

**United States Department of the Interior
Bureau of Land Management
Royal Gorge Field Office
3028 E. Main Street
Cañon City, CO 81212**

Environmental Assessment

North Platte Federal P-T-22HNB and North Platte Federal K-O-22HNB
APDs

DOI-BLM-CO-200-2013-077 EA

June, 2013



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CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

CASEFILE/PROJECT NUMBER (optional):

PROJECT TITLE: Application for permits to drill oil wells North Platte Federal P-T-22HNB and North Platte Federal K-O-22HNB

PLANNING UNIT: Northeast Resource Area Plan

LEGAL DESCRIPTION: Weld County, Sixth PM, T. 5 N, R. 63 W, sec. 22

APPLICANT: Bonanza Creek Energy Inc.

1.2 INTRODUCTION AND BACKGROUND

BACKGROUND: This EA has been prepared by the BLM to analyze environmental impacts of well pad, access road, and connecting pipeline construction on private surface/federal minerals, located in Weld County approximately 16 miles east of the City of Greeley, Colorado. The federal mineral estate within the project boundary is leased and subject to oil and gas development.

1.3 PURPOSE AND NEED

The purpose of the action is to provide the applicant the opportunity to develop their leases at the described location for the production of oil and gas. The need for the action is to develop oil and gas resources on Federal Lease COC63737 consistent with existing Federal lease rights provided for in the Mineral Leasing Act of 1920, as amended, the Onshore Oil and Gas Leasing Reform Act of 1987 and the Energy Policy Act of 2005.

1.4 DECISION TO BE MADE

The BLM will decide whether to approve the proposed North Platte Federal P-T-22HNB and North Platte Federal K-O-22HNB Application for Permits to Drill (APDs) project based on the analysis contained in this Environmental Assessment (EA). This EA will analyze the proposed action; to construct a well pad, install production facilities, gas pipeline and access road, and drill wells in order to develop federal minerals from a private surface. Access to the proposed well pads would be on existing highway, county and oil field roads. The finding associated with this EA may not constitute the final approval for the proposed action.

1.5 PLAN CONFORMANCE REVIEW

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: 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: “These 210,410 acres of surface and subsurface may be leased and developed for oil and gas with the standard stipulations included in the leases and standard site-specific stipulations included in any use authorization.”

1.6 SCOPING, PUBLIC INVOLVEMENT AND ISSUES

1.6.1 Scoping: NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: Scoping, by posting this project on the Royal Gorge Field Office NEPA website, was the primary mechanism used by the BLM to initially identify issues. No comments were received.

Issues Identified:

No issues were identified during public scoping.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The BLM has received two Application Permits to Drill (APDs), proposing the construction of one well pad location, pipeline and access road on split estate(private surface over federal minerals) in Weld County, approximately 16 miles south of the City of Greeley. The federal mineral estate is leased and subject to oil and gas development.

The general area description would be defined as rural land located north of the South Platte River, used primarily for livestock production and oil and gas development. There are few county roads in the project area and a state highway nearby. Access is limited to private roads or oil and gas developed roadways, over private surface. The roadways vary in development but most are dirt/primitive roads.

Extensive oil and gas development has occurred in the nearby Wattenberg field, mostly on private mineral estate.

Finally, because the proposed action location is within an ozone nonattainment area, a general conformity analysis for ozone will be completed for the proposed activity. Potential emissions of VOCs and NOx will be calculated in order to determine their conformity with the applicable laws and statutes.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

The proposed action is to construct a well pad, access road, gas pipeline and drill two horizontal wells to develop federal minerals, from a private surface. Access to the proposed North Platte Federal well pad would be gained by traveling on existing highways, county and oil field roads.

The proposed project is located in Weld County, approximately 16 miles east of the City of Greeley, Colorado. The mineral estate within the project boundary is leased and subject to oil and gas development.

The proposed access road would be 14 feet wide (finished width) by 370 feet long, surfaced with road base, constructed to BLM resource road standards, as specified in the "Gold Book." The total width of the short term disturbance needed for the construction of the road and pipeline would be 30 feet. This would result in approximately 0.25 acre disturbance, but would be interim reclaimed in order to reduce the long term disturbance. A gas pipeline will be installed within the disturbance corridor of the proposed access road, and tied into the existing gas line along the existing oil field road where the proposed access road would tie in. Reclamation of road and pipeline would be achieved by backfilling and re-contouring soil, re-spreading segregated top soil over subsoil, seed bed preparation and re-seeding.

The proposed pad would have a maximum cut of 4 feet and a maximum fill of 7 feet resulting in 538 cubic yards excess material. Construction of the well pad would result in approximately 5.7 acres of new surface disturbance, which would be reduced to approximately 2.5 acres after successful interim reclamation. The proposed drilling and completion will utilize a closed loop system, and produced water will be stored in steel tanks within the production facility. No pits will be utilized. All waste materials (drill cuttings, drilling mud, produced water, sewage and garbage) will be hauled off site and disposed of at applicable approved disposal facilities/commercial treatment facilities. The duration of construction and drilling activities is estimated to be 60 days.

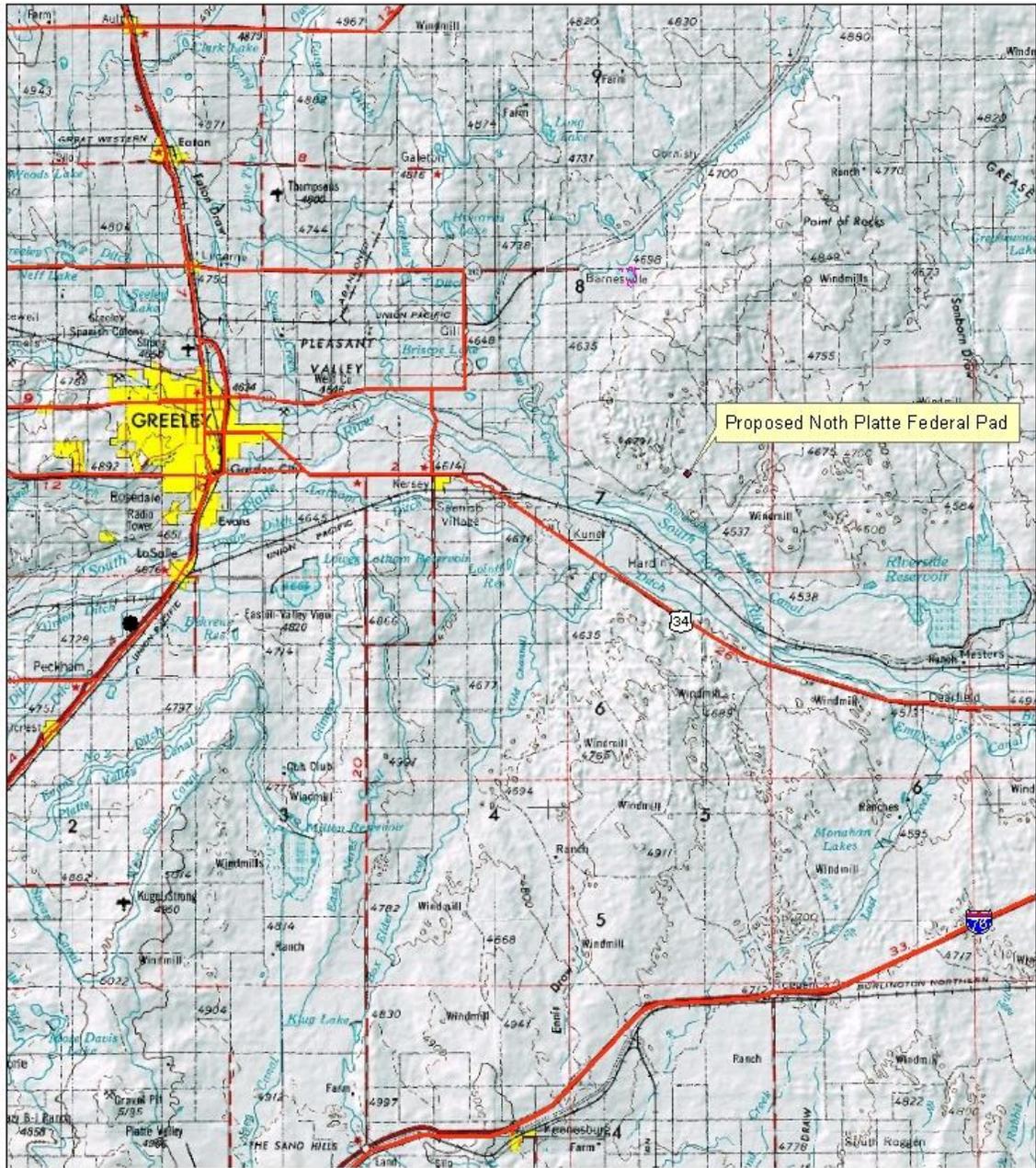
If these two wells are good producers, Bonanza Creek may delay interim reclamation in order to drill additional wells on this pad, which would take place after the proper permits (BLM, COGCC, ect.) are obtained for these wells by Bonanza Creek. Stormwater/erosion control measures will be taken to stabilize the site.

