic compounds per barrel of condensate shall be used unless a more specific emission factor has been established pursuant to Section XII.C.2.a.(ii)(B).[3]

[3] See CDPHE AQCC Regulation Number 7 for specifics on section referenced

- All pneumatic controllers placed in service on or after February 1, 2009, shall emit VOCs in an amount equal to or less than a low-bleed pneumatic controller, unless allowed pursuant to Section XVIII.C.3.[4]

- All high-bleed pneumatic controllers in service prior to February 1, 2009 shall be replaced or retrofit such that VOC emissions are reduced to an amount equal to or less than a low-bleed pneumatic controller, by May 1, 2009, unless allowed pursuant to Section XVIII.C.3.[5]

- All condensate collection, storage, processing and handling operations, regardless of size, shall be designed, operated and maintained so as to minimize leakage of volatile organic compounds to the atmosphere to the maximum extent practicable.

- If a combustion device is used to control emissions of volatile organic compounds to comply with Section XII.D. it shall be enclosed, have no visible emissions, and be designed so that an observer can, by means of visual observation from the outside of the enclosed combustion device

No Action Alternative
Direct and Indirect Impacts: Under the No Action Alternative, well development would not be permitted and no action would occur. Therefore, the criteria pollutant and greenhouse gas emissions that were estimated to occur in the proposed action section would not occur.

Cumulative Impacts: No new impacts to air quality would occur.

Mitigation/Residual Effects: None.

References:
Colorado Department of Public Health and Environment (CDPHE). 2008. Colorado Air Quality Control Commission Report to the Public 2007-2008. 60 pages. Available at: http://www.cdphe.state.co.us/ap/down/RTTP07-08web.pdf

GEOLOGIC AND MINERAL RESOURCES

Affected Environment: The Proposed APD is located within the Denver-Julesburg Basin, a geologic structural basin centered in eastern Colorado and extending to Wyoming, Nebraska, and western Kansas. The basin consists of a large asymmetric syncline of Paleozoic, Mesozoic, and Cenozoic sedimentary rock layers. The basin is deepest near Denver and most shallow in Kansas. Coal, Uranium, and oil and gas are found primarily in the Mesozoic strata within the Denver Basin. Coal has been mined from the Cretaceous Laramie Formation along the western edge of the Denver Basin. The coal deposits in the area north of Greeley are relatively thin and discontinuous, and therefore limited exploration for coal has been conducted in the area.

[4] Ibid.
[5] Ibid.

Uranium has been identified in the Cretaceous Fox Hills and Laramie formations in the northern part of Denver Basin, near Grover in Weld County. Most oil and gas in the Denver Basin has been produced from Cretaceous sandstones: J-Sandstone, Codell Sandstone, Niobrara Formation, Hygiene Sandstone, and Terry Sandstone. The proposed APD is located within the Wattenberg gas field where the primary target is the Codell/ Niobrara oil and gas. The proposed area is surrounded by privately owned producing gas wells on a Colorado state spacing order of 20 acres per well.

Groundwater resources in the area include the Laramie-Fox Hills aquifer, the lowermost of the four Denver Basin aquifers which underlies approximately 6,700 square miles and marks the areal extent of the basin for economic ground water development. The Laramie-Fox Hills aquifer is generally between 250 and 300 feet thick, and includes about 150 to 200 feet of fine-grained and medium-grained sandstone. The aquifer typically yields water in quantities sufficient for commercial development and is extensively utilized throughout the basin. Well yields may be as high as 100 gpm, but are typically somewhat lower. Both the Laramie-Fox Hills and Arapahoe aquifers are generally under artesian pressure at the present time.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action would drill through the Laramie-Fox Hills aquifer to produce hydrocarbons from underlying formations.

Cumulative Impacts: The proposed action would drill through the Laramie-Fox Hills aquifer to produce hydrocarbons from underlying formations.

Mitigation/Residual Effects: Recommended Mitigation as follows

BLM Onshore Order #2 (OO#2) requires that the proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. A review at the Application for Permit to Drill stage includes a geologic evaluation of the potential subsurface formations that will be penetrated by the wellbore, followed by an engineering analysis of the drilling program to ensure the well construction design is adequate to protect the surface and subsurface environment, including the potential risks identified by the geologist, and all known or anticipated zones with potential risks.

BLM will require that the surface casing be run across the aquifer, and placed at least 50 feet into the underlying Pierre Shale - a formation that should not fracture or breakdown with the maximum weighting of mud that may be needed when drilling to total depth or to the next set of casing string.

A BLM representative will be on location during the casing and cementing of groundwater-protective surface casing and other critical casing and cementing intervals constructed to isolate subsurface zones that present high risk for potential adverse impact to human health or safety or at high risk potential for environmental contamination.

No Action Alternative Under the no action alternative APDs would be denied and no action would occur. Although, Federal subsurface minerals are encumbered with Federal oil and gas leases, which grant the lessee a right to explore and develop the leases.

Direct and Indirect Impacts: The proposed well is surrounded by privately held, producing oil and gas wells. If the proposed APDs are denied, the federal mineral estate will eventually be drained by surrounding oil and gas wells with no compensation to the federal government.

Cumulative Impacts: The proposed well is surrounded by privately held, producing oil and gas wells. If the proposed APDs are denied, the federal mineral estate will eventually be drained by surrounding oil and gas wells with no compensation to the federal government.

Mitigation/Residual Effects: The BLM may be required to take protective action to prevent drainage of federal minerals in accordance with 43 CFR §3162.

SOILS (includes a finding on Standard 1)

Affected Environment:

The Weld county soil survey has identified the following soil series in the proposed project area: Olney fine sandy loam, 0 to 6 percent slopes. The Olney component makes up 85 percent of the map unit. Slopes are 0 to 6 percent. This component is on plains. The parent material consists of calcareous loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R067BY002CO Loamy Plains ecological site. Nonirrigated land capability classification is 4c. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent.

