

**United States Department of the Interior  
Bureau of Land Management**

**DRAFT**

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**Environmental Assessment  
for the Royal Gorge Field Office November, 2014 Competitive  
Oil & Gas Lease Sale**

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Royal Gorge Field Office  
3028 E Main St  
Canon City, CO 81212

DOI-BLM-CO-FO2-2014-015-EA

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## TABLE OF CONTENTS

### Contents

CHAPTER 1 - INTRODUCTION.....	3
<b>1.1 IDENTIFYING INFORMATION.....</b>	<b>3</b>
<b>1.2 PROJECT LOCATION AND LEGAL DESCRIPTION.....</b>	<b>4</b>
<b>1.3 PURPOSE AND NEED .....</b>	<b>4</b>
1.3.1 Decision to be Made .....	5
<b>1.4 PUBLIC PARTICIPATION.....</b>	<b>6</b>
1.4.1 Scoping .....	6
1.4.2 Public Comment Period.....	7
CHAPTER 2 - ALTERNATIVES .....	7
<b>2.1 INTRODUCTION.....</b>	<b>7</b>
<b>2.2 ALTERNATIVES ANALYZED IN DETAIL.....</b>	<b>7</b>
2.2.1 No Action Alternative.....	7
2.2.2 Lease All Nominated Parcels in Conformance with the RMP .....	7
2.2.3 Preferred Alternative.....	8
<b>2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL .....</b>	<b>8</b>
<b>2.4 PLAN CONFORMANCE REVIEW .....</b>	<b>8</b>
CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS .....	9
<b>3.1 INTRODUCTION.....</b>	<b>9</b>
<b>3.2 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE</b>	<b>9</b>
<b>3.3 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS.....</b>	<b>10</b>
<b>3.4 ENVIRONMENTAL CONSEQUENCES OF LEASING AND POTENTIAL</b>	
<b>DEVELOPMENT .....</b>	<b>11</b>
3.4.1 Physical Resources.....	11
3.4.2 Biological Resources .....	34
3.4.3 Heritage Resources and Human Environment.....	47
3.4.4 Land Resources .....	56
CHAPTER 4– COORDINATION AND CONSULTATION .....	57

#### Attachments:

**Attachment A – All Nominated Parcels/Proposed Action with Stipulations for Lease**

**Attachment B – Recommended Parcel Deferrals**

**Attachment C – Preferred Alternative Parcels with Stipulations for Lease**

**Attachment D – Stipulation Exhibits**

**Attachment E – Maps**

**Attachment F – Response to Public Comments**

# CHAPTER 1 - INTRODUCTION

## 1.1 IDENTIFYING INFORMATION

### BACKGROUND:

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA), to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

The BLM's Colorado State Office conducts quarterly competitive lease sales to sell available oil and gas lease parcels. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by the Colorado State Office at least 90 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process. Constraints on leasing and any future development of split estate parcels are determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale, the Colorado State Office sends a draft parcel list to each field office where the parcels are located. Field Office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing and that appropriate stipulations have been included; verify whether any new information has become available that might change any analysis conducted during the planning process; confirm that appropriate consultations have been conducted; and identify any special resource conditions of which potential bidders should be made aware. The nominated parcels are posted online for a two week public scoping period. This posting also includes the appropriate stipulations as identified in the relevant Resource Management Plan (RMP). The BLM prepares an analysis consistent with the National Environmental Policy Act (NEPA), usually in the form of an Environmental Assessment (EA). Comments received from the public are reviewed and incorporated into the NEPA document, as applicable.

After the Field Office completes the draft parcel review and NEPA analysis and returns them to the State Office, a list of available lease parcels and associated stipulations is made available to the public through a Notice of Competitive Lease Sale (NCLS). Lease sale notices are posted on the Colorado BLM website at:

[http://www.blm.gov/co/st/en/prog/energy/oil\\_and\\_gas/lease\\_sale\\_notices.html](http://www.blm.gov/co/st/en/prog/energy/oil_and_gas/lease_sale_notices.html). On rare occasions, the BLM may defer or withhold additional parcels prior to the day of the lease sale. In such cases, the BLM prepares an addendum to the sale notice.

If the parcels are not leased at the November 2014 lease sale, then they will remain available to be leased for a period of up to two years to any qualified lessee at the minimum bid cost. Parcels obtained in this way may be re-parceled by combining or deleting other previously offered lands.

Mineral estate that is not leased within a two-year period after an initial offering will no longer be available, and must go through a competitive lease sale process again prior to being leased.

The act of leasing does not authorize any development or use of the surface of lease lands, without further application by the operator and approval by the BLM.

In the future, the BLM may receive Applications for Permit to Drill (APDs) for those parcels that are leased. If APDs are received, the BLM conducts additional site-specific NEPA analysis before deciding whether to approve the APD, and what conditions of approval (COAs) should apply.

Twenty-nine parcels comprising approximately 8,159 acres within the Royal Gorge Field Office (RGFO) were nominated for the November 2014 Competitive Oil and Gas Lease Sale. This figure is comprised of approximately one acre of federal land and approximately 8,158 acres of split-estate land. The legal descriptions of the nominated parcels are in Attachment A.

This EA documents the review of the nominated parcels under the administration of the Royal Gorge Field Office. It serves to verify conformance with the approved land use plan, and provides the rationale for the field office's recommendation to offer or to defer particular parcels from a lease sale.

In accordance with Colorado BLM Instruction Memorandum No. CO-2012-027 and BLM IM-2010-117, this EA will be released for 30 days of public comment. Any comments received within the 30-day timeframe will be considered and incorporated into the EA as appropriate.

## **1.2 PROJECT LOCATION AND LEGAL DESCRIPTION**

### **LEGAL DESCRIPTION:**

Please see Attachments A, B, and C for legal locations and Attachment E for maps of the project locations.

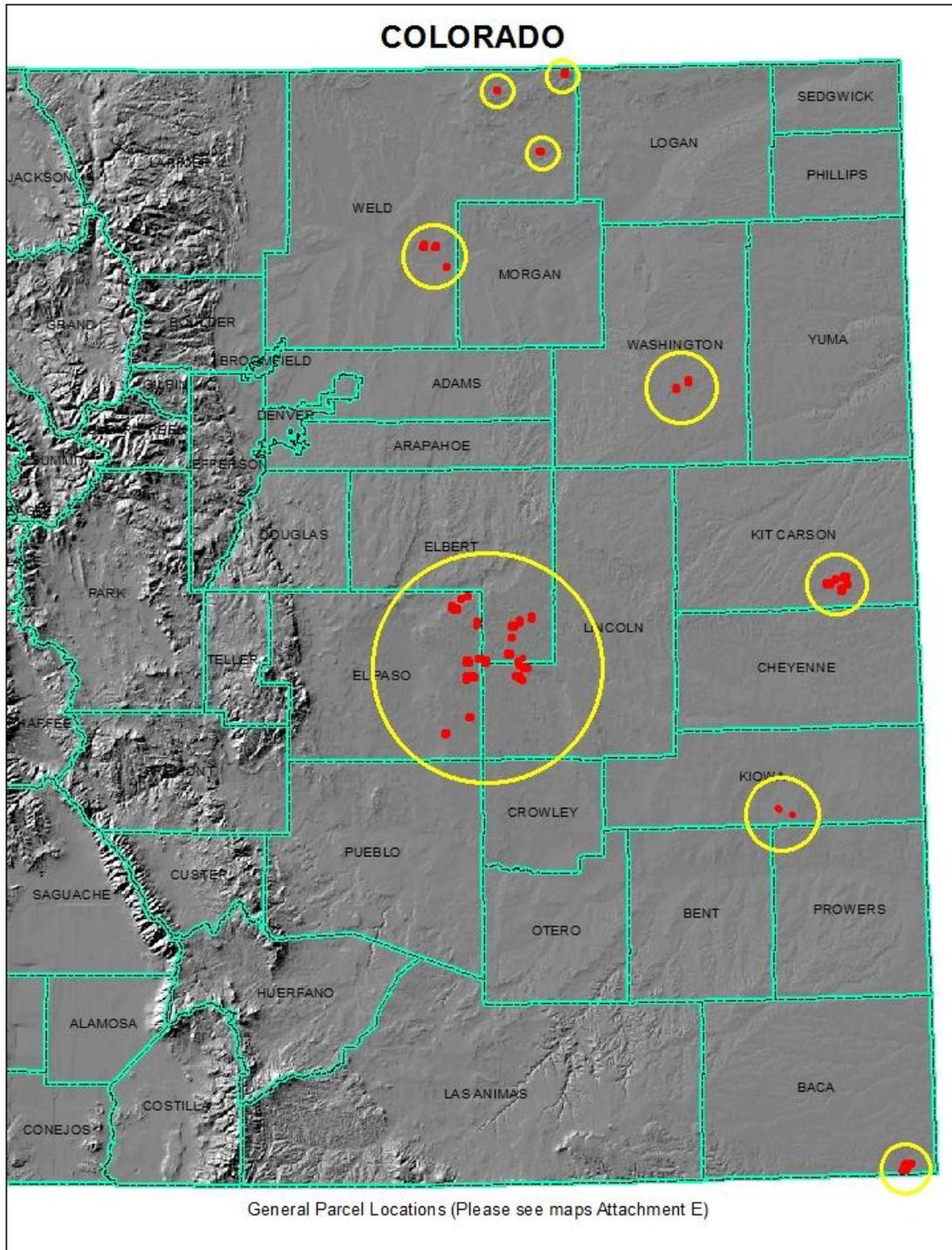
## **1.3 PURPOSE AND NEED**

The purpose of the Proposed Action is to consider opportunities for private individuals or companies to explore and develop oil and gas resources on specific public lands through a competitive leasing process.

The need for the action is to respond to the nomination or expression of interest for leasing, consistent with the BLM's responsibility under the Mineral Leasing Act (MLA), as amended, to promote the development of oil and gas on the public domain. Parcels may be nominated by the public, the BLM or other agencies. The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA and other applicable laws, regulations, and policies.

### 1.3.1 Decision to be Made

The BLM will decide whether to lease the nominated parcels and, if so, under what terms.



## 1.4 PUBLIC PARTICIPATION

### 1.4.1 Scoping

The principal goal of scoping is to identify issues, concerns, and potential impacts that require detailed analysis. The BLM uses both internal and external scoping to identify potentially affected resources and associated issues.

Internal scoping was conducted through meetings of an interdisciplinary (ID) team of resource specialists and discussion of the nominated parcels. The following issues were identified:

**Parcel 6672** is largely within the Queens State Wildlife Area (SWA). Would those wildlife elements and characteristic that define the SWA be compromised by leasing these two small tracts? Concerns revolved around riparian environments, waterfowl and shorebird habitats and potential bald eagle nest sites.

**Parcel 6915** has an active cemetery in the NW corner of the lease. The cemetery is approximately 0.17 acres in size. Analysis of aerial photos and a site visit to the cemetery demonstrated that standard lease terms (the ability of BLM to move any proposed well location 200 meters) is adequate to protect the surface of the cemetery from any disturbance resulting from oil and gas development.

**Parcel 6930** is within the boundary of Lesser Prairie Chicken (LPC) Focal Area, the Range-Wide Oil and Gas Candidate Conservation Agreement with Assurances (CAA) has yet to be completed, and will have LPC management recommendations. Also, the Santa Fe National Historic Trail corridor is adjacent to this parcel, BLM is required to consult with the National Park Service (NPS) regarding potential effects.

**Parcels 6932, 6911, 6912, and 6931** are in an air quality non-attainment area, and modeling data required to adequately analyze air quality impacts in this area is in the process of being developed, and is not ready for use yet.

External scoping was conducted by posting the nominated lease parcels with appropriate stipulations from the RMP for two weeks from February 10 to February 25, 2014. Stipulation summaries, GIS shapefiles, and maps were posted on the BLM Colorado State Office website: [http://www.blm.gov/co/st/en/BLM\\_Programs/oilandgas/oil\\_and\\_gas\\_lease/2014/november\\_2014\\_lease\\_sale.html](http://www.blm.gov/co/st/en/BLM_Programs/oilandgas/oil_and_gas_lease/2014/november_2014_lease_sale.html). This external scoping process gave the public an opportunity to provide comments, which the BLM considered and incorporated into the EA as appropriate. The BLM sent letters to land surface owners whose land overlies federal minerals proposed for leasing.

Issues Identified:

During public scoping, BLM received comments on some of the parcels pertaining to issues that were internally identified, such as fish and wildlife concerns, concerns with leasing in a State Wildlife Area, and the location of a cemetery on the surface of one of the nominated parcels.

Since the comments received mirrored the issues identified during internal scoping by the ID team, it was not necessary to analyze additional alternatives in detail.

#### **1.4.2 Public Comment Period**

The preliminary EA and the unsigned Finding of No Significant Impact (FONSI) are available for a 30-day public review and comment period beginning May 2, 2014 and ending June 2, 2014. The document is available online at [http://www.blm.gov/co/st/en/BLM\\_Programs/oilandgas/oil\\_and\\_gas\\_lease/2014/november\\_2014\\_lease\\_sale.html](http://www.blm.gov/co/st/en/BLM_Programs/oilandgas/oil_and_gas_lease/2014/november_2014_lease_sale.html) and in the public room at the Royal Gorge Field Office. The document may be viewed at the field office during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays. Comments should be sent to: [BLM\\_CO\\_RG\\_Comments@blm.gov](mailto:BLM_CO_RG_Comments@blm.gov) or 3028 E-Main St, Canon City, CO 81212 by close of business on June 2, 2014. Comments received from the public will be reviewed and incorporated into the EA as appropriate.

## **CHAPTER 2 - ALTERNATIVES**

### **2.1 INTRODUCTION**

This chapter describes the alternatives analyzed in detail. Alternatives considered but not analyzed in detail are also discussed.

### **2.2 ALTERNATIVES ANALYZED IN DETAIL**

#### **2.2.1 No Action Alternative**

The BLM NEPA Handbook (H-1790-1) states that for EAs the No Action Alternative generally means that the Proposed Action would not take place. In the case of a lease sale, the leasing of particular parcels would not take place.

Under the No Action Alternative, the BLM would defer all nominated lease parcels from the November, 2014 lease sale. The parcels could be considered for inclusion in future lease sales. Surface management would remain the same and ongoing oil and gas development would continue on surrounding private, state, and federal leases.

#### **2.2.2 Lease All Nominated Parcels in Conformance with the RMP**

Under this alternative, the BLM would lease Federal mineral estate in all 29 nominated parcels available for leasing in the resource area in accordance with the RGFO (May 1996) and Northeast (November 1991, as amended) RMPs. The current lease sale includes 1 parcel in Baca County, 9 parcels in El Paso County, 5 parcels in Elbert County, 1 parcel in Kiowa County, 3 parcels in Kit Carson County, 3 parcels in Lincoln County, 1 parcel in Wahington County and 6 parcels in Weld County. Those lands proposed for lease under this alternative total 8,158.638 acres of federal mineral estate and include a combination of federal and private surface (see Attachment A). The lands have been grouped into appropriate lease parcels for competitive sale as oil and gas leases in accordance with the 43 CFR § 3100 regulations. The leases would include the standard lease terms and conditions for development of the surface of oil and gas

leases provided in 43 CFR 3100. Stipulations to protect other surface and subsurface resources would apply, as prescribed by the RMP. These stipulations are described in Attachment A.

### **2.2.3 Preferred Alternative**

Under the preferred alternative, the BLM would offer 24 parcels, totaling 6,737.02 acres, for lease and defer 5 parcels totaling 1,421.618 acres, from the sale. Attachment B lists all parcels or portions of parcels that would be deferred from the lease sale under the preferred alternative. Attachment C lists all parcels determined by this analysis to be available for lease from the preferred alternative with applied stipulations. Attachment D contains descriptions of the applicable stipulations, and Attachment E contains maps of the parcels.

Justification for deferrals: The deferral process for nominated parcels was established to address situations in which legitimate questions or controversy arises over the leasability of a parcel. The deferral process does not necessarily withdraw a parcel from the leasing arena, but merely indicates that further analysis is needed before possibly being reintroduced in a future lease sale.

## **2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL**

An alternative was considered that would offer all of the parcels that are administratively available for leasing with a no surface occupancy stipulation. This alternative was not carried forward into detailed analysis because it is not supported by the RMP; it would only prohibit surface occupancy for oil and gas development; whereas, other non-oil and gas occupancy may not be similarly constrained. Further, it unnecessarily constrains oil and gas occupancy in areas where the RMP has determined that less restrictive stipulations would adequately mitigate the anticipated impact.

No other alternatives to the proposed action were identified that would meet the purpose and need of the proposed action.

## **2.4 PLAN CONFORMANCE REVIEW**

The proposed action was reviewed for conformance (43 CFR 1610.5, BLM 1617.3) with the following plans:

Name of Plan: Royal Gorge Resource Management Plan

Date Approved: May 13, 1996

Decision Number: 4-29, 8-28, 10-27

Decision Language: The BLM administered mineral estate will be open to fluid minerals leasing, exploration and production, subject to the lease terms and applicable lease stipulations.

Name of Plan: Northeast Resource Management Plan

Date Approved: September 1986 as amended November 1991

Decision Number: Oil and Gas element amendment to the RMP

Decision Language: 672,000 acres of BLM administered mineral estate within the Northeast Planning Area are open to oil and gas leasing and development, subject to the lease terms and (as applicable) lease stipulations.

The Royal Gorge and Northeast RMPs identified areas open for oil and gas leasing, and specified stipulations that would apply to leases. The proposed lease sales are within the areas identified as open to leasing. Based on the RMPs, specific stipulations are attached to each lease parcel.

## **CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS**

### **3.1 INTRODUCTION**

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

The following resources were determined to not be present or not expected to be impacted by the proposed action and alternatives: Forestry, Rangeland Management, Realty.

### **3.2 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE**

The No Action Alternative is used as the baseline for comparison of the alternatives. Under the No Action Alternative, the 29 parcels totaling 8,158.638 acres would not be leased. There would be no subsequent impacts from oil and/or gas construction, drilling, and production activities. The No Action Alternative would result in the continuation of the current land and resource uses in the proposed lease areas.

The BLM assumes that the No Action Alternative (no lease option) may result in a slight reduction in domestic production of oil and gas. This reduction would diminish federal and state royalty income, and increase the potential for federal lands to be drained by wells on adjacent private or state lands. The public’s demand for oil and gas is not expected to change; oil and gas consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demographics, and weather or climate. If the parcels are not leased, energy demand would continue to be met by other sources such as imported fuel, alternative energy sources (e.g., wind, solar), and other domestic fuel

production. This displacement of supply could offset any reductions in emissions and disturbance achieved by not leasing the subject tracts in the short term.

### **3.3 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS**

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR §1508.7 as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such other actions.” In its guidance, the CEQ has stated that the “cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds” using the concept of “project impact zone” (i.e., the area that might be influenced by the proposed action).

Offering and issuing leases for the subject parcels, in itself, would not result in cumulative impacts to any resource. Nevertheless, future development of the leases could be an indirect effect of leasing. The RMP/EIS, provides the BLM’s analysis of cumulative effects of oil and gas development based on the reasonable, foreseeable oil and gas development scenario. This analysis is hereby incorporated by reference and is available at: [http://www.blm.gov/co/st/en/BLM\\_Programs/land\\_use\\_planning/rmp.html](http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/rmp.html). The cumulative impacts analysis in the RMP/EIS accounted for the potential impacts of development of lease parcels in the planning area as well as past, present and reasonably foreseeable actions known at that time. This analysis expands upon the RMP/EIS analysis by incorporating new information.

The area of influence includes the Royal Gorge Field Office. The following activities will be considered in the cumulative impacts analysis of each alternative.

#### **Past Actions**

There has been no prior oil and gas activity on any of the offered parcels, except for three plugged and abandoned wells on parcel 6937, and one on parcel 6933. BLM does not maintain information about non-mineral activity on split estate parcels on private land but evidence indicates that livestock grazing has been the predominant use. No evidence suggests any other past actions by the BLM, affecting these parcels. Aerial photography of the parcels on the eastern plains, indicate that over grazing and several years of drought conditions have produced an almost barren landscape in some locations. Parcel 6672 in Kiowa County is adjacent to Neenoshe and Neeskah reservoirs. Due to years of drought and redirecting the water that once filled these reservoirs, they are now little more than dry playas.

#### **Present Actions**

There are no current BLM actions taking place with any of these parcels.

#### **Reasonably Foreseeable Future Actions (Fluid Minerals Development)**

Baca County- There are approximately 250 active wells in Baca County. This parcel is located in southeast Colorado, near the Oklahoma border. This area is projected to have low future development potential through 2030, ranging from 1-5 wells per township.

El Paso County- There are approximately 3 active wells in El Paso County. These parcels are located in eastern El Paso county. This area is projected to have low future development potential through 2030, ranging from 1-5 wells per township.

Elbert County- There are approximately 70 active wells in Elbert County. These parcels are located in the southeastern “panhandle” of Elbert County, near the Lincoln County border. This area is projected to have very low future development potential through 2030, ranging from 0-1 well per township.

Kiowa County- There are approximately 130 active wells in Kiowa County. This parcel is located in an area predicted to have low future development through 2030, ranging from 1 to 5 wells per township.

Kit Carson- There are approximately 29 active wells in Kit Carson County. These parcels are located in southeastern Kit Carson County. . This area is projected to have very low to low future development potential through 2030, ranging from 0-5 wells per township.

Lincoln County- There are approximately 55 active wells in Lincoln County. These parcels are located in the north end of the western “panhandle” of Lincoln County, near the Elbert County border. This area is projected to have very low future development potential through 2030, ranging from 0-1 well per township.

Washington County- There are approximately 510 active wells in Washington County. This parcel is located in south-central Washington County. This area is projected to have low future development potential through 2030, ranging from 1-5 wells per township.

Weld County- There are approximately 20,000 active wells in Weld County. These parcels are located throughout the eastern half of Weld County. The areas to the northeast are projected to have a low development potential, 1-5 wells per township, while the areas closer to the heart of the Wattenberg Area are projected to have very high development potential through 2030. Recently, there has been a sharp increase in permitting and drilling activity throughout this area, including the area to the northeast of the heart of the Wattenberg.

## **3.4 ENVIRONMENTAL CONSEQUENCES OF LEASING AND POTENTIAL DEVELOPMENT**

### **3.4.1 Physical Resources**

#### **3.4.1.1 Air Quality and Climate**

Affected Environment:

**Proposed Action**

For the Proposed Action, the BLM would lease Federal mineral estate in all 29 nominated parcels available for leasing in the resource area including four lease parcels in the Denver / Front Range 8-hour ozone non-attainment area (NAA). As described earlier in this document, these four lease parcels are being deferred until the BLM Colorado Air Resources Management Modeling Study (CARMMS) is complete for additional air quality analysis. One additional parcel is proposed for deferral, due to its location within the Lesser Prairie Chicken CAA. The remainder of the air quality analysis for this EA is focused on the remaining 24 lease parcels for the Preferred Alternative.

**Preferred Alternative**

The preferred alternative parcels are located in areas that are predominately used for agriculture. Oil and gas development is another major economic driver for the area, and RGFO has over 25,000 active wells within its boundaries. Activities occurring within the region that affect air quality include exhaust emission from cars, drilling rigs, other vehicles, and oil and gas development activities, as well as fugitive dust from roads, agriculture, and energy development.

Mean temperatures in the area range from 15.6 degrees F in January to 88.7 degrees F in July in the northern parts of RGFO and 17.4 degrees F in January to 94.3 degrees F in July for southern parts of RGFO. Northern RGFO areas receive average annual precipitation of approximately 14.22 inches, while southern RGFO areas receive average annual precipitation of approximately 11.34 inches. Frequent winds in the RGFO provide excellent dispersion characteristics for distributing anthropogenic emissions.