Interim reclamation will begin within six months (weather permitting) of completion of final well. Interim reclamation will consist of redistribution of excess soil, re-contouring the areas of the pad not needed for production as close to original as possible. All areas not needed for transportation of produced liquids and routine maintenance would be scarified, prepped and reseeded.

Final reclamation will begin within six months (weather permitting) of well plugging, or in the event of a dry hole. Final reclamation will consist of proper plugging of wells, removal of all facilities and related equipment from the surface of the site (if left in place, abandoned pipelines will be flushed, cut below ground level, and capped), and removal of any surfacing materials on road or pad. Segregated topsoil will be spread evenly over the entire area. Pad and road areas will be ripped, re-contoured to their original form and top soil will be evenly spread over the surface. The area will be drill or broadcast seeded, and if necessary covered with weed free mulch. Area will be monitored for presence of weeds, which will be controlled if present. If initial seeding is not successful, the operator must re-seed the area until desirable vegetation is established. The bond will not be released until BLM has determined that successful reclamation has been achieved.

The Application for Permit to Drill (APD) for each new well includes a detailed and specific drilling program and multi-point surface operations plan (including detailed construction and reclamation plans.) The proposed action would be implemented consistent with the operations plans provided with approved permit, with Conditions Of Approval (COAs), Onshore Oil and Gas Orders, the applicable terms of Federal Lease COC63737, Onshore Oil and Gas Orders, and 43 CFR §3100.

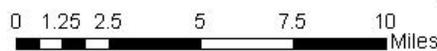
Overview Map



North Platte Federal Pad Overview

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T5N R63W S22, 6th PM



NOTE TO MAP USERS
 No warrant is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

Project Map



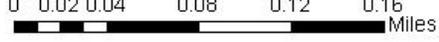
North Platte Federal Pad Project Map

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T5N R63W S22, 6th PM

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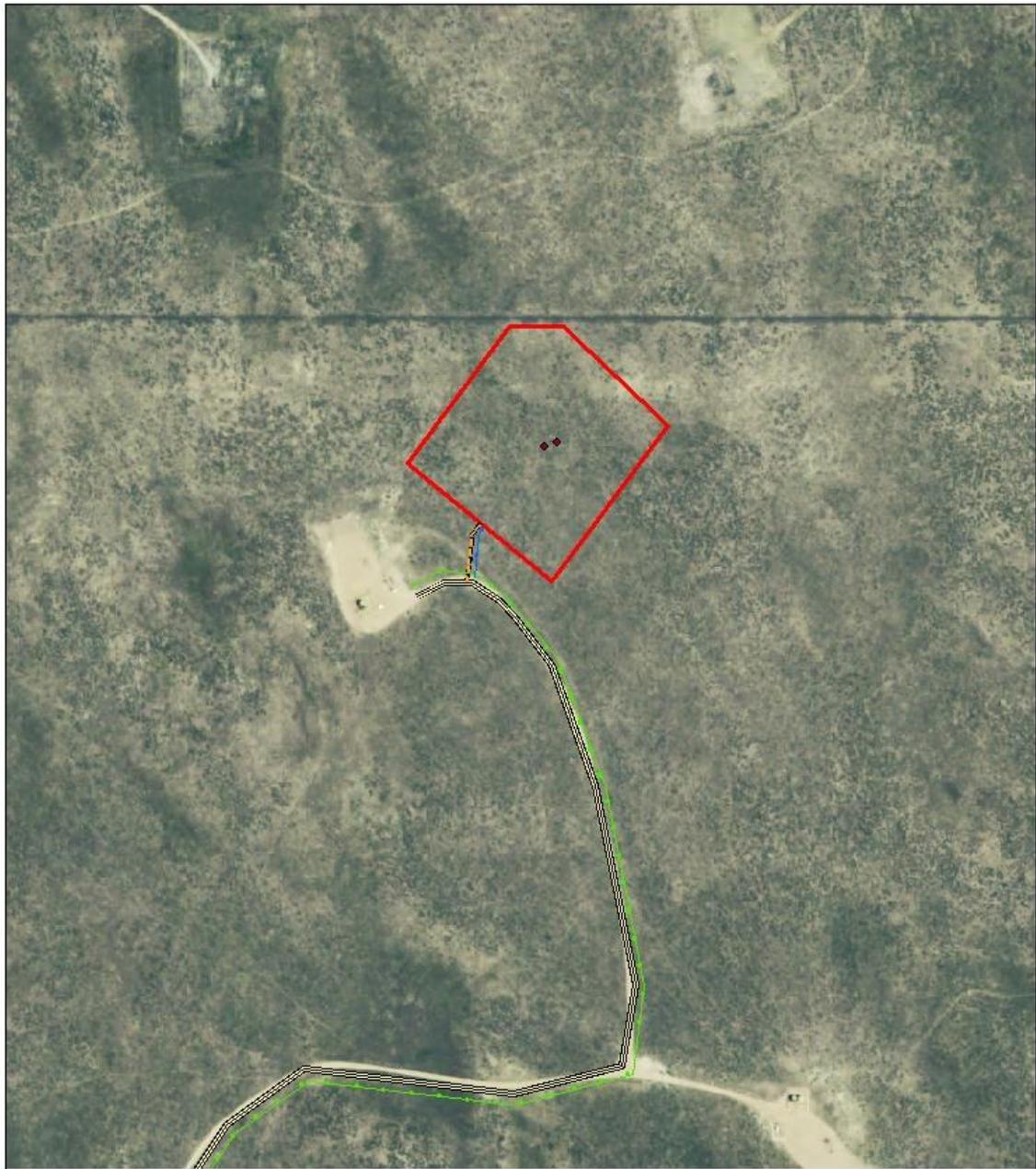
Legend:

-  Proposed Noth Platte Fed Pad
-  Proposed Noth Platte Fed T.H.
-  Proposed Road
-  Proposed Pipeline
-  Existing Pipeline
-  Existing Road

 Miles



Project Aerial Photo



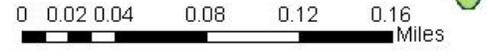
North Platte Federal Pad NAIP

- Proposed North Platte Fed Pad
- ◆ Proposed North Platte Fed T.H.
- Proposed Road
- Proposed Pipeline
- Existing Pipeline
- Existing Road

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T5N R63W S22, 6th PM



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2.2.2 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.

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Other alternatives were not considered due to the proposed project being a non-discretionary action being proposed on private surface.

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as potentially impacted will be brought forward for analysis.

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Air Quality</u> <i>Ty Webb, Chad Meister, Melissa Hovey</i>	CM, 7/30/13	See affected environment
<u>Geology/Minerals</u> <i>Stephanie Carter, Melissa Smeins</i>	MJS, 7/22/2013	See affected environment
<u>Soils</u> <i>John Smeins</i>	JS, 7/23/13	All infrastructure (roads, drill pads, etc.) being proposed, would be built and reclaimed according to BLM Gold Book standards unless otherwise stipulated by the surface owner.
<u>Water Quality</u> <u>Surface and Ground</u> <i>John Smeins</i>	JS, 7/23/13	See Water Quality section.

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Invasive Plants</u> <i>John Lamman</i>	JL, 07/08/2013	See affected environment.
<u>T&E and Sensitive Species</u> <i>Matt Rustand</i>	MR, 6/28/2013	No T&E species or habitats are located within the action area.
<u>Vegetation</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/08/2013	Vegetation in the project area is mid-grass prairie with scattered low shrubs. Impacts are expected to be minor.
<u>Wetlands and Riparian</u> <i>Dave Gilbert</i>	DG, 7/18/13	Proposed action is within upland rangelands.
<u>Wildlife Aquatic</u> <i>Dave Gilbert</i>	DG, 7/18/13	Proposed action is within uplands.
<u>Wildlife Terrestrial</u> <i>Matt Rustand</i>	MR, 6/28/2013	See affected environment
<u>Migratory Birds</u> <i>Matt Rustand</i>	MR, 6/28/2013	See affected environment.
<u>Cultural Resources</u> <i>Monica Weimer, Erin Watkins</i>	MMW, 6/26/13	No historic properties affected [see Report CR-RG-12-150 (N)].
<u>Native American Religious Concerns</u> <i>Monica Weimer, Erin Watkins</i>	MMW, 6/26/13	Although aboriginal sites are present in the region, 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.
<u>Economics</u> <i>Dave Epstein,</i>	AR, 7/29/13	The setting for the oil and gas well is rural in nature, being located on privately owned surface. Economics would primarily affect only the Federal Government, the oil and gas operator and potentially the land owner. The action will not result in significant impacts to the socio economics of the region.
<u>Paleontology</u> <i>Melissa Smeins, Stephanie Carter</i>	MJS, 7/22/13	See affected environment
<u>Visual Resources</u> <i>Kalem Lenard</i>	KL, 7/1/13	The project is within a highly modified environment with existing structures and wells and would not impact visual resources.
<u>Environmental Justice</u> <i>Martin Weimer</i>	mw, 6/25/13	The proposed action affects areas that are rural in nature. The land adjacent to the well site is grassland, 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 or adverse environmental effect on minority or low-income populations.
<u>Wastes Hazardous or Solid</u> <i>Stephanie Carter</i>	MJS, 7/22/13	See affected environment
<u>Recreation</u> <i>Kalem Lenard</i>	KL, 7/1/13	Not Present

