United States Department of the Interior
Bureau of Land Management

Environmental Assessment
for the RGFO May 2015 Competitive Oil & Gas Lease Sale

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Attachment B – Recommended Parcel Deferrals
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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 lease available oil and gas 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/BLM_Programs/oilandgas/oil_and_gas_lease.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 May 2015 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.

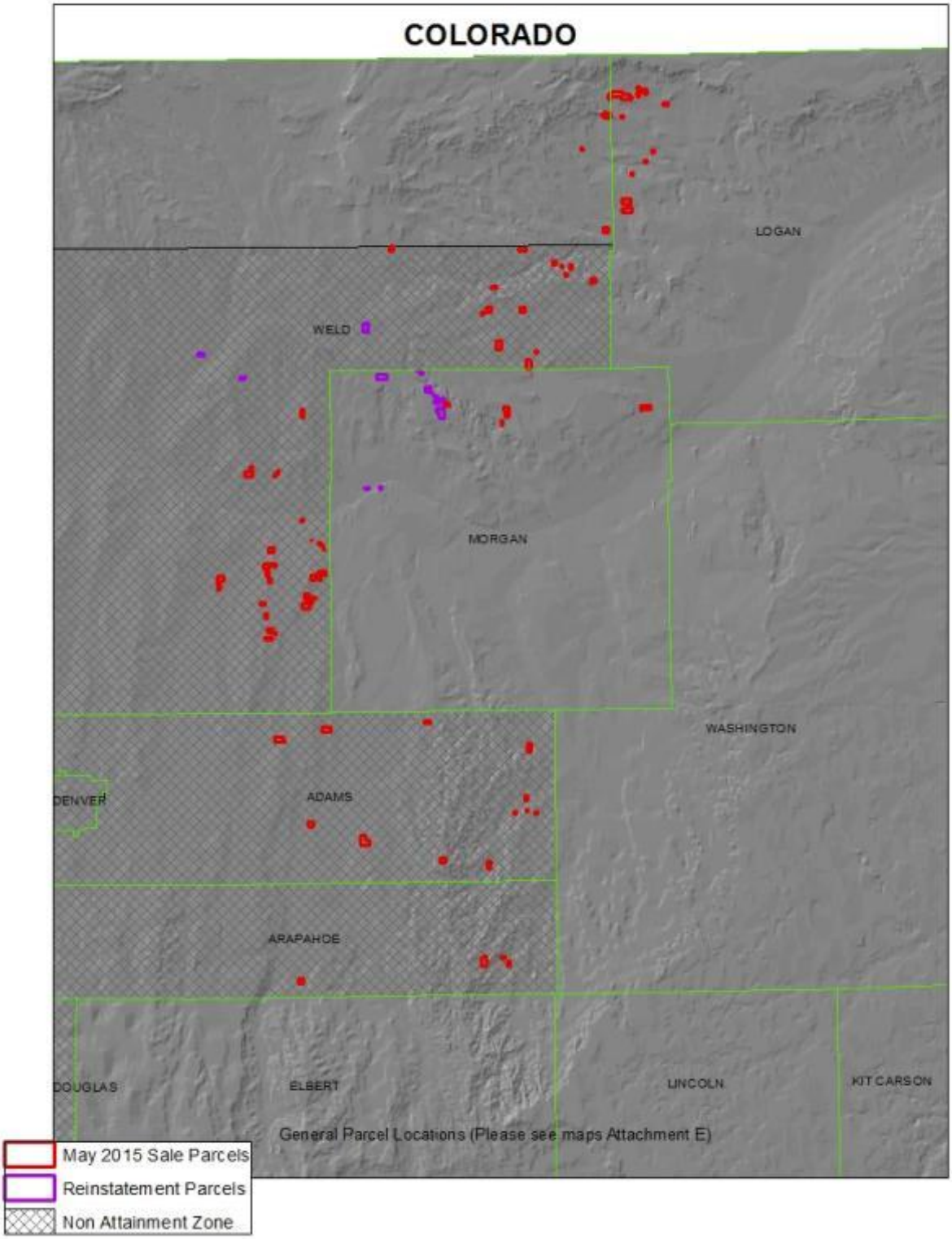
In the future, the BLM may receive Applications for Permit to Drill (APDs) for those parcels that are leased. If APDs are received, the BLM conducts additional site-specific NEPA analysis before deciding whether to approve the APD, and what conditions of approval (COAs) should apply.

Forty-two parcels comprising 11,099.938 acres within the Royal Gorge Field Office (RGFO) were nominated for the May 2015 Competitive Oil and Gas Lease Sale. This figure is comprised of 292.950 acres of federal land and 10,795.348 acres of split estate land. The legal descriptions of the nominated parcels are in Attachment A.

This EA also considers the reinstatement of seven leases consisting of 2,000.48 acres of split estate lands. These lands were previously leased in 2009, but the leases terminated in 2010, and the lessee filed a timely request for reinstatement.

This EA documents the review of the nominated parcels and the parcels proposed for reinstatement 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 nominated parcels from a lease sale, and to approve or deny reinstatement of the seven additional leases.

In accordance with BLM Colorado Instruction Memorandum (IM) No. 2012-027 and BLM WO IM No. 2010-117, this EA has been 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.



LEGAL DESCRIPTION:

Please see Attachments A, B, and C and Maps (attachment E).

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, and to consider the reinstatement of seven leases on previously leased parcels.

The need for the action is to respond to the nomination or expression of interest for leasing, as well as a request for lease reinstatement, 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 some or all of the 42 nominated parcels and, if so, under what terms.

The BLM will decide whether to reinstate the seven leases proposed for reinstatement, and if so, under what terms.

The decisions will be made independently of each other; the outcome of one does not affect the outcome of the other.

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:

General wildlife, riparian and soils concerns were raised by internal staff. The only outstanding or unique issue found during internal scoping was the presence of a sensitive Native American site associated with parcel 7181.

External scoping was conducted by posting the nominated lease parcels, with stipulations from the RMP, for one month from August 8, 2014 to September 8, 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/2015/Maylease_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 surface owners whose land overlies federal minerals proposed for leasing.

Issues Identified:
The scoping comments received by the RGFO during the public scoping period were from Colorado Parks and Wildlife (CPW). The comments were recommendations to apply wildlife stipulations to some of the parcels to protect wildlife.

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) were available for a 30-day public review and comment period beginning November 11, 2014 and ending December 15, 2014. The document was available online and in the public room at the Royal Gorge Field Office. Comments were received by Wild Earth Gurdians, Noble Energy and Western Energy Alliance. Wild Earth Guardians expressed concern about air quality, water quality, and wildlife, see Attachment G, for comment summaries and responses. Noble Energy and Western Energy Alliance expressed support for leasing and reinstatement of the parcels. Comments received from the public were 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 May 2015 lease sale, and would not move forward with reinstating the seven leases on previously leased parcels. Both groups of 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 Proposed Action: Lease All Nominated Parcels in Conformance with the RMP and Reinstate Seven Leases

Under this alternative, the BLM would lease Federal mineral estate in all nominated parcels available for leasing in the resource area in accordance with the Northeast (November 1991, as amended) RMP. The current lease sale includes parcels in Adams, Arapahoe, Morgan, Logan and Weld Counties. The BLM also would reinstate all seven leases on previously leased parcels in Morgan and Weld Counties. Those lands proposed for lease and reinstatement under this alternative total 13,100.418 acres (forty-two parcels totaling 11,099.938 acres offered for lease, and seven parcels totaling 2,000.48 previously leased acres reinstated) of federal mineral estate and include a combination of federal and private surface (see Attachment A). Less than 1 percent of the surface lands are managed by BLM. The nominated 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: Defer 120 Acres and Lease All Remaining Nominated Parcels in Conformance with the RMP, and Reinstate Seven Leases

Under the preferred alternative, the BLM would offer 42 parcels, totaling 10,979.938 acres for lease, and defer 120 acres from the sale. In addition, the 7 previously leased parcels, totaling 2,000.48 acres are recommended for lease reinstatement under this alternative. This totals 12,980.418 acres for lease and reinstatement. 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.

Parcel 7181 is associated with a sensitive Native American site. In order to provide resource protection, BLM would defer a 120 acre portion of the parcel under this alternative. See Attachments A, B and C.

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. This alternative 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: Northeast Resource Management Plan

Date Approved: September1986 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 Northeast RMP identified areas open for oil and gas leasing, and specified stipulations that would apply to leases. The proposed lease sales and lease reinstatements 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, vegetation, special status plants, wilderness, recreation, rangeland management, prime and unique farmlands, realty, environmental justice, areas of critical environmental concern, wilderness study areas.

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 49 parcels totaling 3,088.778 acres would not be leased or have leases reinstated. 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. Because conditions would essentially remain

unchanged for all resources (with the possible exception of fluid minerals), the no-action is not separately analyzed for each resource.

The BLM assumes that the No Action Alternative (no lease/no reinstatement 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; nor would reinstatement of the seven leases under consideration. 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/archived/northeast.html
and
http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/rmp/archived/northeast/amendments.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

Several of the proposed parcels have had previous oil and gas development. Less than 1 percent of the surface of the acreage analyzed in this document is managed by BLM. 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.

Present Actions
The only BLM action associated with any of these parcels is a reservoir right of way associated with parcel #7004.

Reasonably Foreseeable Future Actions
Adams County- There are approximately 1000 active wells in Adams County. The proposed parcels are located in throughout the eastern half of Adams County, in areas with low development potential, 1-5 wells per township.

Arapahoe County- There are approximately 200 active wells in Arapahoe County. The proposed parcels are located in the southeast portion of Arapahoe County, in areas of very low (less than one well per township) to low (1-5 wells per township) development potential.

Morgan County- There are approximately 350 active wells in Morgan County. The proposed parcels are located in northern Morgan County, in areas with low development potential, 1-5 wells per township.

Logan County- There are approximately 200 active wells in Logan County. The proposed parcels are located in the northeast part of Logan county, in areas with moderate development potential, 5-10 wells per township.

Weld County- There are approximately 25,000 active wells in Weld County. The proposed parcels are located throughout the eastern half of Weld County. Although the development potential of the proposed parcels in Weld County varies from low development potential, 1-5 wells per township, to very high development potential, 50-150 wells per township 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 oil field.

3.4 Environmental Consequences of Leasing, Reinstatement, and Potential Development

3.4.1 Physical Resources

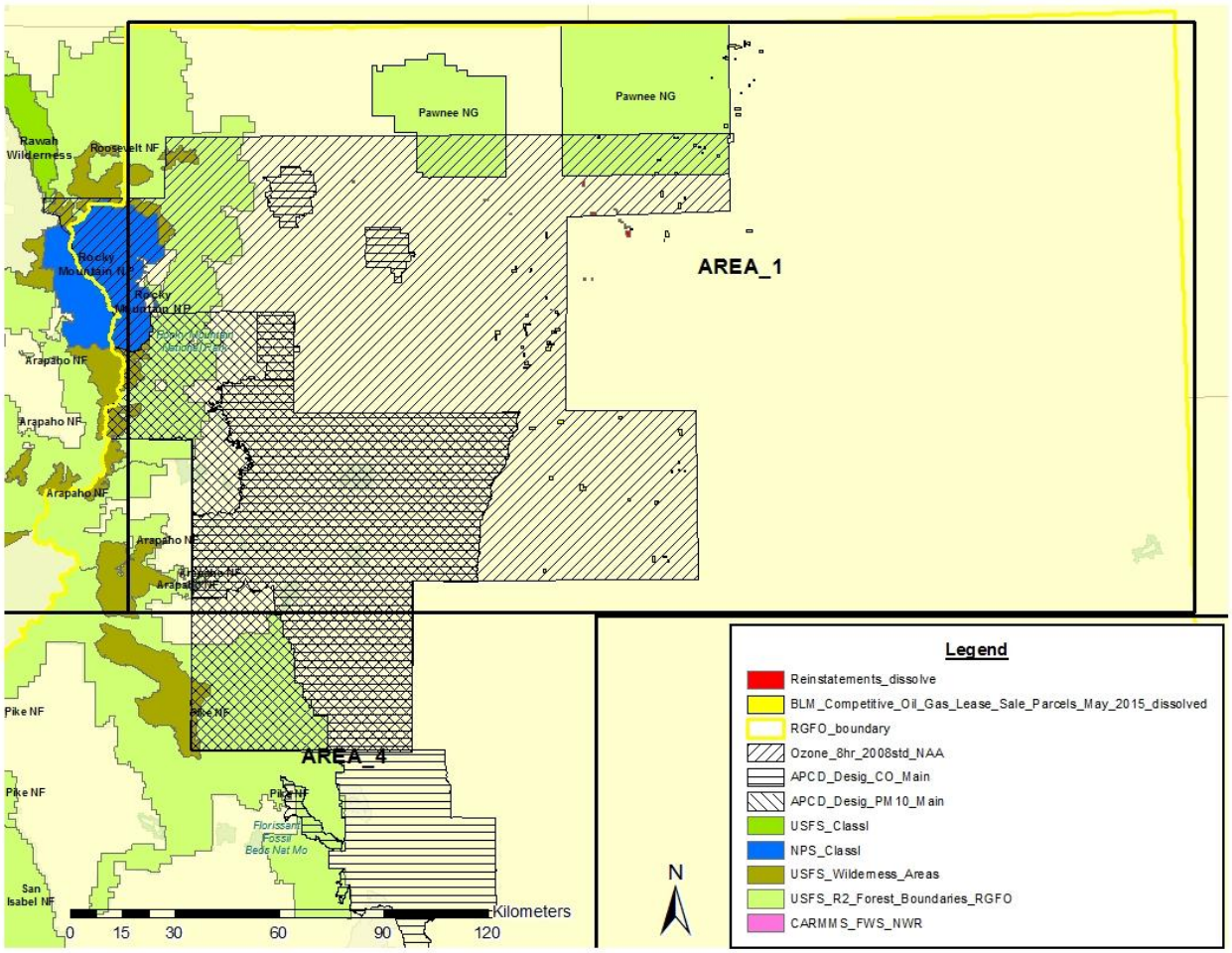
3.4.1.1 Air Quality and Climate

Affected Environment:

The nominated lease parcels and previously leased parcels proposed for reinstatement 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 total (non federal and federal) active wells within its boundaries. Activities occurring within the region that affect air quality include exhaust emission from cars, other vehicles, drilling rigs, and other 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 nominated lease parcels and leases proposed for reinstatement. The figure also shows the northern RGFO source group / apportionment area (Area #1) for the BLM Colorado Air Resources Management Modeling Study (CARMMS) and the Denver / Front Range 8-hour ozone NAA and other air quality maintenance areas.



The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for criteria pollutants, including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Exposure to air pollutant concentrations greater than the NAAQS has been shown to have a detrimental impact on human health and the environment. The EPA has delegated regulation of

air quality under the federal Clean Air Act to the State of Colorado. The Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD) administers Colorado's air quality control programs and is responsible for issuing permits for emission sources. The State has established the Colorado Ambient Air Quality Standards (CAAQS), which can be more, but not less stringent then the NAAQS. In addition to the criteria pollutants, regulations also exist to control the release of hazardous air pollutants (HAPs). HAPs are chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. EPA currently lists 188 identified compounds as hazardous air pollutants, some of which can be emitted from oil and gas development operations, such as benzene, toluene, and formaldehyde. Ambient air quality standards for HAPs do not exist; rather these emissions are regulated by the source type, or specific industrial sector responsible for the emissions.

Table 3.4.1.1-1 NAAQS (EPA 2014)

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 μg/m^3	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution [Dec 14, 2012]	$PM_{2.5}$	primary and secondary	Annual	12 μg/m^3	Annual mean, averaged over 3 years
			24-hour	35 μg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 μg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	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 nominated parcels are located in the north-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_{10} monitoring sites and one meteorological site in Lamar and a background $PM_{2.5}$ monitor in Elbert County. The Lamar monitors have recorded exceedances of the 24-hour PM_{10} standard in the past three years, however CDPHE maintains the exceedances were associated with high winds and blowing dust from dry conditions.

Areas or regions where criteria pollutant monitoring concentration data exceeds one or more NAAQS are designated by EPA as nonattainment areas (NAA). The CAA establishes timetables for each NAA to achieve attainment of the NAAQS, and as a result CDPHE may have to prepare a region specific state implementation plan (SIP) (depending on the severity of the NAAQS violation), which documents how the area will reach attainment by the required date. A SIP can include inventories of emissions within the area and can establish emissions budgets and emission control programs that are designed to bring the area into compliance with the NAAQS. In maintenance areas (nonattainment areas that have achieved attainment), SIPs document how the State intends to maintain compliance with NAAQS, and may document any planning assumptions used in the attainment demonstration.

Weld County has experienced ozone issues in the past and portions of the county are currently designated as nonattainment for the 8-hour ozone standard. All areas of Adams and Arapahoe Counties are currently designated as nonattainment for the 8-hour ozone standard. Most of the nominated parcels are located within the 8-hour ozone NAA (exception for parcels located in Logan and most of Morgan Counties). Ozone is not emitted directly from sources, but is chemically formed in the atmosphere via interactions of oxides of nitrogen (NO_X) and volatile organic compounds (VOCs) in the presence of sunlight and under certain meteorological conditions (NO_X and VOCs are ozone precursors). Ozone formation and prediction is complex, and generally results from a combination of significant quantities of VOCs and NO_X emissions from various sources within a region. Prediction of ozone concentrations is further complicated by its potential to be transported across long ranges.

Section 176(c) of the CAA, 42 U.S.C. § 7506, prohibits Federal entities from approving actions in nonattainment or maintenance areas that do not "conform" to the SIP. The purpose of this conformity requirement is to ensure that Federal activities: (1) do not interfere with the budgets in the SIPs; (2) do not cause or contribute to new violations of the NAAQS; and (3) do not impede the ability to attain or maintain the NAAQS. To implement CAA Section 176(c), EPA issued the General Conformity Rule (40 CFR Part 93, Subpart B), which applies to all Federal actions not funded under U.S.C. Title 23 or the Federal Transit Act (BLM actions are not funded by U.S.C. Title 23 or the Federal Transit Act). The General Conformity Rule established emissions thresholds (40 CFR 93.153) for use in evaluating the conformity of a project. 40 CFR 93.153(b)(1). If the net emissions increases due to the project are less than these thresholds, no further conformity evaluation is required. 40 CFR 93.153(c)(1). If the emissions increases exceed any of these thresholds, a formal conformity determination is required. The rule also identifies other actions to which the conformity requirements do not apply. 40 CFR 93.153(c)(2), (d), (e). Certain other actions are "presumed to conform" with the applicable SIP.

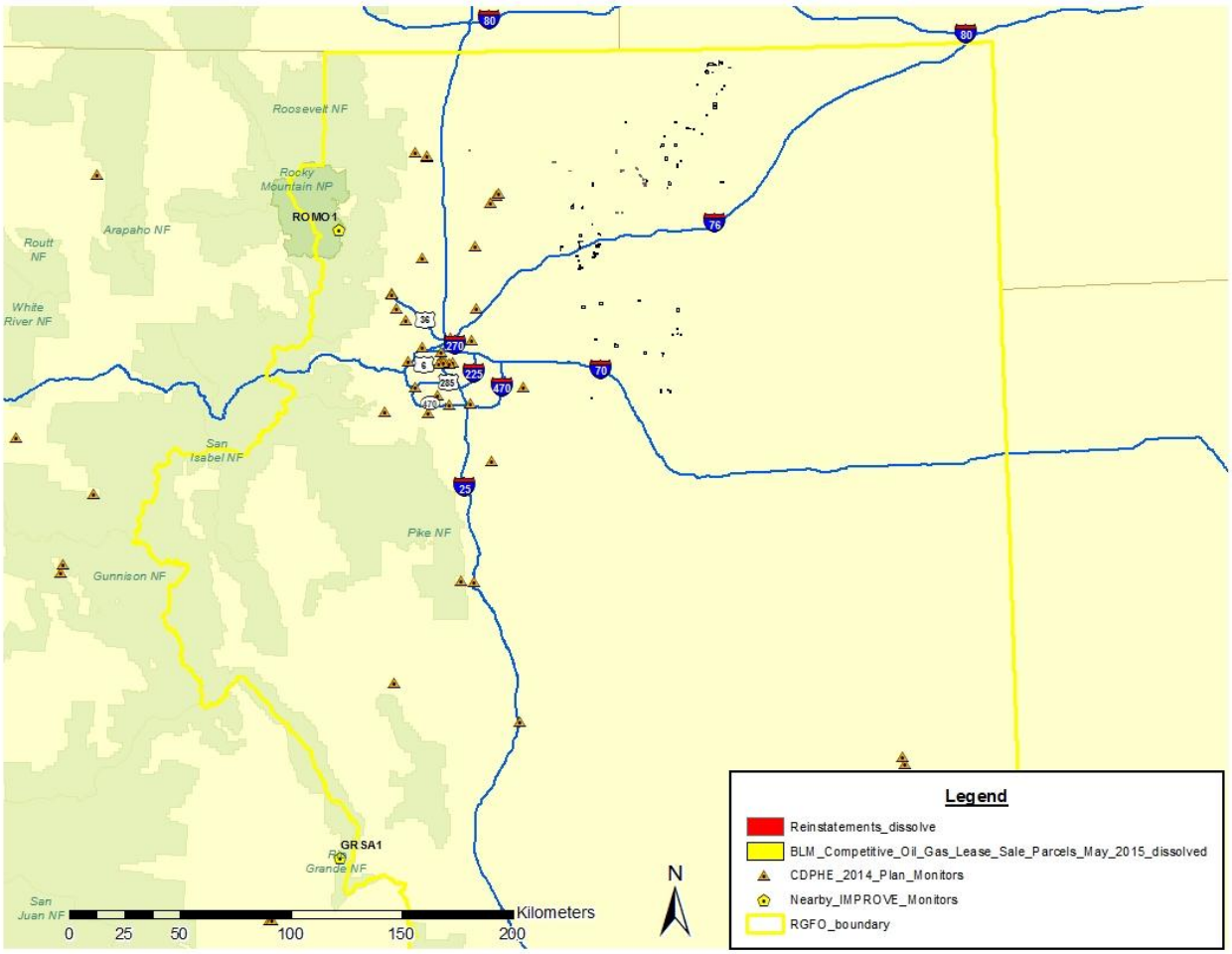
40 CFR 93.153(f)-(i). The conformity determination can entail air quality modeling studies, consultation with EPA and state air quality agencies, and commitments to revise the SIP or to implement measures to mitigate air quality impacts. The BLM, as the federal entity with jurisdiction for the proposed action, must demonstrate that it has complied with the requirements of the General Conformity Rule.