Environmental Effects

The proposed development could result in a small percent of increased wind erosion during initial operations of construction and drilling. A high risk of windblown erosion will continue until those disturbed lands are hardened, reclaimed by vegetation cover, protected by tackifier, straw, or manure, or protected by other methods. On the federal well development, the operator will be required to correct any such windblown erosion conditions discovered by use of approved methods and materials. On the fee minerals estate, such protection is likely to be required by the landowner, but that is not assured. Overall-negative effects to soil resources, such as loss of top soil resulting from wind erosion should be reduced significantly through the correct implementation of interim and final reclamation measures

Proposed Action

Direct and Indirect Impacts: Under the proposed action alternative, a well pad would be constructed along with 500 feet of new access road. This action would result in up 5 acre total of combined disturbance during the construction phase being. Well pad construction would require approximately 2,400 yrd^3 of top soil stripped and an additional 1,019 yrd^3 of soil manipulated. In the event the well is developed into a production well, the amount of long term disturbance would be approximately 1 acres pad size following successful interim reclamation including re-contouring and seeding. The proposed action would have a moderate to major direct impact to soils present at the construction site. Indirectly, the increased runoff from the disturbed soils could result in increased erosion and gullying down gradient. Due to the gentle slopes and construction standards being proposed impacts to soils off site would be minor.

Cumulative Impacts: The area around the proposed wells has a variety factors effecting soils including roads, housing, agriculture, and livestock grazing. The addition of the infrastructure needed to drill the pads would have an additional impact to the areas soils. In the long term, if economical quantities of oil and gas are found, additional wells can be expected to be drilled. This could add a large amount of disturbance that could have a larger impact on soils in the future.

Mitigation/Residual Effects: After completion and/or abandonment of the wells, the soils would still be irreversibly different than they originally were. However, the proposed area has been largely used for livestock grazing. Therefore, it's likely that soils have been altered and may no longer represent those identified in the soil survey as "native". Overall, with the proposed reclamation, soil productivity would not be considerably altered if the proposed areas are abandoned. All infrastructure (roads, drill pads, etc.) being proposed, would be built to BLM Gold Book standards. No additional mitigation would be required.

No Action Alternative

Direct and Indirect Impacts: If no action is taken, the proposed development would not take place and conditions would stay as current.

Cumulative Impacts: Under the No action Alternative, no new impacts would be added to the watershed.

Mitigation/Residual Effects: None

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

Affected Environment: The proposed well is located in the South Platte River basin within a dry upland area well removed from any surface water. Hydrology in this area is relatively undisturbed and runoff functions naturally with most precipitation infiltrating into the soil. Groundwater is located in the Laramie-Fox Hills aquifer. Groundwater within this aquifer is generally of good quality. This aquifer is heavily used for many uses including both domestic and agricultural purposes. In this specific location, within a one mile radius of the proposed oil and gas well, groundwater usage is for stock watering purposes. The geology section of this document further describes the groundwater of the area.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Surface water impacts of the proposed well are associated with the surface disturbance associated with drilling and related infrastructure after well completion. A total of approximately 5 acres would be disturbed initially with 1 acre remaining disturbed after interim reclamation. Most of this area is currently undisturbed; however increased oil and gas activity in the vicinity is increasing the road network and amount of bare soil. Most impacts to surface water from oil and gas activity is due to removal of vegetation and exposure of mineral soils. Due to the flat nature of the topography and infiltration rates of the soils in this area, little new impacts to surface water quality would result from drilling the proposed wells. In addition, the operator would be required to obtain a stormwater permit from the state to manage stormwater from the site, further reducing any impacts to surface water.

Ground water is relied on in this area for stock water use ¾ miles north of the proposed well, and irrigation use 2 miles south. No known domestic water users are present within 2 miles of the proposed well. Potential impacts to groundwater resources could occur if proper cementing and casing programs are not followed. This could include loss of well integrity, surface spills, or loss of fluids in the drilling and completion process. It is possible for chemical additives used in drilling activities to be introduced into the water producing formations without proper casing and cementing of the well bore. Changes in porosity or other properties of the rock being drilled through can also result in the loss of drilling fluids. When this occurs, drilling fluids can be introduced into groundwater without proper cementing and casing. Site specific conditions and drilling practices determine the probability of this occurrence and determine the groundwater resources that could be impacted. In addition to changing the producing formations' physical properties by increasing the flow of water, gas, and/or oil around the well bore; hydraulic fracturing can also introduce chemical additives into the producing formations. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. These additives are not always used in these drilling activities and some are likely to be benign such as bentonite clay and sand. Concentrations of these additives also vary considerably since different mixtures can be used for different purposes in oil and gas development and even in the same well bore. If contamination of aquifers from any source occurs, changes in groundwater quality could impact springs and water wells that are sourced from the affected aquifers. Onshore Order #2 requires that the proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones.

At this stage, geologic and engineering reviews have been done to ensure that cementing and casing programs are adequate to protect all downhole resources. Known water bearing zones in the APD area are protected by drilling requirements and, with proper practices, contamination of ground water resources is highly unlikely. Casing along with cement would be extended well beyond fresh-water zones to insure that drilling fluids remain within the well bore and do not enter groundwater.

Cumulative Impacts: The area currently has a low degree of alteration in the form of agricultural fields, roads, and oil and gas production. At the watershed scale, the addition of the

proposed well would have an immeasurable impact to the surface water quality of the area in the future.

Mitigation/Residual Effects: No additional mitigation is required to protect water resources beyond what is found in other sections of this document and other APD approval requirements.

No Action Alternative

Direct and Indirect Impacts: If no action is taken, the wells would not be drilled and no new impacts to water quality would occur.

Cumulative Impacts: There would be no new impacts to water quality, at any level, if the wells are not drilled.