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Farmlands Prime and Unique</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/08/2013	Not Present
<u>Lands and Realty</u> <i>Steve Craddock</i>	SRC, 07/12/2013	N/A
<u>Wilderness, WSAs, ACECs, Wild & Scenic Rivers</u> <i>Kalem Lenard</i>	KL, 7/1/13	Not Present
<u>Wilderness Characteristics</u> <i>Kalem Lenard</i>	KL, 7/1/13	Not Present
<u>Range Management</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/08/2013	Not Present
<u>Forest Management</u> <i>Ken Reed</i>	KR, 6/25/13	Not Present
<u>Cadastral Survey</u> <i>Jeff Covington</i>	AR 7/20/13	Approved COS is attached in the project folder.
<u>Noise</u> <i>Martin Weimer</i>	mw, 6/25/13	The project area is located in grassland. Certain levels of noise are associated with drilling operations, these include drill rig operation, compressors/generators and general machine and vehicle operation. Such noises could have the effect of driving away wildlife. These impacts are temporary and terminate when drilling operations are complete.
<u>Fire</u> <i>Bob Hurley</i>		N/A
<u>Law Enforcement</u> <i>Steve Cunningham</i>		N/A

The affected resources brought forward for analysis include:

- Air quality
- Geology/Minerals
- Water Quality
- Soils
- Invasive Plants
- Vegetation
- Wildlife Terrestrial
- Migratory Birds

- Paleontology
- Wastes Hazardous or Solid

3.2 PHYSICAL RESOURCES

3.2.1 AIR QUALITY AND CLIMATE

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), codified at 40 Code of Federal Regulations (CFR) part 50, for criteria pollutants. Criteria pollutants are air contaminants that are commonly emitted from the majority of emissions sources and include carbon monoxide (CO), lead (Pb), sulfur dioxide (SO₂), particulate matter smaller than 10 and 2.5 microns (PM₁₀ and PM_{2.5}, respectively), ozone (O₃), and nitrogen dioxide (NO₂). Ambient air quality standards must not be exceeded in areas where the general public has access.

The CAA established two types of NAAQS:

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

Secondary standards: – Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings.

The EPA regularly reviews the NAAQS (every five years) to ensure that the latest science on health effects, risk assessment, and observable data such as hospital admissions are evaluated, and can revise any NAAQS if the data supports a revision. The Colorado Air Pollution Control Commission can establish state ambient air quality standards for any criteria pollutant. Any state standard must be at least as stringent as the federal standards. Table 1 lists the federal and Colorado ambient air quality standards.

Table 1: Ambient Air Quality Standards

Pollutant [final rule citation]	Standard Type	Averaging Period	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]	Primary	8-hour	9 ppm ^a	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]	Primary and secondary	Rolling 3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
	Primary and secondary	Annual	53 ppb	Annual mean
Ozone [73 FR 16436, Mar 27, 2008]	Primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years

Pollutant [final rule citation]	Standard Type	Averaging Period	Level	Form	
Particulate Matter [73 FR 3086, Jan 15, 2013]	PM _{2.5}	Primary	Annual	12 µg/m ³	Annual mean, averaged over 3 years
		Secondary	Annual	15 µg/m ³	Annual mean, averaged over 3 years
		Primary and secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	Primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
	Secondary	3-hour	0.5 ppm ^b	Not to be exceeded more than once per year	

^a mg/m³ = milligrams per cubic meter, µg/m³ = micrograms per cubic meter, ppb = parts per billion, ppm = parts per million.

^b Colorado Ambient Air Quality Standard for 3-hour SO₂ is 0.267 ppm.

Source: National – 40 CFR 50, Colorado – 5 CCR 1001-14

For areas that do not meet the NAAQS (these are designated by EPA as nonattainment areas), the CAA establishes timetables for each region to achieve attainment of the NAAQS. The State (Colorado Department of Public Health and Environment [CDPHE]) must prepare a State Implementation Plan (SIP), which documents how the region will reach attainment by the required date. A SIP includes inventories of emissions within the area and establishes emission budgets (targets) and emission control programs that are designed to bring the area into compliance with the NAAQS. In maintenance areas (nonattainment areas that have achieved attainment), SIPs document how the State intends to maintain compliance with NAAQS.

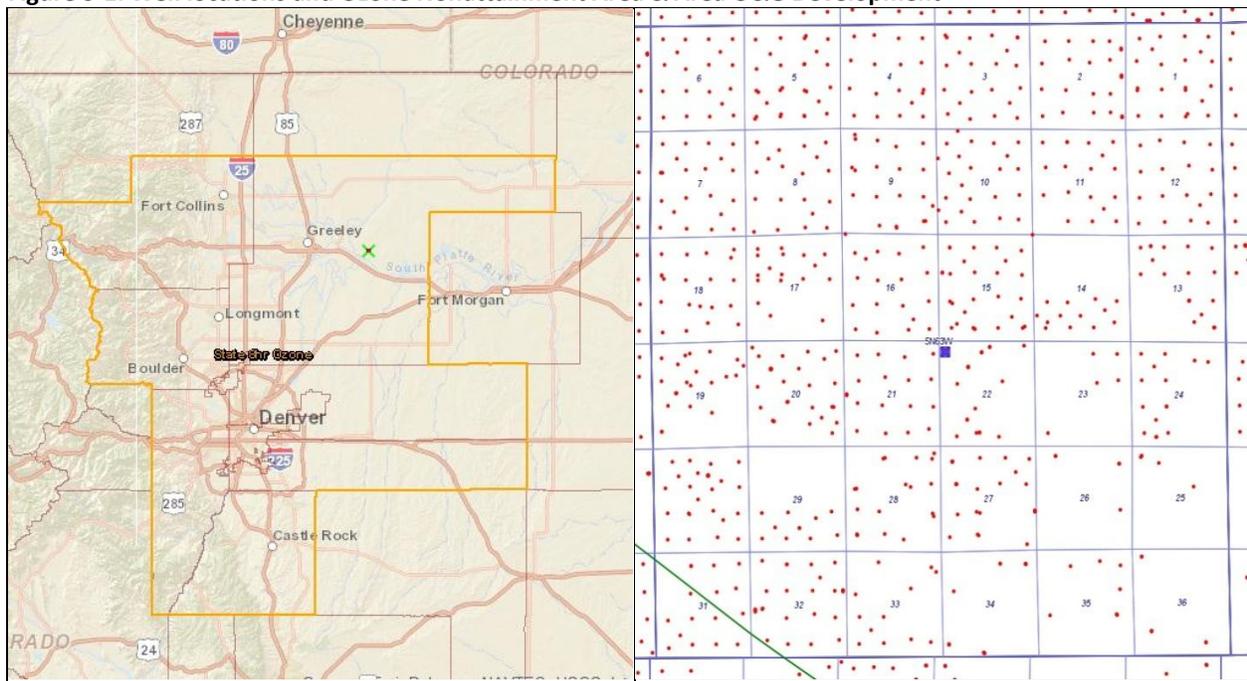
The CAA and the Federal Land Policy and Management Act of 1976 (FLPMA) require BLM and other federal agencies to ensure actions taken by the agency comply with federal, state, tribal, and local air quality standards and regulations. FLPMA further directs the Secretary of the Interior to take any action 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)].

Section 176(c) of the CAA prohibits Federal entities from taking actions in nonattainment or maintenance areas that do not “conform” to the SIP. The purpose of this conformity requirement is to ensure that Federal activities: (1) do not interfere with the budgets in the SIPs; (2) do not cause or contribute to new violations of the NAAQS; and (3) do not impede the ability to attain or maintain the NAAQS. To implement CAA Section 176(c), EPA issued the General Conformity Rule (40 CFR Part 93, Subpart B), which applies to all Federal actions not funded under U.S.C. Title 23 or the Federal Transit Act (BLM actions are not funded by U.S.C. Title 23 or the Federal Transit Act). The General Conformity Rule established emissions thresholds (40 CFR 93.153), known as *de minimis* levels, for use in evaluating the conformity of

a project. If the net emissions increases due to the project are less than these thresholds, the project is presumed to conform and no further conformity evaluation is required. If the emissions increases exceed any of these thresholds, a conformity determination is required. The conformity determination can entail air quality modeling studies, consultation with EPA and state air quality agencies, and commitments to revise the SIP or to implement measures to mitigate air quality impacts. The BLM, as the federal entity with jurisdiction for the proposed action, must demonstrate that the proposed action meets the requirements of the General Conformity rule.

The North Platte wells are located within the EPA-designated Denver-Boulder-Greeley-Fort Collins ozone nonattainment area. Because the General Conformity rule applies to actions in nonattainment or maintenance areas, the wells are subject to the general conformity requirements. Figure 3-1 depicts the well site locations with respect to the nonattainment area and also provides context for the current and historical oil and gas development within proximity of the wells.

Figure 3-1. Well locations and Ozone Nonattainment Area & Area O&G Development



The Prevention of Significant Deterioration (PSD) provision of the CAA established Class I areas in which very little degradation of air quality is allowed (e.g., national parks and large wilderness areas) and Class II areas (all non-Class I areas). The PSD Class II designation allows for moderate degradation of air quality within certain limits above baseline air quality. The lease area is designated as a Class II area. The closest Class I area to the proposed well site locations is Rocky Mountain National Park, which lies approximately 75 miles to the west.