Very few "online" (currently operating) air quality monitors exist in areas immediate to the nominated lease parcels. The following table provides air quality monitored values for APCD air monitors located in Adams, Arapahoe and Weld Counties in northeast Colorado that could be used to assess air pollutant concentrations and trends for the northern RGFO (where parcels are located).

Table 3.4.1.1-2 Ambient Air Quality Monitoring Data

County	Pollutant	Averaging Period	Monitored Values		
			2011	2012	2013
Adams	CO	1-hour	2.4	2.2	2.4
Adams	CO	8-hour	1.6	1.3	1.5
Adams	NO_2	1-hour	64	64	58
Adams	O_3	8-hour	0.075	0.072	0.077
Adams	PM_{10}	24-hour	65	86	93
Adams	$PM_{2.5}$	24-hour	20	28.7	23
Adams	$PM_{2.5}$	Annual	7.6	8.6	8.5
Arapahoe	O_3	8-hour	0.078	0.076	0.079
Arapahoe	$PM_{2.5}$	24-hour	12.3	28.1	19.7
Arapahoe	$PM_{2.5}$	Annual	5.9	6.8	6.6
Weld	CO	1-hour	2.5	3.2	2.5
Weld	CO	8-hour	1.5	1.6	1.4
Weld	O_3	8-hour	0.077	0.074	0.073
Weld	PM_{10}	24-hour	46	91	47
Weld	$PM_{2.5}$	24-hour	26.9	32	23.1
Weld	$PM_{2.5}$	Annual	7.4	7.9	7.1

The following figure shows locations of air pollutant monitors in the RGFO. Locations of the nominated lease parcels and Rocky Mountain National Park and Great Sand Dunes National Park IMPROVE monitors are also shown in the plot.



In addition to air pollutant monitored concentrations, air quality related value (AQRVs) monitored in the region are used to assess the overall existing condition. An air quality related value 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.

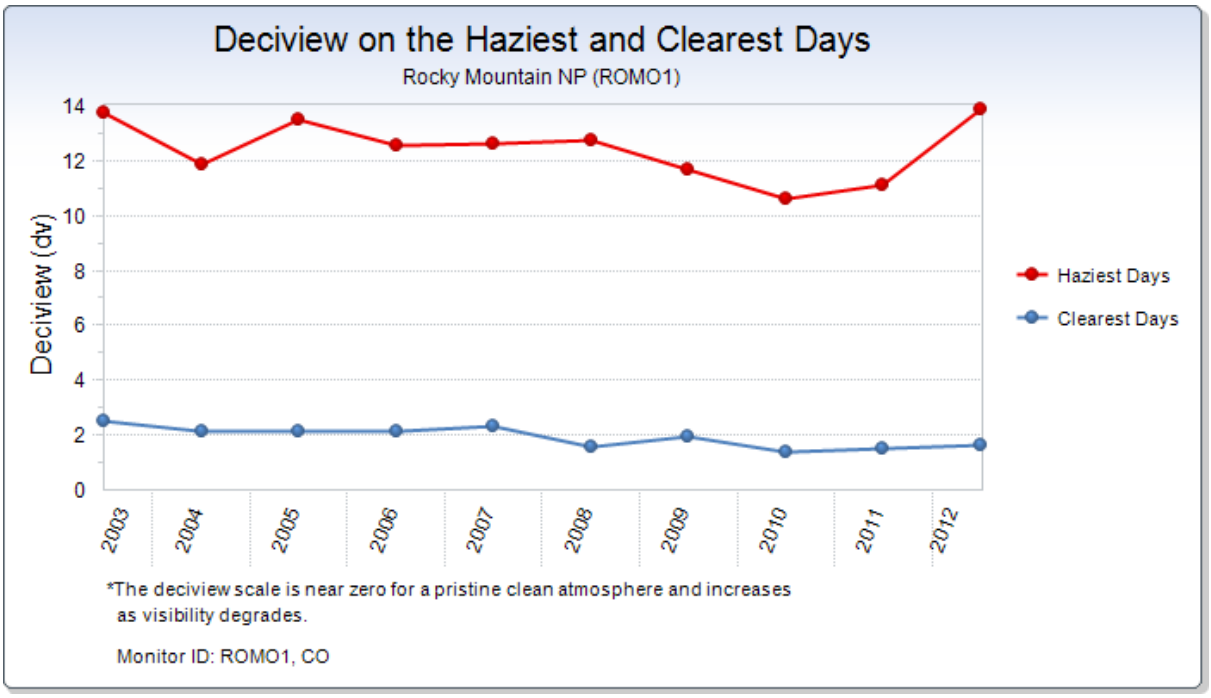
Atmospheric deposition refers to the processes by which air pollutants are removed from the atmosphere and deposited on terrestrial and aquatic ecosystems, and it is reported as the mass of material deposited on an area per year. Air pollutants are deposited by wet deposition (precipitation) and dry deposition (gravitational settling of pollutants). The chemical components of wet deposition include sulfate (SO_4), nitrate (NO_3), and ammonium (NH_4); the chemical components of dry deposition include sulfate, sulfur dioxide, nitrogen oxides, nitrate, ammonium, and nitric acid (HNO_3). A recent AECOM *Description of Critical Load Analysis Approach* memo to the BLM shows that a year 2014 NPS Study suggests that the critical nitrogen load value for high elevation surface water in all natural areas of Colorado is 2.3 kg/ha-yr. The NPS *Technical Guidance on Assessing Impacts on Air Quality in NEPA and Planning Documents* suggests that critical sulfur 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.

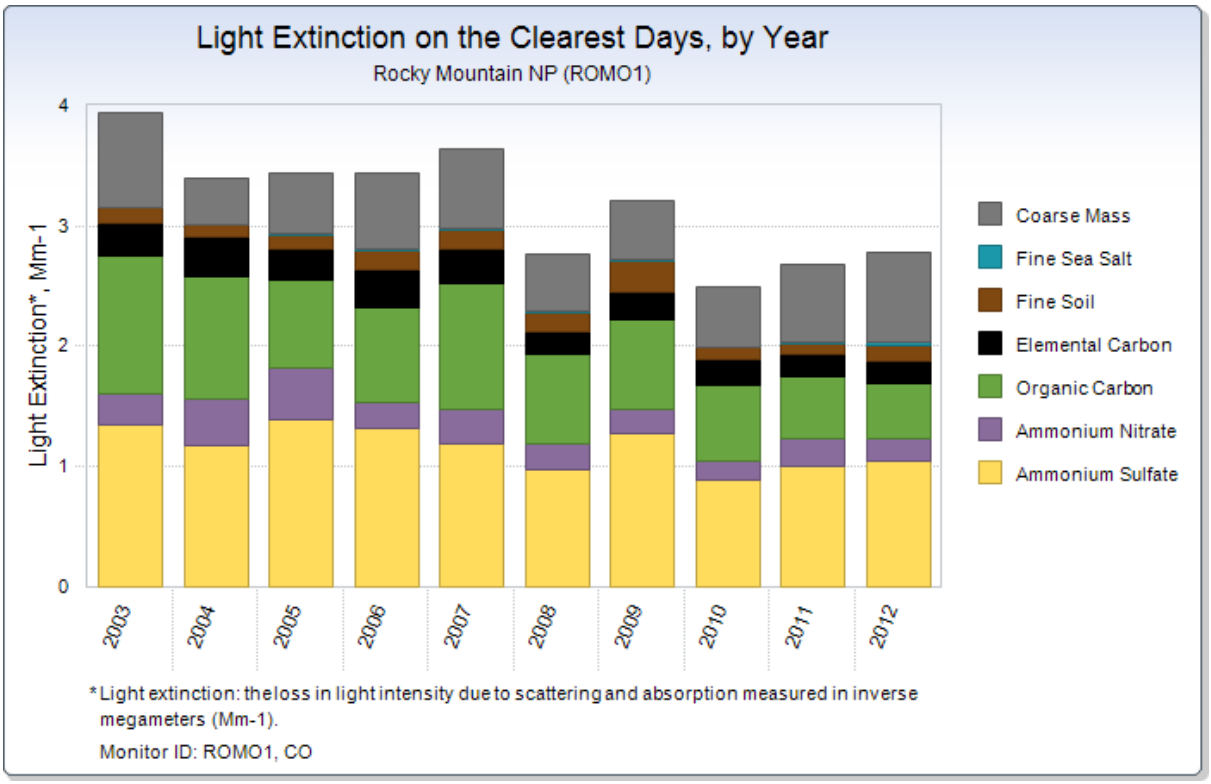
As shown in the table, the overall deposition was lower for year 2012 likely due to less precipitation (less wet deposition) for that year.

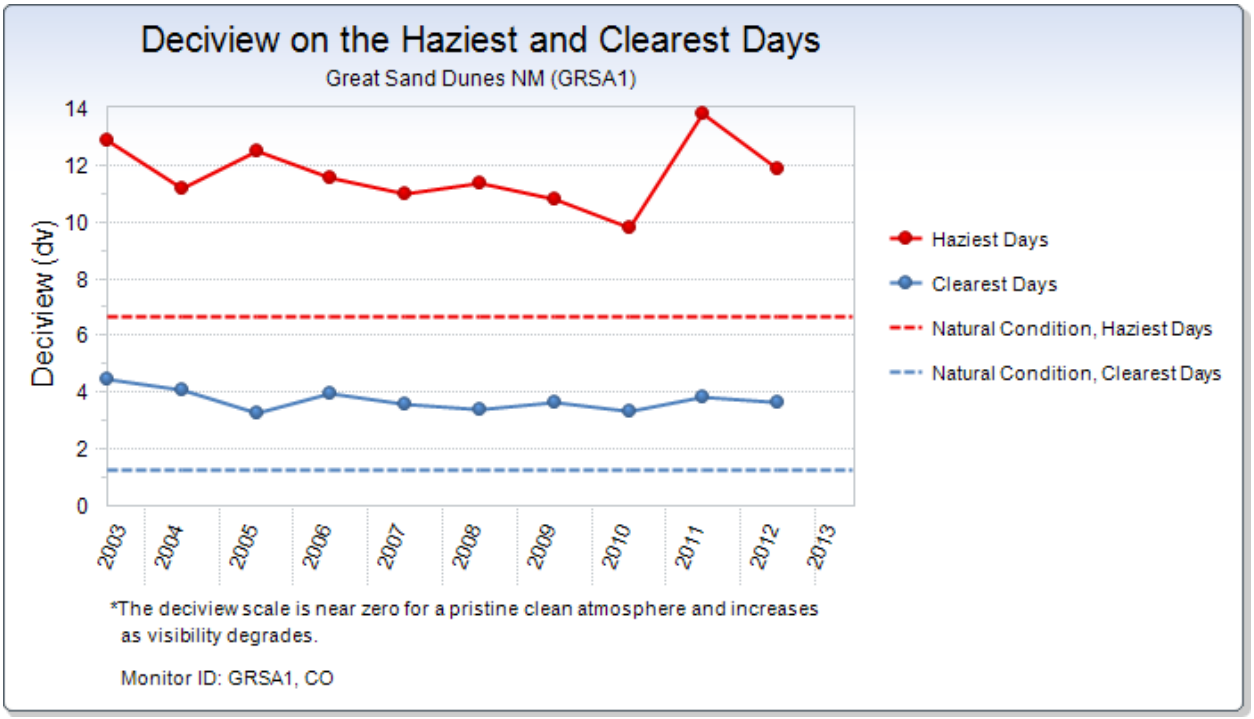
Table 3.4.1.1-4 Background Nitrogen and Sulfur Deposition Values (kg/ha-yr)

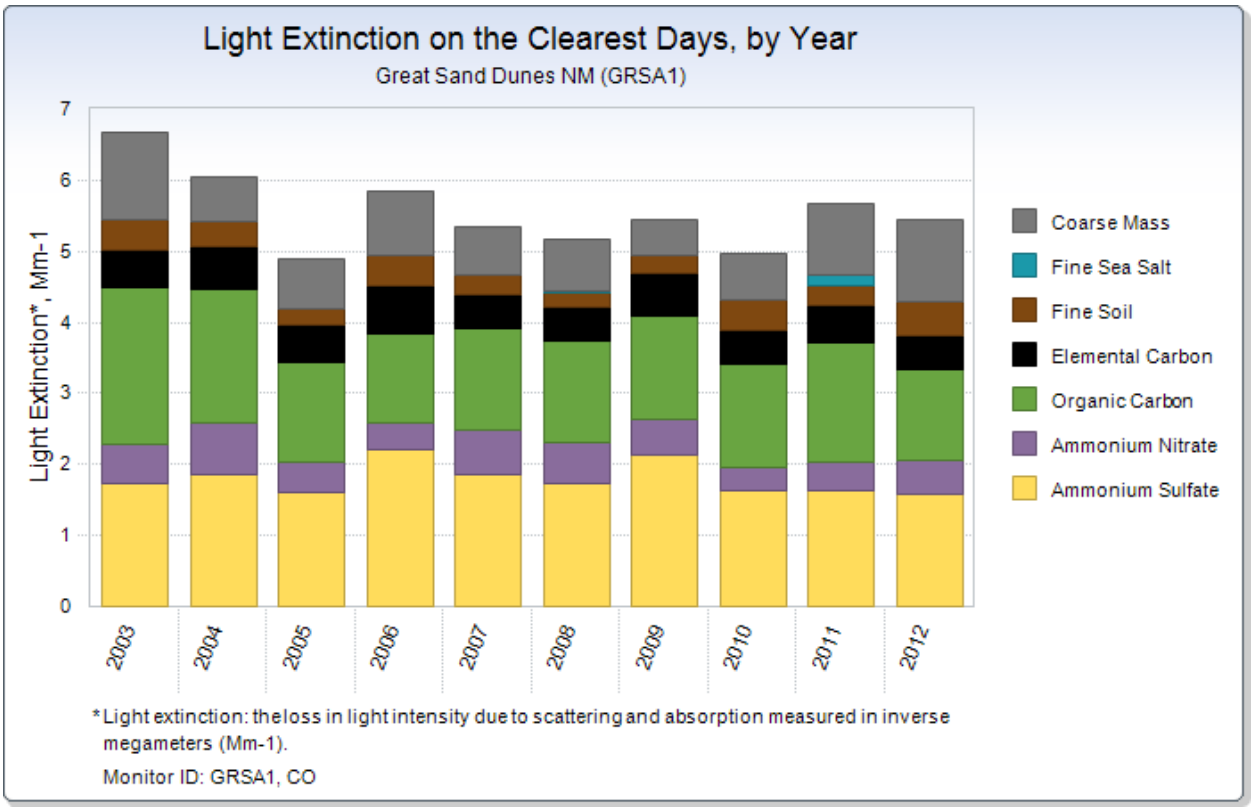
Site Location	Nitrogen Deposition			Sulfur Deposition			Year of Monitoring
	Wet	Dry	Total	Wet	Dry	Total	
ROM206	2.71	0.49	3.20	1.08	0.17	1.25	2011
ROM206	2.04	0.56	2.60	0.88	0.18	1.06	2012

The following plots developed using the Colorado State University Visibility Information Exchange Web System (VIEWS) show monitored visibility at Rocky Mountain NP (ROM01) and Great Sand Dunes National Park (GRSA1). As shown in the plots / figures, the overall 10-year trend in visibility at both locations is toward clearer conditions. For both monitors, light extinction is primarly caused by ammonium sulfate, organic carbon and course mass particles.




Light Extinction on the Clearest Days, by Year
Rocky Mountain NP (ROMO1)
Light Extinction*, Mm-1
0
1
2
3
4
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Coarse Mass
Fine Sea Salt
Fine Soil
Elemental Carbon
Organic Carbon
Ammonium Nitrate
Ammonium Sulfate
*Light extinction: the loss in light intensity due to scattering and absorption measured in inverse megameters (Mm-1).
Monitor ID: ROMO1, CO


Deciview on the Haziest and Clearest Days
Great Sand Dunes NM (GRSA1)
Deciview (dv)
0
2
4
6
8
10
12
14
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Haziest Days
Clearest Days
Natural Condition, Haziest Days
Natural Condition, Clearest Days
*The deciview scale is near zero for a pristine clean atmosphere and increases as visibility degrades.
Monitor ID: GRSA1, CO



As shown in previous figures / plots, the nominated lease parcels are located in the northern portion of the RGFO. Table 3.4.1.1-5 below shows the oil and gas summary data on a per county basis for counties that include the nominated 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 3.4.1.1-6 provides the county level emissions inventories and has been provided to describe the affected environment in terms of current emissions intensities.

Table 3.4.1.1-5 Parcel County Production Data (2013)

County	Max County Producing Wells	County Annual Oil Prod. (bbl)	County Annual Gas Prod. (Mcf)	County Annual H_2O Prod. (bbl)
Adam	1,159	30,589	394,326	45,543
Arapahoe	156	23,406	52,337	40,798
Logan	188	17,359	33,023	5,657,714
Morgan	213	10,206	28,935	251,536
Weld	25,168	4,383,682	25,426,741	1,415,300

Table 3.4.1.1-6 County Emissions Inventory Data (EPA - 2011 NEI - TPY)

County	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O	NH_3	HAPs
Adam	14,055	4,346	21,395	72,900	24330	8,033	2,669,518	261	94	1,346	5,067
Arapahoe	13,296	3,350	17,861	85,894	11876	207	2,692,975	217	99	632	5,212
Logan	7,659	1,719	11,568	8,737	4052	101	212,893	24	5	4,518	2,453
Morgan	6,564	1,622	10,861	11,648	7650	13,082	274,751	61	8	5,410	2,351
Weld	27,960	6,194	137,717	68,222	25663	575	1,782,317	266	59	16,080	7,886

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_2), methane (CH_4), nitrous oxide (N_2O), 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_2 monitor in Hawaii that documents atmospheric concentrations of CO_2 going back to 1960, at which point the average annual CO_2 concentration was recorded at approximately 317 ppm. The record shows that approximately 70% of the increases in atmospheric CO_2 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.

<u>Environmental Consequences of Leasing/Reinstatement and Development - Direct and Indirect Impacts:</u> The decision to offer the identified parcels for lease, or reinstate the seven leases under consideration, 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 or reinstated 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_{10} and $PM_{2.5}$) 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_X 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 best management practices (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 primary lease term in order to continue to hold the lease beyond the primary term. With that in mind, the BLM has developed an estimated average per well emissions inventory (Table 3.4.1.1-7) 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 on the 49 parcels. 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 3.4.1.1-7 Per Well (type/phase) Emissions (Tons)

Phase	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O	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

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 emissions and determine potential impacts to air quality. Substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. BLM Instructional Memorandum CO-2015-009 provides detailed direction and methods for FO staff to follow for providing future project level analysis. Based on the outcome of our future analysis, the BLM will make its approval of these activities subject to conditions of approval that will address air pollutant impacts and climate change pollutants as appropriate.

Applicability Analysis under CAA Section 176, 42 U.S.C. § 7506, and 40 CFR Part 93:

As discussed in the Affected Environment section, most of the nominated parcels are within a designated ozone nonattainment area. The BLM therefore is undertaking measures to comply with the CAA conformity requirement set forth in 42 U.S.C. § 7506. The BLM has evaluated the proposed lease sale and reinstatement in accordance with the provisions of 40 CFR Part 93, Subpart B. Based on a review of the provisions of 40 CFR § 93.153(c), BLM has determined that the requirement to perform a full conformity determination does not apply to the proposed action for the following reasons.

Under 40 CFR 93.153(c)(2), a conformity determination is not required for actions "which would result in no emissions increase or an increase in emissions that is clearly de minimis." Leasing does not authorize emissions generating activities, and therefore does not directly result in an emissions increase. Further, leasing is, or is similar to, a transfer of interest in land, and therefore is an excepted activity under 40 CFR § 93.153(c)(2)(xiv).

A conformity determination also is not required "where the emissions (direct or indirect) are not reasonably foreseeable." 40 CFR § 93.153(c)(3). While BLM can make broad predictions about possible future emissions in a region for purposes of NEPA cumulative impacts analysis, it does not have specific information about whether or how the specific parcels under consideration may be developed during the initial 10 year lease period, such that a more precise emissions inventory could be reasonably estimated and compared to the thresholds provided in 40 CFR § 93.153(b). An onshore lease sale (and reinstatement of an onshore lease) is analogous to the

example provided in 40 CFR § 93.153(c)(3)(i), "Initial Outer Continental Shelf lease sales which are made on a broad scale and are followed by exploration and development plans on a project level." Similarly, development of an onshore lease requires subsequent BLM review and NEPA analysis of a specific development proposal.