The following figure shows the location of the preferred alternative parcels along with the Denver / Front Range 8-hour ozone NAA. The figure also shows the four RGFO areas for the BLM CARMMS.



sale parcels are located are currently in attainment of all the NAAQS, with the exception of portions of Weld County.

**Table 3.4.1.1-1 NAAQS (EPA 2014)**

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
<a href="#">Carbon Monoxide</a> [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
<a href="#">Lead</a> [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m <sup>3</sup>	Not to be exceeded
<a href="#">Nitrogen Dioxide</a> [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
<a href="#">Ozone</a> [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
<a href="#">Particle Pollution</a> [Dec 14, 2012]	PM <sub>2.5</sub>	primary and secondary	Annual	12 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
			24-hour	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
	PM <sub>10</sub>	primary and secondary	24-hour	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
<a href="#">Sulfur Dioxide</a> [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	Not to be exceeded more than once per year

Ambient air quality in the affected environment (i.e. compliance with the NAAQS) is demonstrated by monitoring for ground level (i.e. receptor height) atmospheric air pollutant concentrations. In general, the ambient air measurements show that existing air quality in the region is good. Concentrations for the various air pollutants are below the applicable state and federal ambient air quality standards. The preferred alternative parcels are located in the eastern plains counties of Colorado, which are those to the east of the urbanized I-25 corridor. According to CDPHE, there have been a number of communities that were monitored for particulates and meteorology but not for any of the gaseous pollutants. The monitors were discontinued in the late 1970's and early 1980's after a review of the data showed that the concentrations were well below the standard and trending downward. Currently, there are two PM<sub>10</sub> monitoring sites and one meteorological site in Lamar and a background PM<sub>2.5</sub> monitor in Elbert County. The Lamar monitors have recorded exceedances of the 24-hour PM<sub>10</sub> standard in the past three years,

however CDPHE maintains the exceedances were associated with high winds and blowing dust from dry conditions.

Weld County has experienced ozone issues in the past and portions of the county are currently designated as non-attainment for the 8-hour ozone standard. The preferred alternative parcels are located outside of the ozone NAA. Ozone is not emitted directly from sources, but is chemically formed in the atmosphere via interactions of oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight and under certain meteorological conditions (NO<sub>x</sub> and VOCs are Ozone precursors). Ozone formation and prediction is complex, and generally results from a combination of significant quantities of VOCs and NO<sub>x</sub> emissions from various sources within a region, and has the potential to be transported across long ranges.

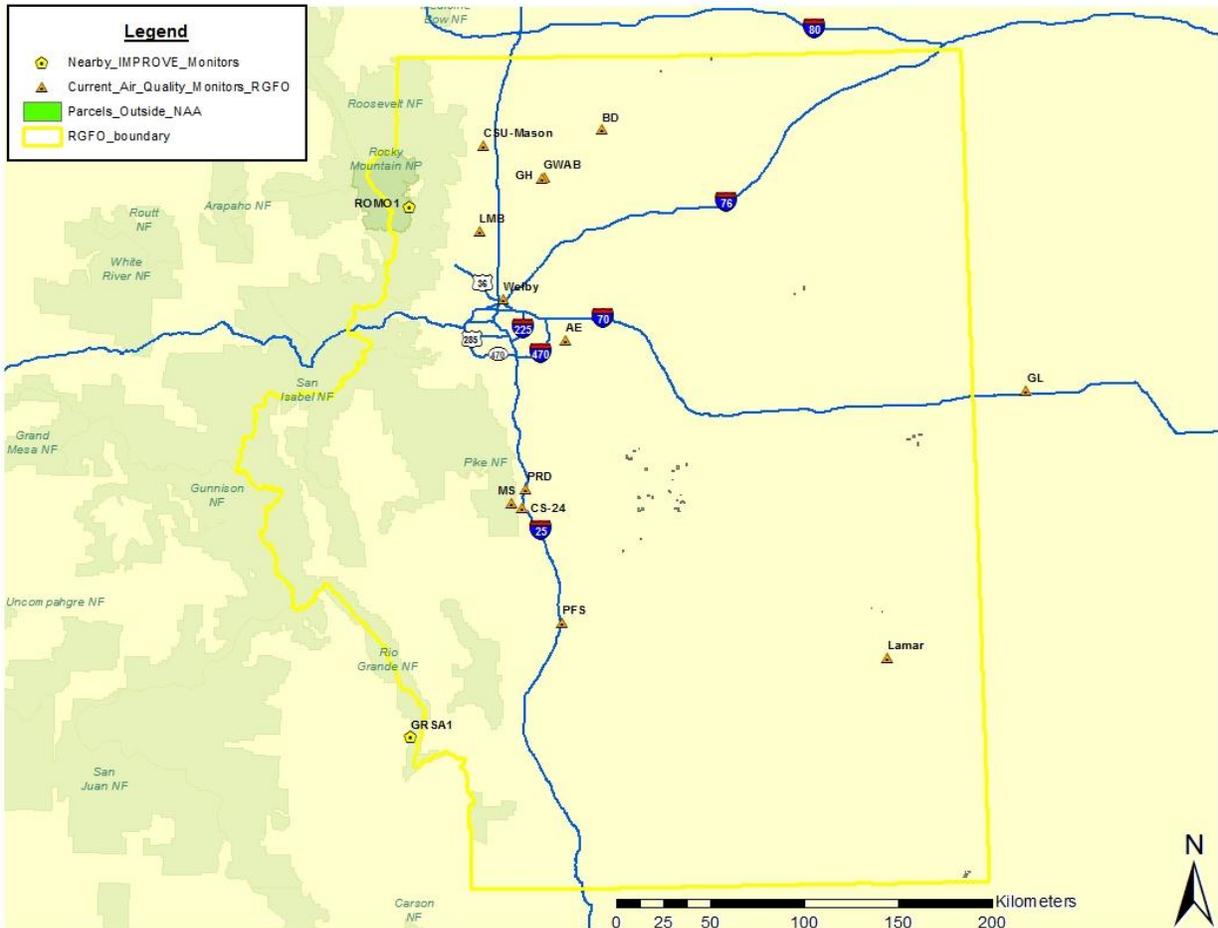
Very few “online” (currently operating) air quality monitors exist in areas immediate to the preferred alternative parcels. The next several tables provide air quality monitored values that could be used to assess air pollutant concentrations and trends for the RGFO.

The following table shows concentrations for APCD air monitors Weld County West Annex (CO), County Tower (O<sub>3</sub>), and Hospital (PM<sub>10</sub> & PM<sub>2.5</sub>) sites located in Greeley, Colorado and the Platteville Middle School site (PM<sub>2.5</sub>).

**Table 3.4.1.1-2 Ambient Air Quality Monitoring Data Trends (CDPHE 2007 – 2010, EPA Forms)**

<b>Monitor</b>	<b>Pollutant (Standard)</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>West Annex</b>	CO (1 Hour - ppm)	4.0	5.0	4.3	2.3
	CO (8 Hour - ppm)	2.5	2.3	2.3	1.8
<b>County Tower</b>	O <sub>3</sub> (8 Hour - ppm)	0.078	0.076	0.075	0.074
<b>Hospital</b>	PM <sub>10</sub> (24 Hour - µg/m <sup>3</sup> )	89	68	63.0	44.0
	PM <sub>2.5</sub> (24 Hour - µg/m <sup>3</sup> )	24.0	25.2	24.7	22.0
	PM <sub>2.5</sub> (Annual - µg/m <sup>3</sup> )	9.5	7.67	8.36	7.6
<b>Platteville</b>	PM <sub>2.5</sub> (24 Hour - µg/m <sup>3</sup> )	24.0	25.2	25.7	21.1
	PM <sub>2.5</sub> (Annual - µg/m <sup>3</sup> )	10.3	8.23	8.24	7.8

The following figure shows locations of air pollutant monitors in the RGFO. Locations of the preferred alternative lease parcels and Rocky Mtn. NP and Great Sand Dunes NM IMPROVE monitors are also shown in the plot.



The following table provides additional air pollutant concentration data in the region.

**Table 3.4.1.1-3 Additional Ambient Background Concentrations**

Pollutant / Units	Non-Particulate Matter Background Monitored Concentrations			Monitoring Station Information
<b>NO<sub>2</sub> (1-hour)</b> ( $\mu\text{g}/\text{m}^3$ )	9.97 <sup>a</sup>	67.37 <sup>b</sup>	109.12 <sup>c</sup>	a.Rio Blanco County 98 <sup>th</sup> percentile NO <sub>2</sub> 1-hour (year 2012). b.Cheyenne, Wyoming 98 <sup>th</sup> percentile NO <sub>2</sub> 1-hour (year 2012). c.Welby, Colorado 98 <sup>th</sup> percentile NO <sub>2</sub> 1-hour (year 2013).
<b>O<sub>3</sub> (8-hour)</b> (ppm)	0.096 <sup>a</sup>	0.086 <sup>b</sup>	0.088 <sup>c</sup>	a.Rio Blanco County 4 <sup>th</sup> max O <sub>3</sub> 8-hour (year 2013). b.Greeley, Colorado 4 <sup>th</sup> max O <sub>3</sub> 8-hour (year 2013). c.Welby, Colorado 4 <sup>th</sup> max O <sub>3</sub> 8-hour (year 2013).

Pollutant / Units	Particulate Matter Background Monitored Concentrations			Monitoring Station Information
	24-Hour	24-Hour	24-Hour	
PM <sub>10</sub> (µg/m <sup>3</sup> )	91 <sup>a</sup>	163 <sup>b</sup>	62 <sup>c</sup>	a.Greeley, Colorado 2 <sup>nd</sup> maximum 24-hour average PM <sub>10</sub> concentration (year 2012). b.Lamar, Colorado 2 <sup>nd</sup> maximum 24-hour average PM <sub>10</sub> concentration (year 2012). c.Pueblo, Colorado 2 <sup>nd</sup> maximum 24-hour average PM <sub>10</sub> concentration (year
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	21 <sup>a</sup>	28 <sup>b</sup>	17 <sup>c</sup>	a.Greeley, Colorado 98 <sup>th</sup> percentile 24-hour average PM <sub>2.5</sub> concentration (year 2013). b.Longmont, Colorado 98 <sup>th</sup> percentile 24-hour average PM <sub>2.5</sub> concentration (year 2012). c.Pueblo, Colorado 98 <sup>th</sup> percentile 24-hour average PM <sub>2.5</sub> concentration (year

µg/m<sup>3</sup> = micrograms per cubic meter

NO<sub>2</sub> = nitrogen dioxide

PM<sub>10</sub> / PM<sub>2.5</sub> = particulate matter less than or equal to 10 microns / 2.5 microns in size

Several of the preferred alternative parcels are located relatively close to parts of the USFS Comanche National Grasslands. The following table shows CDPHE recommended background concentrations for the year 2011 Pike & San Isabel NF, Cimarron & Comanche NG (PSICC) O&G Leasing air quality modeling analysis.

**Table 3.4.1.1-4 PSICC Background Concentrations**

Pollutant / Units	Monitored Concentrations and Ambient Air Quality Standards					Monitoring Station Location <sup>a</sup>
	Annual	24-Hour	8-Hour	3-Hour	1-Hour	
CO (µg/m <sup>3</sup> )	-	-	1,164 <sup>b</sup> [10,000]	-	1,164 <sup>b</sup> [40,000]	American Soda Parachute (2007-2009 data)
NO <sub>2</sub> (µg/m <sup>3</sup> )	11.47 [100]	-	-	-	70.75 <sup>e</sup> [189]	Holcim/Golden (2005-2006 data)
PM <sub>10</sub> (µg/m <sup>3</sup> )	21 <sup>d</sup> [50]	43 <sup>b</sup> [150]	-	-	-	Tri-State Holly (2007-2008 data)
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	6 [15.0]	17 <sup>c</sup> [35]	-	-	-	Chatfield (2006-2009)
SO <sub>2</sub> (µg/m <sup>3</sup> )	2.66 <sup>d</sup> [80]	5.33 <sup>b, d</sup> [365]	-	23.96 <sup>b, d</sup> [1,300 NAAQS] [700 CAAQS]	31.95 <sup>e</sup> [195.5]	Holcim/Golden (2005-2006 data)

Pollutant / Units	Monitored Concentrations and Ambient Air Quality Standards					Monitoring Station Location <sup>a</sup>
	Annual	24-Hour	8-Hour	3-Hour	1-Hour	

CO = carbon monoxide

µg/m<sup>3</sup> = micrograms per cubic meter

NAAQS = National Ambient Air Quality Standards

NO<sub>2</sub> = nitrogen dioxide

PM<sub>10</sub> / PM<sub>2.5</sub> = particulate matter less than or equal to 10 microns / 2.5 microns in size

SO<sub>2</sub> = sulfur dioxide

<sup>a</sup> Background concentrations were provided by Nancy Chick at CDPHE-APCD for use in this PSICC EIS Modeling Analysis (CDPHE-APCD 2011) for all pollutants and averaging times. Values for CO, NO<sub>2</sub>, and SO<sub>2</sub> were supplied in ppm and converted to µg/m<sup>3</sup>.

<sup>b</sup> Based on second maximum monitored value.

<sup>c</sup> Based on 98<sup>th</sup> percentile.

<sup>d</sup> This standard is being phased out by USEPA.

<sup>e</sup> Reported as the first hour maximum.

In addition to air pollutant concentrations, air quality related value (AQRVs) monitored in the region are used to assess the overall existing condition. An air quality related values is a resource “that may be adversely affected by a change in air quality”. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource.

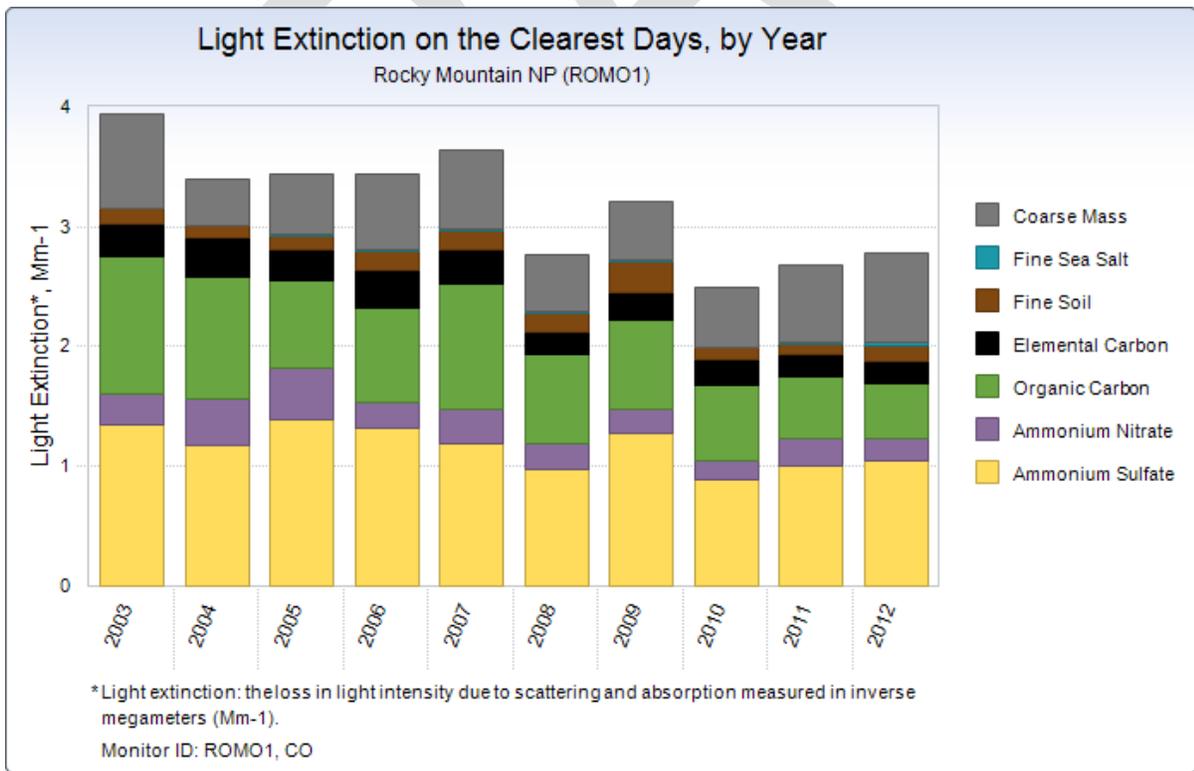
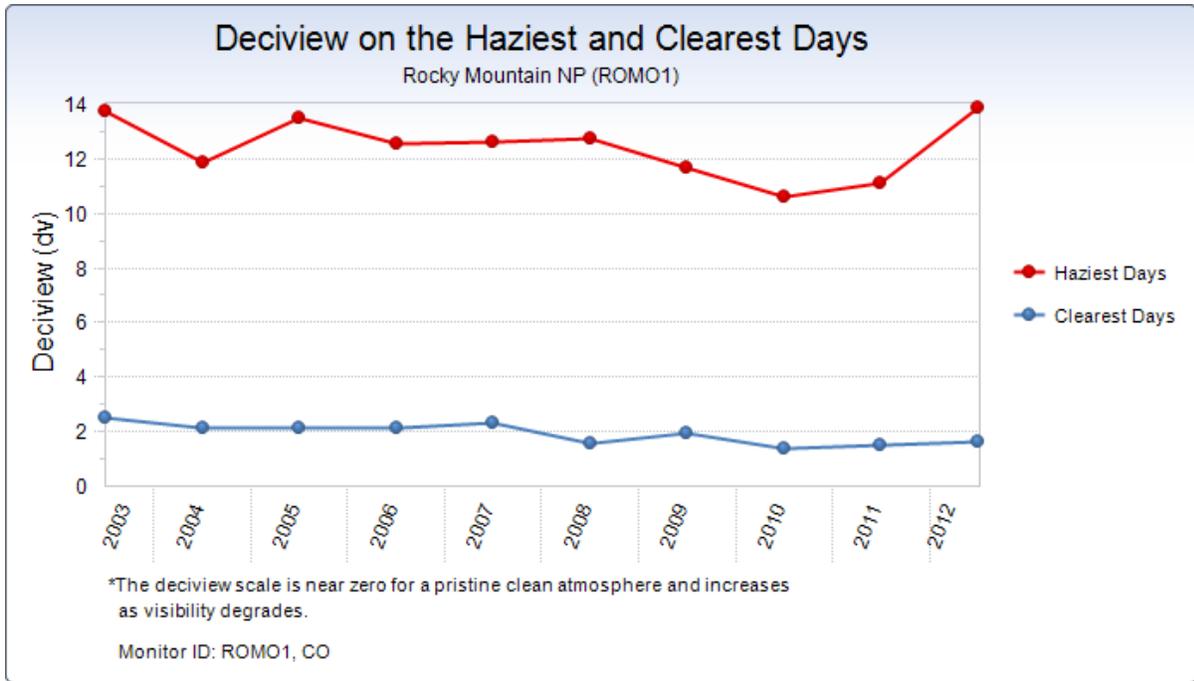
Atmospheric deposition refers to the processes by which air pollutants are removed from the atmosphere and deposited on terrestrial and aquatic ecosystems, and it is reported as the mass of material deposited on an area per year. Air pollutants are deposited by wet deposition (precipitation) and dry deposition (gravitational settling of pollutants). The chemical components of wet deposition include sulfate (SO<sub>4</sub>), nitrate (NO<sub>3</sub>), and ammonium (NH<sub>4</sub>); the chemical components of dry deposition include sulfate, sulfur dioxide, nitrogen oxides, nitrate, ammonium, and nitric acid (HNO<sub>3</sub>). The NPS *Technical Guidance on Assessing Impacts on Air Quality in NEPA and Planning Documents* suggests that critical load values above 3 kg/ha-yr may result in moderate impacts. The following table shows nitrogen and sulfur deposition (data source: EPA – CASTNET) for Rocky Mountain National Park monitor (ROM206) located in northwest RGFO. As shown in the table, the overall deposition was lower for year 2012 likely due to less precipitation (less wet deposition) for that year.