Land Use in the Project Region: The vicinity of the Project Area (northern Weld County) is predominantly used for agriculture. Approximately 75% of the available land area of Weld County is linked to the agricultural sector of the economy in one form or another. Oil and gas development is another major economic driver for the area, and Weld County has some 17,000 active wells within its boundaries. The population density of Weld County within the vicinity of the Project Area is generally dispersed, with less than 25 people per square mile. Activities occurring within the area that affect air quality include exhaust emission from cars, drilling rigs, agricultural equipment, and other vehicles, and oil and gas development activities, as well as fugitive dust from roads, agriculture, and energy development.

Meteorology in the Project Region: Mean temperatures in the area range from 15.6 degrees Fahrenheit (°F) in January to 88.7° F in July. The area receives average annual precipitation of approximately 14.22 inches. Frequent winds in the area provide excellent dispersion characteristics for anthropogenic emissions.

Existing Air Quality Measured in the Region and County Emissions: The Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment measures ambient air quality at a number of locations throughout the state. The nearest APCD air monitors to the project are the Weld County West Annex (CO), County Tower (O₃), and Hospital (PM₁₀ and PM_{2.5}) sites located in Greeley, and one site in Briggsdale (O₃). Table 3-2 provides the measured concentrations of criteria pollutants at these monitors for the most recent three years. There are no lead, NO₂, or SO₂ monitors near the project area. Table 2 indicates that no violations of the NAAQS have occurred in the project region in the last three years, with the exception being ozone (3 yr. ave. = 76.6 ppb). Table 3 provides a look at the corresponding emissions levels within Weld county that may contribute to the monitored air quality data.

Table 2: Measured Ambient Concentrations in the Region

Monitor Location	Pollutant (Averaging Period – Unit, Form)	Measured Concentration		
		2010	2011	2012
Weld County West Annex, Greeley	CO (1 Hour – ppm, maximum)	4.2	2.7	3.2
	CO (8 Hour – ppm, maximum)	2.5	2.0	2.3
Weld County Tower, Greeley	O ₃ (8 Hour – ppm, 4 th maximum)	0.073	0.077	0.080
Briggsdale	O ₃ (8 Hour – ppm, 4 th maximum)	–	0.066	–
Weld County Health Dept. (Hospital), Greeley	PM ₁₀ (24 Hour - µg/m ³ , maximum)	44	46	102
	PM _{2.5} (24 Hour - µg/m ³ , 98 th percentile)	20	23	32
	PM _{2.5} (Annual - µg/m ³ , annual mean)	7.3	6.7	7.9

Source: EPA 2013

Table 3: Measured Ambient Concentrations in the Region

Pollutants	Weld County Emissions, tons per year (tpy)		
	Area Oil and Gas Sources	Point Oil and Gas Sources	Total All Sources
NO _x	9,514	5,503	30,365
CO	6,089	5,155	91,338
VOC	37,762	65,035	135,941
PM ₁₀	460	134	29,948
PM _{2.5}	ND	ND	ND
SO _x	70	43	545

Source: CDPHE 2010

ND = No Data

Environmental Effects:

Proposed Action (Direct and Indirect Impacts): The proposed action will have a temporary negative impact to air quality which will mostly occur during the construction phase. Utilization of the access road, surface disturbance, and construction activities such as drilling, hydraulic fracturing, well completion, and equipment installation will all impact air quality through the generation of dust related to travel, transport, and general construction. This phase will also produce short term emissions of criteria, hazardous, and greenhouse gas pollutants from vehicle and construction equipment exhausts. Once construction is complete the daily activities at the site will be reduced to operational and maintenance checks which may be as frequent as daily visits. Emissions will result from vehicle exhausts from the maintenance and process technician visits, as well as oil and produced water collection or load out trips. The pads can be expected to produce fugitive emissions of well gas and liquid flashing gases, which can contain a mixture of methane, volatile organic compounds, and inert or non-regulated gases. Fugitive emissions may result from pressure relief valves and working and breathing losses from any tanks located at the sites, as well as any flanges, seals, valves, or other infrastructure connections used at the sites. Liquid product load-out operations will also generate fugitive emissions of VOCs.

Ozone is not directly emitted like other criteria pollutants. Ozone is chemically formed in the atmosphere via interactions of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight and under certain meteorological conditions (NO_x and VOCs are ozone precursors). Ozone formation and prediction is complex, generally results from a combination of significant quantities of VOCs and NO_x emissions from various sources within a region, and has the potential to be transported across long ranges. Therefore, it is typically not appropriate to assess (i.e. model) potential ozone impacts of a minor project on potential regional ozone formation and transport. However, the State of Colorado assesses potential ozone impacts from its authorizing activities on a regional basis when an adequate amount of data is available and where such analysis has been deemed appropriate. For this reason (inappropriate scale of analysis), ozone will not be further addressed in this document beyond the related precursor discussions, general conformity analysis, and an appropriate qualitative analysis/comparison to background emissions inventories for the county and SIP (see cumulative impacts).

Emission estimates from the proposed wells were calculated for this EA, and are disclosed in Table 4 below. The emissions inventories (EI) considered reasonably foreseeable oil and gas development activities for the proposed wells within the Denver-metropolitan Northern Front Range Nonattainment Area, and includes emissions from both construction and production operations. The following pollutants were inventoried where an appropriate basis, methodology, and sufficient data exists: CO, NO_x (includes NO_2), $\text{PM}_{2.5}$, PM_{10} , SO_2 , VOCs, HAPs, CO_2 , CH_4 , and N_2O . The EI was developed using reasonable but conservative scenarios for each activity. Production emissions were calculated based on full production activity for the entire year (2014). Potential emissions were calculated for each well assuming the minimum/basic legally required control

measures, site specific voluntary operator controls, operational parameters, and equipment configurations data that was provided by the applicant.

The General Conformity Rule at 40 CFR 93.153 defines the *de minimis* thresholds for NO_x and VOC in a marginal or moderate ozone nonattainment areas, and outside of any designated transport region, as 100 tons per year (tpy). The subject proposed action is scheduled to commence in the fall of 2013, with the construction phase lasting approximately 3 months. The life of the wells, if economically viable, would be expected to sustain operations for approximately 20 – 30 years once production begins. Maximum foreseeable direct and indirect emissions would occur at the beginning of the project in 2013 (see results below).

The 2 North Platte APD Well project, as designed and submitted, have been evaluated in accordance with the requirements of 40 CFR 93.153 subpart B and have been found to conform for the following reason(s):

- [X] Potential maximum total Direct and Indirect emissions are below *de minimis* threshold levels:
 - Ozone (NO_x): 13.29 tpy in 2013 (maximum year, combined construction and production)
 - Ozone (VOC): 57.92 tpy in 2013 (maximum year, combined construction and production)

Table 4: Project Emissions Inventory

Activity	Annual Emissions (tons)												
	PM10	PM2.5	NOx	SO2	CO	VOC	HAPs	H2S	CO2	CH4	N2O	CO2eq	CO2eq metric tonnes
Well Pad Construction - Fugitive Dust	0.20	0.02	---	---	---	---	---	---	---	---	---	---	---
Heavy Equipment Exhaust Emissions	0.18	0.18	5.65	0.23	1.74	0.29	0.03	---	744.75	0.04	0.02	751.47	681.92
Commuting Vehicles - Construction	0.84	0.14	1.06	0.00	0.31	0.05	0.01	---	70.39	0.00	0.00	70.43	63.91
Wind Erosion	0.27	0.04	---	---	---	---	---	---	---	---	---	---	---
Completion Venting (100% Green)	---	---	---	---	---	0.64	0.08	0.00	0.57	0.71	0.00	15.39	13.97
Sub-total: Construction	1.49	0.38	6.71	0.23	2.04	0.97	0.11	0.00	815.71	0.75	0.02	837.30	759.80
Well Workover Operations - Fugitive Dust	0.00	0.00	---	---	---	---	---	---	---	---	---	---	---
Well Workover Operations - Exhaust	0.00	0.00	0.04	0.00	0.02	0.00	0.00	---	9.29	0.00	0.00	9.37	8.50
Wellpad Visits for Inspection & Repair	0.01	0.00	0.00	0.00	0.01	0.00	0.00	---	0.67	0.00	0.00	0.67	0.61
Wellhead and Compressor Equipment Leaks	---	---	---	---	---	5.87	0.58	0.00	7.34	10.12	0.00	219.92	199.57
Wellhead Compressor Engines Exhaust	0.23	0.23	5.79	0.01	11.59	4.06	0.41	---	781.77	0.01	0.00	782.54	710.11
Oil Wellhead Pumps (Artificial Lift)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00
Condensate Storage	---	---	---	---	---	46.23	34.70	---	5.10	0.02	0.00	5.52	5.01
Condensate Related Traffic	1.50	0.17	0.37	0.00	0.09	0.01	0.00	---	49.46	0.00	0.00	49.49	44.91
Oil Tanks	---	---	---	---	---	0.14	0.00	---	0.00	0.00	0.00	0.00	0.00
Oil Related Traffic	0.03	0.01	0.15	0.00	0.04	0.01	0.00	---	19.95	0.00	0.00	19.96	18.11
Water Tanks	---	---	---	---	---	0.61	0.07	---	0.00	0.07	0.00	1.53	1.39
Water Related Traffic	0.17	0.02	0.03	0.00	0.01	0.00	0.00	---	3.81	0.00	0.00	3.81	3.46
Water Disposal Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00
Well Pad Heaters	0.01	0.01	0.13	0.00	0.11	0.01	0.00	---	153.82	0.00	0.00	154.75	140.43
Recompletion Traffic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00
Re-Completion Venting	---	---	---	---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blowdown Venting	---	---	---	---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Flaring	---	---	0.00	---	0.00	0.00	---	---	1.03	0.01	---	1.18	1.07
Gas Plant Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	6,862.65	0.13	0.01	6,869.38	6,233.56
Field Dehydrators	---	---	0.00	---	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00
Sub-total: Operations	1.95	0.44	6.52	0.02	11.86	56.94	35.76	0.00	1,032.23	10.24	0.00	1,248.74	1,133.16
Resource Road Maintenance	0.02	0.00	0.01	0.00	0.00	0.00	0.00	---	1.18	0.00	0.00	1.19	1.08
Sub-total: Maintenance	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00	1.19	1.08
Resource Road Reclamation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00
Wellpad Reclamation	0.01	0.01	0.05	0.00	0.04	0.01	0.00	---	5.09	0.00	0.00	5.13	4.65
Sub-total: Reclamation	0.01	0.01	0.05	0.00	0.04	0.01	0.00	0.00	5.09	0.00	0.00	5.13	4.65
Total Emissions (tons)	3.47	0.83	13.29	0.25	13.94	57.92	35.87	0.00	1,854.22	10.99	0.02	2,092.36	1,898.69