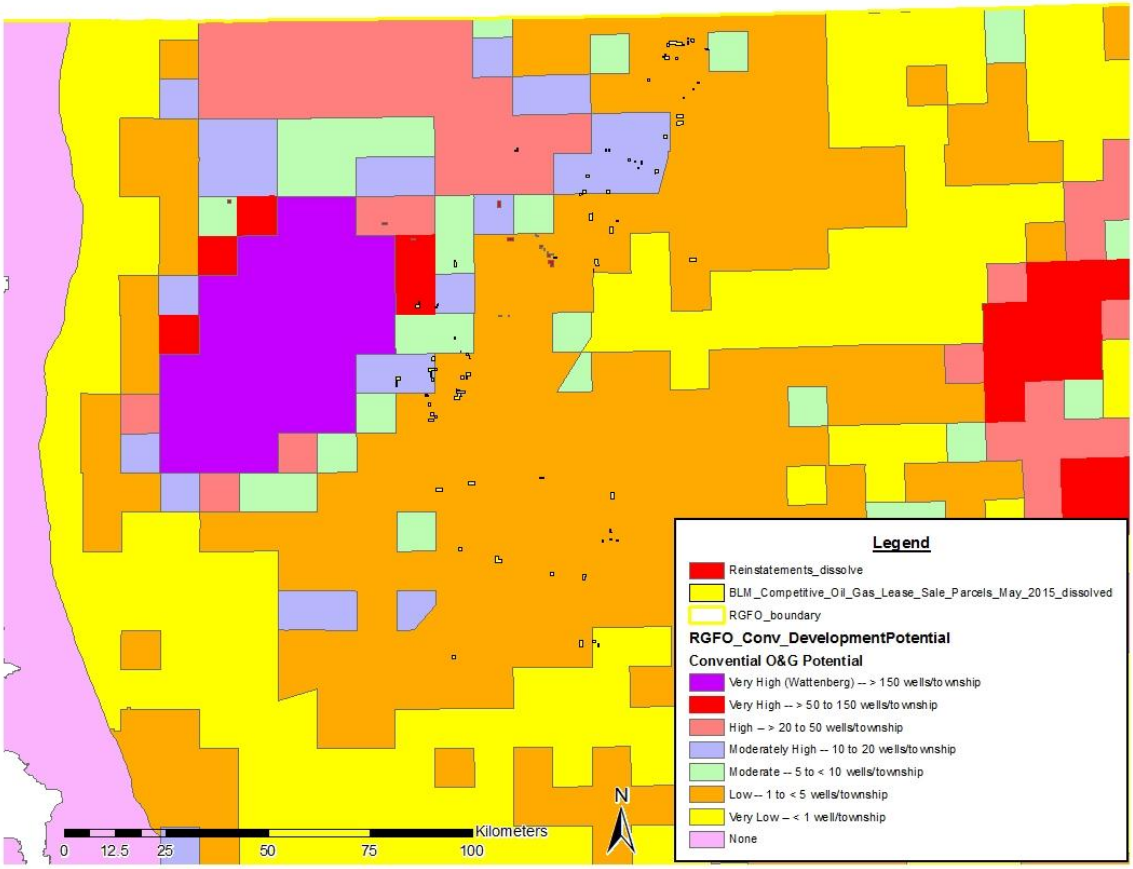
Furthermore, 40 CFR § 93.153(d) provides, "[n]otwithstanding the other requirements of this subpart, a conformity determination is not required for the following Federal actions (or portion thereof): . . . The portion of an action that includes major or minor new or modified stationary sources that require a permit under the new source review (NSR) program (Section 110(a)(2)(c) and Section 173 of the [CAA]) or the prevention of significant deterioration program (title I, part C of the [CAA])." 40 CFR 93.153(d)(1). It is uncertain at this time, but highly likely, that several project design features, for example equipment sets, such as tanks, separates, compressions engines, pump jacks, and dehydration units, will require at least a minor new source review (i.e. permit) prior to constructing such facilities to implement any subsequent development proposals. Emissions from such permitted facilities would not be subject to the general conformity analysis provisions.

For all of these reasons, a conformity determination is not required for the sale or reinstatement of the leases under consideration.

Environmental Consequences of Leasing/Reinstatement 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, 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. Notwithstanding the uncertainties described above, BLM has used mapping and a modeling study to estimate the potential cumulative impacts to air quality from leasing, lease reinstatement, and development on the parcels under consideration in light of ongoing oil and gas exploration and development in the area.

The following figure / plot shows locations of the nominated lease parcels with a GIS layer for 20-year conventional oil and gas Reasonable Foreseeable Development (RFD) projections developed by the BLM in 2011 based on actual oil and gas operator projections (available on BLM RGFO website). As shown in the figure, most of the nominated lease parcels are located in areas of "low" (1-5 new wells per township) oil and gas development potential. There are several parcels located in areas of moderate to high development and a few parcels in very high oil and gas development potential areas (50 – 150 new O&G wells per township).



A 20-year RGFO-wide emissions inventory was prepared for projected oil and gas development based on the RGFO specific oil and gas RFD as shown in the previous figure / plot. Years 2011 and 2021 oil and gas emissions inventories were developed for the RGFO Area #1 (northern portion of RGFO) for the CARMMS using the 20-year projected RGFO EI. The following table shows the total (Federal and non-Federal) oil and gas emissions inventory estimates that were modeled for CARMMS RFD Scenario. For CARMMS RGFO Area #1, the RFD scenario emissions estimates are based on ~ 23,823 (Federal and non-Federal) wells in operation in year 2011 and ~ 29,673 total O&G wells in operation in year 2021; for this net increase in number of O&G wells in production for year 2021, the CARMMS RFD scenario assumes ~ 470 new Federal O&G wells for RGFO Area #1 through year 2021 (from year 2011). As of January, 2015, approximately 51 new Federal O&G wells have been completed for the entire RGFO (most wells are located in Area #1) since year 2011.

Considering the likelihood that any new oil and gas development would be established on the nominated lease parcels over the next few years and that the CARMMS RFD scenario is based on aggressive oil and gas development projections that are not close to being surpassed, it is reasonable to assume that emissions associated with any potential oil and gas developed through year 2021 on the nominated lease parcels are accounted for in the CARMMS projected year 2021 oil and gas emissions inventories (as modeled, see table below). The table also shows potential direct GHG emissions for the 2021 RFD wells, which were estimated by simply taking the conventional O&G "per well" emissions rates shown in Table 3.4.1.1-7 and multiplying by the number of potential new O&G wells (470) associated with the RGFO Area #1 source apportionment area.

Table 3.4.1.1-8 RGFO O&G Emissions[1] (Tons) – CARMMS RFD Scenario

CARMMS - RGFO Area ID	Year	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	NO_2
Area #1	2011	3,407	829	79,913	14,793	20,631	77	ND	ND	ND
	2021	26,483	3,701	199,587	52,910	53,177	192	169,219	8,056	<1

As described earlier, cumulative / regional air quality impacts are not directly applicable at the leasing stage to correlate projected air quality impacts associated with the lease parcels, primarily because oil and development is speculative in terms of actual oil and gas development timing and intensity. The RFD (High) modeling scenario provides an upper-bound look at impacts that would cover all potential oil and gas development based on aggressive O&G development forecasts.

The prevention of significant deterioration (PSD) program is a Clean Air Act permitting program for new and modified major air pollution sources and is administered in Colorado by the CDPHE Air Pollution Control Division (APCD). In this air quality assessment, PSD increment consumption comparisons are provided to evaluate the extent of environmental effects only, and do not constitute a regulatory consumption analysis. The CARMMS RFD (High) modeling scenario resulted in the following table, which presents the highest PSD pollutant concentrations at any Class I area due to the projected CARMMS RFD scenario new Federal oil and gas emissions for the entire RGFO. All PSD pollutant contributions from the projected wells and emissions associated with the RGFO source apportioned group are less than 2% of any PSD increment and are thus extremely low.

Table 3.4.1.1-9: CARMMS RFD Year 2021- RGFO New Federal O&G – Max PSD Consumption at Any Domain Class I Area

Source Group	PSD Class I Increment	Max @ any Class I Area	Percent of PSD Class I Increment	Class I Area where Max occurred
NO_2 Annual	2.5	0.004	0.1%	Great_Sand_Dunes
PM_{10}, 24-hour	8	0.044	0.6%	Rocky_Mountain
PM_{10}, Annual	4	0.002	0.0%	Rocky_Mountain
$PM_{2.5}$, 24-hour	2	0.023	1.1%	Rocky_Mountain
$PM_{2.5}$, Annual	1	0.001	0.1%	Rocky_Mountain
SO_2, 3-hour	25	0.001	0.0%	Rocky_Mountain
SO_2, 24-hour	5	0.000	0.0%	Rocky_Mountain
SO_2, Annual	2	0.000	0.0%	Rocky_Mountain

The following table provides a quasi-cumulative summary of ozone, visibility and nitrogen deposition impacts for all of the new projected RGFO Federal oil and gas emissions (since year

[1] GHG emissions represent the RGFO Area 1 SA RFD estimates only (i.e. 470 federal wells)

2011) associated with the RFD (High) modeling scenario. These impacts show the relative contribution to full cumulative (all world-wide emissions sources) impacts for the projected year 2021 RGFO oil and gas emissions associated with the RFD (high) modeling scenario.

Table 3.4.1.1-10: CARMMS RFD Year 2021- RGFO New Federal O&G Contribution to Modeled AQRV Impacts

Source Group	Number of Annual Days Above 0.5 dv Change	Maximum Modeled Annual Nitrogen Deposition (kg/ha-yr)	Maximum 4th High Daily 8-hour Ozone Contribution (MDA8 - ppb)	Maximum 4th High Daily 8-hour Ozone Contribution to Modeled Exceedance (ppb)	Overall Maximum 8th High 24-hour PM2.5 Contribution (ug/m3)
RGFO Area 1 (O&G within Pawnee NG)	0	0.0017 (Rocky Mtn. NP)	0.5	0.03	0.6
RGFO Area 1 (O&G outside Pawnee NG)	0	0.0004 (Rocky Mtn. NP)	0.1	0.01	0.2
Total RGFO (all four areas)	0	0.0279 (Greenhorn Mtns.)	0.9	0.05	0.7

* maximum modeled concentrations / values for any Class I / sensitive Class II area (AQRV) or grid cell (ozone) within the CARMMS 4km modeling domain (includes all of Colorado).

As shown in the table above, there are no expected days that the projected new RGFO year 2021 Federal oil and gas emissions (since year 2011) would have a significant (~ 0.5 dv) visibility change impact at any Class I or sensitive Class II area, and the maximum modeled nitrogen deposition contributions are minimal with respect to the cumulative critical nitrogen deposition load of 2.3 kg/ha-yr value. The maximum contributions to 4th high daily maximum 8-hour concentrations are expected to be minimal with respect to the 75 ppb 8-hour ozone standard, and the maximum contributions to any modeled exceedance (above NAAQS) are expected to be much less than 1% of the current ozone standard. The maximum contributions to the 8th high maximum 24-hour PM2.5 concentration is minimal with respect to the 35 ug/m3 24-hour PM2.5 standard..

For a Project, the Acid Neutralizing Capacity (ANC) Level of Acceptable Change (LAC) threshold is no change greater than 10% for lakes with base ANC > 25 μeq/l and no change greater than 1 μeq/l for lakes with base ANC values < 25 μeq/l. The ANC calculations due to nitrogen and sulfur deposition from the RGFO Federal O&G RFD scenario is shown in Table 3.4.1.1-11 below. Specifically, the table shows all of the lakes where the delta in ANC % showed an expected change as a result of the new projected RGFO Federal oil and gas emissions

(for projected development year 2011 through year 2021) associated with the CARMMS RFD modeling scenario. All of the values are predicted to be below the USFS ANC LAC threshold at all sensitive lakes. The USDA Forest Service methodology reports both Delta ANC calculations and LAC thresholds as positive quantities, however they reflect a decrease (degradation) in lake ANC.

Table 3.4.1.1-11: CARMMS RFD Year 2021- RGFO New Federal O&G – ANC Changes

National Forest	Wilderness Area - Lake	10th Percentile Lowest ANC Value (µeq/L)	Delta ANC (%)	Delta ANC (meq/L)	USFS LAC Threshold	Below Threshold?
Arapaho and Roosevelt	Indian Peaks - Blue	19.3	0.0299%	0.0058	<1(µeq/L)	Yes
Arapaho and Roosevelt	Mount Evans – Upper Middle Beartrack	50.9	0.0309%	0.0157	<10%	Yes
San Juan-Rio Grande	Weminuche – White Dome Lake	2.1	0.0304%	0.0006	<1(µeq/L)	Yes

*Highest impacts (associated with CARMMS RFD Scenario new RGFO Federal O&G) for top three lakes (with respect to highest Delta ANC percent change) for all sensitive lakes within CARMMS 4km modeling domain.

The information above shows that the predicted air quality impact contributions associated with an aggressive 10-year federal oil and gas development scenario for the entire RGFO are minimal, and it is reasonable to conclude that individual project-level oil and gas development (based on actual development plans) would have even lower contributions to the overall cumulative air quality.

The following table provides a full cumulative summary of visibility and nitrogen deposition impacts for all (i.e. world-wide) new and existing emissions sources associated with the CARMMS RFD (High) year 2021 modeling scenario.

Table 3.4.1.1-12: CARMMS Modeled AQRV Impacts - High 2021 Scenario - Full Cumulative Emissions Inventory

Class I Area	Best 20% Days Visibility Metric (dv) - 2021 High Improvement from 2008	Worst 20% Days Visibility Metric (dv) - 2021 High Improvement from 2008	Modeled Annual Nitrogen Deposition (kg/ha-yr)
Rocky Mountain NP	-0.09	0.86	2.57
Great Sand Dunes NP	-0.06	0.42	2.08

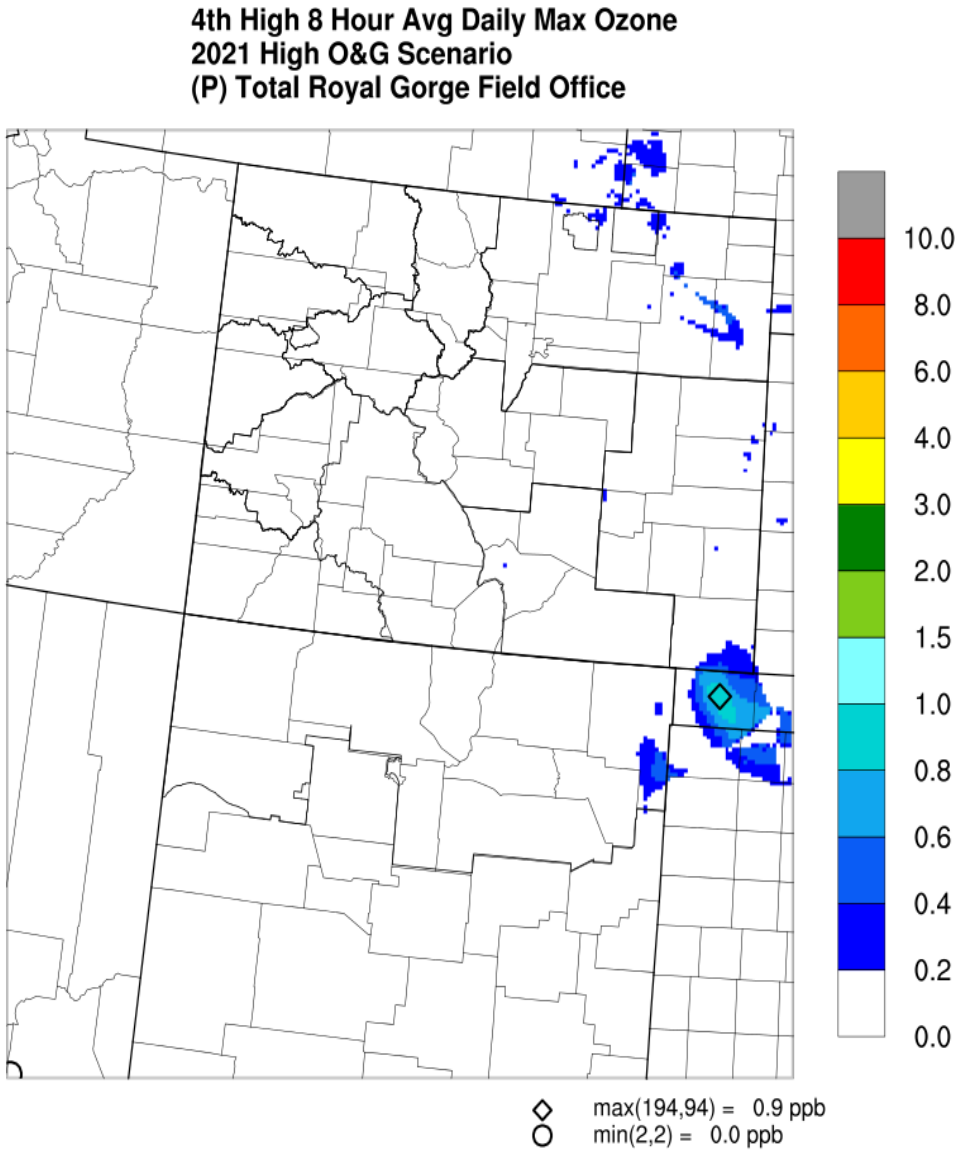
* positive visibility related values mean overall visibility improvement and deposition values are average for all grid cells making up the Class I area.

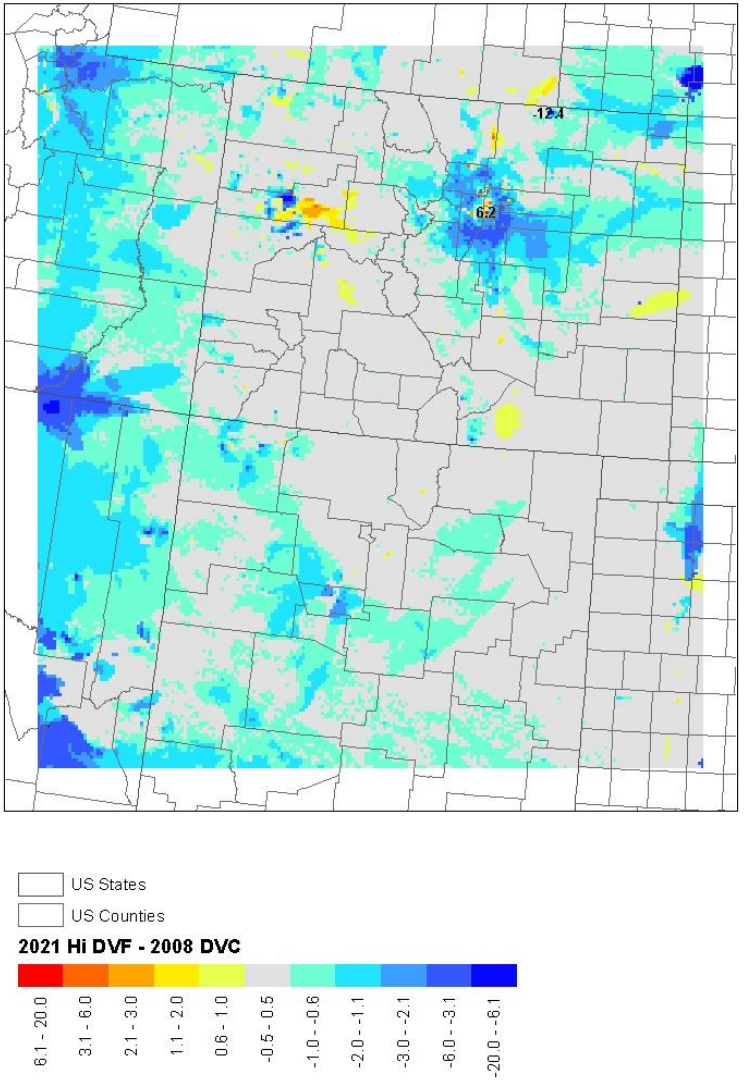
As shown in the table above, the model predicted that the highest impacted Class I areas (in proximity to potential the RGFO oil and gas development) would see improvements for worst visibility days and could see slight (< 0.1 dv) degradation for best visibility days. Modeled year 2021 annual nitrogen deposition for Rocky Mountain National Park compares well to the total actual observed nitrogen deposition values as shown in Table 3.4.1.1-4, suggesting little change in cumulative deposition from baseline years to future year 2021. Using the baseline / current years monitored nitrogen and sulfur deposition rates data with year 2021 CARMMS cumulative modeling results, it is reasonable to conclude that the ANC of Lakes within the immediate area in year 2021 would be similar to baseline / current ANC conditions.

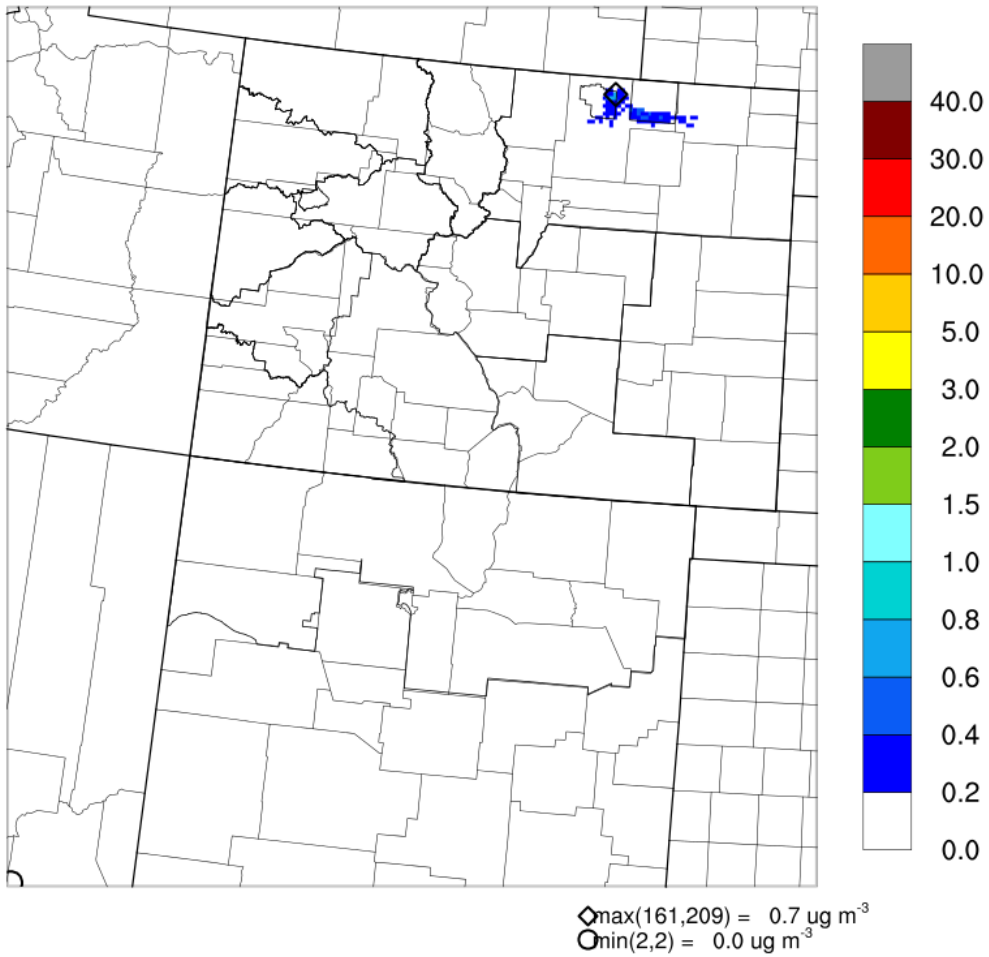
For full cumulative ozone design value projections at regional ozone monitoring sites, the maximum current year 8-hour ozone design concentration (DVC; based on 2006-2010 observations) is 82.0 ppb at the Rocky Flats North (CO_Jefferson_006) monitor that is projected to be reduced to 79.5 ppb for the CARMMS 2021 High Development Scenario. With the exception of the Larimer County, Colorado monitors, modeled ozone predictions at all monitors within the modeling domain are lower for 2021. For the ozone design value projection unmonitored area analysis (analysis for areas with no monitors), the geographical extent (i.e. size) of the overall area of ozone design value exceedances is reduced (from 2008 to 2021) and CARMMS difference plot shows the largest ozone reduction in the Denver area while there are slight ozone increases in just east of Fort Collins, Colorados.