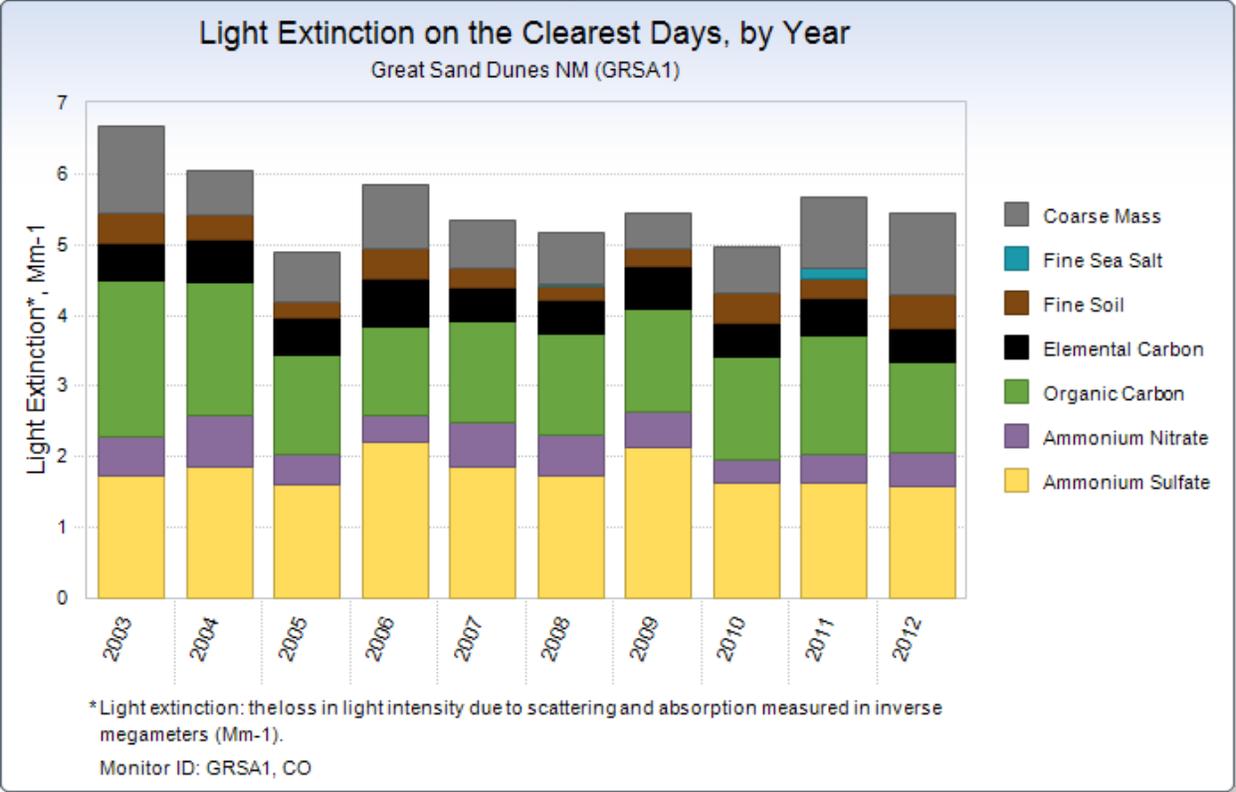
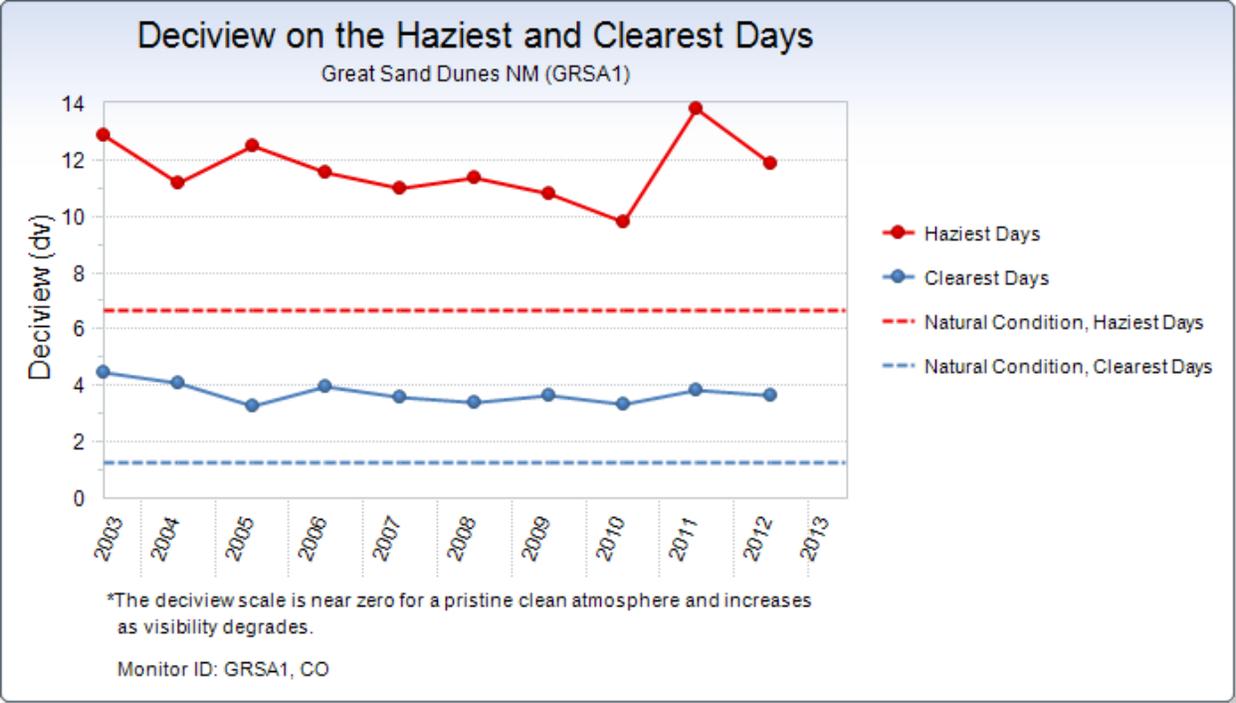
**Table 3.4.1.1-5 Background Nitrogen and Sulfur Deposition Values (kg/ha-yr)**

Site Location	Nitrogen Deposition			Sulfur Deposition			Year of Monitoring
	Wet	Dry	Total	Wet	Dry	Total	
ROM206	2.71	0.49	3.20	1.08	0.17	1.25	2011
ROM206	2.04	0.56	2.60	0.88	0.18	1.06	2012

The following plots (developed using VIEWS) shows monitored visibility at Rocky Mountain NP (ROM01) and Great Sand Dunes National Monument (GRSA1). As shown in the plots /

figures, the overall 10-year trend in visibility at both locations is clearer conditions. For both monitors, light extinction is primarily caused by ammonium sulfate, organic carbon and coarse mass particles.





The proposed preferred alternative lease parcels are located near the Colorado-Wyoming border, central portions and the southeastern corner of the RGFO. Table 3.4.1.1-6 below shows the oil and gas summary data on a per county basis for counties that include preferred alternative lease parcels. An analysis of the Colorado Oil and Gas Conservation Commission (COGCC) database for producing wells and production data within each county is provided to convey the level of current intensity for oil and gas development within the vicinity of the parcels. Additionally, Table 3.4.1.1-7 provides the county level emissions inventories and has been provided to describe the affected environment in terms of current emissions intensities.

**Table 3.4.1.1-6 Parcel County Production Data (2013)**

County	Max County Producing Wells	County Annual Oil Prod. (bbl)	County Annual Gas Prod. (Mcf)	County Annual H <sub>2</sub> O Prod. (bbl)
Baca	191	47,004	834,851	1,872,219
Elbert	72	29,883	106,306	71,255
El Paso	NA	NA	NA	NA
Kiowa	129	163,231	383,808	2,150,048
Kit Carson	19	2,798	25,787	89,290
Lincoln	123	749,287	364,375	1,215,108
Washington	465	456,971	1,190,963	28,339,877
Weld	25,652	51,746,726	302,260,985	16,537,603

**Table 3.4.1.1-7 County Emissions Inventory Data (EPA - 2011 NEI - TPY)**

County	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	CO	NO <sub>x</sub>	SO <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NH <sub>3</sub>	HAPs
Baca	7,904	1,634	15,791	7,778	3,057	34	97,150	29	1	2,141	4,363
Elbert	2,146	468	9,742	7,811	2,219	10	240,735	23	8	853	2,143
El Paso	14,985	4,579	33,036	107,692	19,756	9,597	3,129,145	670	115	1,049	7,787
Kiowa	7,711	1,628	11,809	4,963	1,257	30	54,249	24	1	1,046	2,912
Kit Carson	13,217	2,873	10,542	10,381	3,118	84	222,596	25	4	4,918	3,112
Lincoln	8,012	1,543	12,467	6,547	2,445	16	158,672	28	3	1,124	3,226
Washington	12,462	2,569	13,252	7,255	2,745	34	137,352	11	3	1,763	2,975
Weld	27,959	6,194	137,717	68,222	25,663	574	1,782,317	266	59	16,080	7,885

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of trace greenhouse gasses (GHGs) such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and several industrial gases in our atmosphere. An increase in GHG emissions is said to result in an increase in the earth's average surface temperature, primarily by trapping and decreasing the amount of heat energy radiated by the earth back into space. The phenomenon is commonly referred to as global warming. Global warming is expected, in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, collectively referred to as climate change. The Intergovernmental Panel on Climate Change (IPCC) has predicted that the average global temperature rise between 1990 and 2100 could be as great as 5.8°C (10.4°F), which could have massive deleterious impacts on the natural and human environments. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, from approximately 280 ppm in 1750 to 396 ppm in 2012 (as of June). The rate of change has also been increasing as more industrialization and population growth is occurring around the globe. This fact is demonstrated by data from the Mauna Loa CO<sub>2</sub> monitor in Hawaii that documents atmospheric concentrations of CO<sub>2</sub> going back to 1960, at which point the average annual CO<sub>2</sub> concentration was recorded at approximately 317 ppm. The record shows that approximately 70% of the increases in atmospheric CO<sub>2</sub> concentration, or build up, since pre-industrial times has occurred within the last 50 years. In the coming decades climate change may lead to changes in the Mountain West and Great Plains, such as increased drought and wild land fire potential.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts: The decision to offer the identified parcels for lease would not result in any direct emissions of air pollutants. However, the future development of these leases will result in emissions of criteria, HAP and GHG pollutants. Subsequent development of any leases sold would result in both short and longer term incremental increases in overall emissions of pollutants, including GHGs. Developmental air impacts will be addressed in a subsequent analysis when lessees file an Application for Permit to Drill (APD). All proposed activities including, but not limited to, exploratory drilling activities would be subject to applicable local, State, and Federal air quality laws and regulations.

Any subsequent activity authorized after APD approval could include soil disturbances resulting from the construction of well pads, access roads, pipelines, power lines, and drilling. Any disturbance is expected to cause increases in fugitive dust and potentially inhalable particulate matter (specifically PM<sub>10</sub> and PM<sub>2.5</sub>) in the project area and immediate vicinity. Particulate matter, mainly dust, may become airborne when drill rigs and other vehicles travel on dirt roads to drilling locations. Air quality may also be affected by exhaust emissions from engines used for drilling, transportation, gas processing, compression for transport in pipelines, and other uses.

These sources will contribute to potential short and longer term increases in the following criteria pollutants: carbon monoxide, ozone (a secondary pollutant, formed via photochemical reactions between VOC and NO<sub>x</sub> emissions), nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants (for which no national standards have been set) such as carbon dioxide, methane and nitrous

oxide (GHGs), air toxics (e.g., benzene), and total suspended particulates (TSP), as well as impacts to visibility, and atmospheric deposition, may also increase as a result of exploration and development.

During exploration and development, ‘natural gas’ may at times be flared and/or vented from conventional, coal bed methane, and shale wells (depending on the resources present on the lease). The gas is likely to contain volatile organic compounds that could also be emitted from reserve pits, produced water disposal facilities, and/or tanks located at the site. The development stage may likely include the installation of pipelines for transportation of raw product. New centralized collection, distribution and/or gas processing facilities may also be necessary.

The BLM will continue to evaluate the impacts of oil and gas exploration and development on the global climate, and apply appropriate management techniques and BMPs to address changing conditions. Research has identified the general potential impacts of anthropogenic GHG emissions and their effects on global climatic conditions. Anthropogenic GHGs differentially absorb and emit thermal radiation in the atmosphere and therefore may contribute incrementally to climate change. Changes in global temperatures and climate vary significantly with time, and are subject to a wide range of driving factors and complex interrelationships. Research on climate change impacts is an emerging and rapidly evolving area of science, but given the lack of adequate analysis methods it is not possible to identify specific local, regional, or global climate change impacts based on potential GHG emissions from any specific project’s incremental contributions to the global GHG burden.

At a minimum, operators must construct at least one producing well (unless the parcel is included in a unit as some point in the future) during the 10 year lease period in order to continue to hold the lease beyond the primary 10 year period. With that in mind, the BLM has developed an estimated average per well emissions inventory (Table 3.4.1.1-8) based on current resource recovery methods (i.e. conventional oil and gas vs. coal bed methane) and our knowledge of development for areas similar to those parcels that have been nominated for lease. The emissions inventory is only useful for estimating the minimum indirect impacts of leasing. Since it is unknown if the parcels would be explored and/or developed, or the extent of any subsequent exploration and development on either a temporal or spatial scale, it is not possible to reasonably assess air quality impacts through dispersion or other modeling at this time. However, the BLM will request or develop an actual exploration/development emissions inventory with project-specific information at the time that BLM receives a development proposal and performs a site-specific analysis.

**Table 3.4.1.1-8 Per Well (type/phase) Emissions (Tons)**

Phase	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	CO	NO <sub>x</sub>	SO <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HAP
Conventional Construction	5.21	0.64	0.05	0.23	0.72	0.02	108.1	0.00	0.00	0.01
CBM Construction	3.37	0.44	0.03	0.12	0.36	0.01	56.58	4.06	0.00	0.00
Conventional Production	1.15	0.15	6.67	1.30	0.73	0.00	251.9	17.14	0.00	0.43

CBM Production	2.25	0.25	13.10	1.13	0.62	0.00	181.6	19.05	0.00	1.31
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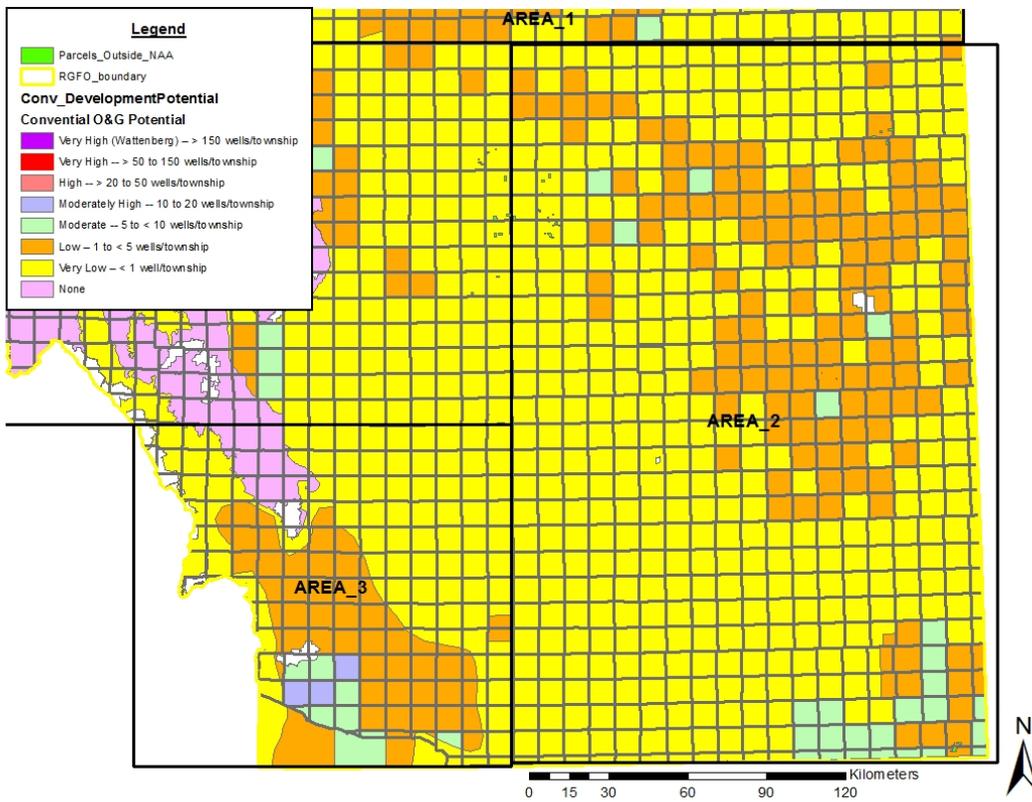
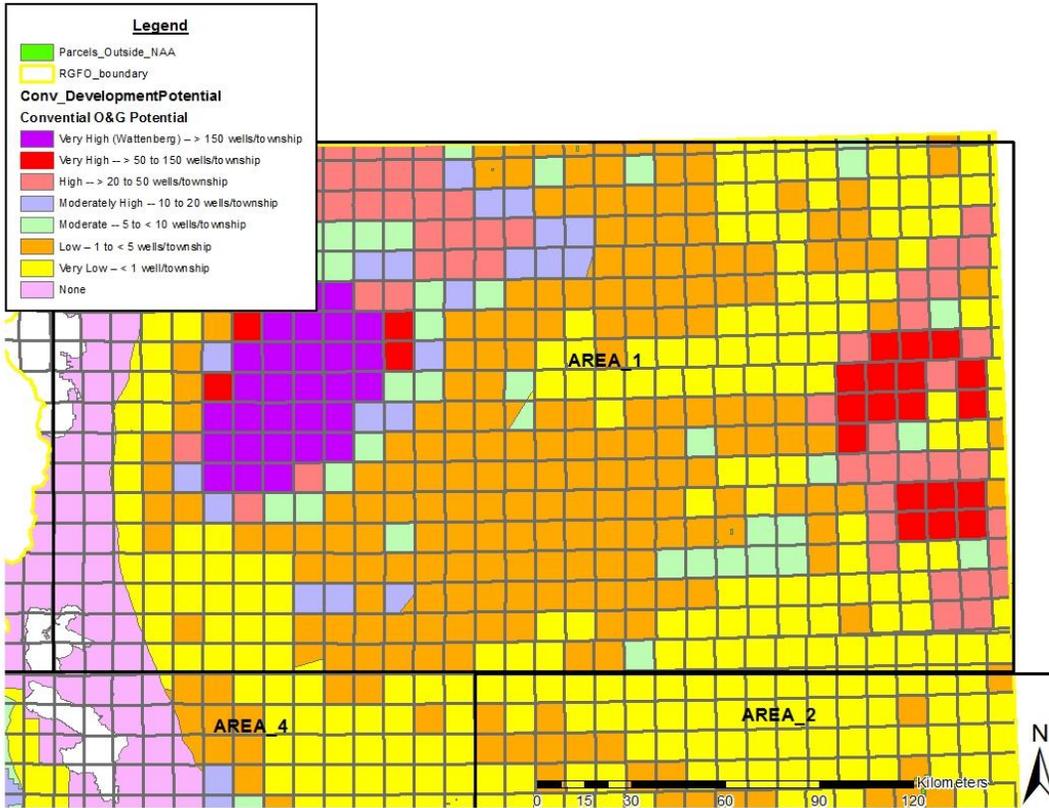
The BLM is going to assess project-specific impacts on these resources during the parcel development plan analysis or permitting stage. There will be much more detailed information at the parcel development plan or permitting stage that will allow the BLM to properly estimate potential emissions and determine potential air quality impacts to these sensitive areas using air quality modeling or other accepted tools. Substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. BLM will make its approval of these activities subject to conditions of approval addressing air pollutant emissions, as appropriate.

Environmental Consequences of Leasing and Potential Development (Cumulative Impacts):

This lease sale, when combined with the past, present, and reasonably foreseeable future actions may contribute incrementally to the deterioration of air quality in the region. At present, any future potential cumulative impact is speculative at best, given that the pace, place, and specific equipment configurations of such development are unknown. Development of fluid minerals on these leases would result in additional surface and subsurface disturbances and emissions during drilling, completion, and production activities. The severity of these incremental impacts could be elevated based on the amount of contemporaneous development (i.e., either federal or private) in surrounding areas.

The following figures / plots shows locations of preferred alternative lease parcels with a GIS layer for conventional oil and gas Reasonable Foreseeable Development (RFD) projections developed by the BLM. As shown in the figures, the preferred alternative lease parcels located in “Area 1” (CARMMS area 1) are located in areas of “low” (1-5 new wells per township) oil and gas development potential, and preferred alternative parcels in areas 2 and 4 are located in “very low” (exploratory ~ 1 new well per township) oil and gas development potential areas with the exception of parcels in the far eastern and southeastern parts of area 2 which are located in an area of “low” (1-5 new wells per township) oil and gas development potential. Overall, the potential for oil and gas development on the preferred alternative lease parcels is not high.

Years 2011 and 2021 oil and gas emissions inventories were developed for each of the RGFO “areas” for the CARMMS based on oil and gas RFD as shown in the following figures. The table following the figures shows the total (Federal and non-Federal) oil and gas emissions inventory estimates that are being modeled for that Study. It is reasonable to assume that emissions associated with any potential oil and gas developed through year 2021 on the preferred alternative parcels would be well accounted for in the CARMMS projected year 2021 oil and gas emissions inventories.



**Table 3.4.1.1-9 RGFO O&G Emissions (Tons) – CARMMS RFD Scenario**

CARMMS - RGFO Area ID	Year	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	CO	NO <sub>x</sub>	SO <sub>2</sub>
Area #1	2011	3,407	829	79,913	14,793	20,631	77
	2021	26,483	3,701	199,587	52,910	53,177	192
Area #2	2011	108	72	5,003	4,053	4,224	4
	2021	299	146	10,446	7,850	8,059	9
Area #3	2011	363	95	2,333	10,983	8,648	4
	2021	514	125	2,924	14,101	11,206	5
Area #4	2011	21	4	251	18	40	0
	2021	153	18	1,066	96	104	0

As future oil and gas development occurs in the RGFO, the BLM Colorado is going to add project-specific permitted levels of emissions (at the APD stage) to total regional emissions estimates to compare the RGFO oil and gas and other regional emissions rates modeled in cumulative air quality modeling studies along with the corresponding modeling results to confirm that activities approved by the BLM Colorado are within the modeled emissions analyzed in the cumulative analyses. As described earlier, the BLM – Colorado is currently conducting a Colorado-wide modeling study (CARMMS) of impacts associated with oil and gas development that will include air quality impact analyses for each BLM Field Office including the RGFO. For the CARMMS, BLM is modeling oil and gas emissions increases projected out 10 years from year 2011 according to RFD and recent oil and gas development data, and will identify the predicted potential impacts for each Field Office for year 2021. The future year 2021 projected emissions rates shown in the Table above are being modeled for the oil and gas development areas in the RGFO. The change in emissions levels for CARMMS (year 2021 minus year 2011) account for the growth in oil and gas as projected by the BLM RFD (Federal and non-Federal) out through year 2021. Regional ozone and other pollutants and air quality related values (AQRVs) including visibility impacts and deposition are being evaluated in the CARMMS.

Substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. BLM may make its approval of these activities subject to conditions of approval (COA) addressing air pollutant emissions, as appropriate.

Protective/Mitigation Measures:

Prior to approving development activities on a leased parcel, the BLM will conduct a cumulative impacts analysis that will consider the impacts of the operator’s development plans for the lease, to the extent reasonably foreseeable. The BLM’s cumulative analyses typically will consider the emissions inventory for the proposal, and estimated emissions from other development on and outside the lease. All operators must comply with applicable local, State and Federal air quality laws and regulations. As described in the lease notice that would be attached to the leases in the proposed action, BLM may require additional analyses (such as air dispersion modeling assessments) or impose specific mitigation measures within its authority as COA, based on the

review of site-specific proposals or new information about the impacts of exploration and development activities in the region.

Oil and gas resources may be developed and produced subsequent to the proposed lease sale and may ultimately be utilized to produce energy. The BLM will evaluate potential impacts of emissions of regulated air pollutants (including GHGs) associated with the development of the oil and gas resources in a subsequent NEPA analysis at the lease development (typically APD) stage. Project specific GHG emissions can generally be quantified and compared to overall sector, regional, or global estimates to provide some estimate of the level and significance of any potential impacts. The BLM will continue to evaluate climatic variability and change in the future, and apply appropriate management techniques and policy to address changing conditions as developments occur.

### **3.4.1.2 Geologic and Mineral Resources**

#### Affected Environment:

The proposed lease parcels are located in eastern Colorado within various geographic areas including the Denver-Julesburg Basin, Huerfano Park, the Raton Basin, and the Las Animas arch area in southeastern Colorado. The Las Animas Arch in southeastern Colorado contains subsurface sedimentary strata that range from Cambrian through Upper Cretaceous in age. The Denver Basin consists of Paleozoic, Mesozoic, and Cenozoic sedimentary rock layers.

Eastern Colorado supports a wide range of mineral development in addition to oil and gas, site specific geology would need to be analyzed during the APD NEPA process.

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Sale of the parcels would allow development and recovery of oil and natural gas resources in the underlying oil and gas bearing formations. This activity could potentially lead to increased development of federal mineral materials products for road and well pad construction to support oil and gas development.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

The minerals resources throughout Front Range are slowly being encumbered by various surface uses that may not be compatible with future mining activities. Without understanding the non-fluid mineral potential for the area of this proposed action, it is unknown if this action will contribute to a cumulative impact.

#### Potential Development Stage Mitigation:

Site specific geology would need to be analyzed during the APD NEPA process to determine if a separate permit would be required for use of federal minerals in the construction of roads, pad building, or for any other construction needs. 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).

### 3.4.1.3 Fluid Minerals

#### **Proposed Action**

##### Affected Environment:

The majority of the parcels (17) are located in east central Colorado, near the intersection of Elbert, Lincoln and El Paso counties. According to the 2012 RGFO RFD, this area has a very low development potential (less than one well per township), however COGCC has issued several permits and several productive oil wells have been drilled recently to the northeast in Lincoln county on fee mineral estate however these wells are located in areas of high occurrence potential for conventional oil and gas resources.

There are 6 parcel nominations throughout eastern Weld county, 4 of which are in the Greater Wattenberg Air Quality Non-Attainment Area (AQNAA). According to the 2012 RGFO RFD, the development potential in the area of the nominated parcels in Weld county ranges from low (1-5 wells per township) to very high (50-150 wells per township, however permitting and drilling activity throughout Weld county has seen a sharp increase recently due to the success of horizontal oil wells in the Niobrara play.