The project emissions are relatively small compared to the aggregate County emissions, less than 0.2%. APCD published modeling guidance (Colorado Modeling Guideline for Air Quality Permits - January 2002, April 2010) that established thresholds for requiring additional analysis when emissions are exceeded on an annual or short term basis. The modeling thresholds were developed to identify new sources and modifications that would have relatively small impacts on ambient air quality and would not warrant further analysis with respect to applicable standards with a few exceptions. The thresholds (*de minimis* emissions) establish levels of emissions which have a low probability of causing or contributing to an exceedance of an air quality standard. The annual production phase calculated emissions are below the APCD established thresholds, and the short-term construction phase estimated emissions are considered to be insignificant due to the spatial distribution of emissions sources associated with the project and the dispersion characteristics of these sources (i.e. NO_x and particulate matter [PM] emissions originate from well pad and traffic combustion sources that are spread throughout the 1 square mile project area). For these reasons, a near-field ambient air quality impact assessment (i.e. modeling) was not considered necessary for this project.

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. Predicting the degree of impact any single emitter of GHGs may have on global climate, or on the changes to biotic and abiotic systems that accompany climate change is highly complex, has considerable uncertainty, and requires intense computer modeling (i.e., super computers). As such, no readily available tools exist to predict impacts a project's emissions would have on the global, regional, or local climate. This analysis is therefore limited to comparing the context of total project GHG emissions to emissions recently analyzed by EPA. The analysis also discloses readily available information regarding expected changes to the global climatic system and any empirical evidence of climate change that has occurred to date (see cumulative impacts).

The implementation of the Proposed Action is estimated to contribute 1,899 tonnes of carbon dioxide equivalent (CO₂(e)) in the maximum year (2013). Annual operating GHG emissions will be approximately 60% of the total emissions shown for the maximum year. Over the average 25 year project timeframe the total GHG emissions expected are approximately 30,259 tonnes. The total provided does not account for the ultimate use or consumption of any produced minerals at this time due to the fact that the ultimate form of use and any additional processing required to render the product to sufficient quality (which would cause changes to the quantity of product) cannot be predicted with any reasonable certainty. Additionally, it should be noted that production values (also estimated at this time) could vary significantly over the life of the project, making any prediction of the quantities of GHG emitted highly speculative.

In 2007, the state of Colorado's GHG emissions were 124,000,000 metric tons. The proposed action's GHG emissions represent about 0.024% of the state of Colorado's GHG emissions. The relative magnitude of greenhouse gas emissions associated with the development of the 2 wells as compared to the state's GHG emission levels is extremely small. To provide additional context for the level of project emissions and potential impacts, the EPA has recently modeled global climate change impacts from a model source emitting 20% more GHGs than a 1500MW coal-fired steam

electric generating plant (approx. 14,132,586 metric tons per year of CO₂, 273.6 metric tons per year of nitrous oxide, and 136.8 metric tons per year of methane). It estimated a hypothetical maximum mean global temperature value increase resulting from such a project. The results ranged from 0.00022 and 0.00035 degrees Celsius occurring approximately 50 years after the facility begins operation. The modeled changes are extremely small, and any downsizing of these results from the global scale would produce greater uncertainty in the predictions. The EPA concluded that even assuming such an increase in temperature could be downscaled to a particular location, it "would be too small to physically measure or detect", see Letter from Robert J. Meyers, Principal Deputy Assistant Administrator, Office of Air and Radiation re: "Endangered Species Act and GHG Emitting Activities (Oct. 3, 2008). The project emissions are a fraction of the EPA's modeled source and are shorter in duration, and therefore reasonable to conclude that the project would have no measurable impact on the climate.

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 additional pad 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 action's 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. With respect to ozone, the current nonattainment area episodic anthropogenic emissions budget approved by the Colorado Air Quality Control Commission (December 12, 2008) for NO_x and VOCs (ozone precursors) is 334.6tpd and 425.4tpd respectively. These emissions represent reductions projected to be realized (in 2010) from the implementation of additional rules which are now a part of the Colorado Air Quality Control Regulations (AQCRs). The reductions were modeled to show progress towards attaining the ozone standard for the worst ozone days. The emissions inventory included a comprehensive speciation of point, mobile (on-road and non-road), oil and gas (point and area), and biogenic sources. The Technical Support Document (TSD) for the inventory provides the basis for the inventory and includes broad cross sections of the economy. As such, and given the projected pace of development for the inventory, it is likely that the project emissions for the 2 North Platte wells are adequately covered and evaluated in the APCD episodic analysis. Given the likely coverage, it is not anticipated the project will have a measurable impact on regional ozone formation outside of the modeled parameters. Additionally, drilling is currently scheduled for late fall 2013, and thus will not coincide with the traditional ground level ozone formation season (i.e. summer).

With respect to GHG emissions, the following predictions were identified by the EPA for the Mountain West and Great Plains region:

- The region will experience warmer temperatures with less snowfall.
- Temperatures are expected to increase more in winter than in summer, more at night than in the day, and more in the mountains than at lower elevations.
- Earlier snowmelt means that peak stream flow will be earlier, weeks before the peak needs of ranchers, farmers, recreationalist, and others. In late summer, rivers, lakes, and reservoirs will be drier.
- More frequent, more severe, and possibly longer-lasting droughts will occur.
- Crop and livestock production patterns could shift northward; less soil moisture due to

- increased evaporation may increase irrigation needs.
- Drier conditions will reduce the range and health of ponderosa and lodge pole pine forests, and increase the susceptibility to fire.
- Grasslands and rangelands could expand into previously forested areas.
- Ecosystems will be stressed and wildlife such as the mountain line, black bear, long-nose sucker, marten, and bald eagle could be further stressed.

If these predictions are realized as mounting evidence suggests is already occurring, there could be impacts to resources within the region. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Warmer temperatures with decreased snowfall could have an impact on a particular plants ability to sustain itself within its current range. An increased length of growing season in higher elevations could lead to a corresponding variation in vegetation and change in species composition. These types of changes would be most significant for special status plants that typically occupy a very specific ecological niche. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened or endangered plants may be accelerated. Invasive plant species would be more likely to out-compete native species.

Increases in winter temperatures in the mountains could have impacts on traditional big game migration patterns. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Warmer winters with less snow would impact the Canada lynx by removing a competitive advantage they have over other mountain predators. Earlier snowmelt could also have impacts on cold water fish species that occupy streams throughout the planning area. Climate change could affect seasonal frequency of flooding and alteration of floodplains, which could impact riparian conditions. More frequent and severe droughts would have impacts on many wildlife species throughout the region as well as vegetative composition and availability of livestock forage in some areas. Climate change could increase the growing season within the region, however, so longer growing season in theory would result in more forage production provided there is sufficient precipitation. Drier conditions could have severe impacts on forests and woodlands. This could leave these forests and woodlands more susceptible to insect damage and at higher risk of catastrophic wildfires. Increased fire activity and intensity would increase greenhouse gas emissions.

No Action Alternative (Direct and Indirect Impacts): None of the proposed action elements would be authorized and therefore none of the potential emissions causing activities would occur. No impacts to air quality would occur. The incremental increase to global GHG burden would not happen, however it is entirely likely the predicted climatic changes will occur regardless.