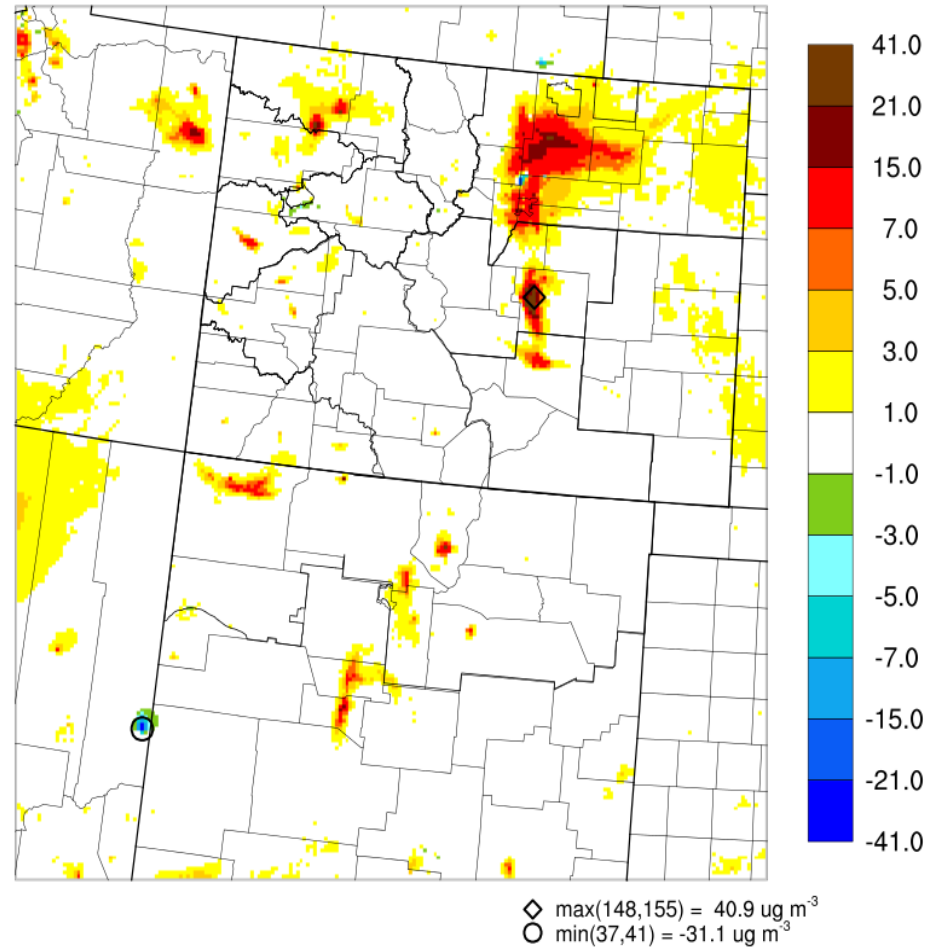
The $PM_{2.5}$ CARMMS plots below show changes in 8th highest daily average $PM_{2.5}$ concentrations (2021 High Scenario minus Base Year 2008 concentrations) and emissions source apportioned to the RGFO. As shown in the figures, concentrations are expected to increase in major Colorado Front Range cities and near some surface mining operations in Colorado, but are not expected to be significant from the RGFO oil and gas sources (max = 0.7 $\mu g/m^3$).

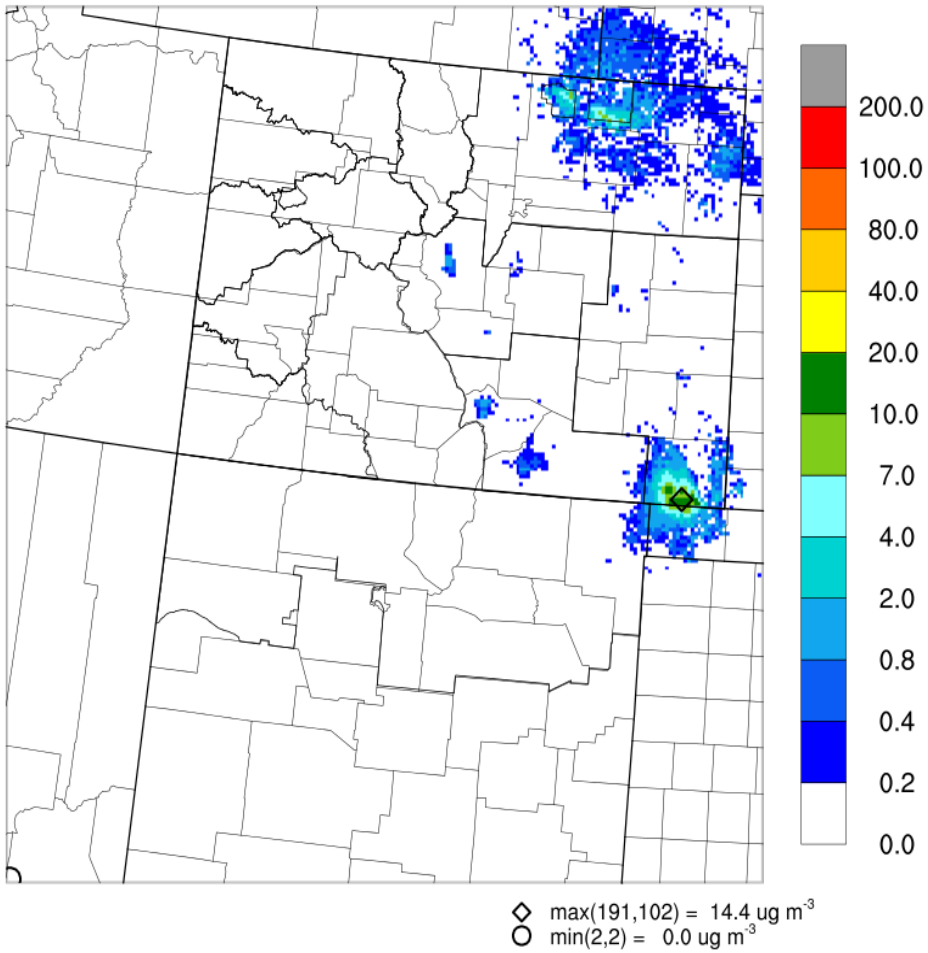
The NO_2 one hour CARMMS plots generally show decreases in future cumulative NO_2 concentrations, and are again not expected to be significant from the RGFO oil and gas sources (max = 14.4 $\mu g/m^3$).

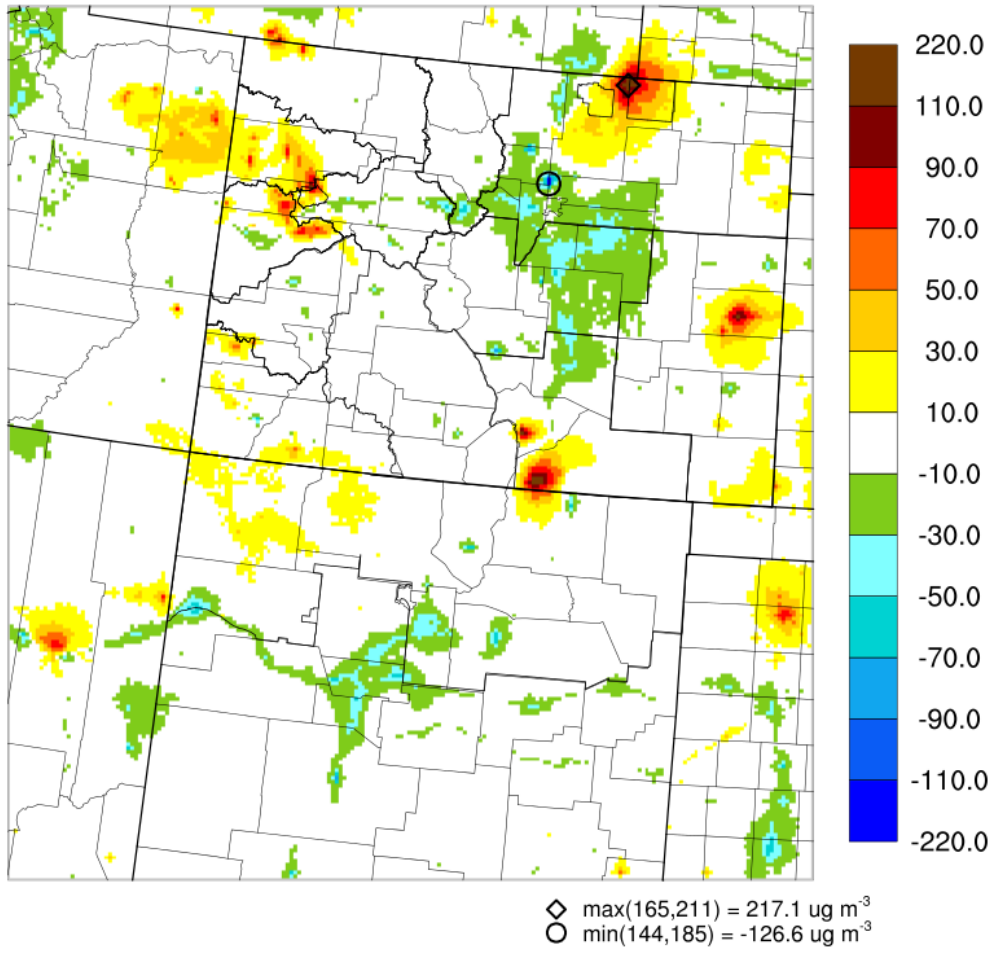

4th High 8 Hour Avg Daily Max Ozone
2021 High O&G Scenario
(P) Total Royal Gorge Field Office
10.0
8.0
6.0
4.0
3.0
2.0
1.5
1.0
0.8
0.6
0.4
0.2
0.0
max(194,94) = 0.9 ppb
min(2,2) = 0.0 ppb


-12.4
6.2
US States
US Counties
2021 Hi DVF - 2008 DVC
6.1 - 20.0
3.1 - 6.0
2.1 - 3.0
1.1 - 2.0
0.6 - 1.0
-0.5 - 0.5
-1.0 - -0.6
-2.0 - -1.1
-3.0 - -2.1
-6.0 - -3.1
-20.0 - -6.1


8th High Daily Avg PM2.5 Contribution
2021 High O&G Scenario
(P) Total Royal Gorge Field Office
40.0
30.0
20.0
10.0
5.0
3.0
2.0
1.5
1.0
0.8
0.6
0.4
0.2
0.0
max(161,209) = 0.7 ug m-3
min(2,2) = 0.0 ug m-3


The 8th highest daily average PM2.5 Concentration
2021 High Oil and Gas Scenario - 2008
CARMMS CAMx 4km
41.0
21.0
15.0
7.0
5.0
3.0
1.0
-1.0
-3.0
-5.0
-7.0
-15.0
-21.0
-41.0
max(148,155) = 40.9 ug m-3
min(37,41) = -31.1 ug m-3


8th High 1 Hour Daily max NO_2 Contribution
2021 High O&G Scenario
(P) Total Royal Gorge Field Office
200.0
100.0
80.0
40.0
20.0
10.0
7.0
4.0
2.0
0.8
0.4
0.2
0.0
max(191,102) = 14.4 ug m^{-3}
min(2,2) = 0.0 ug m^{-3}


The 8th highest 1 hour daily max NO_2 Concentration
2021 High Oil and Gas Scenario - 2008
CARMMS CAMx 4km
220.0
110.0
90.0
70.0
50.0
30.0
10.0
-10.0
-30.0
-50.0
-70.0
-90.0
-110.0
-220.0
max(165,211) = 217.1 ug m^{-3}
min(144,185) = -126.6 ug m^{-3}

As future oil and gas development occurs in the RGFO, the BLM Colorado will add project-specific emissions (based on approved APDs) to total regional emissions estimates to compare the RGFO oil and gas and other regional emissions rates modeled in cumulative air quality modeling studies (CARMMS) 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.

To account for the cumulative GHG emissions from the RGFO Area 1 SA RFD, the BLM assumed a well life of 25 years and multiplied it by the annual production emissions from the 470 wells. When added to the construction emissions the estimate for cumulative RFD GHGs is approximately 7,298,761 metric tons of carbon dioxide equivalent (CO2(e)). The total provided does not account for the ultimate use or consumption of any produced minerals at this time due to the fact that the ultimate form of use and any additional processing required to render the product to sufficient quality (which would cause changes to the quantity of product) cannot be predicted with any reasonable certainty. Additionally, it should be noted that production values (also estimated at this time) could vary significantly over the life of the project, making any prediction of the quantities of GHG emitted highly speculative.

The CDPHE used the EPA's State Inventory Tool to estimate future years GHG emissions inventories for Colorado. In year 2020, it is estimated that Colorado's annual GHG emissions will be approximately 126,060,000 metric tons CO2(e). The cumulative RFD emissions represent about 5.8 % of the state of Colorado's year 2020 annual GHG emissions. Given the relative magnitude of greenhouse gas emissions associated with the development of the 470 wells as compared to the state's annual GHG emission levels, the GHG contribution associated with the RFD wells is extremely small.

To provide additional context, the EPA has recently modeled global climate change impacts from a model source emitting 20% more GHGs than a 1500MW coal-fired steam electric generating plant (approx. 14,132,586 metric tons per year of CO2, 273.6 metric tons per year of nitrous oxide, and 136.8 metric tons per year of methane). It estimated a hypothetical maximum mean global temperature value increase resulting from such a project. The results ranged from 0.00022 and 0.00035 degrees celsius occurring approximately 50 years after the facility begins operation. The modeled changes are extremely small, and any downsizing of these results from the global scale would produce greater uncertainty in the predictions. The EPA concluded that even assuming such an increase in temperature could be downscaled to a particular location, it "would be too small to physically measure or detect", see Letter from Robert J. Meyers, Principal Deputy Assistant Administrator, Office of Air and Radiation re: "Endangered Species Act and GHG Emitting Activities (Oct. 3, 2008). The RFD emissions are a fraction of the EPAs modeled source and are shorter in duration, and therefore it is reasonable to conclude that the project would have no measurable impact on the climate.
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.

<u>Protective/Mitigation Measures:</u>
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 impacts 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 or reinstatement 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 Water (surface and groundwater, floodplains)

Affected Environment:
Most of the surface ownership of the lands being proposed for leasing is privately owned; therefore BLM has no site specific information about water quality on those parcels. In general, most of the water quality in these areas is good and there is very little surface water.

Surface Water: The proposed lease parcels are located in the South Platte River basin of Colorado, east of I-25. These areas range from the headwater type areas of these rivers in Arapahoe County to the eastern plains near Nebraska. In general, the water quality in these rivers is good near the headwaters and declines as one moves 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.

Ground Water: The proposed lease parcels are located throughout the plains of eastern Colorado. 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 the formation in which the water is located.

Environmental Consequences of Leasing/Reinstatement 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 and quantity. The magnitude and location of direct and indirect effects cannot be predicted with accuracy until the site-specific APD stage of development. No lease stipulations for the proposed parcels specifically address either surface or groundwater quality. Stipulations CO-26 and CO-27, however, address soils and slope stability issues that would directly protect

soils and water quality by minimizing erosion. The leasing of these parcels would not affect whether or not these lands meet Public Land Health Standards; but development could negatively affect water quality. With proper BMP implementation, water quality should still meet standards with future development. Similar to water quality, water quantity impacts cannot be predicted with accuracy until the site specifc APD stage. Many factors, such as well type, depth, and the use of recycled water, influence the amount, timing and location of water used in oil and gas development. Water usage is largely regulated by the State of Colorado's water rights system and operators would need to obtain a legal source of water.

Surface Water: Impacts to surface water resources would be associated with the surface disturbance from the construction of roads, pipelines, well pads, and power lines. 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 BMPs that would design facilities with temporary runoff control measures that would slow down runoff and capture sediment. These BMPs would be applied 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 permits would require full compliance with BLM directives that relate to surface and groundwater protection.

Ground Water: If the proposed parcels are developed, drilling 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.

Hydraulic fracturing can change the physical properties of producing formations by increasing the flow of water, gas, and/or oil around the well bore, and 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. BLM is implementing new hydraulic fracturing regulations that require operators to

submit comprehensive plans which must be approved by the BLM office, publicly disclose chemicals used in fracturing fluid, perform wellbore mechanical integrity tests prior to fracturing operations, continuously monitor fracturing operations in real time, and safely handle and dispose of fracturing fluids, among other requirements. This is completed at the APD stage for each well. The state of Colorado also regulates hydraulic fracturing, and has similar requirements and reviews.

Known water bearing zones in the lease area are protected by drilling requirements and, with proper practices and adherence to state and federal regulations, 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.

Environmental Consequences of Leasing/Reinistatement 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 5th 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.

Water is used to drill and complete oil and gas wells. It is not known at the lease stage how many (if any) wells will be drilled on a given lease parcel, how many parcels will be developed, and how much water may be used for each potential well. Factors such as the type of well to be drilled (vertical, directional or horizontal), method of well completion (hydraulic fracturing, acidizing ect.) total measured depth of well, and geologic conditions of the formations all determine how much water may be required for each well. This information is not known at the lease stage, and will be analyzed at the APD stage. The act of oil and gas leasing does not directly result in any water use.

Potential Future Mitigation:
The soils mitigation, along with additional construction requirements, at the APD stage is adequate to protect water resources on the parcels being proposed for leasing. Additional site specific mitigation measures would be analyzed and may be added at the APD stage.

3.4.1.3 Minerals/Fluid

Affected Environment: All forty-nine parcels in this analysis are located in northeast Colorado. According to the 2012 RGFO RFD, the development potential for oil and gas ranges from very low (less than 1 well/township) to very high (50-150 wells/township).

Environmental Consequences of Leasing/Reinstatement and Development - Direct and Indirect Impacts: Leasing/reinstatement of the forty-nine 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/Reinstatement and Development - Cumulative Impacts:

Cumulative impacts to the resource, should the leases be issued/reinstated, would be the potential for development resulting in draining these parcels of fluid minerals. Cumulative impacts to the fluid mineral resource would depend on the potential of any of the given areas for future development.

Potential Future Mitigation: None.

3.4.1.4 Soils

Affected Environment:
The proposed lease parcels cover a large variety of soil types and conditions ranging from mid-elevation semi-moist, colder soils in the Palmer Divide area to lower elevation dry, warmer soils to the north. 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:

Most of the surface ownership of the lands being proposed for leasing is privately owned; therefore no site specific knowledge of soil resources is available. In general, most of the soils in these areas are in good condition; however many have been used in cultivated agricultural fields for some time. The leasing of these parcels would not have an effect on whether or not these lands meet Public Land Health Standards; but at the development stage there would be instances where soils are affected negatively. With proper Best Management Practice (BMP) implementation, soil resource impacts would be mitigated and would still meet standards with future development.

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 with accuracy until the site-specific APD stage of development. These parcels would be leased with stipulations to protect resources, specifically, stipulations CO-26, CO-27 address fragile soils and slope stability issues that would avoid or mitigate soil impacts.

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, power lines 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 in the northeast plains wind erosion could be severe. 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. Parcels with soils that have aliquot parts with a high erosion hazard have had stipulation CO-26 applied that requires the operator submit a construction/reclamation plan that includes specific criteria to protect soils. Parcels that have aliquot parts with slopes over 40% have had stipulation CO-27 applied that requires the operator submit an engineering/reclamation plan that includes specific criteria to address slopes and protect site productivity.

Environmental Consequences of Leasing/Reinstatement and Development:

Cumulative Impacts:
The proposed lease parcels are scattered throughout the northeastern plains of Colorado and have various current surface uses. The main uses of these parcels is currently either native grassland grazing or some sort of cultivated agriculture. Current oil and gas development locates several wells on each pad. Often times these pads are shared with wells that are entirely non-federal and the development of the federal leases add very little to the surface impact. Overall, the leasing of these proposed parcels would add little to the overall soil impacts in the area.

Potential Future 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.

3.4.2 Biological Resources

3.4.2.1 Invasive Plants*

Affected Environment:
Invasive plants occur on BLM and private 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 some of the invasive species 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/Reinstatement 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 Future 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.

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

3.4.2.2 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/Reinstatement 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 then 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 compromised. 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 Future 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.

3.4.2.3 Special Status Animals

Affected Environment:
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 species. 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.

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 Plovers 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. Parcels 6911, 6932, and 7004 occur within pelican.

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.

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, the probability of plover mortality or nest destruction will likely increase. 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 6911, 6932, and 7004 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 6911, 6932, and 7004.

Environmental Consequences of Leasing/Reinstatement 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 Future 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.

3.4.2.5 Wetlands and Riparian Zones

Affected Environment: Offered parcels for this lease sale occur across spectrum of ecological settings over eastern Colorado in a few northeastern counties, but most parcels are removed from wetland areas and are in upland settings. Generally parcels are in rangeland or agricultural settings. Parcels vary in size and have differing proximity to drainages or wetlands but none are entirely within wetlands. In cases where riparian or wetlands may be in closer proximity, the uplands are where surface development is planned because riparian and wetland avoidance stipulations are applied or in the case of reservoirs, a NSO stipulation is applied.

Environmental Consequences of Leasing/Reinstatement 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. Lease

parcels are also generally within regions of extensive private oil and gas development and the federal lease percentage is relatively small by comparison. Future infrastructure to include roads, pipelines, tanks, etc. can also impact these resources by crossing of riparian areas or accessing facilities near riparian \ wetland areas, but there are no plans that can be analyzed at the lease stage and BMP's to protect resources would be explored at the APD stage of oil and gas development.

Environmental Consequences of Leasing/Reinstatement 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 in addition to oil and gas development. Leasing then of new lands for oil and gas, if developed, on any parcel would be cumulative to these other impacts. Oil and Gas development would bring roads, pipelines and other surface disturbance into agricultural area settings. This overlap may result in conflicts of land uses requiring additional infrastructure to separate land uses such as additional fences, gates, cattle-guards, etc in addition to the drilling activity. 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 at the cumulative level.

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

3.4.2.6 Aquatic Wildlife

Affected Environment: No major perennial aquatic wildlife habitat is involved with the lease of any parcel except some of those where NE-02 is applied to protect reservoir resources at Empire and Riverside Reservoirs (Parcels 7004 and 6932). Some other lands are in proximity to smaller tributaries and 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 with that situation. All other parcels are in upland settings.