Mitigation/Residual Effects: None

Finding on the Public Land Health Standard for Water Quality: Currently, water quality in the area is meeting standards. The implementation of the proposed action with mitigations and other APD approval requirements would not change this finding unless there is a failure to properly drill and finish the well as outlined in the application.

BIOLOGICAL RESOURCES

INVASIVE PLANTS*

Affected Environment: Invasive plants are not common in the area and have not been associated with existing oil and gas infrastructure or activities at this site. It is likely that shift in a plant community has occurred resulting from the long-term grazing practices in the area. Few if any herbaceous plant species listed on the ecological site description for the project area currently exist there; however, the site is stable and currently occupied by native-perennial grass species.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Due to the long-term exposure of the project area to long-term livestock grazing, expected impacts are thought to be minor.

Cumulative Impacts: None

Mitigation/Residual Effects: Equipment used to implement the proposed action should be washed prior to entering the project area to remove any plant materials, soil, or grease. Areas disturbed by project implementation that are not subject to continuing agricultural practices will be monitored for the presence of weeds on the Colorado State Noxious Weed list. Identified noxious weeds will be treated. Monitoring is required for the life of the project and for three

years following completion and/or abandonment of the wells and elimination of identified Colorado State Noxious Weeds list A and B species.

No Action Alternative

Direct and Indirect Impacts: None
Cumulative Impacts: None
Mitigation/Residual Effects: None

*Invasive plants are plants that are not part of (if exotic), or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth are not actively controlled by management interventions, or are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES (includes a finding on Std. 4)

Affected Environment: The field area is dominated by agriculture, primarily grazing. There are no records of T&E species for the area, but two BLM sensitive species is likely to occur in the area, the ferruginous hawk and mountain plover. A search of Division of Wildlife and Colorado Natural Heritage Program databases indicates the site is located within a Potential Conservation Areas (PCA), primarily for protection of the mountain plover, a BLM sensitive species. The Pawnee Grassland West PCA encompasses 316,935 acres on the eastern plains of Colorado.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: There will be no impacts to T&E and sensitive species from the proposed action. Attempts should be made to avoid mountain plover nesting season and any structures such as trees and abandoned farmsteads where ferruginous hawks may nest.

Cumulative Impacts: The location and surrounding area is highly disturbed by agricultural production and oil and gas development. If oil is found in economically feasible quantities, it is likely additional development will occur.

Mitigation/Residual Effects: No activities are allowed in mountain plover habitat between April 1 and June 30 if plover are present in the area. A survey conducted with an accepted protocol may be required to clear this timing restriction. Furthermore, BLM mitigations include moving drilling rigs and the ability to delay drilling for up to 60 days.

No Action Alternative

Direct and Indirect Impacts: None.
Cumulative Impacts: None.
Mitigation/Residual Effects: None.

Finding on the Public Land Health Standard for Threatened & Endangered species: Public land health standards for T&E species will not be affected by this well development.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The proposed area is predominately occupied by an herbaceous plant community composed of cool and warm season, perennial grass species. Additionally, cactus species were present at the site, whose presents is likely resulting from historic and current livestock grazing practices. The site and surrounding areas are stable and current plant community exhibits good overall plant health.

Finding on the Public Land Health Standard for Plant and Animal Communities: No public land health standards for vegetation and animal communities are affected by this action.

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

Affected Environment: No wetlands or riparian areas are present at proposed location of well pads or access roads. The location of work proposed is in an upland rangeland setting, close to plowed agricultural fields.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: None

Cumulative Impacts: Soil disturbance related to this action is in addition to area-wide agricultural practices and other oil and gas activity, but the distance to wetlands buffers this action so that no new cumulative impacts to off site wetland resources are anticipated.

Mitigation/Residual Effects: None recommended for the direct protection of wetlands.

No Action Alternative

Direct and Indirect Impacts: None
Cumulative Impacts: None
Mitigation/Residual Effects: None

Finding on the Public Land Health Standard for Riparian Systems: No public land wetlands or riparian areas are affected by this action.

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: No wetland, riparian or aquatic habitat areas are present at proposed location of well pads or access roads. The location of work proposed is in an upland rangeland setting close to plowed agricultural fields.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: None

Cumulative Impacts: Soil disturbance related to this action is in addition to area-wide agricultural practices and other oil and gas activity, but the distance to open water from this action buffers any affect so that no new cumulative impacts to off site aquatic resources are anticipated.

Mitigation/Residual Effects: None recommended for the direct protection of wetlands.

No Action Alternative

Direct and Indirect Impacts: None
Cumulative Impacts: None
Mitigation/Residual Effects: None

Finding on the Public Land Health Standard for Plant and Animal Communities: No aquatic plant or animal community will be altered by this action.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The project area is located within an area of short-grass prairie that is likely grazed at some point in the year. Wildlife species that have adapted and are common in this habitat mule deer, pronghorn antelope, coyote, badger, fox, various rodents and an assortment of birds, including raptors such as Swainson's hawk and rough legged hawk. The project area is within pronghorn antelope winter range as mapped by Colorado Division of Wildlife and Parks, but outside of critical or severe winter range.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Direct impacts are those that result in loss of habitat, such as construction of drill pads, roads and associated facilities. The proposed action will result in a relatively small amount of lost habitat (4.4 acres). Indirect impacts typically involve larger areas of habitat. Indirect impacts are defined as impacts that go beyond the actual disturbed site. Some of the available habitat may not be utilized by wildlife due to its proximity to the well sites and the activity associated with those sites. While impacts to wildlife will be most significant during the drilling phase, when the wells are in production there is significantly less human activity and some species will adapt to the disturbances. Important habitat features such as trees, ponds, wetlands and abandoned home sites should be avoided during development as these are the places to which wildlife are attracted.

Cumulative Impacts: The location and surrounding area is highly disturbed by agricultural activity and oil and gas development. If oil is found in economically feasible quantities, it is likely additional development will occur.