Protective/Mitigation Measures: Bonanza Creek Energy, Inc. will use industry best practices, including watering, graveling, and reseeded to reduce fugitive dust emissions from vehicular traffic and disturbed surfaces. Interim reclamation and existing agricultural practices will be implemented in order to stabilize the site and prevent fugitive dust from being generated. In addition the following BLM requirements will apply:

- Process equipment will be permitted by CDPHE in accordance with applicable requirements and required emissions standards to limit the facility's potential to emit and provide appropriate operating, monitoring, and recordkeeping requirements.
- COA - All FRAC Pump engines will be required to meet EPA Non-Road Tier II Emissions Standards or better.
- COA - 'Green Completions' will be performed for both authorized wells.
- COA - All Drill Rigs will be required to meet EPA Non-Road Tier II Emissions Standards, or better, for all drilling and completion operations.

It is expected that the operator will comply with these requirements and make every effort to minimize emissions through good engineering and operating practices to the maximum extent practical.

3.2.2 GEOLOGIC AND MINERAL RESOURCES

Affected Environment: The proposed APD well is located in the northern part of the Denver Basin where due to new drilling and completion technologies in mudrock dominated intervals interest has been reignited in the Rocky Mountain region Niobrara play. In addition to the Niobrara Formation, historically oil and gas in the Denver Basin has been produced from Cretaceous sandstones: J-Sandstone, Codell Sandstone, Niobrara Formation, Hygiene Sandstone, and Terry Sandstone (also known informally as the Sussex and Shannon Sandstones).

In addition to oil and gas, uranium and coal resources are also found in Weld County. Uranium resources are found in the Upper Laramie Formation north of Greeley. Coal resources are found throughout the Denver Basin in the Denver Formation and the upper Laramie Formation in the Denver Basin although most of the coal resources in the Denver Basin have come from Laramie Coals.

Several sand and gravel pits have been developed within 5 miles of the proposed wells so sufficient materials should already be available for construction needs.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action would drill through the Laramie Formation that contains the uranium and coal resources to produce hydrocarbons from underlying formations. During drilling operations on the parcels, loss of circulation or problems cementing the surface casing may affect freshwater aquifer and mineral zones encountered.

Mitigation/Residual Effects: Recommended Mitigation is 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 aquifers, and placed at least 50 to 100 feet into a formation that should not fracture or breakdown with the maximum weighting of mud that may be needed when drilling to the depth that the intermediate casing is going to be set. Before drilling an intermediate hole, the surface casing will be cemented in place to surface between the casing and the formation.

A BLM representative may 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.

A cement bond log will be required on the production casing, to ensure the quality of the cement bond between the casing and the formation. A minimum of 100 feet of cement will be required above any producing interval, or any zone of interest. Remedial cementing procedures will be required when cementing doesn't meet BLM requirements.

If the proposed project plans to utilize federal minerals in the construction of roads, pad building or for any other construction needs, then compliance with 43 CFR 3600 is required. The project proponent will need to submit an application for a mineral materials disposal with BLM, prior to any disturbance being initiated. Federal mineral materials regulations also apply to split estate (i.e. a private surface landowner could not dispose of federal mineral materials for this project, surface or subsurface, without prior authorization from the BLM).

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: Not approving the APD could set up a situation in which reservoirs could not be adequately developed and public minerals could be drained by nearby private or state wells, resulting in a loss of revenue due to drainage situations that could be resolved by authorizing APDs. Drainage cases commonly occur in northeastern Colorado where land and mineral ownership patterns are complex.

Cumulative Impacts: None

Mitigation/Residual Effects: None

3.2.3 SOILS (includes a finding on standard 1)

Affected Environment:

The Weld county soil survey has identified the soil series in the proposed project area as: Valent sand, 3-9 percent slopes. The parent material consists of alluvium and/or eolian deposits. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high to very high. 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 80 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R067BY015CO Deep Sand ecological site. Nonirrigated land capability classification is 6e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Environmental Effects

The proposed development could result in a small percent of increased wind erosion during initial operations of associated with 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. 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 and the implementation of BMPs during the construction.

Proposed Action

Direct and Indirect Impacts: This action would result in up to 6 acres of total combined new surface disturbance. Well and tank battery pad construction would require approximately 4,840 yrd³ of top soil stripped (at 6 inch depth). In the event the wells are developed into production, the amount of long term disturbance would be approximately 2.5 acres. This is assuming successful interim reclamation including re-contouring, seeding, and necessary stabilization. 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. 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: Under this alternative, there would be no new construction. There would be no direct or indirect impact to: soils, risk of increased runoff, or risk of increased erosion in the proposed project area.

Protective/Mitigation Measures: N/A

3.2.4 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS) (includes a finding on standard 5)

Affected Environment: The proposed wells would be located in a dry upland setting tributary to the South Platte River with no perennial surface water nearby. Groundwater in this area consists of the Laramie Fox-Hills aquifer that is used for domestic and agricultural purposes and is generally produced from artesian wells. This aquifer can be up to 350 feet thick, although total thickness of water yielding material rarely exceeds 200 feet. The Lower Fox Hills and upper Pierre Aquifer or upper transition zone of the Pierre shale are also important water resources that should be protected, this interval occurs at depths of about 600' to 1500'. Underlying the Fox Hills is nearly 5,000 feet of Pierre Shale. There are at least 5 water wells within a one mile radius of the proposed wells with the closest being a monitoring well approximately .35 miles to the northwest. The deepest water well in this area is 400 feet with some being less than 100 feet.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Surface water impacts of the proposed wells are mainly associated with the surface disturbance associated with drilling and related infrastructure after well completion. For the proposed wells, 6 acres would be disturbed. Most impacts to surface water from oil and gas activity is due to removal of vegetation and exposure of mineral soils. Specific impacts would be soil compaction caused by construction that would reduce the soil infiltration rates, in turn increasing runoff during precipitation events. Downstream effects of the increased runoff may include changes in downstream channel morphology such as bed and bank erosion or accretion. Due to the flat nature of the topography and infiltration rates of the soils in this area, little to no new impacts to surface water quality would result from the surface disturbance portion of drilling the proposed wells. Additional surface water impacts could result from chemicals, or other fluids, accidentally spilled or leaked during the development process and could result in the contamination of both ground and surface waters. Best management practices would be contained in the condition of approval that would mitigate this threat.

The drilling of the proposed wells would pass through usable groundwater. Groundwater in this area is relied on for agricultural uses, as well as, domestic use. 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.

Protective/Mitigation Measures: 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 the wells are not drilled, no new impacts to either ground or surface water quality would occur.

Protective/Mitigation Measures: None

3.3 BIOLOGICAL RESOURCES

3.3.1 INVASIVE PLANTS*

Affected Environment: Invasive plants are common in the area due to historical agricultural practices. The ecological site that makes up the project site is prone to a wide variety of weeds if severe soil surface disturbance occurs.

Environmental Effects

Proposed Action

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

Protective/Mitigation Measures: 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 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

Protective/Mitigation Measures: 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.

3.3.2 WILDLIFE TERRESTRIAL (includes a finding on standard 3)

Affected Environment: The habitat in the project area is classified as western Great Plains short grass prairie and is dominated by blue grama, with associated graminoids such as side oats grama, buffalo grass, purple threeawn, and needle and thread. There are small amounts of yucca, prickly pear, and annual forbs. Small groves of cottonwood and elm trees are near the action area at a homestead. This area has experienced extensive disturbance from oil and gas activity. Wildlife species that have adapted and are common in this habitat are 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. Colorado Parks and Wildlife have designated lands within and surround the action area as pronghorn winter range. Trees or shrubs located within or near the action area may provide suitable nesting habitat for raptors.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action will result in a relatively small amount of lost habitat. The proposed action will use existing infrastructure and expand existing facility sites. Habitat adjacent to the disturbance footprint may not be utilized by wildlife due to its proximity to drilling and production activity. Human activity peaks at the drilling phase, causing increased stress levels or excluding wildlife from the action area. When wells are in production there is significantly less human activity and some species will adapt to the disturbances.

Protective/Mitigation Measures: No surface use beginning January 1 for a period of 60 days to protect big game winter ranges as mapped by Colorado Parks and Wildlife. An exception may

be granted because of climatic conditions or if the winter range habitat is unsuitable or unoccupied during winter months.

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

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None.

Finding on the Public Land Health Standard for Threatened & Endangered species:
Public land health standards do not apply on private lands.

3.3.3 MIGRATORY BIRDS

Affected Environment: The habitat in the project area is classified as western Great Plains short grass prairie and is dominated by blue grama, with associated graminoids such as side oats grama, buffalo grass, purple threeawn, and needle and thread. There are small amounts of yucca, prickly pear, and annual forbs. Small groves of cottonwood and elm trees are near the action area at a homestead. Lark bunting, McCown's longspur and chestnut-collared longspur are on the US Fish and Wildlife Services "Birds of Conservation Concern-2008 List for BCR-18 (Shortgrass Prairie) and may occur in the project area based on their habitat requirements.

The lark bunting and chestnut-collared longspur use habitat in a similar way and/or respond similarly to threats, management, and conservation activities. They are common in open shortgrass prairie with few or no bushes. Birds arrive on the eastern plains in late April-early May, with nesting initiated during mid-May to June and young fledged during June and July. Migration from Colorado to the winter grounds occurs by late September although some birds may overwinter; they winter in the southern U.S. and Mexico. They feed on grasshoppers and other invertebrates and on grass and forb seeds.