Environmental Consequences of Leasing/Reinstatement and Development - Direct and Indirect Impacts: Leasing of these parcels would not directly affect any aquatic habitat or wildlife under normal circumstances because this action is just for leasing, but if developed, the lease parcel activity is separated from aquatic habitat because that activity is moved to an upland setting. The impact of future development would however require roads, pipelines and other infrastructure that would need to be evaluated later at the APD stage, 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 where stream conditions exist, or NE-02 places NSO where reservoir protection is required.

Environmental Consequences of Leasing/Reinstatement and Development - Cumulative Impacts: All lands up for potential lease are located in settings with substantial landscape level modification due to agriculture, livestock grazing, irrigation modification or some combination in addition to other oil and gas devlopment. Leasing then of new lands for oil and gas 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 area

settings. This overlap may result in conflicts of land uses requiring additional infrastructure to separate land uses such as additional fences, gates, cattle-guards, etc., in addition to the drilling activity. Additional surface disturbances, depending upon proximity to aquatic habitat, may alter overland flow rates and sediment delivery into wetland areas accelerating eutrophication or altering stream function at the cumulative level.

Potential Development Stage Mitigation:
Standard Conditions of Approval would be applied to any APD and would include moving drill pads to suitable location.

3.4.2.7 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. However, winter range on the Great Plains is difficult to quantify due to the similarity of most habitat in this regions. Therefore, great expanses of land are labeled as winter range to encompass 90 percent of animals negating some value defined winter range in this region.

All or portions of the following parcels contain big game (mule deer, pronghorn) winter habitat: 6911, 6912, 6931, 6986, 6987, 6988, 6989, 6990, 6991, 6992, 6993, 6994, 6995, 6996, 6997, 6998, 6999, 7000, 7001, 7002, 7003, 7004, 7005, 7006, 7167, 7168, 7169, 7170, 7171, 7172, 7173, 7174, 7175, 7176, 7177, 7178, 7179, 7180, 7181, 7182, and 7183.

Few raptor nest locations are known within the proposed lease parcels, primarily due to a lack of information. This information gap is a result of the lack of public surface estate on the Great Plains. 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 Pawnee Grassland East, Point of Rocks, Riverside Reservoir, and South Platte River.

Environmental Consequences of Leasing/Reinstatement 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 (TL) or RG-08 (TL) 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 that are attached to leases 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 Northeast 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/Reinstatement 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 Future Mitigation:
Because of the lack of 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.

3.4.3 Heritage Resources and Human Environment

3.4.3.1 Cultural Resources

NOTE TO READERS: the following applies to both the Proposed Action and the Preferred Alternative. The "No Action" alternative would have no impact on any cultural resources.
Affected Environment:

Paleoindian sites are relatively scarce in the eastern half of Colorado, although a relatively large number are located in Weld County. 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 fourteen inventories for cultural resources have been completed on portions of thirteen proposed lease parcels, for a total of 595.4 acres, or about 5% of the total acreage that comprises the lease sale.

Four sites and two isolated finds have been recorded on or adjacent to proposed lease parcels, including Riverside Reservoir (5WL2915) and Empire Reservoir (5WL2430), both of which are eligible for the National Register of Historic Places (NRHP). The other two sites are a homestead (5WL5158), and a sensitive Native American site (5LO1), and are both also eligible for the NRHP. For resource protection, the parcel associated with Site 5LO1 would be reduced in size by 120 acres under the Preferred Alternative.

Parcel 6911 is about 1000' to the north of the possible location of the Central Overland Historic Trail. In their response to BLM's query, the NPS indicated that the trail is being studied for possible designation as a National Historic Trail. Therefore, no special measures are required at present.

Environmental Consequences of Leasing/Reinstatement and Development - Direct and Indirect Impacts: Neither the Proposed nor the Preferred Alternative involves ground disturbance, so neither will affect historic properties. The Preferred Alternative extends extra protection to Site 5LO1, in order to avoid future potential effects once the parcels are leased.

Future lease development that might affect historic properties will be subject to additional cultural resources work pursuant to Section 106 of the National Historic Preservation Act, 54 U.S.C. § 306108, 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 October 7, 2014, BLM notified the Colorado State Historic Preservation Officer ("SHPO") of these determinations (see CR-RG-15-56 L).

Environmental Consequences of Leasing/Reinstatement 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 cultural resources work pursuant to Section 106 of the National Historic Preservation Act, 54 U.S.C. § 306108, 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.

3.4.3.2 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/Reinstatement 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/Reinstatement 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 Future Mitigations:
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.

3.4.3.3 Native American Religious Concerns

NOTE TO READERS: the following applies to both the Proposed Action and the Preferred Alternative. The "No Action" alternative would have no impact on any cultural resources.
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-15-48 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/Reinstatement and Development - Direct and Indirect Impacts:

Although the tribes did not identify any concerns, information concerning the sensitivity of Site 5LO1 was found in the process of BLM's literature review. The statements in the previous section regarding this site apply to Native American Religious Concerns as well.

Environmental Consequences of Leasing and Development - Cumulative Impacts:
See Section 3.4.3.1 above.

Potential Future Mitigation: None at present.

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).

Many of the proposed lease sale parcels 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):

Formation	**Fossil Types**	**PFYC**
Cretaceous Pierre Shale	Invertebrates, mosasaurs and various other vertebrates	3
Cretaceous Laramie Formation	Various invertebrates including clams, oysters, baculites, scaphites, burrows, and cephalopods	3
Cretaceous Fox Hills Sandstone	Various invertebrates, dinosaur, plant fossils	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 White River Formation	Various vertebrates, invertebrates, and wood	5

Environmental Consequences of Leasing/Reinstatement 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/Reinstatement 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 4 and 5) paleontological area inventory requirement to protect paleontological values are as follows: 6931, 6989, 7171, 7172, 7175, 7176, 7180, 7181, 7182

Environmental Consequences of Leasing/Reinstatement 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 Future Mitigations:
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 Social and Economic Conditions

Affected Environment:

Existing social and economic factors influence the nature of local economic and social activity. Among these factors are the local population, the presence and proximity of cities or regional business centers, longstanding industries, infrastructure, predominant terrestrial and aquatic landscapes, and unique area amenities. The proposed lease parcels are located in Adams, Arapahoe, Logan, Morgan, and Weld County, Colorado. The socioeconomic conditions in Adams, Arapahoe, Logan, Morgan, and Weld counties within the Royal Gorge Field Office areas that concern human communities include towns, cities, rural areas, and the custom, culture, and history of the area as it relates to human settlement, social values, and economic activity. BLM management actions can impact socioeconomic conditions in the study area and in nearby communities.

While much of Colorado is dependent upon natural resources as a base for its economy the urbanized Front Range has a more diverse economy. For example, Adams County has at least five percent of total employment in 12 out of the 20 sectors measured by the Bureau of Economic Analysis in 2012 (U.S. Department of Commerce. 2012. Bureau of Economic Analysis, Total full-time and part-time employment by NAICS industry), Arapahoe County has at least five percent of total employment in 11 of the 20 sectors, Weld County has at least five percent of total employment in 10 out of the 20 sectors, and Logan has at least five percent of

total employment in 7 of the 20 sectors and Morgan has at least five percent of total employment in 5 of the 20 sectors.

The varying regional economic dependence upon natural resource extraction within Colorado is highlighted by the state's 1.5% of total employment in the mining sector which includes oil and gas extraction. Weld County at five percent, Logan at three percent, and Morgan at three percent, all exceed the state level of employment in mining, whereas Adams and Arapahoe are below the state average of 1.5% mining employment. Yet, Arapahoe County with 5,332 mining jobs has fifteen times the employment in the mining sector as does Logan with 356 jobs. Likewise, urban areas oft have greater average wage and salary than rural areas due to many factors including but not limited to population, economies of scale, scarcity, and specialization this is illustrated in Table 1 where average wage and salary is greatest in Arapahoe County, the county with the largest population and lowest in Logan County the county with the least population.

Table 1. Employment, Wage and Salary, and Per Capita Income from the Bureau of Economic Analysis Income and Employment Summary 2012

County	Total Employment	Average Wage and Salary	Per capita Income
Adams	227,686	$33,905.52	$34,695.00
Arapahoe	439,778	$40,922.36	$51,163.00
Logan	12,634	$24,650.78	$38,427.00
Morgan	16,464	$27,781.83	$34,752.00
Weld	124,743	$31,393.91	$31,657.00
Average	**169,714**	**$31,705.49**	**$38,667.50**
All Colorado	**3,278,941**	**$51,211.00**	**$45,744.00**

Since 1980 the state of Colorado has experienced significant population growth. Table 2 shows changes in population for each county and the State of Colorado for 1980, 1990, 2000, and 2010. All of the counties had an increase in population over the 30 year period from 1980 to 2010, and Weld County's populations doubled between 1980 and 2010. Overall, Adams and Weld County grew faster than the state as a whole, and Weld County's population increase of approximately 40 percent between 2000 and 2010 was the fastest rate of growth in Colorado. Growth in the rural Logan and Morgan counties has occurred at rates below the urban counties and the state average.

Table 2. Population and Population Growth - U.S. Census Bureau 1980, 1990, 2000, and 2010

	1980	1990	2000	2010	Population Growth 1980-2010
Adams County	245,944	265,038	363,857	441,603	80%
Arapahoe County	293,621	391,511	487,967	572,003	49%
Logan County	19,800	17,567	20,504	22,709	15%
Morgan County	22,513	21,939	27,171	29,159	30%
Weld County	123,438	131,821	180,936	252,825	105%
Colorado	2,889,964	3,294,394	4,301,261	5,029,196	74%

The five-county region has experienced varying degrees of fluid mineral development. Currently the majority of oil and gas production within the Royal Gorge field office is on private mineral estate. Weld County contains the majority of current oil and gas wells within the area of impact. Employees in the oil and gas sector within these counties earn an average of approximately $76,000 per year (US Department of Labor. 2012. Bureau of Labor Statistics, Quarterly Census of Employment and Wages).

The average annual fluid minerals production for each county is listed in Table 3. The production values are averaged over the past ten full years of production 2004 through 2013 (Colorado Oil and Gas Conservation Commission http://cogcc.state.co.us/).

Table 3. Oil and Gas Production by County and Colorado Total Production

	Oil Production (barrels)	**Gas Production (MCF)**
Adams County	425,258	6,441,803
Arapahoe County	89,121	413,463
Logan County	211,166	260,063
Morgan County	99,335	231,135
Weld County	19,661,003	185,708,810

Leasing mineral rights for the development of Federal minerals generates public revenue through the bonus bids paid at lease auctions and annual rents collected on leased parcels not held by production. Nominated parcels approved for leasing are offered by the BLM at a minimum rate of $2.00 per acre at the lease sale. These sales are competitive and parcels with high potential for oil and gas production often command bonus bids in excess of the minimum bid. In addition to bonus bids, lessees are required to pay rent annually until production begins on the leased parcel, or until the lease expires. These rent payments are equal to $1.50 an acre for the first five years and $2.00 an acre for the second five years of the lease.

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 as such: 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. Ten percent of all state mineral lease rent and royalty receipts are sent to the Colorado Water Conservation Board, 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 are distributed directly to local school districts originating the revenue or providing residence to energy employees and their children. Forty 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. 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.

During the lease period annual lease rents continue until one or more wells are drilled that result in production and associated royalties. The Federal oil and gas royalties on production from public domain minerals equal 12.5 percent of the value of production (43 CFR 3103.3.1).

Environmental Consequences of Leasing/Reinstatement and Development:

Direct and Indirect Impacts:
The direct effect of the proposed action would be the payments received, if any, from the leasing all or a subset of the 11099.938 acres of federal mineral estate. Indirect socioeconomic effects that might result, should exploration and development of the leases occur, could include employment opportunities related to the oil and gas and service support industry in the region and 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 increases in traffic congestion, construction, and recreation disturbance associated with development. These effects would apply to all public land users in the project area.

It is speculative to predict exact effects of this action, as there are no guarantees that the leases will receive bids, and that any leased parcels will be developed or that developed parcels will produce any fluid minerals. 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.

As noted by the Environmental Justice determination, no minority or low income populations would be directly affected in the vicinity of the proposed action.

Cumulative Impacts:
Any possible future development of fluid mineral resources resulting from this lease sale would be in addition to the current level of development, as examined in the affected environment.

Potential Future Mitigation: None

3.4.3.6 Visual Resources

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.

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect visual 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 negative effects. Every parcel is unique and cumulative impacts will need to be thoroughly addressed in the APD stage.

A portion of parcel #7004 is BLM surface that is located on the edge of Empire Reservoir. This parcel has a No Surface Occupancy stipulation to protect shorebirds and lakes/reservoirs.

Environmental Consequences of Leasing/Reinstatement and Development-

Direct and Indirect Impacts:
For the areas proposed for leasing or lease reinstatement 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. These effects would need to be evaluated later at the APD stage.

At least six of the proposed lease parcels are located within 3 miles of the Pawnee Pioneer Trails Scenic and Historic Byway. The byway showcases the history of agriculture but recognizes that O&G extraction has been in existence since the 1950s. The byway's predominant views are the short prairie grasses with broad expansive prairie land. The most noticeable landmark along the byway is Pawnee Buttes within Pawnee National Grassland. The parcels adjacent to the byway are nos. 7177 and 6989 near Raymer; no. 7175 east of Raymer on Colorado hwy. 14; and nos. 7170, 7177, (2nd unit) and 7178 south of New Raymer on Colorado Hwy. 52. The action of leasing the parcels will not impact the byway, but if the parcels are developed, visual resources would need further evaluation in the APD.

Environmental Consequences of Leasing/Reinstatement and Development - Cumulative Impacts:
The cumulative impacts of the lease sale and reinstatement are minimal. The impacts escalate if the leases go into development. Additional infrastructure would be added to an area dominated by roads, drill pads, and production facilities. Concerns expressed in the visual resources inventory indicate that O&G is becoming the dominant scenery and threatens the landscape integrity.

Potential Future Mitigations:
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.

3.4.4 Resource Uses

3.4.4.2 Realty Authorizations and Land Tenure

The only realty action associated with any of the lease parcels is a reservoir right of way on a portion of parcel #7004. This parcel is protected with a no surface occupancy stipulation, which adequately protects the right of way, while still allowing the parcel to be leased. Since this is the only realty action associated with any of the parcels, further analysis of the parcels pertaining to realty was not required.

CHAPTER 4– COORDINATION AND CONSULTATION

PERSONS/AGENCIES CONSULTED *Include a list of those individuals, organizations, and agencies that were contacted and/or consulted with at any point during scoping, formulation of alternatives, or impact analysis.*

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

Name	Title	Resource
Ken Reed	Forester	Forestry
Monica Weimer	Archaeologist	Cultural Resources, Native American Religious Concerns
David Epstein	Economist	Socioeconomics, Environmental Justice
Linda Skinner	Recreation Planner	Visuals, Lands with Wilderness Characteristics, Special Designations, Recreation, Access and Transportation
Greg Valladeras	Realty Specialist	Realty Authorizations
Jeff Covington	Surveyor	Cadastral Survey

CHAPTER 5 - REFERENCES

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

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

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

Carbyn, L. N., H. J. Armbruster, and C. Mamo. 1994. The swift fox reintroduction program in Canada from 1983 to 1992. Restoration of endangered species. Cambridge University Press, Cambridge.

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Powell, J. 2003 Distribution, habitat use patters, and elk response to human disturbance I the Jack Morrow Hills, Wyoming. Thesis, University Wyoming, Laramie, USA.

Sawyer, H. Nielson, R. M., Linzey, F., McDonald, L.L. 2006. Winter habitat selection of mule deer before and during development of a natural gas field. The Journal of Wildlife Management 70(2): 396-403.

Attachment A - Parcels Proposed for Lease and Reinstatement

The Colorado State Office is offering competitively 42 parcels containing 11099.938 acres of Federal lands in the State of Colorado for oil and gas leasing. This notice provides:

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 7175

T.0080N., R.0570W., 6TH PM

Section 33: SE;	U.S. Interest 100.00%
Section 33: EXCL RR R/W COC0122261;	

Weld County
Colorado 156.940 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 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-29 to alert lessee PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6990

T.0010S., R.0570W., 6TH PM

Section 22: SW;	U.S. Interest 50.00%
Section 27: NW;	U.S. Interest 50.00%

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6999

T.0050S., R.0580W., 6TH PM
Section 14: W2; U.S. Interest 50.00%

Arapahoe 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6997

T.0030S., R.0600W., 6TH PM
Section 10: W2,SE; U.S. Interest 50.00%

Adams County
Colorado 480.000 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6991

T.0010S., R.0610W., 6TH PM

Section 18: Lot 2;	U.S. Interest 50.00%
Section 18: E2SW,SE;	U.S. Interest 50.00%

Adams County
Colorado 309.040 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6992

T.0020S., R.0610W., 6TH PM
Section 34: SE; U.S. Interest 50.00%

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7000

T.0050S., R.0610W., 6TH PM
Section 28: NE; U.S. Interest 50.00%

Arapahoe 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7183

T.0060N., R.0550W., 6TH PM
Section 27: N2; U.S. Interest 50.00%

Morgan 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7182

T.0090N., R.0550W., 6TH PM
Section 5: S2; U.S. Interest 25.00%
Section 8: S2; U.S. Interest 25.00%

Logan County
Colorado 640.000 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 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-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7169

T.0080N., R.0560W., 6TH PM
Section 14: SW; 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7179

T.0090N., R.0560W., 6TH PM
Section 24: SW; 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7178

T.0060N., R.0570W., 6TH PM
Section 30: E2; U.S. Interest 25.00%

Morgan 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6988

T.0070N., R.0570W., 6TH PM
Section 34: W2; U.S. Interest 50.00%

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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7177

T.0070N., R.0580W., 6TH PM
Section 2: LOTS 3,4 N OF RR R/W; U.S. Interest 50.00%
Section 24: E2; U.S. Interest 50.00%

Weld County
Colorado 361.560 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 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-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 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0070N., R.0580W., 6TH PM
Section 24: E2E2;

PVT/BLM; COF: RGFO

PARCEL ID: 6989

T.0080N., R.0580W., 6TH PM
Section 35: SE; 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 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7176

T.0090N., R.0590W., 6TH PM
Section 31: W2NE,SENW; U.S. Interest 100.00%

Weld County
Colorado 120.000 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 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 6993

T.0020S., R.0570W., 6TH PM
Section 21: E2NE;
Section 27: SESE;
Section 28: NESE;
Section 29: SWSE;

Adams County
Colorado 200.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7001

T.0050S., R.0570W., 6TH PM
Section 18: Lot 1;
Section 18: NENW,E2SE;

Arapahoe County
Colorado 157.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6994

T.0030S., R.0580W., 6TH PM
Section 26: N2NE,SWNE,NWSE;

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6995

T.0010S., R.0590W., 6TH PM
Section 10: NENE;
Section 11: N2NW;

Adams County
Colorado 120.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6996

T.0030S., R.0590W., 6TH PM
Section 24: SE;

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6998

T.0010S., R.0610W., 6TH PM
Section 12: S2;

Adams 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7174

T.0100N., R.0550W., 6TH PM
Section 11: NESW;
Section 15: NWSE;
Section 21: SWSW;

Logan County
Colorado 120.000 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 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-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-56 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0100N., R.0550W., 6TH PM
Section 21: SWSW;

PVT/BLM; COF: RGFO

PARCEL ID: 7180

T.0110N., R.0550W., 6TH PM
Section 4: SESE;
Section 9: SENE,NESE;
Section 10: W2NE,NENW;
Section 13: N2SE;

Logan 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7181

T.0110N., R.0550W., 6TH PM
Section 7: Lot 2,3;
Section 7: S2NE,SENW,NESW,N2SE;
Section 8: SWNW,S2;
Section 9: SWSW;
Section 20: SWSW;

Logan County
Colorado 761.300 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0110N., R.0550W., 6TH PM
Section 7: SWNE,NWSE;

PVT/BLM; COF: RGFO

PARCEL ID: 7167

T.0080N., R.0560W., 6TH PM
Section 6: Lot 7;
Section 7: NENE;
Section 8: E2NE;
Section 17: NENW;
T.0080N., R.0570W., 6TH PM
Section 1: SESE;

Weld County
Colorado 260.080 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7171

T.0100N., R.0560W., 6TH PM
Section 9: NENE;

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-09 to protect big game winter 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7172

T.0110N., R.0560W., 6TH PM
Section 12: E2SE;
Section 24: SENW,N2SW,SESW,SE;

Weld County
Colorado 400.000 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7170

T.0060N., R.0570W., 6TH PM
Section 31: Lot 2;

Morgan County
Colorado 35.850 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6987

T.0070N., R.0570W., 6TH PM
Section 26: NWNW;

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-09 to protect big game winter 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-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-56 to 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 range.

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:

T.0090N., R.0570W., 6TH PM
Section 33: NWSW

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7168

T.0060N., R.0580W., 6TH PM
Section 19: Lot 3;
Section 19: NESW;

Morgan County
Colorado 83.100 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7173

T.0080N., R.0580W., 6TH PM
Section 24: S2NW;

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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7002

T.0020N., R.0610W., 6TH PM
Section 3: Lot 1,2;
Section 3: S2NE,SW,W2SE;
Section 19: Lot 3;

Weld County
Colorado 437.100 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7003

T.0030N., R.0610W., 6TH PM
Section 34: E2SW,W2SE,SESE;
Section 34: EXCL R/W D-29302;
Section 35: S2SW;

Weld County

Colorado 271.750 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 range.

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7004

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 1: EXCL RSVR R/W D-13729;
Section 2: Lot 1;
Section 2: EXCL RSVR R/W D-13729;
Section 18: Lot 2;
Section 23: E2E2,SW;
Section 24: NW;
T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

Weld County
Colorado 585.010 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.
The following lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

The following lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

The following lands are subject to Exhibit CO-11 to protect antelope fawning

T.0030N., R.0610W., 6TH PM
Section 18: Lot 2;

The following lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

The following lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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 to 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.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;

Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

The following lands are subject to Exhibit NE-03 to protect recreational and scenic values of state, county, and municipal parks:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;

BLM;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-07 to protect waterfowl and shorebird habitat

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

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-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-56 to alert lessee of potential supplementary air analysis

All lands are subject to Exhibit NE-02 to protect wildlife and riparian resources and values near reservoirs and rivers

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 CO-07 to protect waterfowl and shorebird habitat

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-28 to protect 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-56 to 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: Lot 1;
Section 31: NENW;

All lands are subject to Exhibit NE-02 to protect riparian and wildlife values near reservoirs and rivers.