The remaining 6 nominated parcels string north to south through the plains in far eastern Colorado, in Washington, Kit Carson, Kiowa and Baca counties. The parcels are located in areas that range from very low to low (less than 1-5 wells par township) development potential (RGFO RFD, 2012).

##### Environmental Consequences of the No Action Alternative:

Recoverable natural gas and oil resources obtained from well drilling operations would not be made available for development at this time. There is increased potential for drainage to occur from adjacent lands that are developed.

##### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Leasing of the 29 parcels would allow for the development and recovery of oil and natural gas resources and help avoid draining of federal fluid minerals from nearby non-federal wells. The RGFO ensures the operator's proposed casing and cementing program is adequate to protect all existing resources, minerals, and fresh water zones, 43 CFR §3162.5-2(d).

##### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Cumulative impacts to the resource, should the lease be issued, would be the potential for development resulting in draining these parcels of fluid minerals. Cumulative impacts to the environment would depend the potential of any of the given areas for future development but could include impacts from additional drilling rigs, associated infrastructure, roads, pipelines and vehicular traffic.

Potential Development Stage Mitigation: The RGFO ensures the operator's proposed casing and cementing program is adequate to protect all existing resources, minerals, and fresh water

zones, 43 CFR §3162.5-2(d). Project specific conditions of approval will be applied at the development stage to protect other resources, if necessary.

#### **3.4.1.4 Soils**

##### Affected Environment:

The proposed lease parcels cover a large variety of soil types and conditions; however, they are all characterized as being in highplains locations of eastern Colorado. These soils and associated topography vary in their suitability for use as roads, fill and related infrastructure during subsequent exploration and production of the lease.

##### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The act of leasing the parcels for oil and gas development would have no direct impact on soil resources; however impacts at the exploration and development stage would have impacts on soils. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development.

At the exploration and development stage, soils would be physically disturbed through the removal and compaction of soil and the exposure of subsoils. Direct impacts at this stage would result from the construction of well pads, roads, powerlines and other infrastructure removing vegetation, exposing soil, mixing horizons, compaction, loss of productivity, and loss of soil through wind/water erosion. On most of the lease parcels, wind erosion would be expected to be minor; however on some of the parcels plains wind erosion could be considerable. Decreased soil productivity as a result of these impacts has the potential to hinder revegetation efforts and leave soils further exposed to erosion. Segregation and reapplication of surface soils would result in the mixing of shallow soil horizons, resulting in a blending of soil characteristics and types. This blending would modify physical characteristics of the soils, including structure, texture, and rock content, which could lead to reduced permeability and increased runoff from these areas.

Contamination of surface and subsurface soils can occur from leaks or spills of oil, produced water, and condensate liquids from wellheads, produced water sumps and condensate storage tanks. Leaks or spills of drilling and hydraulic fracturing chemicals, fuels and lubricants could also result in soil contamination. Such leaks or spills could compromise the productivity of the affected soils. Of these materials, leaks or spills of condensate would have the greatest potential environmental impact. Depending on the size and type of spill, the impact to soils would primarily consist of the loss of soil productivity. Typically, contaminated soils would be removed and disposed of in a permitted facility or would be bioremediated in place using techniques such as excavating and mulching to increase biotic activities that would break down petrochemicals into inert and/or common organic compounds. These direct impacts of the development phase are lessened through lease stipulations and the implementation of Best Management Practices.

##### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect soil resources. These activities include: oil and gas development, residential development, grazing, mining and recreation. At the 5<sup>th</sup> level watershed scale, the leasing and subsequent development of these parcels would add an additional impact to soil resources into the future. Most of this impact would be phased in and lessened as individual wells are completed and older wells are reclaimed.

Potential Development Stage Mitigation:

As described in Conditions of Approval at the APD stage, operators could stockpile the topsoil from the surface of well pads which would be used for surface reclamation of the well pads. If the well produces, the top soil can be used for interim reclamation of the areas of the well pad not in use. If the well is a dry hole, the soil can be used for immediate reclamation. The soil should not be stockpiled for more than one year. Soil stockpiling and re-spreading should be carried out under the advisement of BLM personnel. The impact to the soil would be remedied upon reclamation of well pads when the stockpiled soil that was specifically conserved to establish a seed bed is spread over well pads and vegetation re-establishes. Upon abandonment of wells and/or when access roads are no longer in service, the Authorized Officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in Conditions of Approval at the APD stage. An orderly system of road locations and road construction requirements (including regular maintenance) would alleviate potential impacts to the environment from the development of access roads.

**3.4.1.5 Water (Surface and Groundwater, Floodplains)**

Affected Environment:

*Surface Water:* The proposed lease parcels are located throughout the Arkansas, South Platte, and Republican River basins of Colorado. These areas are all on the eastern plains of Colorado. In general, the water quality in these rivers is good near the headwaters and declines as one goes downstream. The major water quality concerns for these waters is generally sediment and heavy metals in the mountains and progresses to more organic and salinity related issues on the plains. Potential impacts to site specific water quality associated with any exploration and development activities would be assessed for each location during specific project proposals (i.e. at the APD stage).

*Ground Water:* The proposed lease parcels are located throughout eastern Colorado in the high plains. These leases occupy one of two general aquifers: the High Plains Aquifer in the far eastern plains and the Dakota-Cheyenne Aquifer in the western portion of the eastern plains. Water quality in these aquifers is variable depending on which formation the water is located. In some formations, the water quality is very good, while in others, it is poor. Throughout the lease area, groundwater is relied upon for domestic and agricultural purposes.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The act of leasing the parcels for oil and gas development would have no direct impact on water resources; however activities at the exploration and development stage could have impacts to water quality. The magnitude and location of direct and indirect effects cannot be predicted until

the site-specific APD stage of development. All parcels would be subject to all watershed protection ordinances of local municipalities.

*Surface Water:* Impacts to surface water resources would be associated with the surface disturbance from the construction of roads, pipelines, well pads, and powerlines. 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. Impacts would be greatest shortly after the start of the activity and decrease over time. These impacts can also be mitigated by the implementation of Best Management Practices (BMP) that would design facilities with temporary runoff control measures that would slow down runoff and capture sediment. These BMP's would be included at the APD stage to address site specific conditions based on submitted Surface Use and Drilling Plans.

Chemicals, or other fluids, accidentally spilled or leaked during the development process could result in the contamination of both ground and surface waters. Authorization of development projects would be further analyzed at the APD stage and require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

*Ground Water:* The eventual drilling of the proposed parcels would most likely pass through useable groundwater. 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 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 residential 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.

Known water bearing zones in the lease area are protected by drilling requirements and, with proper practices, contamination of ground water resources is highly unlikely. Casing along with cement is extended well beyond fresh-water zones to insure that drilling fluids remain within the well bore and do not enter groundwater.

Potential impacts to ground water at site specific locations are analyzed through the NEPA review process at the development stage when the APD is submitted. This process includes geologic and engineering reviews to ensure that cementing and casing programs are adequate to protect all downhole resources.

All water used would have to comply with Colorado state water rights regulations and a source of water would need to be secured by industry that would not harm senior water rights holders.

*Hydraulic Fracturing:* Hydraulic Fracturing, known as “fracking” in the oil and gas industry, is a process that uses high pressure pumps to develop pressure at the bottom of a well to crack the hydrocarbon formation. This aids extraction of oil and gas deposits that might be left behind by conventional oil and gas drilling and pumping technology.

Hydraulic fracturing is a 60-year-old process that is now being used more commonly as a result of advanced technology. About 95 percent of new wells in Colorado are fractured.

Wells are often treated during completion to improve the recovery of hydrocarbons by increasing the rate and volume of hydrocarbons moving from the natural oil and gas reservoir into the wellbore. These processes are known as well-stimulation treatments, which create new fluid passageways in the producing formation or remove blockages within existing passageways. They include fracturing, acidizing, and other mechanical and chemical treatments often used in combination. The results from different treatments are additive and complement each other.

This makes it possible to introduce fluids carrying sand, walnut hulls, or other small particles of material into the newly created crevices to keep the fractures open when the pressure is relieved. This process increases the flow rate and volume of reservoir fluids that move from the producing formation into the wellbore. The fracking fluid is typically more than 99 percent water and sand, with small amounts of readily available chemical additives used to control the chemical and mechanical properties of the water and sand mixture.

The State of Colorado, through the Colorado Oil and Gas Conservation Commission (COGCC), establishes regulations to ensure that all resources including groundwater are protected. COGCC regulations establish casing and cementing standards to ensure that gas being produced from formations 8,000 feet deep does not leak into the shallower aquifers. These regulations require wells to be cased with steel pipe and the casing to be surrounded by cement to create a hydraulic seal within the annular space between the wall of the well bore and the steel pipe. In addition, in response to the recent concerns raised about hydraulic fracturing, the COGCC has amended the regulations to include requirements that address these concerns and will serve to further mitigate any potential impact from hydraulic fracturing.

In Colorado, the majority of fluids used in the fracturing process are recycled and no fluids are sent to wastewater treatment plants. Of the small percentage of disposed fluids, approximately 60 percent goes into deep and closely-regulated waste injection wells, 20 percent evaporates from lined pits and 20 percent is discharged as usable surface water under permits from the Colorado Water Quality Control Commission.

To ensure that hydraulic fracturing is conducted in a safe and environmentally sound manner, the BLM approves and regulates all drilling and completion operations, and related surface disturbance on federal public and split estate lands. Operators must submit Applications for Permit to Drill (APDs) to the agency. Prior to approving an APD, a BLM Colorado geologist identifies all potential subsurface formations that will be penetrated by the wellbore. This includes all groundwater aquifers and any zones that would present potential safety or health risks that may need special protection measures during drilling, or that may require specific protective well construction measures.

Once the geologic analysis is completed, the BLM reviews the company's proposed casing and cementing programs 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.

During drilling, the BLM is on location during the casing and cementing of the groundwater-protective surface casing and other critical casing and cementing intervals. Before hydraulic fracturing takes place, all surface casing and some deeper, intermediate zones are required to be cemented from the bottom of the cased hole to the surface. The cemented well is pressure tested to ensure there are no leaks and a cement bond log is run to ensure the cement has bonded to the casing and the formation. If the fracturing of the well is considered to be a "non-routine" fracture for the area, the BLM will always be onsite during those operations as well as when abnormal conditions develop during the drilling or completion of a well.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect water quality. These activities include: oil and gas development, residential development, grazing, mining and recreation. At the 5<sup>th</sup> level watershed scale, the leasing and subsequent development of these parcels would add an additional impact to water resources into the future. Most of this impact would be phased in and lessened as individual wells are completed and older wells are reclaimed. Overall, it is not expected that the leasing and possible future development of the parcels would cause long term degradation of water quality below State standards.

#### Potential Development Stage Mitigation:

The following mitigations that could be applied as conditions of approval at the APD stage to further protect water quality in the lease area:

1. Pads would be sited and designed to divert offsite run-on around the pit. Run-on water may be diverted around the pit by sloping the pad or constructing diversion ditches or berms above and/or below the pad cut slope.
2. The BLM would require that an alternative to reserve, completion, and open production pits be used. Exceptions may only be granted in rare cases with sufficient justification (e.g., when sufficient protections are described in a design submitted for prior BLM approval) and after detailed NEPA analysis. When exceptions to this policy are granted, the BLM would consider more stringent operation, closure, and monitoring standards. In

this situation, acceptable alternatives to reserve, completion, and production pits would be closed-loop drilling.

3. Below-grade enclosed tanks would not be permitted.
4. Above-grade tanks for storage of produced fluids must adhere to the following standards:
  - a. Secondary containment storage around the tanks for spill control must be capable of holding at least 125 percent of the volume of the largest tank inside the containment area.
  - b. The containment system must be capable of containing the wastes or product such that the material will not escape the containment system prior to cleanup.
  - c. Secondary containment structures shall be protected from livestock, wildlife, and human activities. This may be accomplished by fencing, graveling over earthen berms, expanded metal or grate covers, etc.

Additional site specific mitigation measures would be analyzed and added at the APD stage.

### **3.4.2 Biological Resources**

#### **3.4.2.1 Invasive Plants**

##### Affected Environment:

Invasive species and noxious weeds occur on BLM surface acres within the affected area. Downy brome (cheatgrass) and other annual weeds are common along roadsides and on other disturbed areas. Houndstongue, Canada thistle, bull thistle, musk thistle, Russian thistle, spotted and diffuse knapweeds, leafy spurge, and hoary cress are also known to occur in these areas.

##### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

If drilling were to occur on these parcels subsequent activities would create an environment for and provide a mode of transport for invasive species and other noxious weeds to become established. Construction equipment and any other vehicles or equipment brought onto the site can introduce weed species. Wind, water, recreation vehicles, livestock and wildlife would also assist with the distribution of weed seed into the newly disturbed areas. Other species of noxious weeds can be introduced by vehicle traffic, livestock and wildlife and will readily spread into newly disturbed areas. Non-native and invasive weed species that occur on adjacent rangelands would occupy disturbed areas; the bare soils and the lack of competition from a perennial plant community would allow these weed species to grow unchecked and can affect the establishment of seeded plant species. Establishment of perennial grasses and other seeded plants as part of interim reclamation is expected to reduce the presence of invasive annual weeds.

##### Environmental Consequences of Leasing and Development - Cumulative Impacts:

In view of the current and historical widespread disturbances in the area such as livestock grazing and/or other agricultural practices and roads, the proposed action would have little cumulative impact. Long term impacts would be small and localized after successful interim reclamation practices are implemented.

#### Potential Development Stage Mitigation:

The site should be monitored for non-native species prior to soil disturbing activities and for at least two growing seasons after the project area has been rehabilitated. All non-native species identified by monitoring should be treated. Proponent will be responsible for Monitoring and treatment of non-native species. Periodic monitoring would be done by BLM staff. At the APD stage, the operator may be required to control any invasive and/or non-native weeds that become established within the disturbed areas involved with drilling and operating the well and continue weed control actions throughout the life of the project.

The BLM and county weed and pest managers collaborate in their efforts to control weeds and find the best integrated approaches to achieve these results. For all actions on public lands that involve surface disturbance or rehabilitation, reasonable measures are required to prevent the introduction or spread of noxious weeds. These measures may include power washing or air blasting of construction equipment to remove soil, oil, and vegetative parts and requirements for using certified weed-free seed and weed-free hay, mulch, and straw. In addition, any actions that result in the introduction or spread of invasive non-native or noxious weeds would be mitigated by standard weed management guidelines under the direction of the BLM.

#### **3.4.2.2 Special Status Animals**

##### Affected Environment:

The piping plover and least tern federally listed species that may be impacted (based on existing spatial data collected from the BLM, Colorado National Heritage Program, CNHP and Colorado Parks and Wildlife, CPW) if proposed lease parcels are developed. The lesser prairie chicken is a federal candidate species that occupies habitat within the leasing area. Many BLM sensitive species (black-tailed prairie dog, swift fox, Townsend's big eared bat, common kingsnake, milk snake, massasauga, mountain plover, American white pelican, ferruginous hawk and bald eagle) could potentially occur on parcels available for leasing.

All proposed lease parcels are subject to lease stipulation Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal. Protective measures for these species will be applied, if necessary, at the APD stage and might include the need to move development pads, enforce timing limitations, enforce no surface occupancy restrictions, etc. Additional NEPA will be completed as individual APDs are received for all the parcels identified in this document. Site specific field visits will be conducted as deemed necessary for those parcels that contain federally listed and sensitive species habitat.

Piping Plover: Breeding sites are generally found on islands, lakeshores, coastal shorelines, and river margins. Currently the only known piping plover habitat within the administrative boundaries of BLM-RGFO exists near Las Animas, Colorado along the edges of Adobe Creek, Neoneesh, Neegronda, Queen, and John Martin Reservoirs. Parcel 6672 occurs near the boundary of Neenosh Reservoir; however, the due to recent drought and water right lawsuits, the reservoir is dry, resembling upland habitat. If the reservoir were full, the parcel lies outside the area shorebird habitat may exist.

Least Tern: The occurrence of breeding least terns is localized and is highly dependent on the presence of dry, exposed sandbars and favorable river flows that support a forage fish supply and isolate the sandbars from the riverbanks. Characteristic riverine nesting sites are dry, flat, sparsely vegetated sandbars and gravel bars within a wide, unobstructed, water-filled river channel. Currently the only known least tern habitat within the administrative boundaries of BLM-RGFO exists near Las Animas, Colorado along the edges of Adobe Creek, Neoneesh, Neegronda, Queen, and John Martin Reservoirs. Parcel 6672 occurs near the boundary of Neenosh Reservoir; however, due to recent drought and water right lawsuits, the reservoir is dry, resembling upland habitat. If the reservoir were full, the parcel lies outside the area shorebird habitat may exist.

Lesser prairie chicken: Lesser prairie chickens (LEPC) were likely resident in six counties in Colorado prior to European settlement (Giesen 2000). At present, LEPC are known to occupy portions of Baca, Cheyenne, Prowers, and Kiowa counties, but are not known to persist in Bent and Kit Carson counties. Critical habitat has not been designated for the LEPC; however the CPW has designated LEPC production areas in and around known leks. Parcel 6930 occurs within a LEPC production area.

Black-tailed prairie dog: The BLM considers the black-tailed prairie dog a sensitive species. Black-tailed prairie dogs primarily occur in scattered colonies throughout the eastern plains of Colorado. In the summer of 2001, Colorado started aerial surveys for black-tailed prairie dogs throughout their historic range. Based on known locations of black-tailed prairie dogs, transects were developed for each county to give a 95% confidence interval to the resulting data. Statewide 631,000 acres of black-tail prairie dog colonies were documented.

Swift Fox: Swift foxes primarily occur in short-grass and mixed-grass prairie in the eastern plains of Colorado. The distribution of swift foxes became severely reduced in concert with conversion of mid- and shortgrass prairies to agriculture. Swift fox dens occur in ridges, slopes, hill tops, pastures, roadside ditches, fence rows and cultivated fields. Dens may be relatively close to human habitations and swift foxes occasionally den in human-made structures such as culverts. Swift foxes primarily consume animals, with leporids and rodents the most frequent prey.

Townsend's big-eared bat: The Townsend's big-eared bat occurs throughout the west and in Colorado. Habitat associations include: coniferous forests, deserts, native prairies, riparian communities, and agricultural areas. Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity forming rock and/or historic mining districts. Townsend's habit of roosting on open surfaces makes it readily detectable, and it is often the species most frequently observed (commonly in low numbers) in caves and abandoned mines throughout its range. It has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites.

Foraging associations include: edge habitats along streams, adjacent to and within a variety of wooded habitats. They often travel large distances while foraging, including movements of over

10 miles during a single evening. Townsend's are a moth specialist with over 90% of its diet composed of lepidopteron.

The primary threat to the species is almost certainly disturbance or destruction of roost sites (e.g., recreational caving, mine reclamation, renewed mining in historic districts). This species is very sensitive to disturbance events and has been documented to abandon roost sites after human visitation. Both roosting and foraging habitat may be impacted by timber harvest practices. Pesticide spraying in forested and agricultural areas may affect the prey base.

Common king snake: Generally associated with lowland river valleys. In Southeastern Colorado it has been found near irrigated fields on the floodplain of the Arkansas River, in rural residential areas in plains grassland, near stream courses, and in other areas dominated by shortgrass prairie. Most activity occurs on the ground or in rodent burrows. Periods of inactivity are spent in burrows and logs, in or under old buildings, in other underground spaces, or beneath various types of cover.

Known from a few locations in southeastern Colorado (north to the vicinity of the Arkansas River) and a few sites in extreme southwestern Colorado (western Montezuma County), at elevations below about 5,200 feet. Generally difficult to find but may be locally fairly common in the very restricted range in Colorado.

Milk snake: Wide variety of habitats in Colorado, including shortgrass prairie, sandhills, shrubby hillsides, canyons and open stands of ponderosa pine with Gambel oak in the foothills, piñon-juniper woodlands, arid river valleys, and abandoned mines; generally stays hidden, except at night; found under discarded railroad ties in sand-hill regions. Hibernation sites include rock crevices that may be shared with other snake species.

The species occurs throughout most of Colorado at elevations primarily below 8,000 feet and is generally scarce or at least hard to find, but locally fairly common.

Massasauga: Habitat in Colorado consists of dry plains grassland and sandhill areas. Massasauga may be attracted to sandy soils supporting abundant rodent populations. The species occurs in the Great Lakes region of southern Ontario and western New York southwest through the Midwest and central and southern Great Plains to southeastern Arizona, northern Mexico, and southern Texas. It occurs in southeastern Colorado at elevations below about 5,500 feet.

Mountain Plover: Mountain Plover's are found throughout the Royal Gorge Field Office (RGFO) in suitable habitats. While the species is relatively rare they can be found generally in open, flat tablelands that display some function of disturbance such as agricultural production, drought, grazing, fire, etc. (Knopf and Miller 1994). Plover habitat associated with this assessment is located Baca, El Paso, Elbert, Huerfano, Kiowa, Kit Carson, Bent, Lincoln, Washington, and Weld.

American white pelican: Habitat includes rivers, lakes, reservoirs, estuaries, bays, and open marshes, sometimes inshore marine habitats. Pelicans rest/roost on islands and peninsulas. In Colorado, nests usually occur on islands or peninsulas (natural or dredge spoils) in freshwater

reservoirs. Eggs are laid on the ground in a slight depression or on a mound of earth and debris 24-36 inches across, 15-20 inches high, usually on low, flat, or gently sloping terrain. Nest sites usually are in open areas but often near vegetation, driftwood, or large rocks. Many of the reservoirs and major riparian systems within the RGFO resource area serve as important foraging and nesting locations. Parcel 6672 occurs near the boundary of Neenosh Reservoir; however, due to recent drought and water right lawsuits, the reservoir is dry and resembles upland habitat and is not habitat for white pelican. Parcels 6911 and 6932 occur within pelican habitat located along the South Platte river watershed

Ferruginous hawks: The ferruginous hawk inhabits grasslands and semi-desert shrublands, and is rare in piñon-juniper woodlands. Breeding birds nest in isolated trees, on rock outcrops, structures such as windmills and power poles, or on the ground. Winter residents concentrate around prairie dog towns. Winter numbers and distribution fluctuate greatly according to the availability of prairie dogs; when a local prairie dog population dies off due to plague, hawk numbers decrease drastically. Migrants and winter residents may also occur in shrublands and agricultural areas. Ferruginous hawks are typically winter resident on eastern plains, but may nest in this area on occasion.

Bald eagle: Colorado populations of bald eagles typically nest in large cottonwood trees along rivers and reservoirs. Eagle densities reach their peak during the winter months when migrants arrive from the north. The bald eagle is a common winter (December through February) visitor to RFGO. Bald eagle usage (winter roosting, nesting, etc.) occurs near several major riparian areas and reservoirs on the eastern plains.

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The act of leasing parcels for oil and gas development would have no direct impact on wildlife resources. However, the authorization to lease parcels for oil and gas development will likely result in future development at some locations. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development. At this time, the speculative nature of this process does not provide specifics of development; therefore, specific impacts to terrestrial wildlife from development remain unknown. Potential effects of development for some species are below.

Least Tern and Piping Plover: Impact to piping plover will be minimal. The reservoir in its current state offers no shorebird habitat. However, if the reservoir were to fill to the high watermark, it is conceivable that shorebirds and/or waterfowl may use a portion of the upland habitat for nesting. Lease stipulation CO-07 has been applied to parcel 6672 to protect waterfowl and shorebird habitat and rookeries.