Mitigation/Residual Effects: A visual survey for raptor nests will be conducted in surrounding trees and uplands within a quarter mile of the project site. If a nest is found, a no surface use timing limitation from February 1 through August 15 will be implemented.

The operator will design, construct, and maintain exclosure fencing for all open cellars and fluids pits containing freestanding fluids to prevent access to livestock and large forms of wildlife such as deer, elk, and pronghorn. At a minimum, the operator will adequately fence all fluids pits and open cellars during and after drilling operations until the pit is free of fluids and the operator initiates backfilling. The operator will maintain the fence in order to protect public health and safety, wildlife, and livestock.

No Action Alternative

Direct and Indirect Impacts: None.
Cumulative Impacts: None.
Mitigation/Residual Effects: None.

Finding on the Public Land Health Standard for Plant and Animal Communities: The well area is grazed and is disturbed on a yearly basis. The Proposed Action will not affect the public land health standards for plant and animal communities.

MIGRATORY BIRDS

Affected Environment: The following species are on the US Fish and Wildlife Services "Birds of Conservation Concern-2008 List for BCR-16 (Shortgrass Prairie) and might occur in the project area based on their habitat requirements: ferruginous hawk, prairie falcon, and Cassin's sparrow.

Ferruginous hawks nest in isolated trees or small groves of trees, and on other elevated sites such as rock outcrops, buttes, large shrubs, haystacks, and low cliffs. Nests are situated adjacent to open areas such as grassland or shrubsteppe. These hawks are closely associated with prairie dog colonies, especially in winter.

Prairie falcons breed on cliffs and rock outcrops, and hunt in adjacent open areas such as grasslands and shrubsteppe. Adults arrive on the breeding grounds in February or March and initiate nesting in late April; young fledge in June and July. Their diet during the breeding season is a mix of passerines and small mammals. Birds wintering in Colorado prey on passerines, especially horned larks.

Cassin's sparrows breed in northeastern Colorado and throughout the eastern plains with highest concentrations in the southeast. These sparrows inhabit shortgrass prairie with scattered shrubs (including sand sagebrush, yucca, and rabbitbrush), that they use for song perches and nest cover. Breeding birds will accept a wide range of shrub densities as long as grass cover exists.

Cassin's sparrows arrive in Colorado in early to mid-April, but most do not initiate nesting until late May. Incubation and brooding take place in June, and most young fledge by mid-July. Their diet consists of invertebrates (beetles, grasshoppers, crickets) and seeds.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action will occur within a short-grass prairie environment and surface disturbing activities, such as road building or pad construction may "take" nests if such activity where to occur during the nesting season. Noise generated during construction, drilling, and production phases will likely result in a larger impact footprint then the disturbance footprint alone.

If an open pit is to be used for produced water, petroleum based products that accumulate on the surface will result in death of migratory birds. The eastern plains of Colorado are relatively dry, and open water pits can draw migratory birds. If a bird where to use this water source to rest, feed, preen, or drink from petroleum products would likely coat the bird causing it to lose its buoyancy, flight, and insulating capabilities resulting in death. Ingestion of petroleum products could also be lethal. Migratory birds may be burned or killed by exhaust vents, heater-treaters, flare stacks, etc., if perched at the opening while in operation.
Finally, an increase is activity, i.e. road traffic, will likely result in an increase in vehicular collisions with migratory birds.

Cumulative Impacts: The location and surrounding area is highly disturbed by agricultural activity and oil and gas development. While the habitat may not be ideal, plains birds have adapted to and currently use grazed lands for reproduction and growth. However, it is likely that species richness and diversity have been forfeited to some degree as a result of this conversion. The addition of oil and gas development will likely cause an additional negative impact to most species of migratory birds currently present at the site. If oil is found in economically feasible quantities, it is likely additional development will occur.

Mitigation/Residual Effects: To be in compliance with the Migratory Bird Treaty Act (MBTA) and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Generally this is a seasonal restriction that requires vegetation disturbance be avoided from May 15 thru July 15. This is the breeding and brood rearing season for most Colorado migratory birds.

Furthermore, all open pits will be fenced and netted in a manner to exclude migratory birds until all liquid is absent and backfilling has been initiated. Any secondary containment system will be covered in a manner to prevent access by migratory birds. The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units. Any action that may result in a "take" of individual migratory birds or nests that are protected by MBTA will not be allowed.

No Action Alternative

Direct and Indirect Impacts: None.
Cumulative Impacts: None.
Mitigation/Residual Effects: None.

HERITAGE RESOURCES AND HUMAN ENVIRONMENT

CULTURAL RESOURCES

Affected Environment: Few prehistoric and historic sites are present in the vicinity of the area of potential effect [see Report CR-RG-11-111 (P)]. Although a single isolated find (5WL6719) was recorded during the inventory, no historic properties (sites eligible for the National Register of Historic Places) were recorded during the cultural resources inventory. Therefore, pursuant to 36 CFR 800.4 (d) (1), the inventory will not affect historic properties.

TRIBAL AND NATIVE AMERICAN RELIGIOUS CONCERNS

Affected Environment: No aboriginal sites are present in the vicinity of the area of potential effect, and no possible traditional cultural properties were located during the cultural resources inventory (see Cultural Resources section, above). There is no other known evidence that suggests the project area holds special significance for Native Americans.