PVT/BLM; COF: RGFO

PARCEL ID: 6986

T.0060N., R.0610W., 6TH PM
Section 27: W2W2;

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 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-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 to alert lessee of potential supplementary air analysis
PVT/BLM; COF: RGFO

PARCEL ID: 7005

T.0020N., R.0620W., 6TH PM
Section 2: S2NE;
Section 2: EXCL R/W D29302;
Section 12: W2SW;
Section 24: W2NE,E2NW;
Section 25: NWNE, N2NW;

Weld County
Colorado 428.000 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 range

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7006

T.0030N., R.0620W., 6TH PM
Section 1: SE;
Section 13: S2N2,N2SW,SESW;
Section 19: Lot 2;
Section 19: E2SW, W2SE;
Section 24: E2NW,SWSE;
Section 25: NWNE;
Section 30: Lot 1,2;

Weld County
Colorado 1020.240 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 habitat

The following lands are subject to Exhibit CO-11 to protect antelope fawning:

T.0030N., R.0620W., 6TH PM
Section 1: SE;
Section 13: S2N2,N2SW,SESW;
Section 19: Lot 2;
Section 24: E2NW;
Section 30: Lot 1;

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 to alert lessee of potential supplementary air analysis

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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

Reinstatement parcels (previously leaed) with for RGFO, with stipulations

7 parcels, totaling 2,000.48 acres

COC 73423, Morgan County, 320 acres split estate
6N 60W
S 2: S/2
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 range

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 to alert lessee of potential supplementary air analysis

COC 73440, Morgan County, 880.48 acres split estate
6N 59W
S 3: SW/NE
S 3: Lot 3
S 11: S/2 SW
S 13: SW/SW
S 14: NE/NE, SE/NW
S 24: NW, NE/NE
S 25: E/2, E/2 NW

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 range

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:

6N 59W

S 13: SW/SW

S 24: NW

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 to alert lessee of potential supplementary air analysis

COC 73441, Morgan County, 120 acres split estate
4N 60W
S 1: SE/NW
S 2: SW/NW
S 3: SE/NE
All lands are subject to Exhibit CO-03 to protect raptor nests

The following lands are subject to Exhibit CO-04 to protect Bald Eagle roosts and nests:
4N 60W

S 2: SW/NW
S 3: SE/NE

The following lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat:
4N 60W
S 2: SW/NW
S 3: SE/NE
All lands are subject to Exhibit CO-09 to protect big game winter range

The following lands are subject to Exhibit CO-17 to protect white pelican foraging areas:
4N 60W
S 2: SW/NW
S 3: SE/NE

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-23 to protect bald eagle winter roosts:

4N 60W
S 2: SW/NW
S 3: SE/NE

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:
4N 60W
S 2: SW/NW
S 3: SE/NE

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 to alert lessee of potential supplementary air analysis

All lands are subject to Exhibit NE-02 to protect riparian and wildlife values and resources near reservoirs and rivers

COC 73442 Weld County, 80 acres split estate, located in non-attainment zone
6N 62W
S 4: N/2 SE
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 range

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-56 to alert lessee of potential supplementary air analysis

COC 73443 Weld County, 120 acres split estate, located in non-attainment zone
7N 63W
S 26: N/2 NE, NW/NW
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 range

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 to alert lessee of potential supplementary air analysis

COC 73444 Weld County, 160 acres split estate, located in non-attainment zone
7N 67W
S 2: S/E

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 and nests

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

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 bald eagle winter roosts

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-56 to alert lessee of potential supplementary air analysis

COC 73424 Weld County, 320 acres split estate, located in non-attainment zone
7N 60W
S 10: E/2

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 range

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 to alert lessee of potential supplementary air analysis

Attachment B - Parcels Available for Lease with Recommended Deferrals

Part of one parcel recommended for deferral, totaling 120 acres in Logan County

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 7181

Available Portion:

T.0110N., R.0550W., 6TH PM
Section 7: Lot 2,3;
Section 7: S2NE,SENW,NESW,N2SE;
Section 8: SWNW,SW;W2SE
Section 20: SWSW;

Logan County
Colorado 641.3 Acres

Deferred Portion:

T.0110N., R.0550W., 6TH PM
Section 8: E2SE
Section 9: SWSW;

Logan County
Colorado 120 Acres

This parcel is associated with a sensitive Native American site. In order to provide resource protection, BLM recommends that the parcel size be reduced by 120 acres.

PVT/BLM; COF: RGFO

Attachment C – Preferred Alternative Parcels with Stipulations for Lease and Reinstatement

The Colorado State Office is offering competitively 42 parcels containing 10979.938 acres of Federal lands in the State of Colorado for oil and gas leasing. This notice provides:

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 7175

T.0080N., R.0570W., 6TH PM
Section 33: SE; U.S. Interest 100.00%
Section 33: EXCL RR R/W COC0122261;

Weld County
Colorado 156.940 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 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6990

T.0010S., R.0570W., 6TH PM
Section 22: SW; U.S. Interest 50.00%
Section 27: NW; U.S. Interest 50.00%

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6999

T.0050S., R.0580W., 6TH PM
Section 14: W2; U.S. Interest 50.00%

Arapahoe 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6997

T.0030S., R.0600W., 6TH PM
Section 10: W2,SE; U.S. Interest 50.00%

Adams County
Colorado 480.000 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6991

T.0010S., R.0610W., 6TH PM
Section 18: Lot 2; U.S. Interest 50.00%
Section 18: E2SW,SE; U.S. Interest 50.00%

Adams County
Colorado 309.040 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6992

T.0020S., R.0610W., 6TH PM
Section 34: SE; U.S. Interest 50.00%

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7000

T.0050S., R.0610W., 6TH PM
Section 28: NE; U.S. Interest 50.00%

Arapahoe 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7183

T.0060N., R.0550W., 6TH PM
Section 27: N2; U.S. Interest 50.00%

Morgan 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7182

T.0090N., R.0550W., 6TH PM
Section 5: S2; U.S. Interest 25.00%
Section 8: S2; U.S. Interest 25.00%

Logan County
Colorado 640.000 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 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-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7169

T.0080N., R.0560W., 6TH PM
Section 14: SW; 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7179

T.0090N., R.0560W., 6TH PM
Section 24: SW; 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7178

T.0060N., R.0570W., 6TH PM
Section 30: E2; U.S. Interest 25.00%

Morgan 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6988

T.0070N., R.0570W., 6TH PM
Section 34: W2; U.S. Interest 50.00%

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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7177

T.0070N., R.0580W., 6TH PM
Section 2: LOTS 3,4 N OF RR R/W; U.S. Interest 50.00%
Section 24: E2; U.S. Interest 50.00%

Weld County
Colorado 361.560 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 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-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 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0070N., R.0580W., 6TH PM
Section 24: E2E2;

PVT/BLM; COF: RGFO

PARCEL ID: 6989

T.0080N., R.0580W., 6TH PM
Section 35: SE; 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 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7176

T.0090N., R.0590W., 6TH PM
Section 31: W2NE,SENW; U.S. Interest 100.00%

Weld County
Colorado 120.000 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 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 6993

T.0020S., R.0570W., 6TH PM
Section 21: E2NE;
Section 27: SESE;
Section 28: NESE;
Section 29: SWSE;

Adams County
Colorado 200.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7001

T.0050S., R.0570W., 6TH PM
Section 18: Lot 1;
Section 18: NENW,E2SE;

Arapahoe County
Colorado 157.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6994

T.0030S., R.0580W., 6TH PM
Section 26: N2NE,SWNE,NWSE;

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6995

T.0010S., R.0590W., 6TH PM
Section 10: NENE;
Section 11: N2NW;

Adams County
Colorado 120.000 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6996

T.0030S., R.0590W., 6TH PM
Section 24: SE;

Adams 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6998

T.0010S., R.0610W., 6TH PM
Section 12: S2;

Adams 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 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-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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7174

T.0100N., R.0550W., 6TH PM
Section 11: NESW;
Section 15: NWSE;
Section 21: SWSW;

Logan County
Colorado 120.000 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 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-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-56 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0100N., R.0550W., 6TH PM
Section 21: SWSW;

PVT/BLM; COF: RGFO

PARCEL ID: 7180

T.0110N., R.0550W., 6TH PM
Section 4: SESE;
Section 9: SENE,NESE;
Section 10: W2NE,NENW;
Section 13: N2SE;

Logan 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7181

T.0110N., R.0550W., 6TH PM
Section 7: Lot 2,3;
Section 7: S2NE,SENW,NESW,N2SE;
Section 8: SWNW,SW;W2SE
Section 20: SWSW;

Logan County
Colorado 641.300 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

The following lands are subject to Exhibit NE-09 to alert lessee of mitigation required to protect Air Force missile cable installations:

T.0110N., R.0550W., 6TH PM
Section 7: SWNE,NWSE;

PVT/BLM; COF: RGFO

PARCEL ID: 7167

T.0080N., R.0560W., 6TH PM
Section 6: Lot 7;
Section 7: NENE;
Section 8: E2NE;
Section 17: NENW;
T.0080N., R.0570W., 6TH PM
Section 1: SESE;

Weld County
Colorado 260.080 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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-56 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7171

T.0100N., R.0560W., 6TH PM
Section 9: NENE;

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-09 to protect big game winter 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-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7172

T.0110N., R.0560W., 6TH PM
Section 12: E2SE;
Section 24: SENW,N2SW,SESW,SE;

Weld County
Colorado 400.000 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7170

T.0060N., R.0570W., 6TH PM
Section 31: Lot 2;

Morgan County
Colorado 35.850 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 6987

T.0070N., R.0570W., 6TH PM
Section 26: NWNW;

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-09 to protect big game winter 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-28 to protect riparian/wetland vegetation

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement

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 to 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 range.

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:

T.0090N., R.0570W., 6TH PM
Section 33: NWSW

All lands are subject to Exhibit CO-29 to alert lessee of PFYC 4 and 5 paleontological area inventory requirement
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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7168

T.0060N., R.0580W., 6TH PM
Section 19: Lot 3;
Section 19: NESW;

Morgan County
Colorado 83.100 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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7173

T.0080N., R.0580W., 6TH PM
Section 24: S2NW;

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 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-26 to protect fragile soils

All lands are subject to Exhibit CO27 to protect steep slopes

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7002

T.0020N., R.0610W., 6TH PM
Section 3: Lot 1,2;
Section 3: S2NE,SW,W2SE;
Section 19: Lot 3;

Weld County
Colorado 437.100 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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7003

T.0030N., R.0610W., 6TH PM
Section 34: E2SW,W2SE,SESE;
Section 34: EXCL R/W D-29302;
Section 35: S2SW;

Weld County
Colorado 271.750 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 range.

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7004

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 1: EXCL RSVR R/W D-13729;
Section 2: Lot 1;
Section 2: EXCL RSVR R/W D-13729;
Section 18: Lot 2;
Section 23: E2E2,SW;
Section 24: NW;
T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

Weld County
Colorado 585.010 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.
The following lands are subject to Exhibit CO-04 to protect bald eagle roosts or nests:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

The following lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

The following lands are subject to Exhibit CO-11 to protect antelope fawning

T.0030N., R.0610W., 6TH PM
Section 18: Lot 2;

The following lands are subject to Exhibit CO-17 to protect white pelican nesting and feeding habitat:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

The following lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat

T.0030N., R.0610W., 6TH PM

Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

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 to 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.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

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

Section 35: SWNWSW;

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

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 1: SENW,NESW;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;
Section 35: EXCL RSVR R/W COD 13729;

The following lands are subject to Exhibit NE-03 to protect recreational and scenic values of state, county, and municipal parks:

T.0030N., R.0610W., 6TH PM
Section 1: Lot 4;
Section 2: Lot 1;

T.0040N., R.0610W., 6TH PM
Section 35: SWNWSW;

BLM;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-07 to protect waterfowl and shorebird habitat

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

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-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-56 to alert lessee of potential supplementary air analysis

All lands are subject to Exhibit NE-02 to protect wildlife and riparian resources and values near reservoirs and rivers

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 CO-07 to protect waterfowl and shorebird habitat

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-28 to protect 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-56 to 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: Lot 1;
Section 31: NENW;

All lands are subject to Exhibit NE-02 to protect riparian and wildlife values near reservoirs and rivers.

PVT/BLM; COF: RGFO

PARCEL ID: 6986

T.0060N., R.0610W., 6TH PM
Section 27: W2W2;

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 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-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 to alert lessee of potential supplementary air analysis
PVT/BLM; COF: RGFO

PARCEL ID: 7005

T.0020N., R.0620W., 6TH PM
Section 2: S2NE;
Section 2: EXCL R/W D29302;
Section 12: W2SW;

Section 24: W2NE,E2NW;
Section 25: NWNE, N2NW;

Weld County
Colorado 428.000 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 range

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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

PARCEL ID: 7006

T.0030N., R.0620W., 6TH PM
Section 1: SE;
Section 13: S2N2,N2SW,SESW;
Section 19: Lot 2;
Section 19: E2SW, W2SE;
Section 24: E2NW,SWSE;
Section 25: NWNE;
Section 30: Lot 1,2;

Weld County
Colorado 1020.240 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 habitat

The following lands are subject to Exhibit CO-11 to protect antelope fawning:

T.0030N., R.0620W., 6TH PM
Section 1: SE;
Section 13: S2N2,N2SW,SESW;
Section 19: Lot 2;
Section 24: E2NW;

Section 30: Lot 1;

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 to alert lessee of potential supplementary air analysis

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 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-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 to alert lessee of potential supplementary air analysis

PVT/BLM; COF: RGFO

Reinstatement parcels (previously leased) with for RGFO, with Stipulations

7 parcels, totaling 2,000.48 acres

COC 73423, Morgan County, 320 acres split estate
6N 60W
S 2: S/2
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 range

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 to alert lessee of potential supplementary air analysis

COC 73440, Morgan County, 880.48 acres split estate
6N 59W
S 3: SW/NE
S 3: Lot 3
S 11: S/2 SW
S 13: SW/SW
S 14: NE/NE, SE/NW
S 24: NW, NE/NE
S 25: E/2, E/2 NW

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 range

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:

6N 59W

S 13: SW/SW

S 24: NW

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 to alert lessee of potential supplementary air analysis

COC 73441, Morgan County, 120 acres split estate
4N 60W
S 1: SE/NW
S 2: SW/NW
S 3: SE/NE

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

The following lands are subject to Exhibit CO-04 to protect Bald Eagle roosts and nests:
4N 60W
S 2: SW/NW
S 3: SE/NE

The following lands are subject to Exhibit CO-07 to protect waterfowl and shorebird habitat:
4N 60W
S 2: SW/NW
S 3: SE/NE

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

The following lands are subject to Exhibit CO-17 to protect white pelican foraging areas:
4N 60W
S 2: SW/NW
S 3: SE/NE

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-23 to protect bald eagle winter roosts:

4N 60W
S 2: SW/NW
S 3: SE/NE

The following lands are subject to Exhibit CO-28 to protect riparian/wetland vegetation:
4N 60W
S 2: SW/NW
S 3: SE/NE

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 to alert lessee of potential supplementary air analysis

All lands are subject to Exhibit NE-02 to protect riparian and wildlife values and resources near reservoirs and rivers

COC 73442 Weld County, 80 acres split estate, located in non-attainment zone
6N 62W
S 4: N/2 SE
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 range

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-56 to alert lessee of potential supplementary air analysis

COC 73443 Weld County, 120 acres split estate, located in non-attainment zone
7N 63W
S 26: N/2 NE, NW/NW
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 range

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 to alert lessee of potential supplementary air analysis

COC 73444 Weld County, 160 acres split estate, located in non-attainment zone
7N 67W
S 2: S/E

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 and nests

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

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 bald eagle winter roosts

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-56 to alert lessee of potential supplementary air analysis

COC 73424 Weld County, 320 acres split estate, located in non-attainment zone
7N 60W
S 10: E/2

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 range

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 to alert lessee of potential supplementary air analysis

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-09

Lease Number: <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 April 30

On the lands described below:

> <LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

> To protect big game (mule deer, elk, pronghorn antelope, and bighorn sheep) winter range, including crucial winter habitat and other definable winter range as mapped by the Colorado Division of Wildlife. This may apply to sundry notice that require an environmental analysis.

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:
An exception may be granted under mild winter conditions for the last 60 days of the closure.

EXHIBIT CO-11

Lease Number: <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.

May 1 through July 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect pronghorn antelope fawning

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-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-26

Lease Number: <LEASE_NUMBER>

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special operating constraints.

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of:

Protecting fragile soils. Prior to surface disturbance of fragile soils, it must be demonstrated to the Authorized Officer through a plan of development that the following performance objectives will be met.

Performance Objectives:

I. Maintain the soil productivity of the site.

II. Protect off-site areas by preventing accelerated soil erosion (such as land-sliding, gullying, drilling, piping, etc.) from occurring.

III. Protect water quality and quantity of adjacent surface and groundwater sources.

IV. Select the best possible site for development in order to prevent impacts to the soil and water resources.

Fragile soil areas, in which the performance objective will be enforced, are defined as follows:

a. Areas rated as highly or severely erodible by wind or water, as described by the Soil Conservation Service in the Area Soil Survey Report or as described by on-site inspection.

b. Areas with slopes greater than or equal to 35 percent, if they also have one of the following soil characteristics:

(1) a surface texture that is sand, loamy sand, very fine sandy loam, fine sandy loam, silty clay or clay;
(2) a depth to bedrock that is less than 20 inches;
(3) an erosion condition that is rated as poor; or
(4) a K factor of greater than 0.32.

Performance Standards:

I. All sediments generated from the surface-disturbing activity will be retained on site.

II. Vehicle use would be limited to existing roads and trails.

III. All new permanent roads would be built to meet primary road standards (BLM standards) and their location approved by the Authorized Officer. For oil and gas purposes, permanent roads are those used for production.

IV. All geophysical and geochemical exploration would be conducted by helicopter, horseback, on foot, or from existing roads.

V. Any sediment control structures, reserve pits, or disposal pits would be designed to contain a 100-year, 6-hour storm event. Storage volumes within these structures would have a design life of 25 years.

VI. Before reserve pits and production pits would be reclaimed, all residue would be removed and trucked off-site to an approved disposal site.

VII. Reclamation of disturbed surfaces would be initiated before November 1 each year.

VIII. All reclamation plans would be approved by the Authorized Officer in advance and might require an increase in the bond.

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. See also Geothermal PEIS ROD section 2.3.3 at page 2-6.)

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_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 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 may

require the relocation of the surface disturbance activity over 200 meters. Inventory and any subsequent mitigation shall be conducted by a BLM permitted paleontologist.

On the lands described below:

<LEGAL_DESCRIPTIONS>

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 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):

<LEGAL_DESCRIPTIONS>

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.

EXHIBIT NE-02

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):

<LEGAL_DESCRIPTIONS>

For the purpose of:

To protecting riparian and wildlife values and resources near reservoirs and rivers (including South Platte and South Republican Rivers and Prewitt, Julesburg, Prospect, Horsecreek, Milton, Lower Latham Rivershed, Empire, Bijou, and Ft. Collins reservoir

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 NE-03

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):

<LEGAL_DESCRIPTIONS>

For the purpose of:

To protect recreational and scenic values in state, county, and municipal parks.

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 NE-09

Lease Number: <LEASE_NUMBER>

AIR FORCE CABLE NOTICE

No surface occupancy or use is allowed on the lands described below (legal description or other description):

<LEGAL_DESCRIPTIONS>

For the purpose of:

> To protect underground cables. Proposed operations located near Air Force underground cables will be moved so as to not interfere with cable performance.

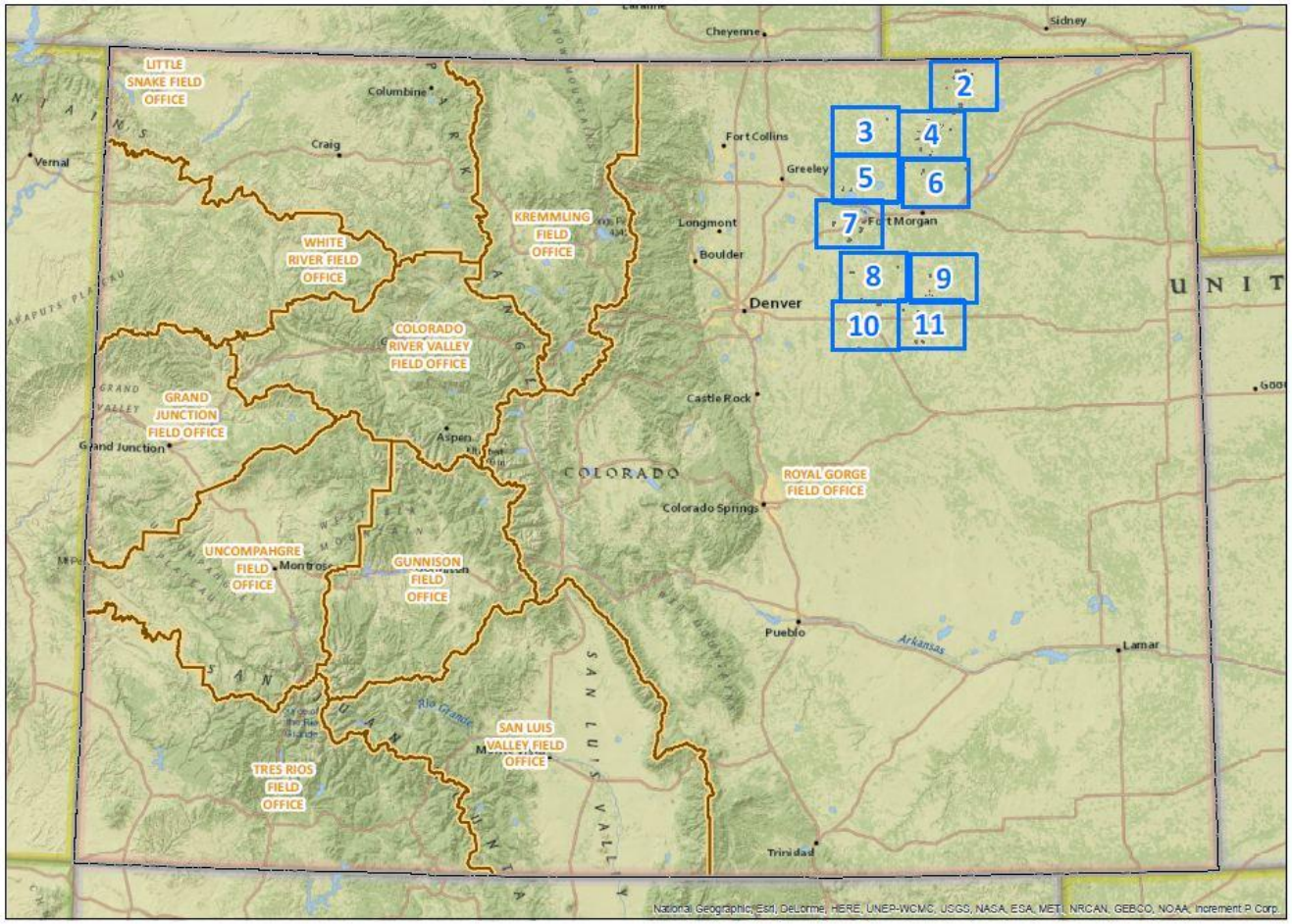
Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

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

BLM Competitive Oil and Gas Lease Sale May, 2015



Legend

- Parcel Locations
- Detailed Map View Pages
- State Boundary
- BLM Field Office Boundaries

Please click on the Close Up Map Pages to see more detail.