The McCown's longspur breed in shortgrass, especially where vegetation cover is sparse due to low soil moisture or grazing, or is interspersed with shrubs or taller grasses. They also nest in grazed mixed-grass prairies. Longspurs arrive in Colorado in late March, and often linger into November. They initiate nesting by mid-May, and most young fledge by mid-July. Attempts to produce second broods may account for their extended residence in Colorado. They winter in the southern U.S. and northern Mexico. Their diet consists primarily of grass and forb seeds, but also includes grasshoppers, moths, beetles, and ants.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Surface disturbing activities associated with oil and gas development, such as road building, pipeline installation or pad construction may "take" nests if such activity were to occur during the nesting season. Noise generated during construction,

drilling, and production phases will likely result in a larger impact footprint than the disturbance footprint alone. Migratory birds may be burned or killed by exhaust vents, heater-treaters, flare stacks, etc., if perched at the opening while in operation. An increase in activity, i.e. road traffic, will likely result in an increase in vehicular collisions with migratory birds.

The location and surrounding area is highly disturbed by oil and gas development. While the habitat may not be ideal, some plains birds have adapted to and currently use habitat patches within well fields 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. In this case, it is unlikely the proposed action will cause an additive negative impact to migratory birds currently present at the site

Protective/Mitigation Measures: 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. Under the MBTA, “take” means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. All mortality or injury to species protected by the MBTA shall be reported immediately to the BLM project lead and to the USFWS representative.

Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, during the breeding and brood rearing season for most Colorado migratory birds. An exception to this TL will be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 a.m. under favorable conditions. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 15 and continue into the 60-day period.

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.

Protective/Mitigation Measures: None.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 PALEONTOLOGICAL RESOURCES

Affected Environment: The proposed wells are geographically located in an area overlying part of the geologic feature that is the eastern flank of the Denver Basin. The Basin consists of a large asymmetric syncline of Paleozoic, Mesozoic, and Cenozoic sedimentary rock layers, trending north to south along the east side of the Front Range from about Pueblo north to Wyoming. The basin is deepest near Denver and ascends gradually to its eastern outcrop in central Kansas. Quaternary gravel deposits underlie the proposed well location.

Quaternary gravel deposits are Class 3 geologic formations, according to the BLM's Potential Fossil Yield Classification (PFYC) System that was created to assist in determining proper mitigation approaches for surface disturbing activities (WO IM2008-009). Class 3 indicates moderate potential for paleontologic resources. The potential for this proposed project to be sited on or impact a significant fossil locality is low but somewhat higher for more common fossils.

Environmental Effects

Proposed Action: The proposed well pad would have a maximum cut of 4 feet associated with the construction of the well pad. Construction of the well pad and road would result in approximately 6 acres of surface disturbance, most of which is disturbing reclaimed surface and not penetrating the protective soil layer. The total disturbance includes installation of a new pipeline.

Construction activities for the proposed well may potentially penetrate the protective soil layer and potentially encounter protected vertebrate fossils.

Direct and Indirect Impacts: 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 high 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. Adverse impacts to important fossil resources would be long-term and significant since fossils removed or destroyed would be lost to science. Adverse significant impacts to paleontological resources can be reduced to a negligible level through mitigation of ground disturbing activities. It is possible that the proposed project would have the beneficial impact that ground disturbance activities might result in the discovery of important fossil resources.

Protective/Mitigation Measures: The proposed construction of the well pad and access to the well pad may penetrate the protective soil layer impacting the bedrock unit below. Due to the lower probability of the location having fossil resources present, paleontological survey work will not be required however; In order to prevent potential impacts to paleontologic resources, a

condition of approval shall 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.

In many instances where the surface estate is not owned by the Federal Government, the mineral estate is, and is administered by the BLM. Paleontological resources are considered to be part of the surface estate. If BLM is going to approve an action involving the mineral estate that may affect the paleontological resources, the action should be conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner. The surface owner may elect to waive these recommendations.

3.4.2 WASTES, HAZARDOUS OR SOLID

Affected Environment: It is assumed that conditions associated with the proposed project site, both surface and subsurface, are currently clean and that there is no known contamination. A determination will be made by the operator prior to initiating the project, if there is evidence that demonstrates otherwise (such as solid or hazardous wastes have been previously used, stored, or disposed of at the project site).

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 materials (as defined under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations) into the environment that will require a response action or result in the incurrence of response costs.

Environmental Effects

Proposed Action

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

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

Protective/Mitigation Measures: The following mitigation will assist in reducing potential spills resulting in 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.
- If pits are utilized they need to be lined to mitigate leaching of liquids to the subsurface, as necessary.

No Action Alternative

Direct and Indirect Impacts: None

Protective/Mitigation Measures: None

3.5 CUMULATIVE IMPACTS SUMMARY

The proposed project is located in Weld County, Colorado. Weld County's economy is based primarily on agriculture (farming and livestock production) and oil and gas development. Due to this, most of the natural landscape of Weld County has been modified. Weld County has more than 16,500 active petroleum wells, more than any other county in the United States, according to Weld county commissioners. Most of these wells are located on privately owned surface and produce entirely privately owned minerals. BLM is involved in less than 5% of all petroleum wells in Weld County. Because of the comparatively small number of Federally owned mineral parcels in this area, the cumulative impact of Federal petroleum development is less significant when compared to the impacts of the overall petroleum development in Weld County.

Air: 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 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 well's 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.

With respect to ozone, the current nonattainment area episodic anthropogenic emissions budget approved by the Colorado Air Quality Control Commission (December 12, 2008) for NO_x and VOCs (ozone precursors) is 334.6tpd and 425.4tpd respectively. These emissions represent reductions projected to be realized (in 2010) from the implementation of additional rules which are now a part of the Colorado Air Quality Control Regulations (AQCRs). The reductions were modeled to show progress towards attaining the ozone standard for the worst ozone days. The emissions inventory included a comprehensive speciation of point, mobile (on-road and non-

road), oil and gas (point and area), and biogenic sources. The Technical Support Document (TSD) for the inventory provides the basis for the inventory and includes broad cross sections of the economy. As such, and given the projected pace of development for the inventory, it is likely that the project emissions for the 12 USA Federal wells are adequately covered and evaluated in the APCD episodic analysis. Given the likely coverage, it is not anticipated the project will have a measurable impact on regional ozone formation outside of the modeled parameters. Additionally, drilling is currently scheduled for late fall 2013, and thus will not coincide with the traditional ground level ozone formation season (i.e. summer).

With respect to GHG emissions, the following predictions were identified by the EPA for the Mountain West and Great Plains region:

- The region will experience warmer temperatures with less snowfall.
- Temperatures are expected to increase more in winter than in summer, more at night than in the day, and more in the mountains than at lower elevations.
- Earlier snowmelt means that peak stream flow will be earlier, weeks before the peak needs of ranchers, farmers, recreationalist, and others. In late summer, rivers, lakes, and reservoirs will be drier.
- More frequent, more severe, and possibly longer-lasting droughts will occur.
- Crop and livestock production patters could shift northward; less soil moisture due to increased evaporation may increase irrigation needs.
- Drier conditions will reduce the range and health of ponderosa and lodge pole pine forests, and increase the susceptibility to fire.
- Grasslands and rangelands could expand into previously forested areas.
- Ecosystems will be stressed and wildlife such as the mountain line, black bear, long-nose sucker, marten, and bald eagle could be further stressed.

If these predictions are realized as mounting evidence suggests is already occurring, there could be impacts to resources within the region. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Warmer temperatures with decreased snowfall could have an impact on a particular plants ability to sustain itself within its current range. An increased length of growing season in higher elevations could lead to a corresponding variation in vegetation and change in species composition. These types of changes would be most significant for special status plants that typically occupy a very specific ecological niche. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened or endangered plants may be accelerated. Invasive plant species would be more likely to out-compete native species.

Increases in winter temperatures in the mountains could have impacts on traditional big game migration patterns. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Warmer winters with less snow would impact the Canada lynx by removing a competitive advantage they have over other mountain predators. Earlier snowmelt could also have impacts on cold water fish species that occupy streams throughout the planning area. Climate change could affect seasonal frequency of flooding and alteration of floodplains, which could impact riparian conditions. More frequent and severe droughts would have impacts on many wildlife species throughout the region

as well as vegetative composition and availability of livestock forage in some areas. Climate change could increase the growing season within the region, however, so longer growing season in theory would result in more forage production provided there is sufficient precipitation. Drier conditions could have severe impacts on forests and woodlands. This could leave these forests and woodlands more susceptible to insect damage and at higher risk of catastrophic wildfires. Increased fire activity and intensity would increase greenhouse gas emissions.

Geologic and Mineral Resources: Cumulative impacts on geology and minerals resources would primarily occur as a result of oil and gas development, which would irreversibly deplete recoverable oil and gas from the producing formations.

Soils: 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. At the watershed scale, the addition of the two proposed wells and related construction would have an immeasurable impact to the soils of the area in the future given the current agricultural use in the proposed project area.

Migratory Birds: The location and surrounding area is highly disturbed by oil and gas development. While the habitat may not be ideal, some plains birds have adapted to and currently use habitat patches within well fields 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. In this case, it is unlikely the proposed action will cause an additive negative impact to migratory birds currently present at the site

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

Please see Interdisciplinary Team Review list for BLM Participants

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Native American Tribes were consulted at the lease stage.