PALEONTOLOGICAL RESOURCES

Affected Environment: The Proposed APDs are located within the Denver-Julesburg Basin, a geologic structural basin centered in eastern Colorado and extending to Wyoming, Nebraska, and western Kansas. The basin consists of a large asymmetric syncline of Paleozoic, Mesozoic, and Cenozoic sedimentary rock layers. The basin is deepest near Denver and most shallow in Kansas. Coal, Uranium, and oil and gas are found primarily in the Mesozoic strata within the Denver Basin. Coal has been mined from the Cretaceous Laramie Formation along the western edge of the Denver Basin. The coal deposits in the area north of Greeley are relatively thin and discontinuous, and therefore limited exploration for coal has been conducted in the area. Uranium has been identified in the Cretaceous Fox Hills and Laramie formations in the northern part of Denver Basin, near Grover in Weld County. Most oil and gas production in the Denver Basin has been produced from Cretaceous sandstones: J-Sandstone, Codell Sandstone, Niobrara Formation, Hygiene Sandstone, and Terry Sandstone.

Paleontologic resources are present in the Laramie Formation that is exposed at the surface in the vicinity of the proposed APDs. The Laramie Formation is a Class 3 paleontologic resource according to the Royal Gorge Field Office Potential Fossil Yield Classification (RGFO PFYC) because it is a fossiliferous sedimentary geologic unit where fossil content varies in significance,

abundance, and predictable occurrence. Fish, dinosaur, and mammal fossils have all been found in the Laramie Formation.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action involves surface disturbing activities such as well pad and road construction and burial of pipeline. Any surface disturbing activity has the potential to uncover paleontologic resources. The BLM manages paleontological resources by the authorities granted in FLPMA (P.L. 94-579) and NEPA (P.L. 91-190) and the Paleontologic Resources Preservation Act that was passed by congress in March 2009. It is unlawful to collect or damage protected paleontologic resources without a Paleontological Resources Use Permit (43 CFR 3165.1-5).

Potential impacts to fossil localities would be both direct and indirect. Direct impacts to or destruction of fossils would occur from unmitigated activities conducted on formations with potential for important scientific fossil resources. Indirect impacts would involve damage or loss of fossil resources due to the unauthorized collection of scientifically important fossils by workers or the public due to increased access to fossil localities in the Project Area.

Cumulative Impacts: Past and current impacts to important fossil resources could be long-term and significant since fossils removed or destroyed would be lost to science. Impacts to paleontological resources can be reduced to a negligible level through mitigation of ground disturbing activities. It is possible that the proposed activity would have a beneficial impact in that ground disturbing activities may result in the discovery of important fossil resources.

Mitigation/Residual Effects: Ground-disturbing activities would require sufficient monitoring to determine whether significant paleoresources occur in the area of a proposed action. Mitigation beyond initial findings can range from no further mitigation necessary to full and continuous monitoring of significant localities during the action. Initial findings, based on review of the geologic formations in the area are that the proposed APDS are within a formation that contains Class 3 paleoresources with moderate potential for containing vertebrate fossils. McKay Federal AB-02-15 pad would have a maximum cut of 4.47 feet at the southwest corner and a maximum fill of 4.13 feet at the northeast pad corner. Construction of the well pad would result in approximately 4.2 acres of new surface disturbance. This disturbance will likely penetrate the Laramie Formation in only the area of maximum cut, therefore monitoring will not be required during well pad construction but as a precaution, a condition of approval shall accompany the APD requiring that any fossils uncovered during operations be immediately reported to the BLM RGFO.

Recommended COA: In order to prevent potential impacts to paleontologic resources, a condition of approval will be attached to the APD that directs the holder to notify the BLM RGFO immediately if any vertebrate fossils or their traces are discovered during operations. Operations may continue as long as the fossil specimen would not be damaged or destroyed by the activity. Within 5 working days of notifgeol
ication, the BLM RGFO shall evaluate or have evaluated such discoveries and shall notify the operator what action shall be taken with respect to such discoveries.

No Action Alternative: No wells would be drilled, therefore no surface disturbance.

Direct and Indirect Impacts: None
Cumulative Impacts: None
Mitigation/Residual Effects: None

VISUAL RESOURCES

Affected Environment: The project occurs on private surface where extensive development and agricultural uses already occur. Since the surface is private no visual resource management class objectives were established in the Northeast Resource Management Plan.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: During construction of the access roads and pads and during the actual drilling contrasts to visual resources would be the greatest. Drilling would occur for approximately 1-2 weeks. Once the drilling portion of the project is completed visual contrasts with the existing environment would still exist from the lines, shapes and colors created from the roads and pads and the on-site equipment. This would be reduced through required best management practices including interim reclamation and painting of structures an appropriate color that blends with the site.

Cumulative Impacts: None.
Mitigation/Residual Effects: None

No Action Alternative

Direct and Indirect Impacts: No impacts to visual resources would occur.
Cumulative Impacts: None.
Mitigation/Residual Effects: None proposed.

Other Alternative

Direct and Indirect Impacts:
Cumulative Impacts:
Mitigation/Residual Effects

ENVIRONMENTAL JUSTICE

Affected Environment: The proposed action affects areas that are rural in nature. The project area and areas adjacent are cultivated farmlands. As a result, there are no minority or low-income populations in or near the project area. As such, the proposal will not have a disproportionately high and adverse human health or environmental effect on minority or low-income populations.

WASTES, HAZARDOUS OR SOLID

Affected Environment: It is assumed that conditions associated with the proposed project site are currently clean and that no contamination is evident.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Possible contaminant sources associated with the drilling operations are:

- Storage and use of petroleum, oil and lubricants
- General hazardous substances and/or chemicals
- Concrete washout water
- Drilling water, mud and cuttings

Cumulative Impacts: None

Mitigation/Residual Effects: The following mitigation will assist in reducing potential spills and resulting groundwater and/or soil contamination:

- All Above Ground Storage Tanks will need to have secondary containment and constructed in accordance with standard industry practices or an associated Spill Prevention Control and Countermeasures plan in accordance with State regulations (if applicable).
- If drums are used, secondary containment constructed in accordance with standard industry practices or governing regulations is required. Storage and labeling of drums should be in accordance with recommendations on associated MSDS sheets, to account for chemical characteristics and compatibility.
- Appropriate level of spill kits need to be onsite and in vehicles.
- All spill reporting needs to follow the reporting requirements outlined in NTL-3A.
- No treatment or disposal of wastes on site is allowed.
- All concrete washout water needs to be contained and properly disposed of at a permitted offsite disposal facility.