3

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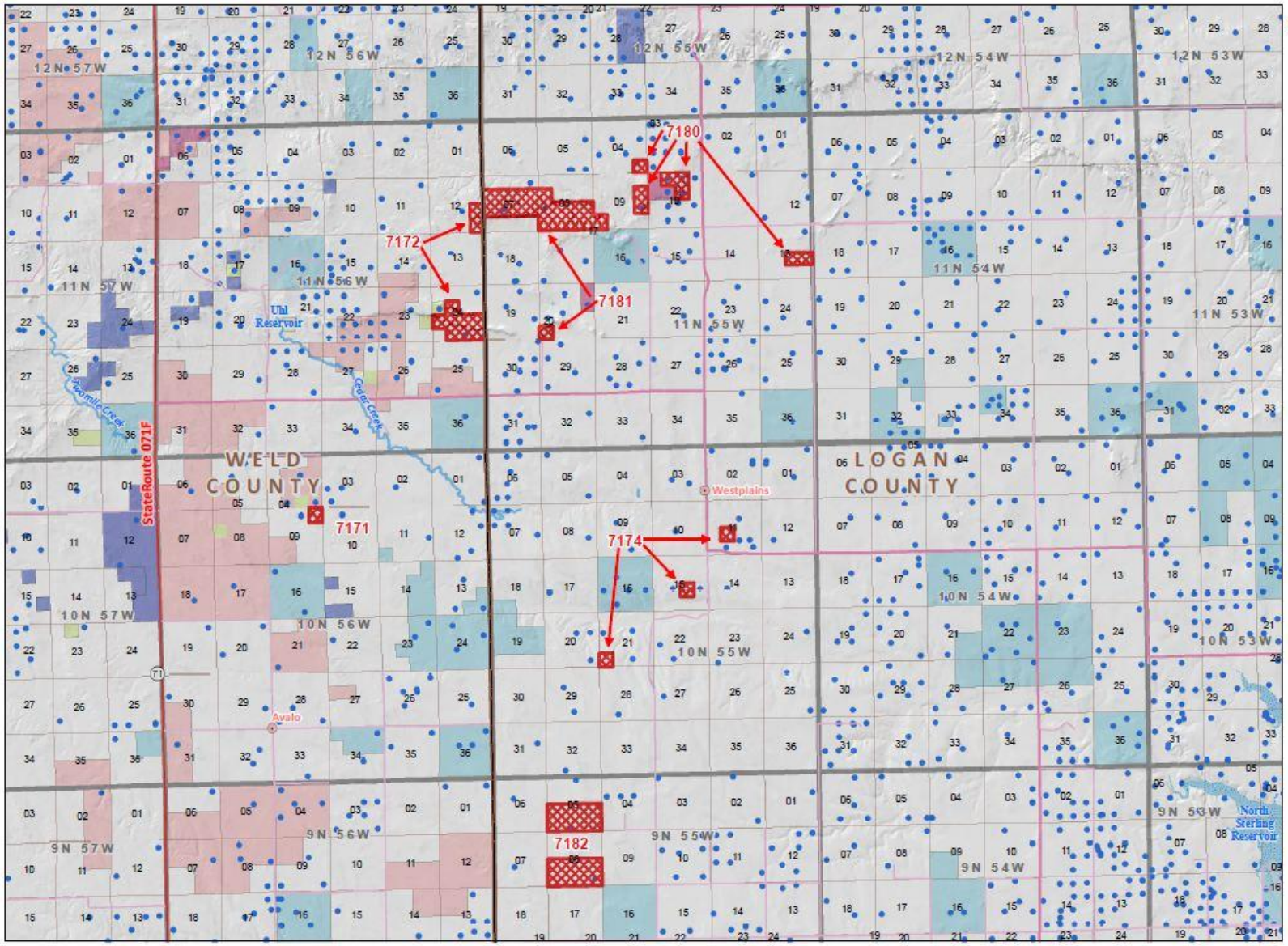
Click on the Page NavigationTools to return to this Index map on Page 1.



Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015

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

Legend

- BLM Field Office Areas

Recommended Oil & Gas Sale Status

- Sale
- COGCC Oil and Gas Well Locations

Oil and Gas Leases

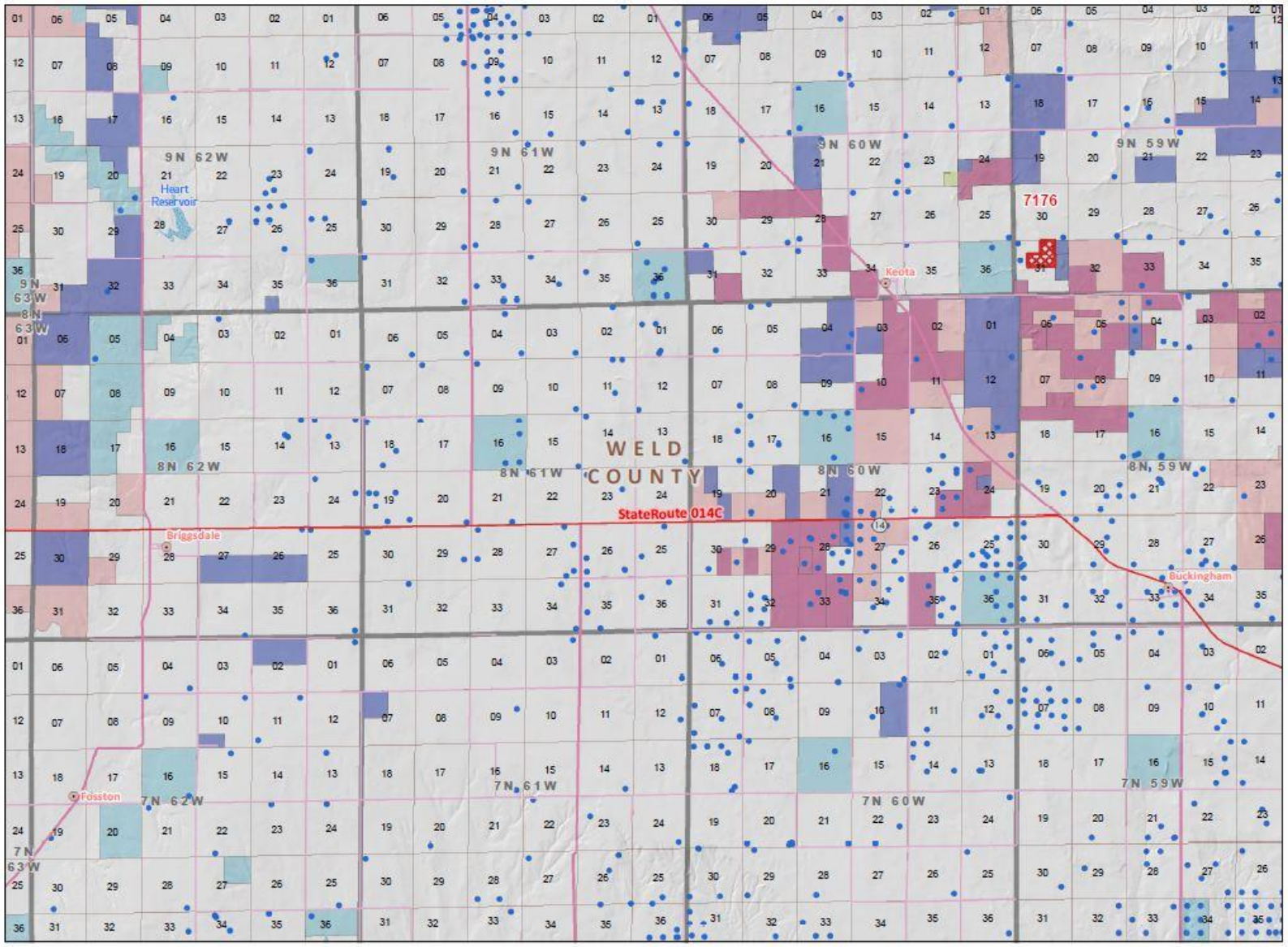
- Non-Producing Leases
- Producing Leases
- National Grasslands
- Private
- State
- Bankhead-Jones Land Use Lands
- Township & Range
- Sections
- Lakes and Reservoirs
- Minor Highways
- CDOT Local Roads
- Streams
- USGS Cities and Towns

2 Miles

Map Page Location

Page Number 2

ROYAL GORGE FIELD OFFICE



Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015

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Legend

- BLM Field Office Areas

Recommended Oil & Gas Sale Status

- Sale
- COGCC Oil and Gas Well Locations

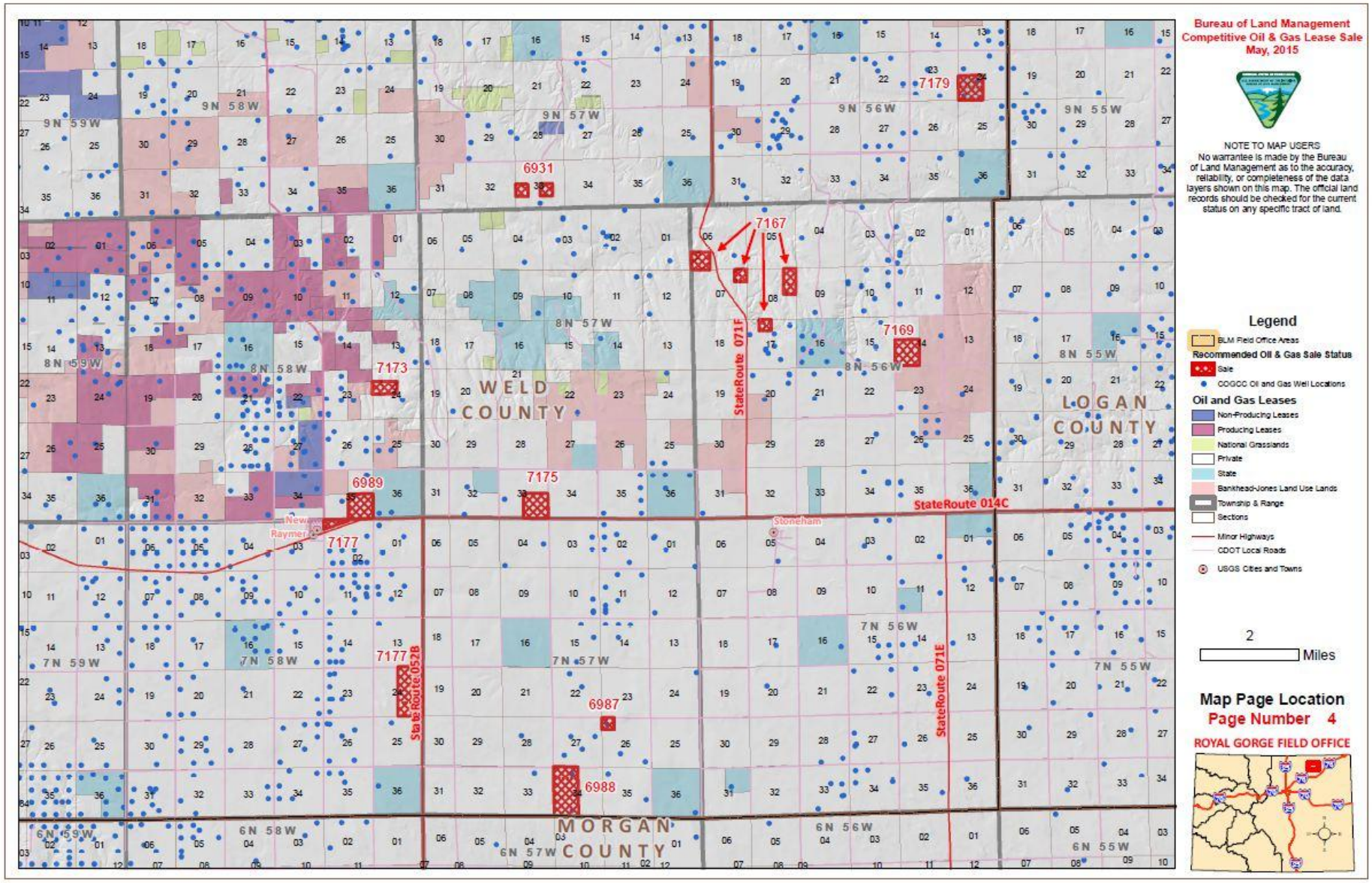
Oil and Gas Leases

- Non-Producing Leases
- Producing Leases
- National Grasslands
- Private
- State
- Bankhead-Jones Land Use Lands
- Township & Range
- Sections
- Lakes and Reservoirs
- Minor Highways
- CDOT Local Roads
- USGS Cities and Towns

2 Miles

Map Page Location
Page Number 3

ROYAL GORGE FIELD OFFICE


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Producing Leases
National Grasslands
Private
State
Bankhead-Jones Land Use Lands
Township & Range
Sections
Minor Highways
CDOT Local Roads
USGS Cities and Towns
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Miles
Map Page Location
Page Number 4
ROYAL GORGE FIELD OFFICE
WELD COUNTY
LOGAN COUNTY
MORGAN COUNTY
9N 59W
9N 58W
9N 57W
9N 56W
9N 55W
8N 59W
8N 58W
8N 57W
8N 56W
8N 55W
7N 59W
7N 58W
7N 57W
7N 56W
7N 55W
6N 59W
6N 58W
6N 57W
6N 56W
6N 55W
6931
7167
7169
7173
7175
7177
7179
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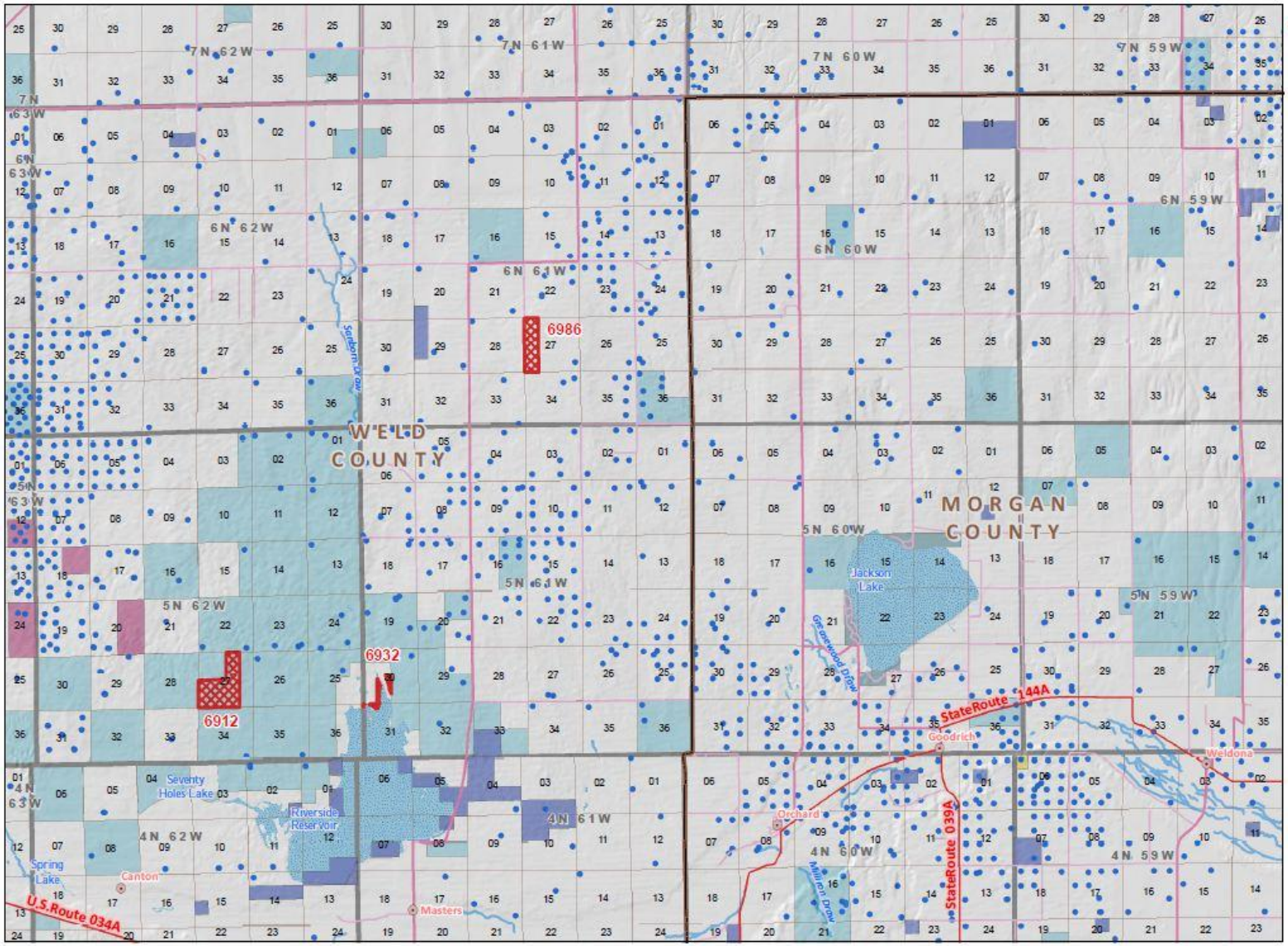
6987
6988
StateRoute 071F
StateRoute 014C
StateRoute 052B
StateRoute 071E
Newark
Raymer
Stoneham



Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015

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Legend

- BLM Field Office Areas

Recommended Oil & Gas Sale Status

- Sale
- COGCC Oil and Gas Well Locations

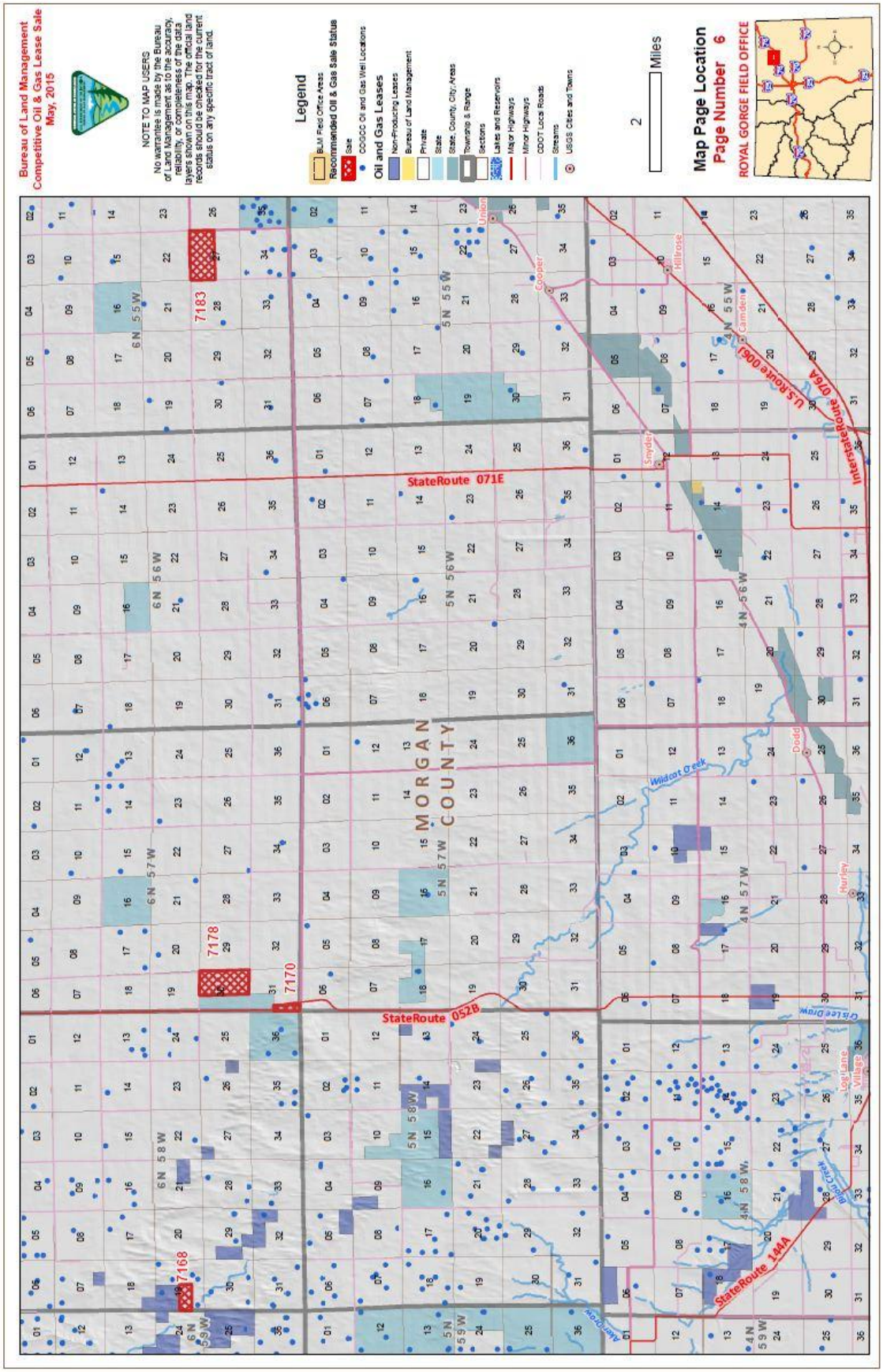
Oil and Gas Leases

- Non-Producing Leases
- Producing Leases
- Bureau of Land Management
- Private
- State
- State, County, City, Areas
- Township & Range
- Sections
- Lakes and Reservoirs
- Minor Highways
- CDOT Local Roads
- Streams
- USGS Cities and Towns