CHAPTER 5 - REFERENCES

Bureau of Land Management. 1986. Northeast Resource Area Management Plan and Record of Decision. Lakewood, Colorado.

Bureau of Land Management. 1991. Colorado Oil and Gas Leasing Environmental Impact Statement. Lakewood, Colorado.

Bureau of Land Management. 2008 H-1790-1 National Environmental Policy Handbook. Washington, D.C.

Finding Of No Significant Impact (FONSI)

DOI-BLM-CO-200-2013-0077 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: The BLM has received two Application Permits to Drill (APDs), proposing the construction of one well pad location, pipeline and access road on split estate (private surface over federal minerals) in Weld County, approximately 16 miles east of the City of Greeley. The federal mineral estate is leased and subject to oil and gas development.

The general area description would be defined as rural land located north of the South Platte River, used primarily for livestock production and oil and gas development. The project location is situated in a short grass prairie environment where the primary use of that land has been livestock grazing and oil and gas development. There are few county roads in the project area and a state highway nearby. Access is limited to private roads or oil and gas developed roadways, over private surface. The roadways vary in development but most are dirt/primitive roads.

Extensive oil and gas development has occurred in the area, mostly on private mineral estate.

Intensity:

I have considered the potential intensity/severity of the impacts anticipated from the proposed North Platte Federal K-O-22 HNB and North Platte Federal P-T-22 HNB oil wells and associated pad, access road and production facilities. Project decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

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 ground water; 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. Positive impacts include benefits in royalties and revenue generated to the federal government from productive wells. Other indirect effects could include effects due to overall employment opportunities related to the oil and gas and

service support industry in the region as well as the economic benefits to state and county governments related to royalty payments and severance taxes. Other beneficial impacts from the action would be the potential for productive wells being created that would have a positive economic impact locally and on a large scale, generate mineral royalties for the Federal Government, and finally, would contribute, albeit in a small way, to national energy independence.

Public health and safety:

The proposed action will have a temporary negative impact to air quality through the generation of fugitive dust during the construction phase. Utilization of the road, surface disturbance, and construction activities such as drilling, hydraulic fracturing, well completion, and equipment installation will all impact air quality through the generation of dust related to travel, transport, and general construction. This phase will also produce short term emissions of criteria, hazardous, and greenhouse gas pollutants from vehicle and construction equipment exhausts. Once construction is complete the daily activities at the site will be reduced to operational and maintenance checks which may be as frequent as a daily visit. Emissions will result from vehicle exhausts from the maintenance and process technician visits. The pad can be expected to produce fugitive emissions of well gas, which contains mostly methane and a minor fraction of volatile organic compounds. Fugitive emissions may also result from pressure relief valves and working and breathing losses from any tanks located at the site, as well as any flanges, seals, valves, other infrastructure connections used at the site. Liquid product load-out operations will also generate fugitive emissions of VOCs and vehicular emissions. If the operator is unable to sell any produced gas from the well, then gas flaring will also produce emissions of criteria, HAP, and GHG emissions.

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 nor 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 proposed APDs will be limited to standard construction procedures associated with pad/road construction and drilling in Weld County and have occurred historically on split and private mineral 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. Continued oil and gas activity in the area will have minor but additive impacts to air and the production greenhouse gas emissions. The project area having been subject to historic drilling activity will continue to experience gradual depletion of the recoverable oil and gas products. Although past cattle grazing had contributed to cumulative impacts, there have been no other recent activities besides oil and gas that has contributed to cumulative impacts.

Scientific, cultural or historical resources, including those listed in or eligible for listing in the National Register of Historic Places:

Few cultural resources are present in the vicinity of the area of potential effect [see Report CR-RG-12-150 (N)]. However, no historic properties were recorded during the cultural resources inventory. Therefore, the inventory will not affect historic properties.

Threatened and endangered species and their critical habitat:

There are no known populations of T&E species in the action 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, Migratory Bird Treaty Act (MBTA) and the Endangered Species Act.

NAME OF PREPARER: Aaron Richter

SUPERVISORY REVIEW: Jay Raiford

NAME OF ENVIRONMENTAL COORDINATOR: /s/ Martin Weimer

DATE: 8/21/13

SIGNATURE OF AUTHORIZED OFFICIAL:

/s/ Keith E. Berger
Keith E. Berger, Field Manager

DATE SIGNED: 8/22/13

APPENDICES:

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ROYAL GORGE FIELD OFFICE**

DECISION RECORD

Project Name

DOI-BLM-CO-200-2013-0077-EA

DECISION: It is my decision to authorize the Proposed Action as described in the attached EA. The proposed action is to construct a well pad, access road, gas pipeline and drill two horizontal wells to develop federal minerals, from a private surface. Access to the proposed North Platte Federal K-O-22 HNB and North Platte Federal P-T-22 HNB project would be gained by traveling on existing state, county and petroleum field roads.

The proposed project is located in the central part of Weld County east of the City of Greeley, Colorado. The federal mineral estate within the project boundary is leased and subject to oil and gas development.

The proposed action was analyzed in the Environmental Assessment (EA) DOI-BLM-CO-200-2013-0077 and a Finding of No Significant Impact was reached and an EIS will not be prepared.

RATIONALE: This APD will develop oil and gas resources on Federal minerals Lease COC63737 consistent with existing Federal lease rights provided for in the Mineral Leasing Act of 1920, as amended. Extensive oil and gas development has occurred surrounding the project area, mostly on private mineral estate.

The project 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 four proposed wells would have mostly temporary and overall minor impacts on resources present in the project area.

MITIGATION MEASURES\MONITORING:

Bonanza Creek Energy, Inc. will use industry best practices, including watering, graveling, and reseeding to reduce fugitive dust emissions from vehicular traffic and disturbed surfaces. Interim reclamation and existing agricultural practices will be implemented in order to stabilize the site and prevent fugitive dust from being generated. In addition the following BLM requirements will apply:

- Process equipment will be permitted by CDPHE in accordance with applicable requirements and required emissions standards to limit the facility's potential to emit and provide appropriate operating, monitoring, and recordkeeping requirements.
- COA - All FRAC Pump engines will be required to meet EPA Non-Road Tier II Emissions Standards or better.
- COA - 'Green Completions' will be performed for both authorized wells.

- COA - All Drill Rigs will be required to meet EPA Non-Road Tier II Emissions Standards, or better, for all drilling and completion operations.

It is expected that the operator will comply with these requirements and make every effort to minimize emissions through good engineering and operating practices to the maximum extent practical.

Geology and Mineral Resources: 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 aquifers, and placed at least 50 to 100 feet into a formation that should not fracture or breakdown with the maximum weighting of mud that may be needed when drilling to the depth that the intermediate casing is going to be set. Before drilling an intermediate hole, the surface casing will be cemented in place to surface between the casing and the formation.

A BLM representative may 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.

A cement bond log will be required on the production casing, to ensure the quality of the cement bond between the casing and the formation. A minimum of 100 feet of cement will be required above any producing interval, or any zone of interest. Remedial cementing procedures will be required when cementing doesn't meet BLM requirements.

If the proposed project plans to utilize federal minerals in the construction of roads, pad building or for any other construction needs, then compliance with 43 CFR 3600 is required. The project proponent will need to submit an application for a mineral materials disposal with BLM, prior to any disturbance being initiated. Federal mineral materials regulations also apply to split estate (i.e. a private surface landowner could not dispose of federal mineral materials for this project, surface or subsurface, without prior authorization from the BLM).

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 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.

Wildlife Terrestrial: No surface use beginning January 1 for a period of 60 days to protect big game winter ranges as mapped by Colorado Parks and Wildlife. An exception may be granted because of climatic conditions or if the winter range habitat is unsuitable or unoccupied during winter months.

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

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. Under the MBTA, “take” means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. All mortality or injury to species protected by the MBTA shall be reported immediately to the BLM project lead and to the USFWS representative.

Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, during the breeding and brood rearing season for most Colorado migratory birds. An exception to this TL will be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 a.m. under favorable conditions. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 15 and continue into the 60-day period.

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.

Paleontological Resources: The proposed construction of the well pad and access to the well pad may penetrate the protective soil layer impacting the bedrock unit below. Due to the lower probability of the location having fossil resources present, paleontological survey work will not be required however; In order to prevent potential impacts to paleontologic resources, a condition of approval shall 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.

In many instances where the surface estate is not owned by the Federal Government, the mineral estate is, and is administered by the BLM. Paleontological resources are considered to be part of the surface estate. If BLM is going to approve an action involving the mineral estate that may affect the paleontological resources, the action should be conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner. The surface owner may elect to waive these recommendations.

Wastes, Hazardous or Solid: The following mitigation will assist in reducing potential spills resulting in 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.
- If pits are utilized they need to be lined to mitigate leaching of liquids to the subsurface, as necessary.

PROTEST/APPEALS: This decision shall take effect immediately upon the date it is signed by the Authorized Officer, and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR 2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a notice of appeal must be filed in the office of the Authorized Officer at the Royal Gorge Field Office, 3028 E. Main, Cañon City, Colorado, 81212. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with the Authorized Officer.

SIGNATURE OF AUTHORIZED OFFICIAL:

/s/ Keith E. Berger
Keith E. Berger, Field Manager

DATE SIGNED: 8/22/13