Nothing in the analysis or approval of this action by BLM authorizes or in any way permits a release or threat of a release of hazardous substances into the environment that will require a response action or result in the incurrence of response costs.

No Action Alternative

Direct and Indirect Impacts: None

Cumulative Impacts: None

Mitigation/Residual Effects: None

Other Alternative

Direct and Indirect Impacts:

Cumulative Impacts:

Mitigation/Residual Effects

LAND RESOURCES

RECREATION

Affected Environment: The project occurs on private surface ownership therefore no recreation resources are present.

FARMLANDS, PRIME AND UNIQUE

Affected Environment: Not present

RANGE MANAGEMENT

Affected Environment: The proposed project area does not encompass any federally administered grazing allotments. Furthermore, the proposed project area is located on private surface within a cultivated field. The surface owner uses this field to grow and harvest hay during the growing season.

WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN, WILD AND SCENIC RIVERS

Affected Environment: Not present.

LANDS WITH WILDERNESS CHARACTERISTICS

Affected Environment: Not present.

OTHER ELEMENTS:

The resources or issues below were dismissed due to their not being present or applicable. If one of these elements are present and need to be brought forth for analysis, follow the instructions after the table

Resource/Issue	Rationale for dismissal
Cadastral Survey	The land surveys have potential problems as noted in the Chain of Surveys (COS) certificate dated August 8, 2011. The risk appears minor however, and the conveyance/ activity should not be affected.
Fire	The proposed action will not create or elevate risk factors leading to unwanted wildland fire ignition.
Forest Management	No impact to federal timber or forest management due to project location.
Law Enforcement	There are no law enforcement issues associated with this action.

Noise	Impacts from noise will be minor and of limited duration the drilling process.
Socio-Economics	This action will not result in significant impacts to the socio economics of the region.
Lands and Realty	No impact due to project being located on private surface

CUMULATIVE IMPACTS SUMMARY:

Air Resources: The area currently has a high degree of alteration in the form of agricultural fields, roads, houses, and oil and gas production. The addition of the infrastructure needed to construct and drill the three additional pads and wells would have a cumulative impact to the area's air quality; however, given the existing level of development in the area, the proposed wells' impact would be very minor. In the long term, if economical quantities of oil and gas are found, additional wells can be expected to be drilled on Federal, State, and private lands. This could result in a larger impact to air quality in the future. However, given that the area is currently designated as a nonattainment area for ozone, the state requires additional, more stringent pollution control measures for oil and gas activities in such areas.

Geology: The proposed action would drill through the Laramie-Fox Hills aquifer to produce hydrocarbons from underlying formations. Impacts to the aquifer will be reduced to negligible by following recommended mitigation.

Soils: The area around the proposed well pad has a variety factors effecting soils including roads, housing, agriculture, and livestock grazing. The addition of the infrastructure needed to drill the pad would have an additional impact to the areas soils. At the watershed scale, the addition of the proposed well pad and related construction would have an immeasurable impact to the soils of the area in the future given the current use in the proposed project area.

Water Quality: The area currently has a high degree of alteration in the form of agricultural fields, roads, houses, and oil and gas production. At the watershed scale, the addition of the three proposed wells would have an immeasurable impact to the water quality of the area in the future.

Migratory Birds: The location and surrounding area is highly disturbed by agricultural production and oil and gas development. While the habitat may not be ideal, plains birds have adapted to and currently use agricultural fields and grazed lands for reproduction and growth. However, it is likely that species richness and diversity have been forfeited to some degree as a result of this conversion. The addition of oil and gas development will likely cause an additional negative impact to most species of migratory birds currently present at the site. If oil is found in economically feasible quantities, it is likely additional development will occur.

Paleontology: Impacts to paleontological resources can be reduced to a negligible level through mitigation of ground disturbing activities. It is possible that the proposed activity would have a beneficial impact in that ground disturbing activities may result in the discovery of important fossil resources.

PERSONS / AGENCIES CONSULTED:

INTERDISCIPLINARY TEAM REVIEW		
NAME	**TITLE**	**AREA OF RESPONSIBILITY**
Matt Rustand	Wildlife Biologist	Terrestrial Wildlife, T&E, Migratory Birds
John Lamman	Range Management Spec.	Range, Vegetation, Farmland, Weeds
Dave Gilbert	Fisheries Biologist	Aquatic Wildlife, Riparian/Wetlands
Tomas Kamienski	Natural Resource Specialist	Soils
Stephanie Carter	Geologist	Minerals, Paleontology, Waste Hazardous or Solid
Melissa Smeins	Geologist	Minerals, Paleontology
John Smeins	Hydrologist	Hydrology, Water Quality/Rights
Ty Webb	Prescribed Fire Specialist	Air Quality
Tony Mule'	Cadastral Surveyor	Cadastral Survey
Kalem Lenard	Recreation	Recreation, Wilderness, Visual, ACEC, W&S Rivers
John Nahomenuk	Recreation, River Manager	Recreation, Wilderness, Visual, ACEC, W&S Rivers
Ken Reed	Forester	Forestry
Martin Weimer	NEPA Coordinator	Environmental Justice, Noise, SocioEconomics
Monica Weimer	Archaeologist	Cultural, Native American
Erin Watkins	Archaeologist	Cultural, Native American
Debbie Bellew	Realty Specialist	Realty
Steve Cunningham	Law Enforcement Ranger	Law Enforcement
Bob Hurley	Fire Management Officer	Fire Management

FONSI

DOI-BLM-CO-200-2011-0058 EA

Based on review of the EA and the supporting documents, I have determined that the project 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 from any alternative assessed or evaluated meet the definition of significance in context or intensity, as defined by 43 CFR 1508.27. Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below:

RATIONALE:

Context:
Proposed project area is located in Weld County, 13 miles east of the City of Ault. The federal mineral estate within the project boundary is leased and subject to oil and gas development. The general area description would be defined as rural farmland and ranchland north of the South Platte River Basin and the actual well pad locations are within a cultivated field. There are few county roads in the project area, and most access is limited to private landowner or oil and gas developed roadways.