Lesser Prairie Chicken: Pitman et al. (2005) studied LPCH in southwestern Kansas from 1997-2002. They examined nest distances from anthropogenic features (wellheads, buildings, improved roads, unimproved roads, transmission lines, and center pivot irrigation fields) to determine if the features were related to location and success of nests. They found that anthropogenic features (transmission lines, wellheads, buildings, improved roads, center-pivots) were avoided by nesting LPCH when compared to random points within the study area. The

overall impact of this avoidance is the reduction in LPCH nesting habitat, which was estimated at 7,114 ha (53%) of the 13,380 ha in the study area.

Patten et al. (2005) studied populations of LPCH in New Mexico and Oklahoma from 1999-2003. They radio-tracked 93 females and 188 males in New Mexico and 62 females and 191 males in Oklahoma and found that female mortality was significantly higher in Oklahoma when compared to their study population in New Mexico. They found that the cause for this increase in mortality was related to collisions with fences, power lines, and vehicles, which was three times higher than that in the study birds in New Mexico.

Bidwell et al. (2003) suggests that LPCH avoid high quality habitat within 200 meters of a single oil well or gas pump and they avoid areas within 600 meters of an unimproved road and within 1,000 meters of an elevated power line.

Crawford and Bolen (1976) found that a constructed road through rangeland caused the abandonment of the otherwise traditional lek.

Woodward et al. (2001) performed geographic information system (GIS) analysis on landscapes and landscape change through time. They then compared this to the trend in LPCH populations. They found that LPCH populations with a declining population trend were related to landscapes with higher rates of landscape change and greater loss of shrub land cover types.

The lesser prairie chicken is now a candidate species under the Endangered Species Act (ESA) and a listing decision is expected in 2014. The BLM manages candidate species in a manner to prevent listing by the ESA. Recent research indicates that development of anthropogenic infrastructure is causing a deleterious effect on reproductive success and chicken populations. Related to mineral leasing and development, existing lesser prairie chicken habitat should be protected from development as the presence of buildings, improved roads, transmission lines, center-pivot files, and wellheads reduce potential nesting habitat for a radius of up to 1 km. Lease stipulations RG-03 and CO-02 have been attached to parcels 6930 that may affect leks.

**Black-tailed Prairie Dog:** Within Black-tailed prairie dog range, areas have been classified as valuable for oil and gas development. Possible direct negative impacts associated with oil and gas development include clearing and crushing of vegetation, reduction in available habitat due to pad construction, road development and well operation, displacement and killing of animals, alteration of surface water drainage, and increased compaction of soils. Indirect effects include increased access into remote areas by shooters and OHV users. Gordon et al. (2003) found that shooting pressure was greatest at colonies with easy road access as compared to more remote colonies. Conversely, oil and gas development may provide areas with reduced shrub cover providing additional habitat for prairie dogs colonize.

**Swift Fox:** Oil and natural gas exploration fragment existing grasslands and increase road traffic and access by humans. Impacts of this type of disturbance on Swift Foxes are unknown, but both positive and negative effects may be expected. On the positive side, prey abundance for Swift Foxes may increase in the vicinity of roads. However, loss of local habitat, increased mortality due to road kills, trapping and accidental shooting may also result (Carbyn et al. 1994).

Townsend's big eared bat: It is unlikely that the proposed lease parcels offer habitat suitable for hibernation or rearing of young Townsend's big eared bat. Perhaps widely distributed singly or in small groups during the summer months, roosting bats may be subject to localized disturbance from development activity and relatively minor but long term reductions in the a real extent of mature woodland stands as sources of roost substrate.

Reptile species: Direct effects to the BLM sensitive reptile species could include injury or mortality as a result of construction, production, and maintenance activities. These effects would be most likely during the active season for these species, which is generally April to October. Indirect effects could include a greater susceptibility to predation if roads or pads are used to aid in temperature regulation. Overall, however, there is a low likelihood that these species would be substantially affected.

Mountain Plover: Mountain plovers nest on nearly level ground (often near roads), adults and chicks often feed on or near roads, and roads may be used as travel corridors by mountain plovers. These factors make plovers susceptible to being killed by vehicles. Therefore, as oil and gas infrastructure is developed and used, an increase in the probability of plover mortality or nest destruction will likely occur. While known nesting locations are currently unknown, mitigation (plover nesting survey, timing limitations, etc.) to prevent take will be implemented at the APD stage.

American white pelican: Impacts to American white pelican will be minimal. The reservoir in its current state offers no habitat for pelicans. However, if the reservoir were to fill to the high watermark, it is conceivable that pelicans will use the reservoir for nesting and foraging. A development activity buffer may be necessary to minimize disturbance to this species. Therefore, lease stipulation CO-17 has been applied to parcel 6672, 6911, and 6932 to protect a buffered area near potential white pelican nesting and foraging areas.

Ferruginous Hawk: Ferruginous hawks have been document to construct nests upon oil and gas related structures. However, these nests are less successful than nests built upon natural structures due to repeated human visitation. While the footprint of individual oil and gas wells is minimal relative to other energy developments, the total habitat lost to the network of wells and connecting roads can be considerable in areas undergoing full-field development. The potential for oil and gas related disturbance of nesting, foraging or roosting raptors arises not only from new well installation activities, including road and pad construction, drilling and equipment installation over the course of several weeks to months, but also from continual servicing and maintenance of wells over their production lifetime. Raptors are protected by a suite of stipulations (CO-03, CO-18, and RG-05) that require no surface occupancy within one-eighth of a mile of nests and a timing limitation to protect raptor nesting and fledgling habitat.

Bald eagle: Bald eagle foraging and nesting is dispersed and opportunistic across the entire RGFO area, with most activity centered near major riparian and reservoir areas. Surface disturbing activities that have potential to disrupt important bald eagle seasonal use activities are subject to NSO and TL provisions (CO-04 and CO-23) established in the Royal Gorge RMP. These stipulations have been successful in protecting ongoing nest efforts and maintaining the

long term utility of roost and nest sites in the resource area and will be applied on parcels 6672, 6911, and 6932.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect wildlife resources. These activities include: oil and gas development, residential development, grazing, agriculture, mining and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be thoroughly addressed in the development and APD stage.

Potential Development Stage Mitigation:

As a potential condition of approval at the development phase, a survey for federally listed and BLM sensitive species must be conducted where potential habitat exists. If these features are located, BLM may implement timing limitations and/or spatial buffers to mitigate conflicts to the extent the RGFO Resource Management Plan, Northeast Resource Management Plan, and the Code of Federal Regulations (43 C.F.R. § 3101.1-2) allow. Additionally, if development is to occur April 10 through July 10 a survey for nesting mountain plover will be required where habitat exists.

As a potential condition of approval, if a ferruginous hawk constructs a nest upon any oil and gas related platforms (e.g. tanks), the BLM will be notified, an alternative nesting structure will be constructed, and the nest moved to the structure at the expense of the lessee.

### **3.4.2.3 Wetlands and Riparian Zones**

Affected Environment:

Offered lease parcels for this sale occur across a wide spectrum of ecological settings over eastern Colorado, but most parcels are removed from wetland areas and are in upland settings. Parcel 6672 is land in close proximity to the full pool elevation at two reservoirs (two parcels) at the Queens State Wildlife area. These reservoirs have dams with enhanced storage at natural playas and are combined with extensive ditch systems that deliver and store Arkansas River water. Past reservoir operations during wet periods allowed these parcels to be near the then reservoir shoreline. Water storage operations involving John Martin reservoir and changes with the Colorado-Kansas compact will limit in the future how often these water bodies are full, but there is some low probability they could again be near wetlands of the reservoir. The parcels have a No Surface Occupancy Stipulation attached. Other parcels along Horse Creek (6928, 6926, 6927, 6920) are lands in closer proximity to riparian. Remote sensing techniques makes exact determination of where riparian exists and where there is only a dry wash tributary difficult, so the CO-28 stipulation is applied to all lands within these parcels.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Leasing these parcels does not affect any wetland habitat. In the event of future development, resetting of proposed drill pad locations may be necessary to sustain protective distances from

wetlands (NE-02, CO-28). Otherwise, parcels are upland and there is no direct affect of this lease sale or future drill pads directly affecting riparian or wetland habitat.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

All lands leased are located in settings with substantial landscape level modification due to agriculture, livestock grazing, irrigation modification or some combination. Leasing and development on any parcel would be cumulative to these other impacts. Oil and Gas development would bring roads, pipelines and other surface disturbance into agricultural areas. This may result in conflicts of land uses requiring additional infrastructure to separate uses such as additional fences, gates, cattle-guards, etc. Additional surface disturbances, depending upon proximity to waterways and wetlands, may alter overland flow rates and sediment delivery into wetland areas accelerating eutrophication or altering stream function.

Potential Development Stage Mitigation:

Standard Conditions of Approval would be applied to any APD and would include moving drill pads to suitable location.

#### **3.4.2.4 Aquatic Wildlife**

Affected Environment:

No major perennial aquatic wildlife habitat is involved with the lease of any parcel except those adjacent to Horse Creek (6928, 6926, 6927, 6920) where some of the lands are in closer proximity to riparian areas. Some other lands are in close proximity to smaller tributaries. Remote sensing techniques makes exact determination of where riparian exists and where there is only a dry wash tributary difficult, so the CO-28 stipulation is applied to all lands within these parcels. Colorado Parks and Wildlife has been active in fishery recovery efforts for the Arkansas Darter within the Horse Creek watershed. Parcel 6672 (two individual land pieces) are within reservoir watershed boundaries of two separate reservoirs at the Queens SWA north of Eads Colorado. These public lands are managed through cooperative agreement by the Colorado Parks and Wildlife as lands incorporated into their State Wildlife Area. Presently these reservoirs are dry. Filling of these dam enhanced playa environments is less likely in future years than in the past because of water operation changes at John Martin Reservoir and changes brought about by the Colorado-Kansas water compact. Regardless, these reservoirs could fill through Arkansas River water diversion into supply ditches, or partially fill from localized rain. In either of those events future drilling could be in close proximity to aquatic habitat. Parcel 6672 has a no Surface Occupancy stipulation attached. All other parcels are in upland settings.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Leasing of these parcels would not directly affect any aquatic habitat or wildlife under normal circumstances because they are within upland settings. Those parcels at Queens SWA have a NSO stipulation that requires well pads to be located off the parcels. Relocation could still be within the reservoir (historic playa) watersheds, but would be separated by distance not directly affecting the reservoirs under typical circumstances. The impact of future development necessitating roads, pipelines and other infrastructure would need to be evaluated later, but the act of leasing these parcels does not directly affect aquatic habitat. CO 28 wetland protection

stipulation would locate any future activities away from aquatic habitat avoiding direct impacts to aquatic habitat along Horse Creek and other parcels near aquatic environments.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

All lands are located in settings of substantial landscape level modification due to agriculture, livestock grazing, irrigation modification or some combination. Leasing and development on any parcel would be cumulative to these other impacts. Oil and Gas development would bring roads, pipelines and other surface disturbance into agricultural areas. This may result in conflicts of land uses requiring additional infrastructure to separate uses such as additional fences, gates, cattle-guards, etc. Additional surface disturbances, depending upon proximity to waterways and wetlands, may alter overland flow rates and sediment delivery into wetland and aquatic habitats accelerating eutrophication or altering stream function.

Potential Development Stage Mitigation:

Standard Conditions of Approval would be applied to any APD and would include moving drill pads to suitable location and likely outside of SWA boundaries.

### **3.4.2.5 Terrestrial Wildlife**

Affected Environment:

See the migratory bird section for a general habitat description of proposed lease parcels. The area encompassing the proposed lease parcels is vast, stretching the entirety of the high plains in Colorado. The area encompasses the full complement of deer and pronghorn seasonal ranges. Winter range is that part of the overall range of a species where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site specific period of winter as defined for each data analysis unit.

All or portions of the following parcels contain big game (mule deer, pronghorn) winter habitat: 6672, 6911, 6912, 6913, 6918, 6920, 6923, 6924, 6925, 6926, 6927, 6928, 6930, 6931, 6932, 6937, and 6938.

Few raptor nest locations are known within the proposed lease parcels for two primary reasons, lack of information and the fact that many parcels are located on private surface. Lease stipulations attached to each parcel would require raptor nest surveys and maintain site characteristics of existing nest. Timing limitations will reduce disruption of adult attendance at each known occupied nest location.

Several parcels are located in Colorado Natural Heritage Program (CNHP) Potential Conservation Areas (PCAs). A PCA may include a single occurrence of a rare element or a suite of rare elements or significant features. The goal is to identify a land area that can provide the habitat and ecological processes upon which a particular element or suite of elements depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative cover, as well as current and potential land uses. The proposed boundary does not automatically exclude all activity. Consideration of specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be

carefully considered and evaluated for their consequences to the element on which the conservation unit is based. Affected PCAs include Buffalograss Playas, Central Arkansas Playas, Central Shortgrass, Chico Basin Shortgrass Prairie, Cimarron River at High Plains, Cimarron Valley, Comanche Grassland, Pawnee Grassland East, Point of Rocks, Riverside Reservoir, and South Platte River.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The act of leasing the parcels for oil and gas development would have no direct impact on wildlife resources; however, impacts at the exploration and development stage could have impacts on wildlife. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific APD stage of development.

Parcels that contain big game winter habitat will have either stipulation CO-09 or RG-08 attached to protect the resource. Leasing parcels for oil and gas development will likely result in future development at some locations. At this time, specifics of development are unknown; therefore, impacts to terrestrial wildlife caused by potential future development cannot be analyzed with accuracy at this stage. If a parcel is leased and development occurs, impacts likely to occur will be habitat loss and fragmentation (well pad construction, road construction, etc.). Wildlife could avoid preferred habitat because of human presence, noise from drilling and production facilities, increased road density and traffic. Sawyer et al. (2006) demonstrated an avoidance response by mule deer of well pads and roads in the development of a natural gas field in western Wyoming. The response was immediate (i.e., year 1 of development) and no evidence of acclimation occurred during the course of the 3 year study. However, the indirect habitat loss caused by an avoidance response of mule deer could be reduced by 38-63% with the use of advanced technologies and proper planning that minimize the number of well pads and amount of human activity associated with them (Sawyer et al. 2006). Elk have displayed similar avoidance characteristics as mule deer to oil and gas development. Radio collared elk in the Jack Marrow Hills, Wyoming displayed an avoidance buffer of 1000-m in winter and 2000-m in summer of roads and active well sites (Powell 2003). While habitat between the well sites in the studies listed above and the parcels in the RGFO lease sale may not be equal, a general assumption can be made that oil and gas development activities could alter habitat use of these terrestrial animals.

Raptors are protected by a combination of “no surface occupancy” and “timing limitation” stipulations are attached to parcels to reduce adverse effects of potential oil and gas development. This control method allows the protection of known active nest sites during the APD phase. While the footprint of individual wells is minimal, the total habitat lost to the network of wells and connecting roads can be considerable. The potential for oil and gas related disturbances of nesting, foraging and roosting raptors arises not only from new well installation activities, including road and pad construction, drilling, and equipment installation over the course of several weeks to months, but also from continual servicing and maintenance of wells over their productive lifetime.

Several lease parcels are located within PCAs; however, the RGFO RMP and the North East RMP contain a suite of stipulations that will protect the elements outlined in each PCA in the event that leased parcels are eventually developed.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect wildlife resources. These activities include: oil and gas development, residential development, grazing, agriculture, mining and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be thoroughly addressed in the APD stage.

#### Potential Development Stage Mitigation:

Because of the lack raptor nesting information and the lease stipulations attached to each parcel a standard COA would require a raptor nest survey where habitat existed. If a nest were found, the stipulations would require the lessee to maintain the integrity of site characteristics for existing nests. Additionally, timing limitations will reduce disruption of adult attendance at each known occupied nest location.

### **3.4.2.6 Migratory Birds**

#### Affected Environment:

BLM Instruction Memorandum No. 2008-050 provides guidance towards meeting the BLM's responsibilities under the Migratory Bird Treaty Act (MBTA) and Executive Order (EO) 13186. The guidance emphasizes management of habitat for species of conservation concern by avoiding or minimizing negative impacts and restoring and enhancing habitat quality.

The eastern plains of Colorado contains flat to gently rolling topography, with occasional canyons and bluffs. Elevations within Colorado range from about 3,200 ft. in Prowers County to about 6,000 ft. around Limon and near the foothills of the Rockies. Principal rivers include the South Platte, Arikaree, Big Sandy, Republican, and Arkansas. Precipitation is low, less than 20 in per year with most of that falling in spring and summer; total precipitation varies greatly between years at a given location and varies significantly more than in mixed grass or tallgrass systems. Mean monthly temperatures range from 10°F in winter to 100°F in summer. Localized severe weather is not uncommon, and blizzards, hailstorms, and tornadoes occur in most years.

The dominant habitat in this physiographic area is shortgrass prairie. Shortgrass is dominated by two low-growing warm-season grasses, blue grama and buffalo grass; western wheatgrass is also present, along with taller vegetation including widespread prickly-pear cactus and yucca, and cholla in the south. Sandsage prairie is found where sandy soils occur, and is dominated by sand sagebrush and the grasses sand bluestem and prairie sand-reed. Mixed grass (needle-and-thread, side-oats grama) and tallgrass (big bluestem, little bluestem, switchgrass) communities occur locally.

A second habitat in this physiographic area is lowland riparian. In the shortgrass prairie, lowland riparian habitats occur along the few stream and river courses. Riparian vegetation is dominated by plains cottonwood, willow shrubs, and introduced species such as Russian-olive and Chinese elm. Trees were uncommon features of the shortgrass prairie before European settlement;

development of woody vegetation has been facilitated in historical times by alteration of natural river flow regimes, a result of irrigation drawdown and reservoir construction for flood control.

The following birds are listed on the US Fish and Wildlife Service Birds of Conservation Concern (BCC) – 2008 List for BCR 16-Southern Rockies/Colorado Plateau and BCR 18-Shortgrass Prairie. These species have been identified as species that may be found in the project area, have declining populations and should be protected from habitat alterations.

The golden eagle is a bird of grasslands, shrublands, piñon-juniper woodlands, and ponderosa pine forests, may occur in most other habitats occasionally, especially in winter. Nests are placed on cliffs and sometimes in trees in rugged areas, and breeding birds range widely over surrounding habitats.

Northern harrier's reside throughout Colorado, with highest densities on the eastern plains, mountain parks, and western valleys. These hawks feed on small mammals, birds, reptiles, and amphibians. They hunt by flying low over wetlands, grasslands, shrublands, and croplands.

Prairie falcons nest in scattered locations throughout the state where they inhabit the grassland and cliff/rock habitat types. These falcons breed on cliffs and rock outcrops, and their diet during the breeding season is a mix of passerines and small mammals.

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Leasing will have no impact on migratory bird individuals, populations or habitat. If leases are developed, surface disturbing activities, such as road building or pad and pipeline construction will destroy existing habitat. If surface disturbing activities occur during the nesting season, "take" of nests may occur. Noise and human activity 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. If oil and/or gas is found in economically feasible quantities, it is likely additional development will occur.

Appropriate lease stipulations to protect some migratory birds and their habitats were attached to parcels and described in Attachments A and C. Further, at the field development and APD stage it is standard procedure to include a COA on all APDs that alerts the operator to their responsibility under the Migratory Bird Treaty Act to prevent the "take" (pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill). The COA will ensure that operators take measures to prevent destruction of nests and effectively preclude migratory bird access to, or contact with, reserve pit contents that possess toxic properties (i.e., through ingestion or exposure) or have potential to compromise the water-repellent properties of birds' plumage.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect migratory bird resources. These activities include: oil and gas development, residential development, grazing, agriculture, mining and recreation. In areas where human development had previously modified the natural environment (i.e. agricultural, settlement, past oil and gas development) it is likely that migratory bird species richness and diversity had been forfeited. However, new oil and gas development will likely cause an additive negative impact to most species of migratory birds currently present at the site. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be addressed in the APD stage.

#### Potential Development Stage Mitigation:

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. 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, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-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.

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.

### **3.4.3 Heritage Resources and Human Environment**

#### **3.4.3.1 Cultural Resources**

##### Affected Environment:

**Paleoindian** sites are relatively scarce in the eastern half of Colorado. During the years 10,000-5500 BC, Paleoindian populations appear to have subsisted on large game (based on associated lithic tools), and probably supplemented their diets with a variety of small game and vegetal materials. Paleoindian materials from the Clovis period (9500-8950 BC) have been reported for southeastern Colorado, and although not extensive, Folsom and Plano artifacts seem to suggest an increase in population through time. It appears that Paleoindian populations were living in relatively small groups, and seem to have been mostly nomadic.

Many more cultural materials dating to the **Archaic** period (5500 BC-AD 500) have been found. The general size reduction of lithic tools, coupled with the presence of groundstone and vegetal evidence, suggests that a gradual shift in subsistence from large game to smaller game and possible horticulture was taking place. As early as 7800 BP, Archaic populations were living in pithouses, and, later, in structures with stone foundations. Based on these and other data, it appears that Archaic groups were sedentary to some extent.

Evidence of the **Formative and Late Prehistoric/Protohistoric** periods (AD 500-1600) occupations is spotty in the mountain region. While some scholars interpret data from these periods as representing a clearly defined "mountain formative culture", the majority still believe that the mountains were inhabited seasonally by Plains-oriented groups. However, there is little to indicate substantial Formative or Late Prehistoric/Protohistoric settlement in the mountains, most likely due to a nomadic lifestyle.

The appearance of pottery and stemmed, corner-notched projectile points in the archaeological record suggest a change in culture in the Colorado Plains around AD 100. The **Late Prehistoric** (AD 100-1725) was a time when aboriginal populations in eastern Colorado seemed to have adopted a more sedentary lifestyle than in previous times. The construction of complex structural sites, the adoption of pottery and the increased dependence on horticulture (in the southeastern Plains) are all suggestive of less mobility.

Sites dating to the protohistoric period (beginning with the **Diversification Period**, AD 1450-1725) are difficult to identify. In southeastern Colorado, sites of that time period are dated based on the presence of "Apachean" traits, like pottery, rock art, and stone circles. In northeastern Colorado, the Dismal River Aspect (AD 1525-1725) is distinguished by shallow pithouses, bell-shaped roasting pits, and by Dismal River Gray Ware ceramics.

The **Protohistoric** was a time of increasing population movement, and was further complicated by the arrival of the Spanish, and, later, the Euro-Americans. Starting in 1725, and continuing until they were entirely eliminated by the 1870s, Native American groups identified as the Plains, Jicarilla, and Kiowa Apaches; the Utes; the Arapaho; the Comanches; the Cheyennes; and occasionally the Crow, Shoshoni, and the Blackfeet, were known to occupy the Plains region.

Europeans first explored southeastern Colorado in 1540. By 1822, Spanish dominance of the area ended. The Santa Fe Trail was established that year, bringing American populations into the region. Commercial ranching commenced in the 1860s, and the Homestead Act of 1862 increased the population further. By 1870, all Native American groups had been subdued, following several decades of violence. Buffalo hunting, popular among Euro-Americans in the early 1800s, finally decimated any remaining animals by 1880. After 1900, sugar beet production and dryland farming and ranching were the dominant industries in the area. The Great Depression of 1929 and the Dust Bowl of the 1930s combined to cause severe problems for agriculturalists. By 1941, programs created by the Roosevelt administration and the industrial needs resulting from the U. S. entry into World War II had greatly improved the economy. Agriculture continues to predominate as the largest revenue-producing industry in eastern Colorado.

BLM conducted a literature review of records in the BLM-RGFO field office and database, and reviewed relevant information in the Compass database maintained by the Colorado Office of Archaeology and Historic Preservation. The records indicate that two inventories for cultural resources have been completed on portions of two proposed lease parcels, for a total of 28.2 acres, or about .002% of the total acreage that comprises the lease sale.