Extensive oil and gas development has occurred on the private mineral estate in the western portion of the project area, and for several miles to the west and north of the project area. Limited development and exploration has occurred to the east and south. The actual Wattenberg oil and gas field is extensive, predominantly extending from the project area 50 to 60 miles west, near the foothills of the Rocky Mountains. To the north and south, the field extends south to Denver and north past Greeley.

The proposed action location is with an ozone nonattainment area, a general conformity analysis for ozone was completed for this proposed activity

The area currently has a high degree of alteration in the form of agricultural fields, roads, houses, and oil and gas production. The addition of the infrastructure needed to construct and drill the three additional pads and wells would have a cumulative impact to the area's air quality; however, given the existing level of development in the area, the proposed wells' impact would be very minor. In the long term, if economical quantities of oil and gas are found, additional wells can be expected to be drilled on Federal, State, and private lands. This could result in a larger impact to air quality in the future. However, given that the area is currently designated as a nonattainment area for ozone, the state requires additional, more stringent pollution control measures for oil and gas activities in such areas.

As a result of the location of the proposed action, in the nonattainment area, the significant level is considered on the regional scale for air quality resource and local significance on other resources analyzed.

Intensity:

Impacts that may be beneficial and adverse: There would be minor impacts to air quality from the proposed wells. Most of this would occur during the drilling phase. Potential impacts might occur to groundwater; however such impacts should not occur if strict drilling requirements are followed. Other minor impacts might occur to wildlife and migratory birds but would be mitigated through the use of timing stipulations. Beneficial impacts from the action would be the potential for productive wells being created that would add, albeit in a small way to national energy independence.

Public health and safety: The proposed action will have minor short term impacts to air quality during the construction phase. Once construction is complete the daily activities of the site will not impact air quality above ambient conditions.

Unique characteristics of the geographic area: The EA evaluated the area of the proposed action and determined that no unique geographic characteristics such as: wild and scenic rivers, prime or unique farmlands, Areas of Critical Environmental Concern, designated wilderness areas, wilderness study areas or Lands with Wilderness Characteristics; were present.

Degree to which effects are likely to be highly controversial: The potential for controversy associated with the effects of the proposed action is low. There is no disagreement or controversy among ID team members or reviewers over the nature of the effects on the resource values on public land by the proposed action.

Degree to which effects are highly uncertain or involve unique or unknown risks: The drilling of oil and gas wells has occurred historically over the past century and although the potential risks involved can be controversial, they are neither unique or unknown. There is low potential of unknown or unique risks associated with this project due to numerous other well locations having been successfully drilled in this area of Weld County.

Consideration of whether the action may establish a precedent for future actions with significant impacts: The McKay APD will be limited to standard construction procedures associated with pad/road construction and drilling in Weld County and have occurred historically on split estate. There are no aspects of the current proposal that are precedent setting.

Consideration of whether the action is related to other actions with cumulatively significant impacts: The action is a continuation of oil and gas activities that have historically occurred in the area. The lease area that these wells are in is designated as a Class II Area, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the CAA. The PSD Class II designation allows for moderate growth or degradation of air quality within certain limits above baseline air quality. Because the proposed action location is with an ozone nonattainment area, a general conformity analysis for ozone was completed for this proposed activity. Potential emissions of VOCs and NOx were calculated, and were determined to conform with the applicable laws and statutes, including the CDPHE Denver Metro Area And North Front Range

Ozone Action Plan because the potential total emissions were determined to be below *de minimis* levels.

Scientific, cultural or historical resources, including those listed in or eligible for listing in the National Register of Historic Places: Few prehistoric and historic sites are present in the vicinity of the area of potential effect [see Report CR-RG-11-111 (P)]. Although a single isolated find (5WL6719) was recorded during the inventory, no historic properties (sites eligible for the National Register of Historic Places) were recorded during the cultural resources inventory. Therefore, pursuant to 36 CFR 800.4 (d) (1), the inventory will not affect historic properties.

Threatened and endangered species and their critical habitat: There are no known listed species protected under the Endangered Species Act (ESA) in the proposed project area. There is no known critical habitat associated with Threatened and Endangered Species identified within the project area.

Any effects that threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment: The proposed action conforms with the provisions of NEPA (U.S.C. 4321-4346) and FLPMA (43 U.S.C. 1701 et seq.) and is compliant with the Clean Water Act and The Clean Air Act, the National Historic Preservation Act and the Endangered Species Act.

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NAME OF PREPARER: Tomas Kamienski

SUPERVISORY REVIEW: Jimmy Dickerson

NAME OF ENVIRONMENTAL COORDINATOR: /s/ Martin Weimer

DATE:

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ Keith E. Berger
Keith E. Berger, Field Manager

DATE SIGNED: 2/1/12

APPENDICES:

ATTACHMENTS: Air Quality Analysis doc.s

DECISION RECORD

DOI-BLM-CO-200-2012-0011 EA

McKay Federal AB-02-15 APD

DECISION: It is my decision to approve the APD for the McKay Federal AB-02-15 well pad and access road in order to drill and develop federal minerals from a private surface.

RATIONALE: This APD will develop oil and gas resources on Federal Lease COC74966 consistent with existing Federal lease rights provided for in the Mineral Leasing Act of 1920, as amended. The action will take place in an ozone nonattainment area and conform with the applicable laws and statutes, including the CDPHE Denver Metro Area And North Front Range Ozone Action Plan because the potential total emissions were determined to be below *de minimis* levels.

MITIGATION MEASURES:

Air Quality: Since the region is in non-attainment for ozone, many well development activities are subject to a specific list of mitigation requirements per the CDPHE Air Quality Control Commission, including Regulation Number 7 (5 CCR 1001-9. See http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-9.pdf). Examples of these requirements include, but are not limited to:

- For atmospheric condensate storage tanks at oil and gas exploration and production operations, a default emission factor of 13.7 pounds of volatile organic compounds per barrel of condensate shall be used unless a more specific emission factor has been established pursuant to Section XII.C.2.a.(ii)(B).[6]

- All pneumatic controllers placed in service on or after February 1, 2009, shall emit VOCs in an amount equal to or less than a low-bleed pneumatic controller, unless allowed pursuant to Section XVIII.C.3.[7]

- All high-bleed pneumatic controllers in service prior to February 1, 2009 shall be replaced or retrofit such that VOC emissions are reduced to an amount equal to or less than a low-bleed pneumatic controller, by May 1, 2009, unless allowed pursuant to Section XVIII.C.3.[8]

- All condensate collection, storage, processing and handling operations, regardless of size, shall be designed, operated and maintained so as to minimize leakage of volatile organic compounds to the atmosphere to the maximum extent practicable.

[6] See CDPHE AQCC Regulation Number 7 for specifics on section referenced
[7] Ibid.
[8] Ibid.

- If a combustion device is used to control emissions of volatile organic compounds to comply with Section XII.D. it shall be enclosed, have no visible emissions, and be designed so that an observer can, by means of visual observation from the outside of the enclosed combustion device

Geology: BLM Onshore Order #2 (OO#2) requires that the proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. A review at the Application for Permit to Drill stage includes a geologic evaluation of the potential subsurface formations that will be penetrated by the wellbore, followed by an engineering analysis of the drilling program to ensure the well construction design is adequate to protect the surface and subsurface environment, including the potential risks identified by the geologist, and all known or anticipated zones with potential risks.

BLM will require that the surface casing be run across the aquifer, and placed at least 50 feet into the underlying Pierre Shale - a formation that should not fracture or breakdown with the maximum weighting of mud that may be needed when drilling to total depth or to the next set of casing string.

A BLM representative will be on location during the casing and cementing of groundwater-protective surface casing and other critical casing and cementing intervals constructed to isolate subsurface zones that present high risk for potential adverse impact to human health or safety or at high risk potential for environmental contamination.

Soils: All infrastructure (roads, drill pads, etc.) being proposed, would be built to BLM Gold Book standards.

Invasive Plants: Equipment used to implement the proposed action should be washed prior to entering the project area to remove any plant materials, soil, or grease. Areas disturbed by project implementation that are not subject to continuing agricultural practices will be monitored for the presence of weeds on the Colorado State Noxious Weed list. Identified noxious weeds will be treated. Monitoring is required for the life of the project and for three years following completion and/or abandonment of the wells and elimination of identified Colorado State Noxious Weeds list A and B species.

Terrestrial Wildlife: No surface use timing limitation from December 1 through April 30 to protect pronghorn antelope winter range. An exception may be granted if the area experiences a mild winter. While the action occurs within an agricultural field, a visual survey for raptor nests will be conducted in surrounding trees and uplands within a quarter mile of the project site. If a nest is found, a no surface use timing limitation from February 1 through August 15 will be implemented.

The operator will design, construct, and maintain exclosure fencing for all open cellars and fluids pits containing freestanding fluids to prevent access to livestock and large forms of wildlife such as deer, elk, and pronghorn. At a minimum, the operator will adequately fence all fluids pits and open cellars during and after drilling operations until the pit is free of fluids and the operator

initiates backfilling. The operator will maintain the fence in order to protect public health and safety, wildlife, and livestock.

Migratory Birds: To be in compliance with the Migratory Bird Treaty Act (MBTA) and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Generally this is a seasonal restriction that requires vegetation disturbance be avoided from May 15 thru July 15. This is the breeding and brood rearing season for most Colorado migratory birds.

Furthermore, all open pits will be fenced and netted in a manner to exclude migratory birds until all liquid is absent and backfilling has been initiated. Any secondary containment system will be covered in a manner to prevent access by migratory birds. The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units. Any action that may result in a "take" of individual migratory birds or nests that are protected by MBTA will not be allowed.

Paleontology: In order to prevent potential impacts to paleontologic resources, a condition of approval will be attached to the APD that directs the holder to notify the BLM RGFO immediately if any vertebrate fossils or their traces are discovered during operations. Operations may continue as long as the fossil specimen would not be damaged or destroyed by the activity. Within 5 working days of notification, the BLM RGFO shall evaluate or have evaluated such discoveries and shall notify the operator what action shall be taken with respect to such discoveries.

Hazardous Waste:

- All Above Ground Storage Tanks will need to have secondary containment and constructed in accordance with standard industry practices or an associated Spill Prevention Control and Countermeasures plan in accordance with State regulations (if applicable).
- If drums are used, secondary containment constructed in accordance with standard industry practices or governing regulations is required. Storage and labeling of drums should be in accordance with recommendations on associated MSDS sheets, to account for chemical characteristics and compatibility.
- Appropriate level of spill kits need to be onsite and in vehicles.
- All spill reporting needs to follow the reporting requirements outlined in NTL-3A.
- No treatment or disposal of wastes on site is allowed.
- All concrete washout water needs to be contained and properly disposed of at a permitted offsite disposal facility.

Nothing in the analysis or approval of this action by BLM authorizes or in any way permits a release or threat of a release of hazardous substances into the environment that will require a response action or result in the incurrence of response costs.

COMPLIANCE/MONITORING (optional):

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ Keith E. Berger
Keith E. Berger, Field Manager

DATE SIGNED: 2/1/12

Attached: Air Quality Analysis Doc.s