Three sites have been recorded on or adjacent to proposed lease parcels, including Riverside Reservoir (5WL2915), which is eligible for the National Register of Historic Places (NRHP). The other two sites are a bridge (5EP3651), which is not eligible for the NRHP, and a Centennial Farm (5KC233), which has not been assessed for NRHP eligibility.

The Santa Fe National Historic Trail corridor runs adjacent to Parcel 6930. The existence of the trail has not been confirmed in the field, nor is it visible in aerial photographs of the identified corridor.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Because the proposed lease sale does not involve ground disturbance, the proposed undertaking will have no effect on historic properties. Any future development of leases that are purchased will be subject to additional Section 106 compliance, including identification, effects assessment, consultation, and if necessary, resolution of adverse effects. At that time, any adverse effects of proposed development on the historic reservoir will be identified and mitigated, if necessary. In an informational letter dated March 13, 2014, BLM notified the Colorado State Historic Preservation Officer (“SHPO”) of these determinations (see CR-RG-14-71 L).

BLM also consulted with the National Park Service regarding the proximity of Parcel 6930, to the Santa Fe National Historic Trail. In an e-mail dated March 27, 2014, Michael Elliot, Cultural resource Specialist with National Trails Intermountain Region of the NPS, concurred with BLM’s determination that the proposed lease sale will have no effect on the visual setting or the trail itself.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

None known at present. However, any future development of parcels that are purchased as a result of the lease sale will be subject to additional Section 106 compliance, including identification, effects assessment, consultation, and if necessary, resolution of adverse effects. At that time, any adverse effects of proposed development on the historic reservoir will be identified and mitigated, if necessary.

Potential Development Stage Mitigation: None at present.

### **3.4.3.2 Native American Religious Concerns**

#### **Proposed Action**

Affected Environment:

The mountains and Plains in Colorado were inhabited by numerous tribes throughout history. Because of their nomadic culture, Plains populations used items that were easily transported and

light, and therefore generally left little material evidence of habitation or traditional cultural properties. Although sacred locales are present on the lands within the RGFO jurisdiction, no known sites are present on any of the parcels included in the lease sale.

A consultation with potentially interested Native American tribes has been completed (CR-RG-14-18 NA), and no concerns were identified. The BLM contacted the following tribes: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Sioux Tribe, Comanche Tribe of Oklahoma, Crow Creek Sioux, Eastern Shoshone, Jicarilla Apache Nation, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, the Ute Tribe, Oglala Sioux Tribe, Rosebud Sioux Tribe, Southern Ute Tribe, Standing Rock Lakota Tribe, and the Ute Mountain Ute Tribe.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The proposed undertaking will have no effect on any known sacred or traditional sites. However, any future development of parcels that are purchased as a result of the lease sale will be subject to additional Section 106 compliance, including identification, effects assessment, consultation, and if necessary, resolution of adverse effects, which might include such sites.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

None known at present. However, any future development of parcels that are purchased as a result of the lease sale will be subject to additional Section 106 compliance, including identification, effects assessment, consultation, and if necessary, resolution of adverse effects, which might include such sites.

Potential Development Stage Mitigation: None at present.

### **3.4.3.3 Social and Economic Conditions**

**Affected Environment:**

Federal oil and gas leases generate a one-time lease bonus bid as well as annual rents. The minimum competitive lease bid is \$2.00 per acre. If parcels do not receive the minimum bid they may be leased later as noncompetitive leases that don't generate bonus bids. Within the Royal Gorge field office, average bonus bids are approximately \$50 per acre for oil and gas leases. Lease rental is \$1.50 per acre per year for the first five years and \$2.00 per acre per year thereafter. Typically, oil and gas leases expire after 10 years unless held by production. During the lease period annual lease rents continue until one or more wells are drilled that result in production and associated royalties. The royalty rate is 12.5 percent of revenue associated with mineral extraction on federal leases. The State of Colorado receives 49% of the total revenue associated with federal mineral leases.

Federal mineral lease revenue for the State of Colorado is divided thusly: 48.3 percent of all state mineral lease rent and royalty receipts are sent to the State Education Fund (to fund K-12 education), up to \$65 million in FY 2009 – FY 2011, and growing at four percent per year thereafter. Any amounts greater than the upper limit flow to the Higher Education Capital Fund.

10 percent of all state mineral lease rent and royalty receipts are sent to the Colorado Water Conservation Board (CWCB), up to \$13 million in FY 2009, and growing at four percent per year thereafter. Any amounts greater than the upper limit flow to the Higher Education Capital Fund. 1.7 percent of all state mineral lease rent and royalty receipts is distributed directly to local school districts originating the FML revenue or providing residence to energy employees and their children. 40 percent of all state mineral lease rent and royalty receipts are sent to the Colorado Department of Local Affairs, which then distributes half of the total amount received to a grant program, designed to provide assistance with offsetting community impacts due to mining, and the remaining half directly to the counties and municipalities originating the FML revenue or providing residence to energy employees.

Bonus payments are allocated separately from rents and royalties, in the following manner: 50 percent of all state mineral lease bonus payments are allocated to two separate higher education trust funds: the "Revenues Fund" and the "Maintenance and Reserve Fund". The Revenues Fund receives the first \$50 million of bonus payments to pay debt service on outstanding higher education certificates of participation (COPs). The Maintenance and Reserve Fund receives 50 percent of any bonus payment allocations greater than \$50 million. These funds are designated for controlled maintenance on higher education facilities and other purposes. The remaining 50 percent of state mineral lease bonus payments are allocated to the Local Government Permanent Fund, which is designed to accumulate excess funds in trust for distribution in years during which FML revenues decline by ten percent or more from the preceding year.

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The direct effect of the proposed action would be the payments received, if any, from the leasing of the 8,519 acres of federal mineral estate, or a subset thereof. Indirect effects that might result, should exploration and development of the leases occur, could include increased employment opportunities related to the oil and gas and service support industry in the region as well as the economic benefits to federal, state, and county governments related to lease payments, royalty payments, severance taxes, and property taxes. Other effects could include the potential for a small increase in transportation, roads, noise, and recreation disturbance associated with development. These effects would apply to all public land users in the project area. Any potential increase in residents due to employment opportunities would not significantly effect the state of local housing availability.

It is, however, highly speculative to predict exact effects of this action, as there are no guarantees that the leases will receive bids, that any leased parcels will be developed, or that any developed parcels will produce any fluid minerals. A rough estimate for the amount to be raised in the lease sale can be determined using recent lease sales in the field office as a guideline. In the Royal Gorge Field Office, approximately 75% of all acres proposed for leasing are bid upon, with an average bid of approximately \$50 per acre. Using these values, the lease sale could result in \$102,300 in total bonus bids, though the actual amount may vary widely. To predict the results of future development would be too speculative in nature. Any APD received in would result in future NEPA analysis taking place, in which further socio-economic effects would be examined. Likewise, any negative socio-economic effects resulting from disturbance and drilling on leased parcels would also be examined in future site-specific analysis. It is unknown when, where, how,

or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, the types of technologies and equipment would be used and the types of infrastructure needed for production of oil and gas. Thus, the types, magnitude and duration of potential impacts cannot be precisely quantified at this time, and would vary according to many factors.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Although this project only affects the outcome of 29 proposed federal lease parcels, the Oil and Gas industry as a whole has a significant impact on the economy. Not only does oil and gas development directly create higher than average paying jobs, it also increase demand for employees of related support fields, such as transportation, equipment fabrication, construction, gas stations, restaurants ect. Aside from the creation of jobs, the production of oil and gas directly generates revenue for federal, state and local governments through taxes, fees and royalties.

A 2013 study by the CU Leeds School of Business (Lewandowski and Wobbekind,2013) illustrated the economic benefits of oil and gas development in Colorado. It showed that the oil and gas industry directly contributed almost \$1.6 billion to state and local governments, schools and other special districts in Colorado in 2012. The study found that oil and gas development accounted for about 51,200 jobs in Colorado, most of which pay wages more than twice of the average wage in the state. In addition, it was estimated that the industry resulted in 60,245 indirect and induced jobs in Colorado, for a total of 111,476 jobs supported by the oil and gas development industry in the state in 2012. The study concluded that the oil and gas industry generated \$29.6 billion in output in Colorado's economy in 2012.

These figures don't account for the fees, royalties and lease payments made to the federal government for development of federal oil and gas estate, or take into account the positive economic impact that results from the use of affordable petroleum products for fuels and the produces manufactured with them. The production of domestic petroleum products has the added benefit of reducing the nation's dependence on foreign energy.

Potential Development Stage Mitigation: None

#### **3.4.3.4 Paleontological Resources**

##### Affected Environment:

Occurrences of paleontological resources are closely tied to the geologic units that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Using the Potential Fossil Yield Classification (PFYC) system, geologic units are classified base on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossil and their sensitivity to adverse impacts, with a higher class number indicating higher potential (WO IM2008-009).

All of the proposed lease sale parcels are contain geologic formations that are classified as PFYC 3 to PFYC 5 formations that have an unknown or moderate to likely potential of containing significant paleontological resources that could potentially be impacted by activities associated with oil and gas leasing. The formations affected, their known fossil types, and their PFYC values are as follows (Tweto 1979, BLM Colorado State Office PFYC chart):

<b>Formation</b>	<b>Fossil Types</b>	<b>PFYC</b>
Cretaceous Pierre Shale	Invertebrates, mosasaurs and various other vertebrates	3
Cretaceous Niobrara Formation	Various invertebrates including clams, oysters, baculites, scaphites, burrows, and cephalopods	3
Pre-Bull Lake Age Gravels and Alluviums	Mammoths	3
Quaternary Eolian Deposits	Various	3
Cretaceous Denver Formation, Lower part of Dawson Arkose	Various	5
Tertiary Ogallala Formation	Various vertebrates, invertebrates, and wood	5
Tertiary White River Formation	Various vertebrates, invertebrates, and wood	5

**Environmental Consequences of Leasing and Development:**

Locations for proposed oil or gas well pads, pipelines, and associated infrastructure on these parcels will be subject to further analysis for the protection of paleontological resources during APD/development stage NEPA review.

Areas that contain geologic formations that are PFYC 3, 4, and 5, for which new surface disturbance is proposed on or adjacent to bedrock (native sedimentary stone) including disturbance that may penetrate protective soil cover and disturb bedrock, may be subject to an inventory that shall be performed by a BLM permitted paleontologist and approved by the appropriate RGFO specialist. Surface disturbing activities in many areas including PFYC 4 and 5 may also require monitoring by a permitted paleontologist.

**Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:**

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 on or near the lease parcels. 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 leasing action would have the beneficial impact in that ground disturbance activities might result in the discovery of important fossil resources. The following lands are likely to contain significant paleontological resources and are subject to Exhibit CO-29 to alert lessee of (PFYC 3, 4, and 5) paleontological area inventory requirement to protect paleontological values are as follows: 6914, 6934, 6935, 6933, 6913, 6920, 6915, 6918, 6919, 6921, 6917, 6916, 6937, 6938, 6936, 6672, 6929, 6928, 6926, 6927, 6923, 6922, 6924, 6925,

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

Cumulative impacts to paleontological resources could result from surface disturbing activities associated with potential development, when added to past, present, and reasonably foreseeable future actions, but would not be expected to contribute to cumulative impacts to paleontological resources in the lease area if protective mitigation measures are followed.

#### Potential Development Stage Mitigation:

Mitigations will be developed during the NEPA review of individual ground disturbing activities. Typically, such mitigations include provisions for the monitoring of ground disturbance by a BLM permitted paleontologist, a requirement for the operator to inform all persons associated with the project of relevant Federal laws protecting fossil resources, and requirements regarding the disclosure of inadvertent fossil discoveries during construction or operation to the RGFO.

### **3.4.3.5 Visual Resources**

#### Affected Environment:

Visual Resource Management (VRM) classes along with the corresponding VRM Objectives were established in the Royal Gorge Field Office in 1996 with the approval of the Royal Gorge Resource Area Resource Management Plan (RMP) for BLM managed surface. Visual Resource Management objectives corresponding to the various management classes provide standards for analyzing and evaluating proposed projects. Projects are evaluated using the Contract Rating System to determine if it meets VRM objectives established by the RMP.

The majority of the parcels proposed for leasing occur on private surface in areas that have already been highly modified including roads, houses, and agricultural development and have not been assigned a VRM management category.

A small portion of parcel #6672 is BLM surface that is within the Queens State Wildlife Area and that is managed by the State of Colorado under a cooperative management agreement. The landscape is typical of the area and is relatively flat to rolling hills with low lying vegetation and high levels of development including roads, houses, and agricultural development.

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

For the areas proposed for leasing that already have high levels of human modification the proposed action would introduce visual contrasts but at limited levels given the context of the project area, the level of existing development, and the use of best management practices (BMPs) if the lease were to go into production. If leases were developed structures associated

with this activity could be introduced on the landscape such as roads, pads, buildings, and pump infrastructure potentially creating contrasts in form, texture, color, and line at varying levels.

Environmental Consequences, Cumulative Impacts: Should the leases eventually go to development. There would be the visual impact of additional infrastructure on the land. Depending on the location, these cumulative impacts would vary depending on the visual impacts from other sources.

Potential Development Stage Mitigation: The BMPs could include painting equipment a proper color that blends with the environment and locating facilities so they are off of ridges are screened from nearby residences and are not “skylined”. In split estate areas where there is less development these contrasts would most likely be more readily noticeable due to the lack of other structures or human modifications in the area. BMPs would also be applied to reduce these impacts.

### **3.4.3.6 Hazardous or Solid Wastes**

#### 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 substances have been previously used, stored, or disposed of at the project site).

#### Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The act of leasing the parcels for oil and gas development will not involve the use and management of petroleum products or hazardous substances. However, these activities will take place at the exploration and development stage. The magnitude and location of potential direct and indirect effects cannot be understood or analyzed until the site-specific APD stage of development.

#### Environmental Consequences of Leasing and Development - Cumulative Impacts:

This action may lead to future operations that would use some type of chemical or petroleum product. However, if mitigation measures are implemented for this action, then future impacts would be limited.

#### Potential Development Stage Mitigation:

The following mitigations are applied as COAs and 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 on Federal Lands.
- 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. State and/or Federal regulations may apply to pit construction and removal.

### **3.4.3.7 Lands with Wilderness Characteristics**

Affected Environment: In 2013 the BLM updated their inventory for lands with wilderness characteristics. None of the lands identified within the proposed action were found to possess these characteristics.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts: None, as the parcels do not have wilderness characteristics.

Environmental Consequences of Leasing and Development - Cumulative Impacts: None.

Potential Development Stage Mitigation: None.

## **3.4.4 Land Resources**

### **3.4.4.1 Recreation**

Affected Environment:

The majority of the parcels proposed for lease are located on lands whose surface ownership is not public and no public recreation use occurs or are BLM managed surface but are “land locked” by private ownership with no public recreation use occurring. The BLM surface lands within parcel #6672 and the Queens State Wildlife Area are primarily used for hunting water fowl and upland bird species at unknown levels. Since the reservoir in that area is dry fishing no longer occurs there.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

On the parcels that are either “land locked” or are located on private surface there is no public recreation use and therefore impacts to recreation would be minimal or none.

Parcel #6672 within the Queens State Wildlife Area has a “No Surface Occupancy” leasing stipulation for waterfowl and shorebird habitat so recreation use would not be impacted and there would be change to the physical and social setting of the area by introducing additional roads and other human elements.

Environmental Consequences of Leasing and Development - Cumulative Impacts: Because oil and gas development mostly occurs on private land and/or occurs in areas rarely used by recreationists, there is effectively no or very little cumulative impacts to the recreation resource.

Potential Development Stage Mitigation: None

## CHAPTER 4– COORDINATION AND CONSULTATION

Coordination and/or consultation occurred with CPW, NPS, and Native American Tribes. Private surface owners of the nominated split estate parcels were notified by letter.

### LIST OF PREPARERS AND PARTICIPANTS

#### INTERDISCIPLINARY REVIEW

Name	Title	Resource
Aaron Richter	Oil and Gas NRS	Project Lead
Chad Meister/Forrest Cook	Air Quality Scientist	Air Quality / Climate
Melissa Smeins	Geologist	Solid Minerals, Paleontology, Hazardous and Solid Wastes
Aaron Richter	Oil and Gas NRS	Fluid Minerals
John Smeins	Hydrologist	Water Quality (Ground and surface), Soils
John Lamman	Range Specialist	Invasive Plants, Rangeland Mgt., Prime and Unique Farmlands, Upland Vegetation
Matt Rustand	Wildlife Biologist	Special Status Plants and Animals, Wildlife Terrestrial, Migratory Birds
Dave Gilbert	Fisheries Biologist	Wildlife Aquatic, Wetlands and Riparian
Ken Reed	Forester	Forestry
Monica Weimer	Archaeologist	Cultural Resources, Native American Religious Concerns
David Epstein	Economist	Socioeconomics, Environmental Justice
Kalem Lenard	Recreation Planner	Visuals, Lands with Wilderness Characteristics, Special Designations, Recreation, Access and Transportation
Greg Valladeras	Realty Specialist	Realty Authorizations
Jeff Covington	Surveyor	Cadastral Survey

**Attachments:**

**Attachment A – All Nominated Parcels/Proposed Action with Stipulations for Lease**

**Attachment B – Recommended Parcel Deferrals**

**Attachment C – Preferred Alternative Parcels with Stipulations for Lease**

**Attachment D – Stipulation Exhibits**

**Attachment E – Maps**

**Attachment F – Response to Public Comments**

**Attachment A**

**All Nominated Parcels/Proposed Action with Stipulations for Lease**

29 parcels nominated totaling 8,158.678 acres in Baca, El Paso, Elbert, Kiowa, Kit Carson, Lincoln, Washington and Weld Counties

**PARCEL ID: 6914**

T.0120S., R.0580W., 6TH PM

Section 10: W2;	U.S. Interest 50.00%
Section 10: EXCL 1.00AC IN SW;	
Section 17: E2SW,SE;	U.S. Interest 50.00%

Elbert County  
Colorado 559.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation: Section 17: E2SW,SE

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6934**

T.0100S., R.0450W., 6TH PM

Section 25: N2;

U.S. Interest 25.00%

Section 27: SW;

U.S. Interest 25.00%

Section 32: S2;

U.S. Interest 50.00%

Kit Carson County

Colorado 800.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6935**

T.0110S., R.0450W., 6TH PM

Section 12: E2;

U.S. Interest 25.00%

Kit Carson County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6933**

T.0020S., R.0510W., 6TH PM

Section 15: SW;	U.S. Interest 33.33%
Section 22: NW;	U.S. Interest 33.33%
Section 30: Lot 3,4;	U.S. Interest 50.00%
Section 30: E2SW;	U.S. Interest 50.00%

Washington County  
Colorado 480.650 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6913**

T.0120S., R.0570W., 6TH PM

Section 6: Lot 3-7;

U.S. Interest 50.00%

Section 6: SENW,E2SW;

U.S. Interest 50.00%

Elbert County

Colorado 268.560 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6920**

T.0140S., R.0580W., 6TH PM

Section 22: W2;

U.S. Interest 50.00%

Lincoln County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6915**

T.0130S., R.0590W., 6TH PM

Section 31: E2;

U.S. Interest 50.00%

Elbert County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6918**

T.0110S., R.0600W., 6TH PM

Section 7: S2SE;

U.S. Interest 50.00%

El Paso County

Colorado 80.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0110S., R.0600W., 6TH PM

Section 7: S2SE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6919**

T.0120S., R.0600W., 6TH PM

Section 11: SE;

U.S. Interest 50.00%

Section 14: NE;

U.S. Interest 50.00%

El Paso County

Colorado 320.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0120S., R.0600W., 6TH PM

Section 11: N2SE,SWSE;  
Section 14: N2NE,SWNE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6921**

T.0130S., R.0600W., 6TH PM

Section 25: S2;	U.S. Interest 50.00%
Section 33: SWNE,NW,N2SW,NWSE;	U.S. Interest 50.00%

El Paso County  
Colorado 640.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6917**

T.0140S., R.0600W., 6TH PM

Section 21: W2;

U.S. Interest 50.00%

Section 22: N2;

U.S. Interest 50.00%

El Paso County

Colorado 640.000 Acres

The following lands are subject to Exhibit CO-26 to protect fragile soils:

T.0140S., R.0600W., 6TH PM

Section 22: N2

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0140S., R.0600W., 6TH PM

Section 21: NWNW,S2NW,NESW,S2SW;

Section 22: NENE,NW;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6916**

T.0110S., R.0610W., 6TH PM

Section 25: E2NE,N2S2;

U.S. Interest 25.00%

Section 26: E2NE,NWNE,NENW;

U.S. Interest 25.00%

El Paso County

Colorado 400.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0110S., R.0610W., 6TH PM

Section 25: SENE,N2S2;

Section 26: N2NE,SENE,NENW;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6937**

T.0120N., R.0560W., 6TH PM

Section 28: E2;

U.S. Interest 100.00%

Weld County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6938**

T.0110N., R.0590W., 6TH PM

Section 15: NE;

U.S. Interest 100.00%

Weld County

Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6930**

T.0340S., R.0420W., 6TH PM

Section 32: Lot 1,18,20,21,34;

Section 33: N2NE;

Section 34: NW;

T.0350S., R.0420W., 6TH PM

Section 4: Lot 3,4;

Section 4: S2NW,W2SW;

Section 5: Lot 1,2,16,18,19,24,27;

Section 5: SENE,SE;

Baca County

Colorado 948.650 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0340S., R.0420W., 6TH PM

Section 32: Lot 1,20,21,31;

All lands are subject to Exhibit CO-02 to protect lesser prairie chicken habitat.

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit RG-03 to protect lesser prairie chicken habitat.

All lands are subject to Exhibit RG-08 to protect deer winter ranges.

All lands are subject to Exhibit RG-09 to protect wild turkey habitat.

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6936**

T.0110S., R.0440W., 6TH PM

Section 5: Lot 3;

Kit Carson County

Colorado 22.760 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6672**

T.0200S., R.0470W., 6TH PM

Section 8: W2SW;

Section 8: EXCL R/W C-0123376;

Section 23: SENW;

Section 23: EXCL R/W C-0123376;

Kiowa County

Colorado 10.350 Acres

All lands are subject to Exhibit RG-08 to protect mule deer winter range.

All lands are subject to Exhibit RG-10 to protect bald eagle wintering habitat.

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests.

All lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat and rookeries.

All lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat.

All lands are subject to Exhibit CO-23 to protect bald eagle winter roost sites

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM;BLM; COF: RGFO

**PARCEL ID: 6929**

T.0120S., R.0580W., 6TH PM  
Section 32: NESW;

Elbert County  
Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6928**

T.0130S., R.0580W., 6TH PM

Section 19: Lot 4;  
Section 19: SENW,N2SE,SESE;  
Section 26: NWSW;  
Section 33: SENE,SESE;

Elbert County

Colorado 315.740 Acres

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:

T.0130S., R.0580W., 6TH PM

Section 33: SENE,SESE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6926**

T.0140S., R.0580W., 6TH PM

Section 2: NESE,S2SE;

Section 3: SWNW;  
Section 11: NWNW;  
Section 12: NENW;

Lincoln County  
Colorado 240.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6927**

T.0140S., R.0580W., 6TH PM

Section 21: NWNW,NENE;

Section 27: N2NE;

Lincoln County  
Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6923**

T.0110S., R.0600W., 6TH PM  
Section 9: NENW;

El Paso County  
Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6922**

T.0160S., R.0600W., 6TH PM

Section 9: S2NE;

El Paso County

Colorado 80.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6924**

T.0110S., R.0610W., 6TH PM

Section 23: SENW;

El Paso County

Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6925**

T.0160S., R.0610W., 6TH PM

Section 33: NE;

El Paso County

Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-09 to protect big game winter habitat

All lands are subject to Exhibit CO-11 to protect antelope fawning

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6931**

T.0090N., R.0570W., 6TH PM

Section 33: NWSW,NWSE;

Weld County

Colorado 80.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6911**

T.0040N., R.0610W., 6TH PM

Section 22: NWSW;

Weld County

Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-23 to protect bald eagle winter roost sites

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit NE-07 to protect improvements to U.S. Bureau of Reclamation administered lands

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6932**

T.0050N., R.0610W., 6TH PM

Section 30: E2SW;  
Section 30: EXCL RSVR ROW COC0123882;  
Section 31: Lot 1;  
Section 31: NENW;  
Section 31: EXCL RSVR ROW COC0123882;

Weld County  
Colorado 32.968 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-23 to protect bald eagle winter roost sites

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-01 to protect reservoir and railroad rights-of-way improvements and to preserve public safety:

T.0050N., R.0610W., 6TH PM

Section 30: E2SW;  
Section 31: NENW;  
Section 31: Lot 1;

The following lands are subject to Exhibit NE-02 to protect riparian and wildlife values near reservoirs and rivers:

T.0050N., R.0610W., 6TH PM

Section 30: E2SW;  
Section 31: Lot 1;

PVT/BLM; COF: RGFO

**PARCEL ID: 6912**

T.0050N., R.0620W., 6TH PM

Section 27: W2E2,SW;

Weld County  
Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**Attachment B - Parcels Available for Lease with Deferred Portions  
Nov 2014 - Colorado Competitive Oil & Gas Lease Sale**

5 parcels recommended for deferral, totaling 1,421.618 acres in Baca and Weld Counties

**Available portion of PARCEL ID: 6930**

None

**Deferred portion of PARCEL ID: 6930**

T.0340S., R.0420W., 6TH PM  
Section 32: Lot 1,18,20,21,34;  
Section 33: N2NE;  
Section 34: NW;  
T.0350S., R.0420W., 6TH PM  
Section 4: Lot 3,4;  
Section 4: S2NW,W2SW;  
Section 5: Lot 1,2,16,18,19,24,27;  
Section 5: SENE,SE;

Within boundary of Lesser Prairie Chicken  
Chicken Focal Area, LPC CCAA, awaiting  
complete evaluation.

Baca County  
Colorado 948.650 Acres

PVT/BLM; COF: RGFO

**Available portion of PARCEL ID: 6931**

None

**Deferred portion of Parcel ID: 6931**

T.0090N., R.0570W., 6TH PM

Section 33: NWSW,NWSE;

Within boundary of air quality non-attainment zone, data for further analysis not yet available.

Weld County

Colorado 80.000 Acres

PVT/BLM; COF: RGFO

**Available portion of PARCEL ID: 6911**

None

**Deferred portion of PARCEL ID: 6911**

T.0040N., R.0610W., 6TH PM

Section 22: NWSW;

Within boundary of air quality non-attainment zone, data for further analysis not yet available.

Weld County

Colorado 40.000 Acres

PVT/BLM; COF: RGFO

**Available portion of PARCEL ID: 6912**

None

**Deferred portion of PARCEL ID: 6912**

T.0050N., R.0620W., 6TH PM

Section 27: W2E2,SW;

Within boundary of air quality non-attainment zone, data for further analysis not yet available.

Weld County

Colorado 320.000 Acres

PVT/BLM; COF: RGFO

**Available portion of PARCEL ID: 6932**

None

**Deferred portion of PARCEL ID: 6932**

T.0050N., R.0610W., 6TH PM

Section 30: E2SW;

Within boundary of air quality non-attainment zone, data for further analysis not yet available.

Section 30: EXCL RSVR ROW COC0123882;  
Section 31: Lot 1;  
Section 31: NENW;  
Section 31: EXCL RSVR ROW COC0123882;

Weld County  
Colorado 32.968 Acres

T.0050N., R.0610W., 6TH PM

Section 30: E2SW;  
Section 31: NENW;  
Section 31: Lot 1;

PVT/BLM; COF: RGFO

**Attachment C**  
**Preferred Alternative Parcels with Stipulations for Lease**

24 parcels recommended for lease, totaling 6,737.06 acres in El Paso, Elbert, Kiowa, Kit Carson, Lincoln, Washington, and Weld Counties

**PARCEL ID: 6914**

T.0120S., R.0580W., 6TH PM

Section 10: W2;	U.S. Interest 50.00%
Section 10: EXCL 1.00AC IN SW;	
Section 17: E2SW,SE;	U.S. Interest 50.00%

Elbert County  
Colorado 559.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation: Section 17: E2SW,SE

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6934**

T.0100S., R.0450W., 6TH PM

Section 25: N2;

U.S. Interest 25.00%

Section 27: SW;

U.S. Interest 25.00%

Section 32: S2;

U.S. Interest 50.00%

Kit Carson County

Colorado 800.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6935**

T.0110S., R.0450W., 6TH PM

Section 12: E2;

U.S. Interest 25.00%

Kit Carson County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6933**

T.0020S., R.0510W., 6TH PM

Section 15: SW;	U.S. Interest 33.33%
Section 22: NW;	U.S. Interest 33.33%
Section 30: Lot 3,4;	U.S. Interest 50.00%
Section 30: E2SW;	U.S. Interest 50.00%

Washington County  
Colorado 480.650 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6913**

T.0120S., R.0570W., 6TH PM

Section 6: Lot 3-7;

U.S. Interest 50.00%

Section 6: SENW,E2SW;

U.S. Interest 50.00%

Elbert County

Colorado 268.560 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6920**

T.0140S., R.0580W., 6TH PM

Section 22: W2;

U.S. Interest 50.00%

Lincoln County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6915**

T.0130S., R.0590W., 6TH PM

Section 31: E2;

U.S. Interest 50.00%

Elbert County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6918**

T.0110S., R.0600W., 6TH PM

Section 7: S2SE;

U.S. Interest 50.00%

El Paso County

Colorado 80.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0110S., R.0600W., 6TH PM

Section 7: S2SE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6919**

T.0120S., R.0600W., 6TH PM

Section 11: SE;

U.S. Interest 50.00%

Section 14: NE;

U.S. Interest 50.00%

El Paso County

Colorado 320.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0120S., R.0600W., 6TH PM

Section 11: N2SE,SWSE;

Section 14: N2NE,SWNE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6921**

T.0130S., R.0600W., 6TH PM

Section 25: S2;

U.S. Interest 50.00%

Section 33: SWNE,NW,N2SW,NWSE;

U.S. Interest 50.00%

El Paso County

Colorado 640.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis  
PVT/BLM; COF: RGFO

**PARCEL ID: 6917**

T.0140S., R.0600W., 6TH PM

Section 21: W2;

U.S. Interest 50.00%

Section 22: N2;

U.S. Interest 50.00%

El Paso County  
Colorado 640.000 Acres

The following lands are subject to Exhibit CO-26 to protect fragile soils:

T.0140S., R.0600W., 6TH PM

Section 22: N2

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0140S., R.0600W., 6TH PM

Section 21: NWNW,S2NW,NESW,S2SW;

Section 22: NENE,NW;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6916**

T.0110S., R.0610W., 6TH PM

Section 25: E2NE,N2S2;

Section 26: E2NE,NWNE,NENW;

U.S. Interest 25.00%

U.S. Interest 25.00%

El Paso County

Colorado 400.000 Acres

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:

T.0110S., R.0610W., 6TH PM

Section 25: SENE,N2S2;

Section 26: N2NE,SENE,NENW;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6937**

T.0120N., R.0560W., 6TH PM

Section 28: E2;

U.S. Interest 100.00%

Weld County

Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6938**

T.0110N., R.0590W., 6TH PM

Section 15: NE;

U.S. Interest 100.00%

Weld County

Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6936**

T.0110S., R.0440W., 6TH PM

Section 5: Lot 3;

Kit Carson County

Colorado 22.760 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6672**

T.0200S., R.0470W., 6TH PM

Section 8: W2SW;

Section 8: EXCL R/W C-0123376;

Section 23: SENW;

Section 23: EXCL R/W C-0123376;

Kiowa County

Colorado 10.350 Acres

All lands are subject to Exhibit RG-08 to protect mule deer winter range.

All lands are subject to Exhibit RG-10 to protect bald eagle wintering habitat.

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests.

All lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat and rookeries.

All lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat.

All lands are subject to Exhibit CO-23 to protect bald eagle winter roost sites

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM;BLM; COF: RGFO

**PARCEL ID: 6929**

T.0120S., R.0580W., 6TH PM

Section 32: NESW;

Elbert County

Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6928**

T.0130S., R.0580W., 6TH PM

Section 19: Lot 4;  
Section 19: SENW,N2SE,SESE;  
Section 26: NWSW;  
Section 33: SENE,SESE;

Elbert County

Colorado 315.740 Acres

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:

T.0130S., R.0580W., 6TH PM

Section 33: SENE,SESE;

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6926**

T.0140S., R.0580W., 6TH PM

Section 2: NESE,S2SE;  
Section 3: SWNW;

Section 11: NWNW;  
Section 12: NENW;

Lincoln County  
Colorado 240.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6927**

T.0140S., R.0580W., 6TH PM

Section 21: NWNW,NENE;

Section 27: N2NE;

Lincoln County  
Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian habitat

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6923**

T.0110S., R.0600W., 6TH PM

Section 9: NENW;

El Paso County

Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6922**

T.0160S., R.0600W., 6TH PM

Section 9: S2NE;

El Paso County

Colorado 80.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6924**

T.0110S., R.0610W., 6TH PM

Section 23: SENW;

El Paso County

Colorado 40.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter ranges.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**PARCEL ID: 6925**

T.0160S., R.0610W., 6TH PM

Section 33: NE;

El Paso County

Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-09 to protect big game winter habitat

All lands are subject to Exhibit CO-11 to protect antelope fawning

All lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-29 to alert lessee of Class I and II paleontological area inventory requirement

All lands are subject to Exhibit CO-56 alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

**Attachment D  
Stipulation Exhibits**

**EXHIBIT CO-03**

Lease Number:

**NO SURFACE OCCUPANCY STIPULATION**

No surface occupancy or use is allowed on the lands described below (legal description or other description):

For the purpose of:

To protect raptor nests within a one-eighth mile radius from the site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted depending on current usage, or on the geographical relationship to topographic barriers and vegetation screening.

**EXHIBIT CO-04**

Lease Number:

**NO SURFACE OCCUPANCY STIPULATION**

No surface occupancy or use is allowed on the lands described below (legal description or other description):

For the purpose of:

To protect bald eagle roosts and nests within a one-quarter mile radius from the site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted to this stipulation depending on the current usage of the site, or the geographical relationship to the topographic barriers and vegetation screening.

#### EXHIBIT CO-07

Lease Number:

#### NO SURFACE OCCUPANCY STIPULATION

No surface occupancy or use is allowed on the lands described below (legal description or other description):

For the purpose of:

To protect waterfowl and shorebird habitat and rookeries within significant production areas.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

#### EXHIBIT CO-17

Lease Number:

#### TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

March 16 through September 30

For the purpose of (reasons):

To protect white pelican nesting and feeding habitat during usage.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

#### EXHIBIT CO-18

Lease Number:

#### TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

For the purpose of (reasons):

To protect raptor (this includes golden eagles, all accipiters, falcons [except the kestrels], all butteos, and owls) nesting and fledgling habitat during usage for one-quarter mile around the nest site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when the nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

#### EXHIBIT CO-19

Lease Number:

#### TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

For the purpose of (reasons):

To protect ferruginous hawk nesting and fledgling habitat during usage for

a one-quarter mile buffer around the nest.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when a nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

EXHIBIT CO-23

Lease Number:

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

November 16 through April 15

On the lands described below:

For the purpose of (reasons):

To protect bald eagle winter roost sites within a one-half mile buffer around the site

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted for partial or complete visual screening of the oil and gas activity from the primary zone (that is, one-quarter mile around the roost site).

EXHIBIT CO-28

Lease Number:

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special operating constraints.

On the lands described below:

For the purpose of:

To protect perennial water impoundments and streams, and/or riparian/wetland vegetation by moving oil and gas exploration and development beyond the riparian vegetation zone.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted only if an on-site impact analysis shows no degradation of the resource values.

#### EXHIBIT CO-29

Lease Number:

#### LEASE NOTICE

The lessee is hereby notified that prior to any surface disturbing activities, an inventory of paleontological resources (fossils) may be required. Mitigation may be required **such as monitoring in any area of PFYC 4 or 5 surface disturbance and also** upon the discovery of any vertebrate fossil or other scientifically-important paleontological resource. Mitigation of scientifically important paleontological resources may include avoidance, monitoring, collection, excavation, or sampling. Mitigation of discovered scientifically important paleontological resources might require the relocation of the disturbance over 100 meters. This and any subsequent mitigation work shall be conducted by a BLM-permitted paleontologist.

The lessee shall bear all costs for inventory and mitigation (WO IM-2009-011).

On the lands described below:

#### EXHIBIT CO-34

Lease Number:

#### ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a

designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.

#### EXHIBIT CO-39

Lease Number:

#### CONTROLLED SURFACE USE STIPULATION

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O.13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

#### EXHIBIT CO-56

Lease Number:

#### LEASE NOTICE

Due to potential air quality concerns, supplementary air quality analysis may be required for any proposed development of this lease. This may include preparing a comprehensive emissions inventory, performing air quality modeling, and initiating interagency consultation with affected land managers and air quality regulators to determine potential mitigation options for any predicted significant impacts from the proposed development. Potential mitigation may include limiting the time, place, and pace of any proposed development, as well as providing for the best air quality control technology and/or management practices necessary to achieve area-wide air resource protection objectives. Mitigation measures would be analyzed through the appropriate level of NEPA analysis to determine effectiveness, and will be required or implemented as a permit condition of approval (COA). At a minimum, all projects and permitted uses implemented under this lease will comply with all applicable National Ambient Air Quality

Standards and ensure Air Quality Related Values are protected in nearby Class I or Sensitive Class II areas that are afforded additional air quality protection under the Clean Air Act (CAA).

On the lands described below:

#### EXHIBIT RG-08

Lease Number:

#### TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

December 1 through March 31

For the purpose of (reasons):

To protect deer and elk winter ranges.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

#### EXHIBIT NE-01

Lease Number: <LEASE\_NUMBER>

#### NO SURFACE OCCUPANCY STIPULATION

No surface occupancy or use is allowed on the lands described below (legal description or other description):

For the purpose of:

To protect reservoir and railroad rights-of-way improvements and to preserve public safety by prohibiting incompatible uses within established rights-of-way.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted when lessee demonstrates to the satisfaction of the authorized office that these lands can be occupied without damage to improvements or compromising safety.

**Attachment E  
Maps**

DRAFT



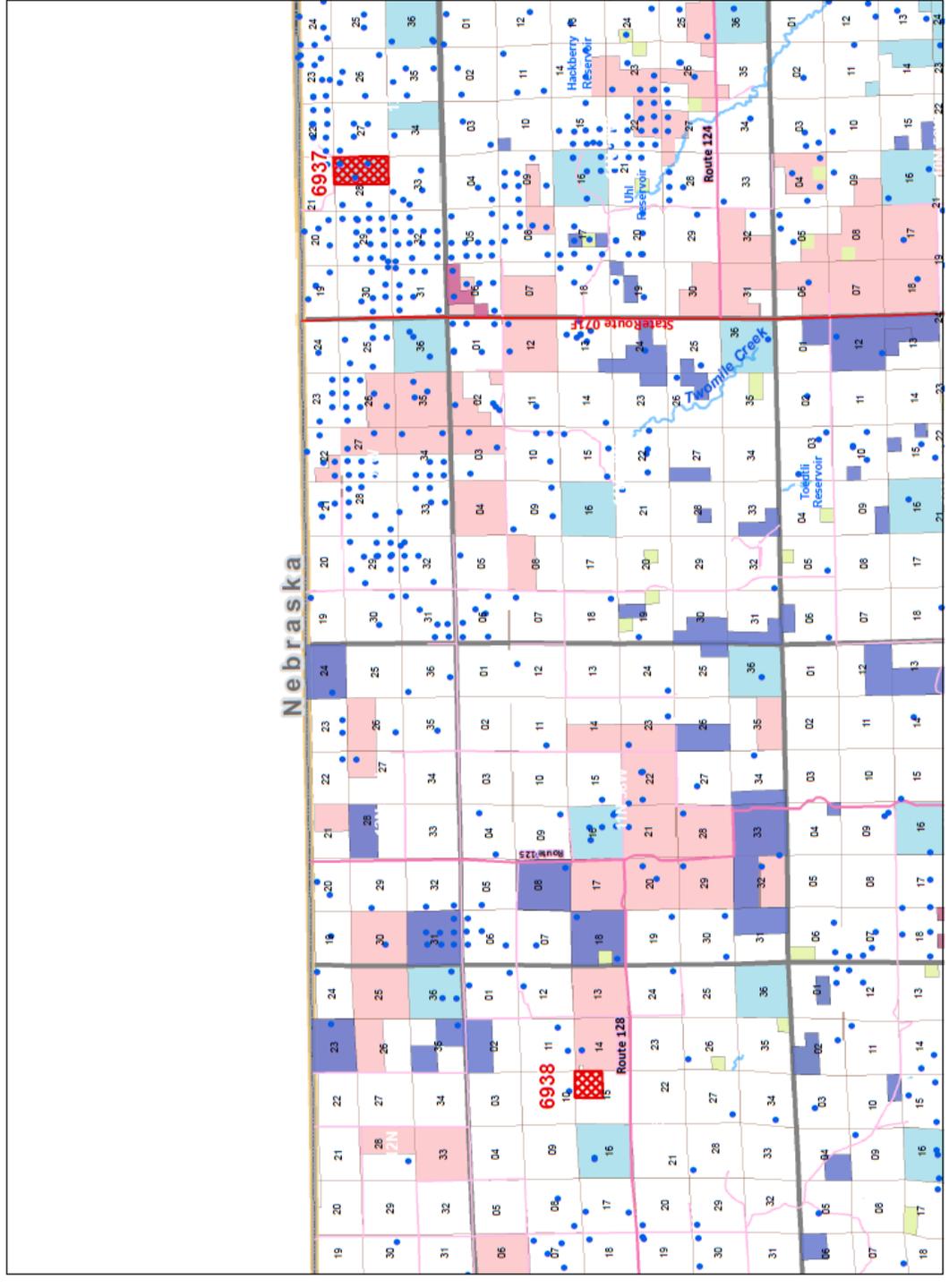
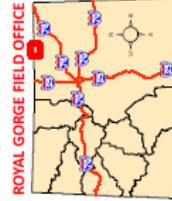
**NOTE TO MAP USERS**  
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data displayed on this map. Users are advised that records should be checked for the current status on any specific tract of land.

**Legend**

- USA State Boundaries
- BLM Field Office Areas
- Recommended Oil & Gas Sale Status
- Size
- COOCC Oil and Gas Well Locations
- Oil and Gas Leases
- Non-Producing Leases
- Producing Leases
- National Grasslands
- Private
- Size
- Sanhatch-Jones Land Use Lands
- Township & Range
- Sections
- Leases and Reservoirs
- Minor Highways
- COOT Local Roads
- Streams
- USGS Cities and Towns

1 Miles

Map Page Location  
Page Number 1





**Bureau of Land Management  
Competitive Oil & Gas Lease Sale  
November 13, 2014**

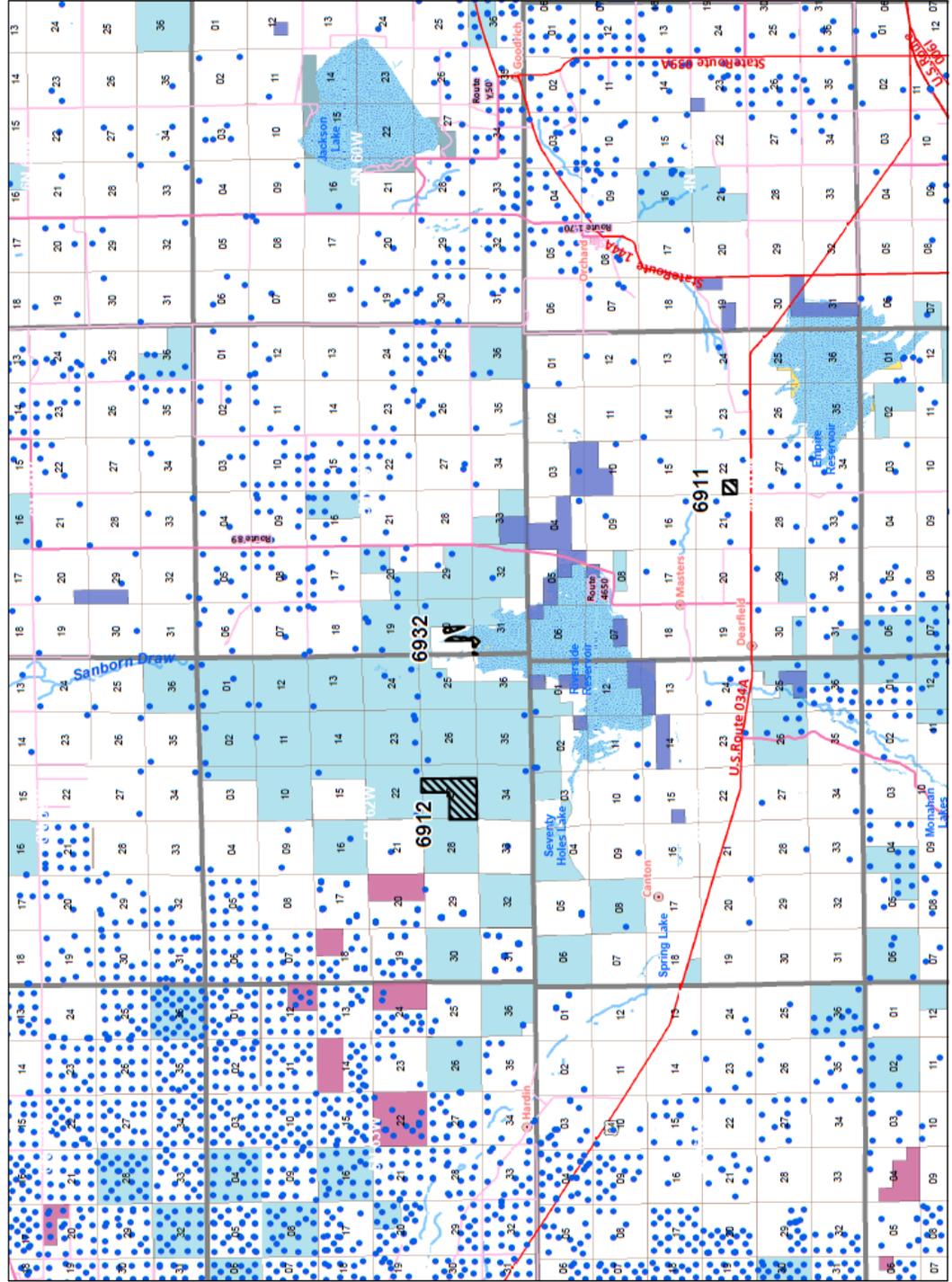
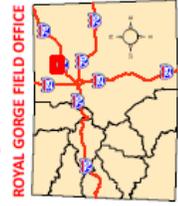


**NOTE TO MAP USERS**  
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land recommendation and lease sale status on any specific tract of land.

- Legend**
- BLM Field Office Area
  - Recommended Oil & Gas Sale Status
    - Federal
    - COGCC Oil and Gas Well Locations
  - Oil and Gas Leases**
    - Non-Producing Leases
    - Producing Leases
    - Bureau of Land Management
    - Private
    - State
    - State, County, City, Areas
    - Township & Range
    - Sections
  - Lake and Reservoirs**
    - Major Highways
    - Minor Highways
    - COOT Local Roads
    - Streams
    - USGS Cities and Towns

1 Miles

**Map Page Location  
Page Number 3**



Bureau of Land Management  
Competitive Oil & Gas Lease Sale  
November 13, 2014



NOTE TO MAP USERS:  
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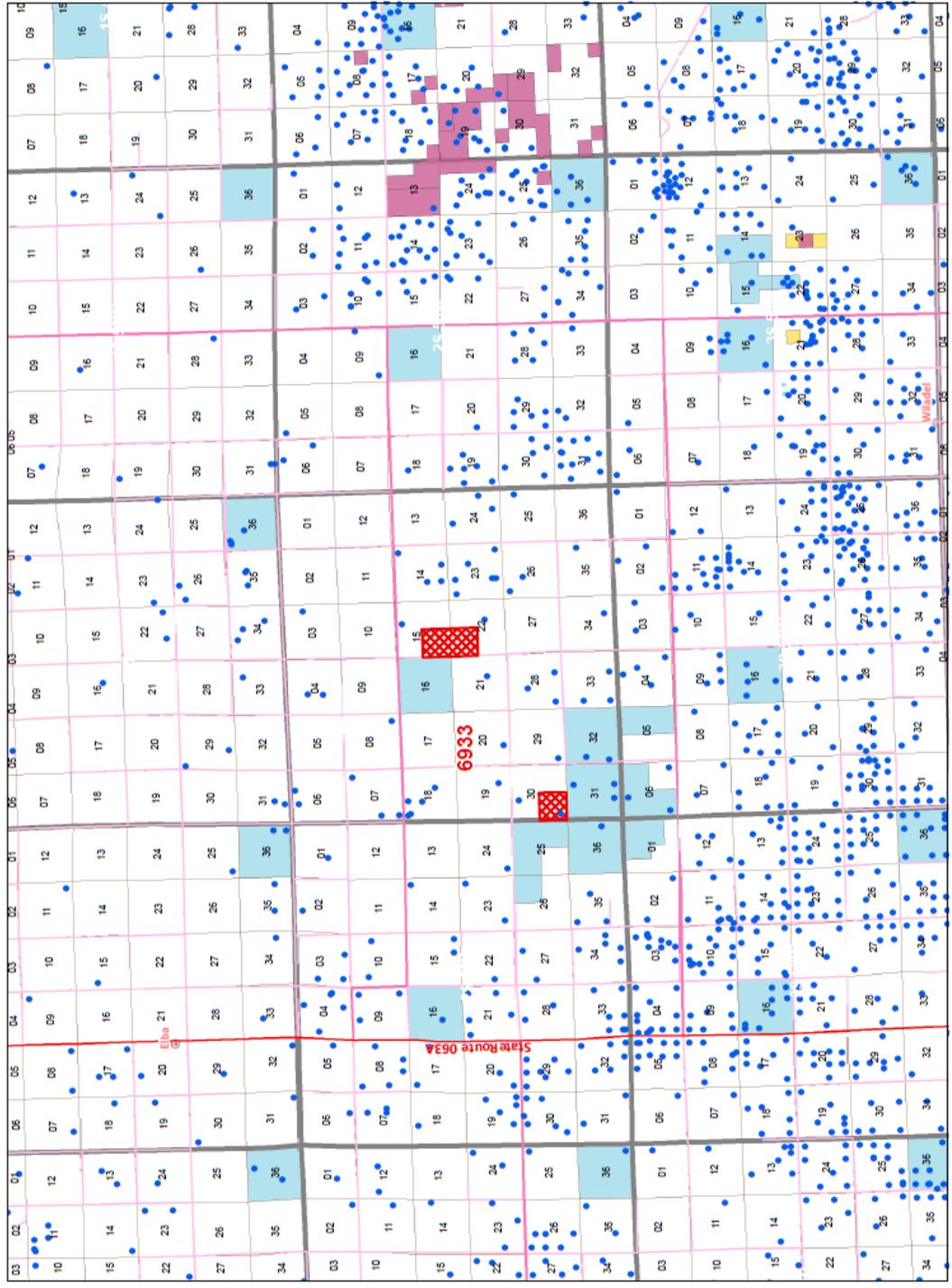
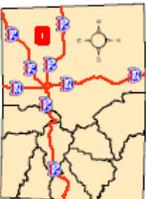
Legend

- Recommended Oil & Gas Sale Status
- Oil and Gas Leases
- Producing Leases
- Bureau of Land Management
- Private
- State
- Townships & Range
- Sections
- Lakes and Reservoirs
- Minor Highways
- CDOT Local Roads
- USGS Cities and Towns

1 Miles

Map Page Location  
Page Number 4

ROYAL GORGE FIELD OFFICE





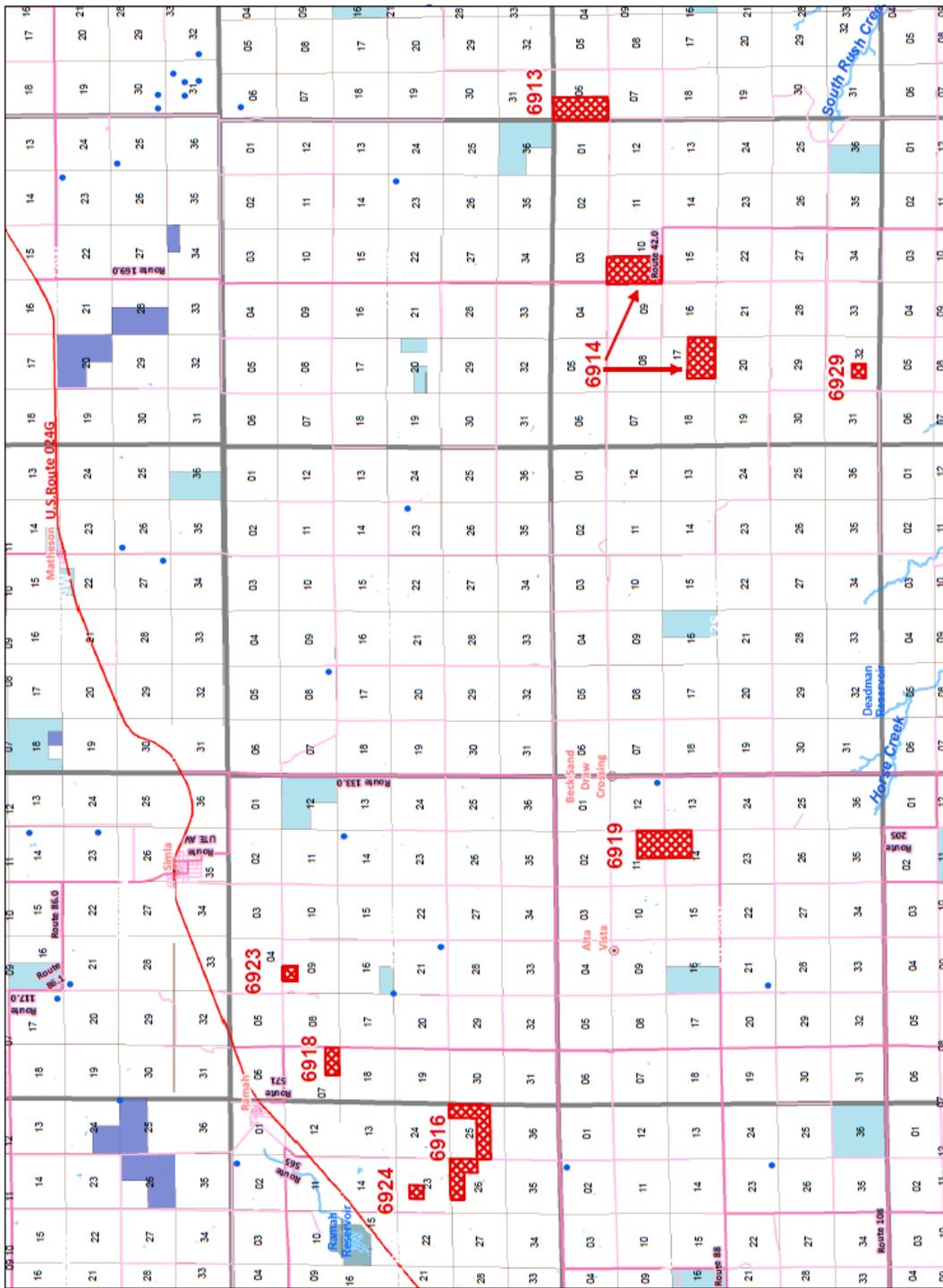
**NOTE TO MAP USERS**  
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- Legend**
- BLM Field Office Areas
  - Recommended Oil & Gas Sale Status
  - Sale
  - COGGO Oil and Gas Well Locations
  - Oil and Gas Leases
  - Non-Producing Leases
  - State
  - Private
  - State, County, City, Areas
  - Township & Range
  - Sectors
  - Lanes and Reservoirs
  - Major Highways
  - CDOT Local Roads
  - Streams
  - USGS Cities and Towns

1 Miles

Map Page Location  
 Page Number 5

ROYAL GORGE FIELD OFFICE



Bureau of Land Management  
Competitive Oil & Gas Lease Sale  
November 13, 2014



**NOTE TO MAP USERS**  
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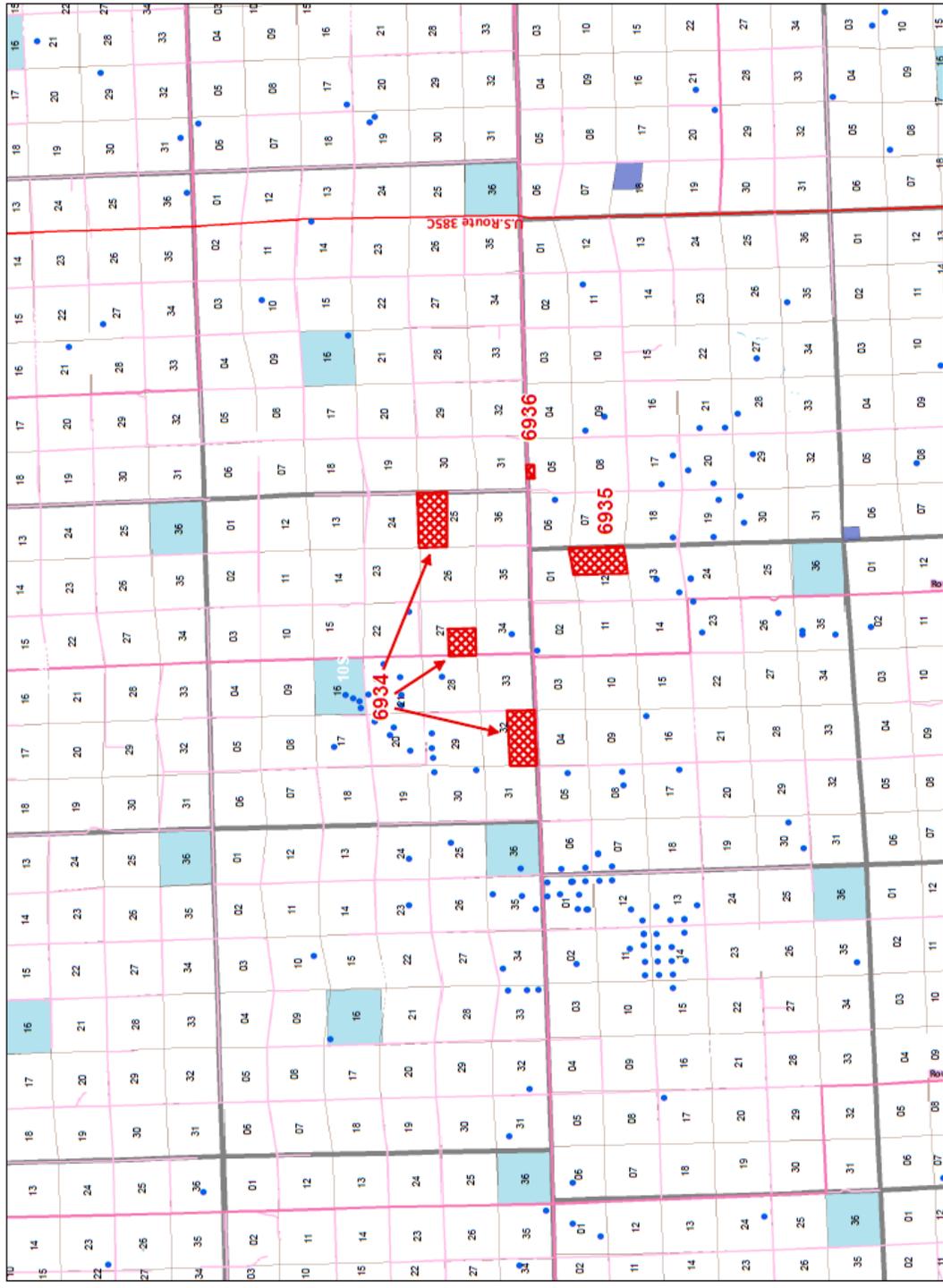
**Legend**

- BLM Field Office Areas
- Recommended Oil & Gas Sale Status
- COGCC Oil and Gas Well Locations
- Oil and Gas Leases
- Non-Producing Leases
- Private
- State
- Township & Range
- Sections
- Lakes and Reservoirs
- Minor Highways
- CDOT Local Roads
- USGS Cities and Towns

1 Miles

Map Page Location  
Page Number 6

ROYAL GORGE FIELD OFFICE



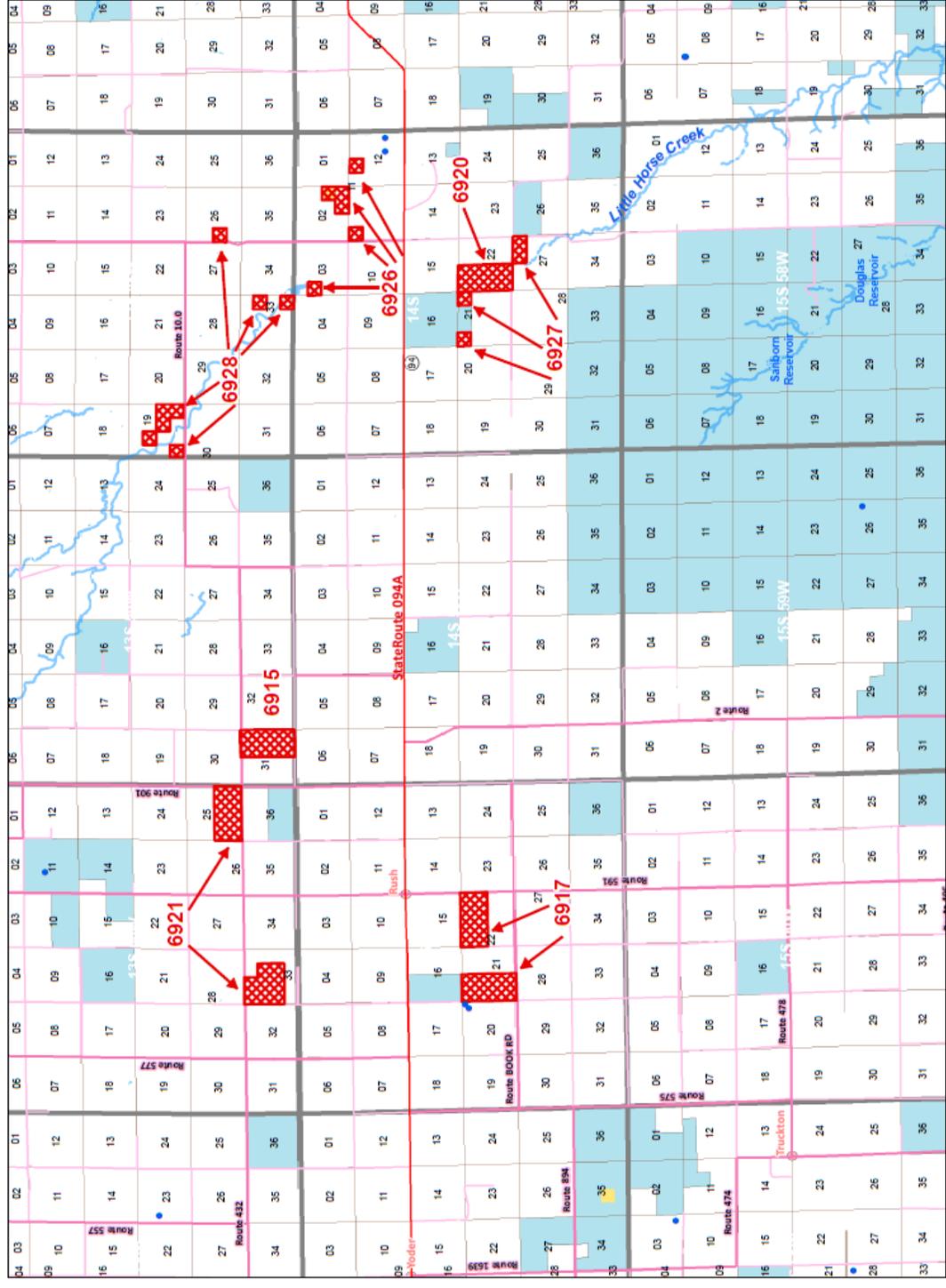
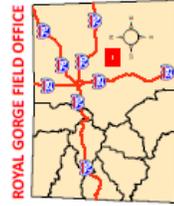


**NOTE TO MAP USERS**  
No warranties are made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land recommendations will be used to determine status on any specific tract of land.

- Legend**
- Bureau Field Office Areas
  - Recommended Oil & Gas Sale Status
  - Sale
  - COO/GC Oil and Gas Well Locations
  - Bureau of Land Management
  - Private
  - Township & Range
  - Sections
  - Lakes and Reservoirs
  - Major Highways
  - COOT Local Roads
  - Stream
  - USGS Cities and Towns

1 Miles

Map Page Location  
Page Number 7





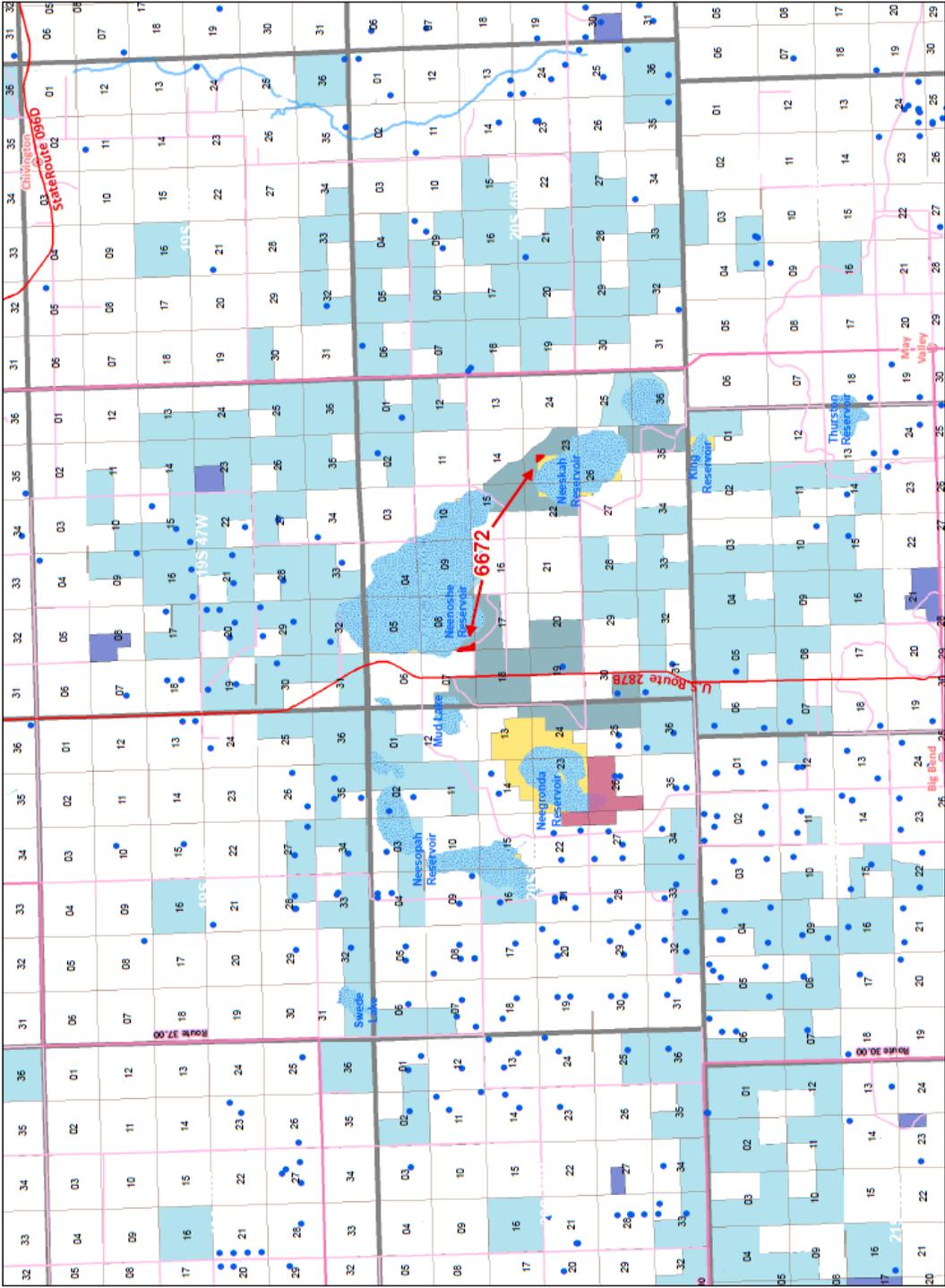
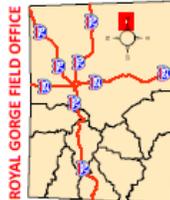


**NOTE TO MAP USERS**  
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- Legend**
- BLM Field Office Areas
  - Recommended Oil & Gas Sale Status
  - Oil and Gas Leases
    - COGCC Oil and Gas Well Locations
    - Non-Producing Leases
    - Producing Leases
    - Bureau of Land Management
    - Private
    - State, County, City Areas
    - Township & Range
    - Sections
    - Lakes and Reservoirs
    - Minor Highways
    - COOT Local Roads
    - Streams
    - USGS Cities and Towns

1 Miles

Map Page Location  
 Page Number 9



**Bureau of Land Management  
Competitive Oil & Gas Lease Sale  
November 13, 2014**



**NOTE TO MAP USERS**  
No warranty 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 recommendations and recommendations for lease status on any specific tract of land.

- Legend**
- USA State Boundaries
  - BLM Field Office Areas
  - Recommended Oil & Gas Sale Status
    - Central
    - Peripheral
  - Oil and Gas Leases
    - Non-Producing Leases
    - Producing Leases
    - Bureau of Land Management
    - Private
    - State
    - State/Private Land Use Lands
    - Sections
    - Ownership & Range
    - Lake and Reservoirs
    - CBOT Local Roads
    - Streams
    - USGS Cities and Towns
  - COGCC Oil and Gas Well Locations

1 Miles

**Map Page Location  
Page Number 10**