2 Miles

Map Page Location
Page Number 5

ROYAL GORGE FIELD OFFICE


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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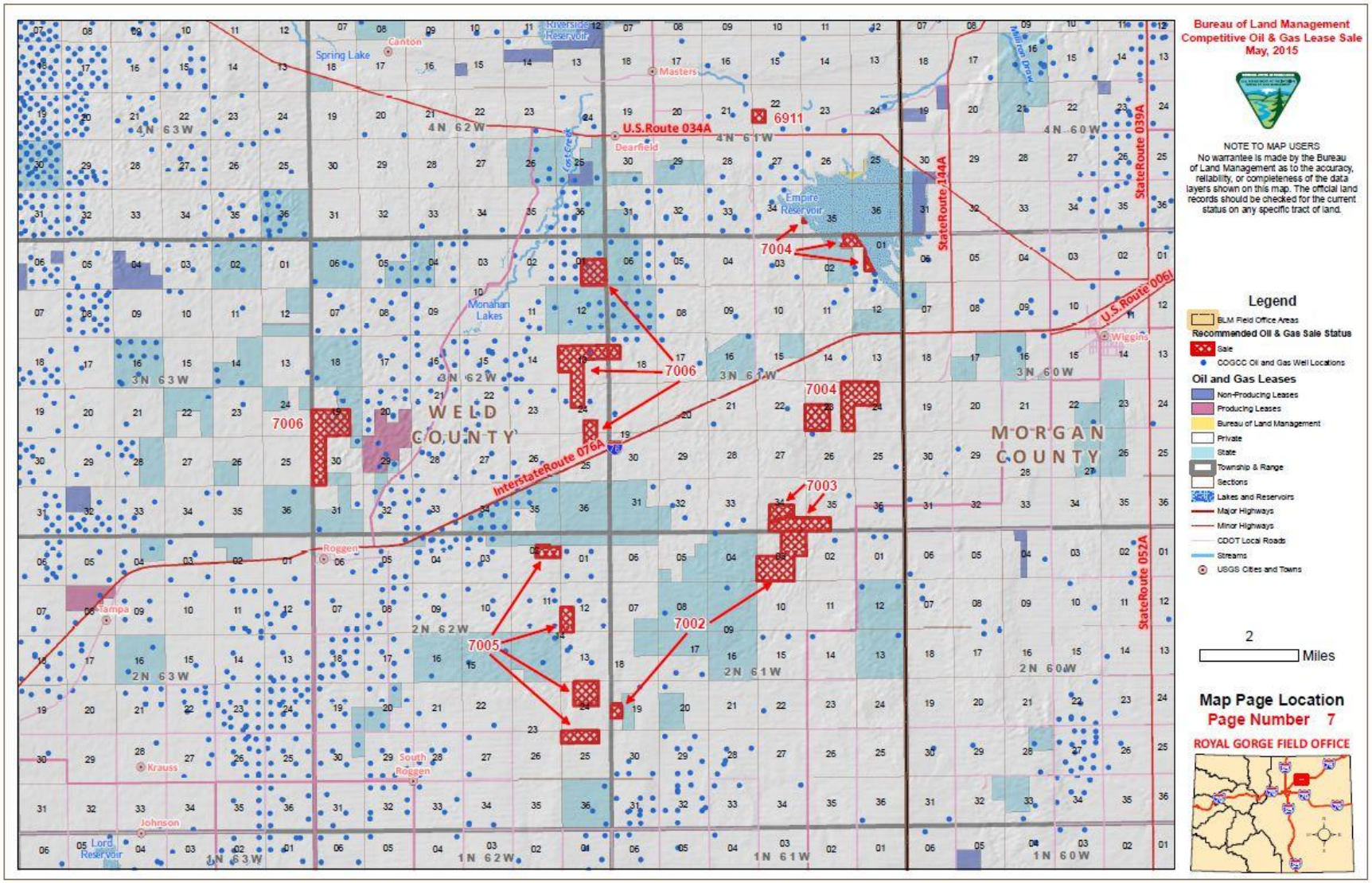
Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Bureau of Land Management
Private
State
State, County, City, Areas
Township & Range
Sections
Lakes and Reservoirs
Major Highways
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 6
ROYAL GORGE FIELD OFFICE
MORGAN COUNTY
StateRoute 071E
StateRoute 052B
StateRoute 144A
U.S.Route 006
Interstate Route 076A
7168
7170
7178
7183
Wildcat Creek
Snyder
Hillrose
Camden
Cooper
Union
Dodd
Hurley
Log Lane Village
Gilsee Draw
Beaver Creek
Antelope Draw


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Producing Leases
Bureau of Land Management
Private
State
Township & Range
Sections
Lakes and Reservoirs
Major Highways
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 7
ROYAL GORGE FIELD OFFICE
WELD COUNTY
MORGAN COUNTY
U.S.Route 034A
U.S.Route 006
InterstateRoute 076A
StateRoute 144A
StateRoute 039A
StateRoute 052A
Spring Lake
Canton
Masters
Dearfield
Riverside Reservoir
Empire Reservoir
Monahan Lakes
Roggen
South Roggen
Tampa
Krauss
Johnson
Lord Reservoir
Wiggins
6911
7004
7006
7003
7002
7005
4N 63W
4N 62W
4N 61W
4N 60W
3N 63W
3N 62W
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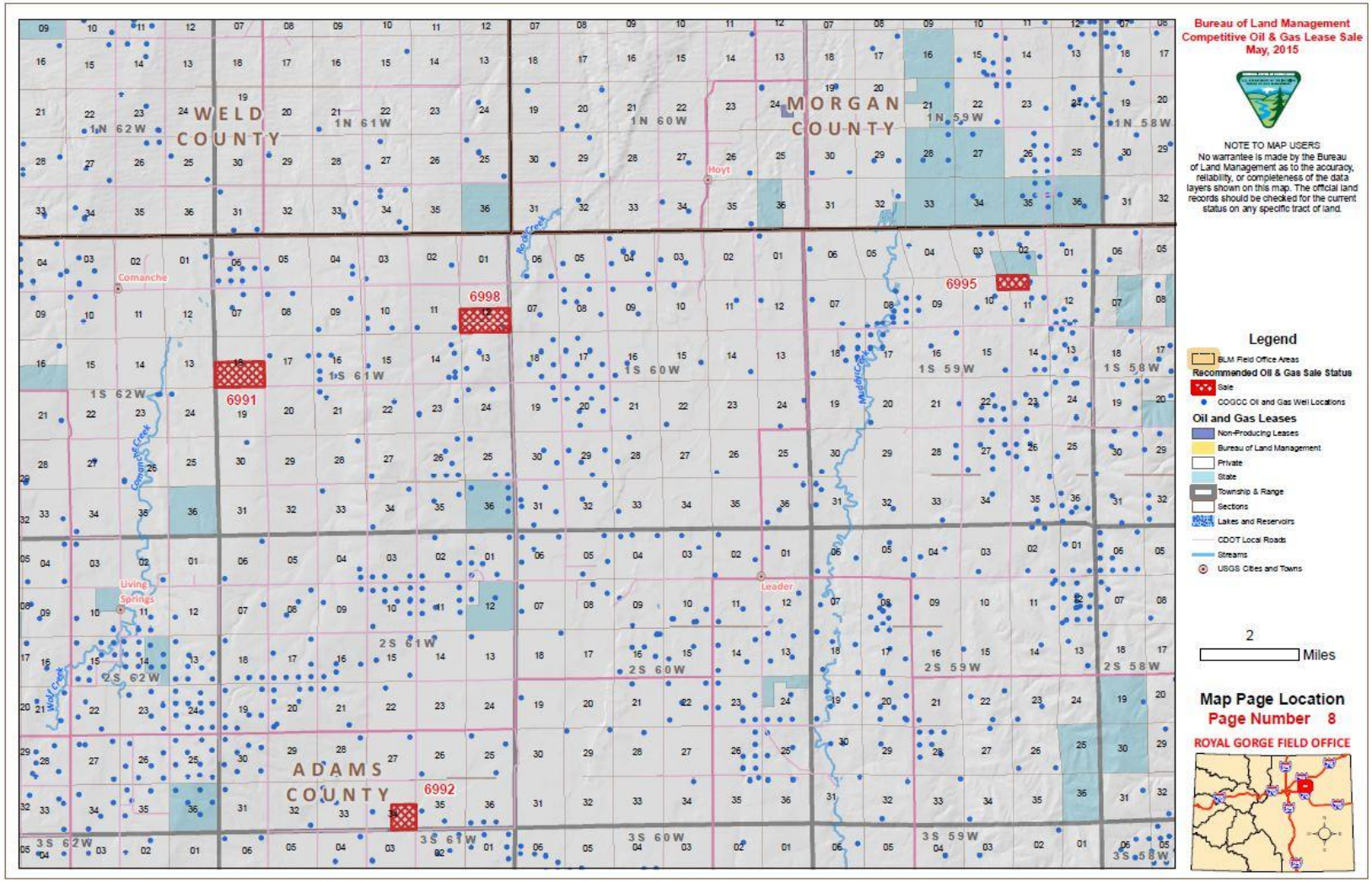
1N 62W
1N 61W
1N 60W


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Bureau of Land Management
Private
State
Township & Range
Sections
Lakes and Reservoirs
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 8
ROYAL GORGE FIELD OFFICE
WELD COUNTY
MORGAN COUNTY
ADAMS COUNTY
6998
6995
6991
6992
Comanche
Living Springs
Hoyt
Leader
1N 62W
1N 61W
1N 60W
1N 59W
1N 58W
1S 62W
1S 61W
1S 60W
1S 59W
1S 58W
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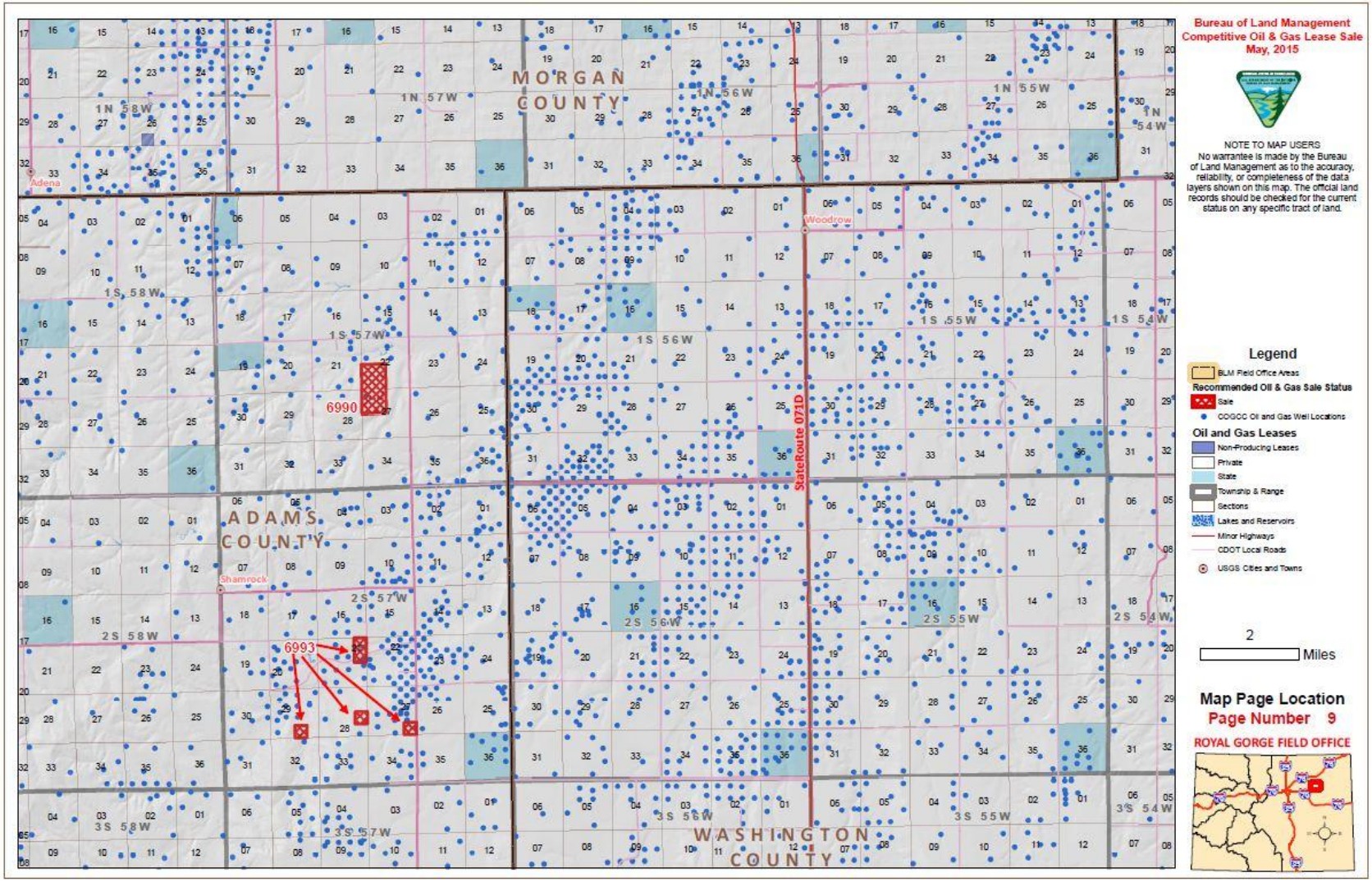
3S 60W
3S 59W
3S 58W


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
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
2
Miles
Map Page Location
Page Number 9
ROYAL GORGE FIELD OFFICE
MORGAN COUNTY
ADAMS COUNTY
WASHINGTON COUNTY
Adena
Woodrow
Shamrock
StateRoute 071D
6990
6993
1N 58W
1N 57W
1N 56W
1N 55W
1N 54W
1S 58W
1S 57W
1S 56W
1S 55W
1S 54W
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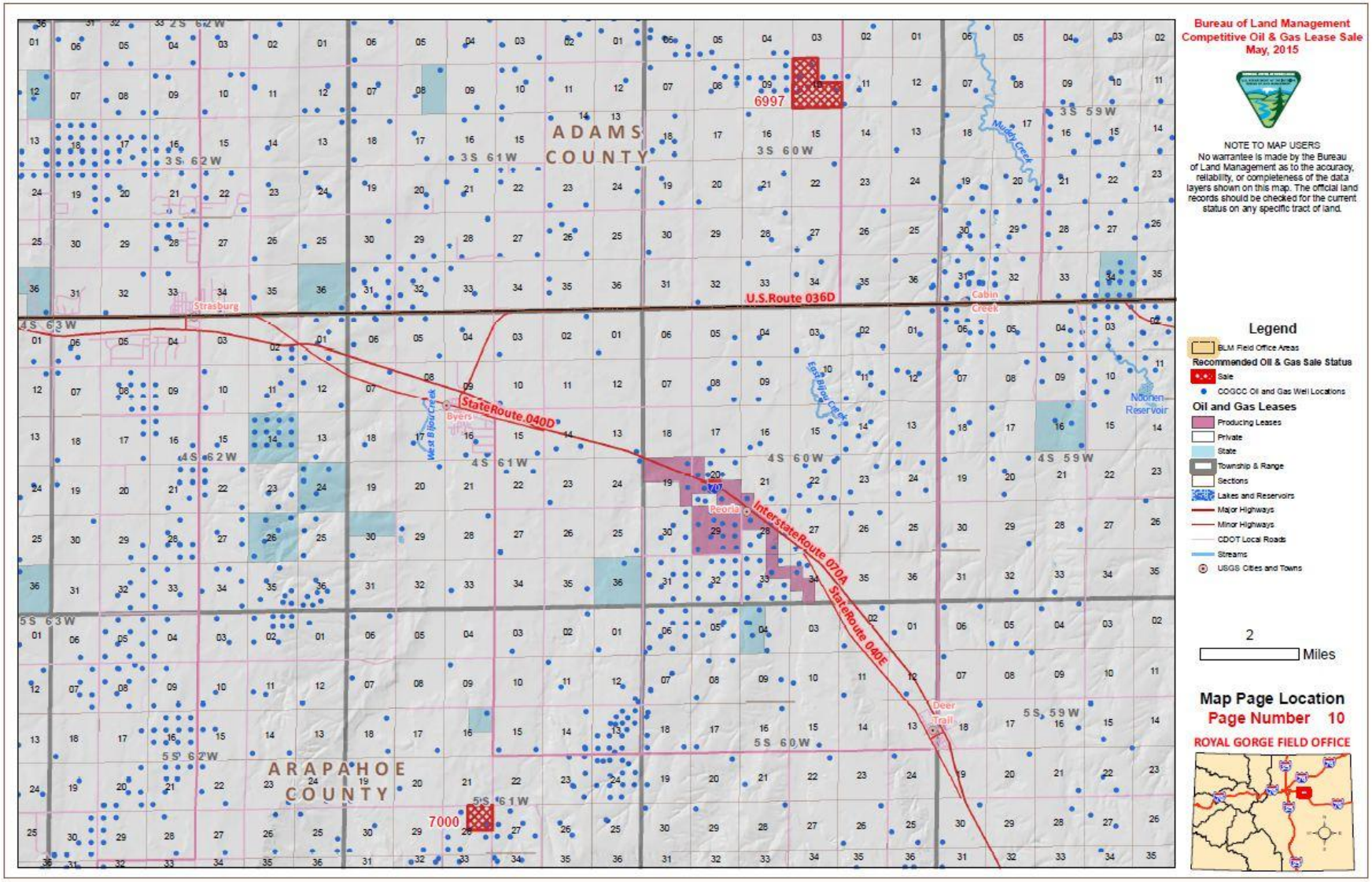
3S 55W
3S 54W


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
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Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
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Producing Leases
Private
State
Township & Range
Sections
Lakes and Reservoirs
Major Highways
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 10
ROYAL GORGE FIELD OFFICE
ADAMS COUNTY
ARAPAHOE COUNTY
6997
7000
U.S.Route 036D
StateRoute 040D
InterstateRoute 070A
StateRoute 040E
Strasburg
Byers
Peoria
Deer Trail
Muddy Creek
Cabin Creek
West Bijou Creek
East Bijou Creek
Nooney Reservoir
2 S 62 W
3 S 63 W
3 S 62 W
3 S 61 W
3 S 60 W
3 S 59 W
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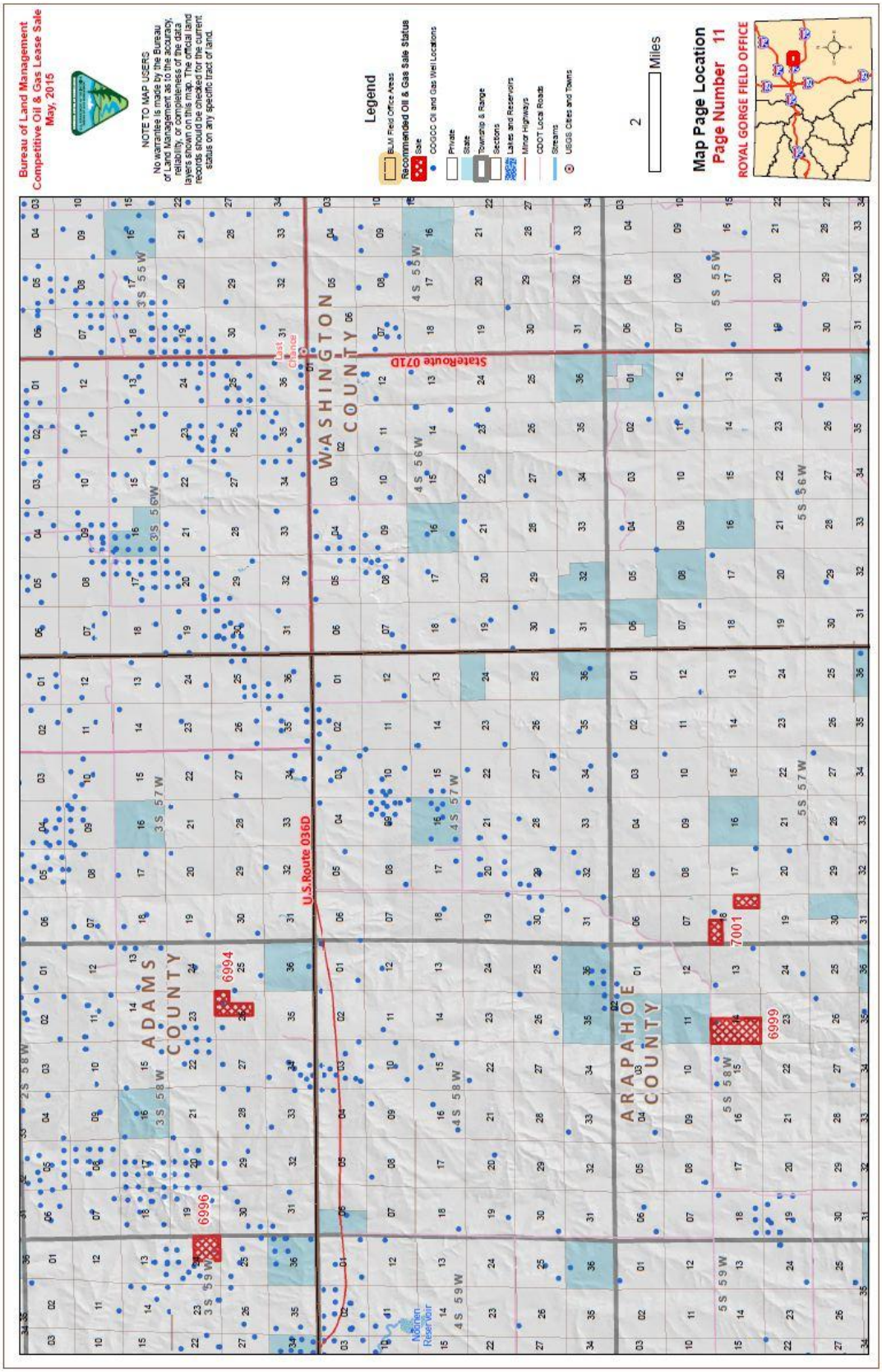
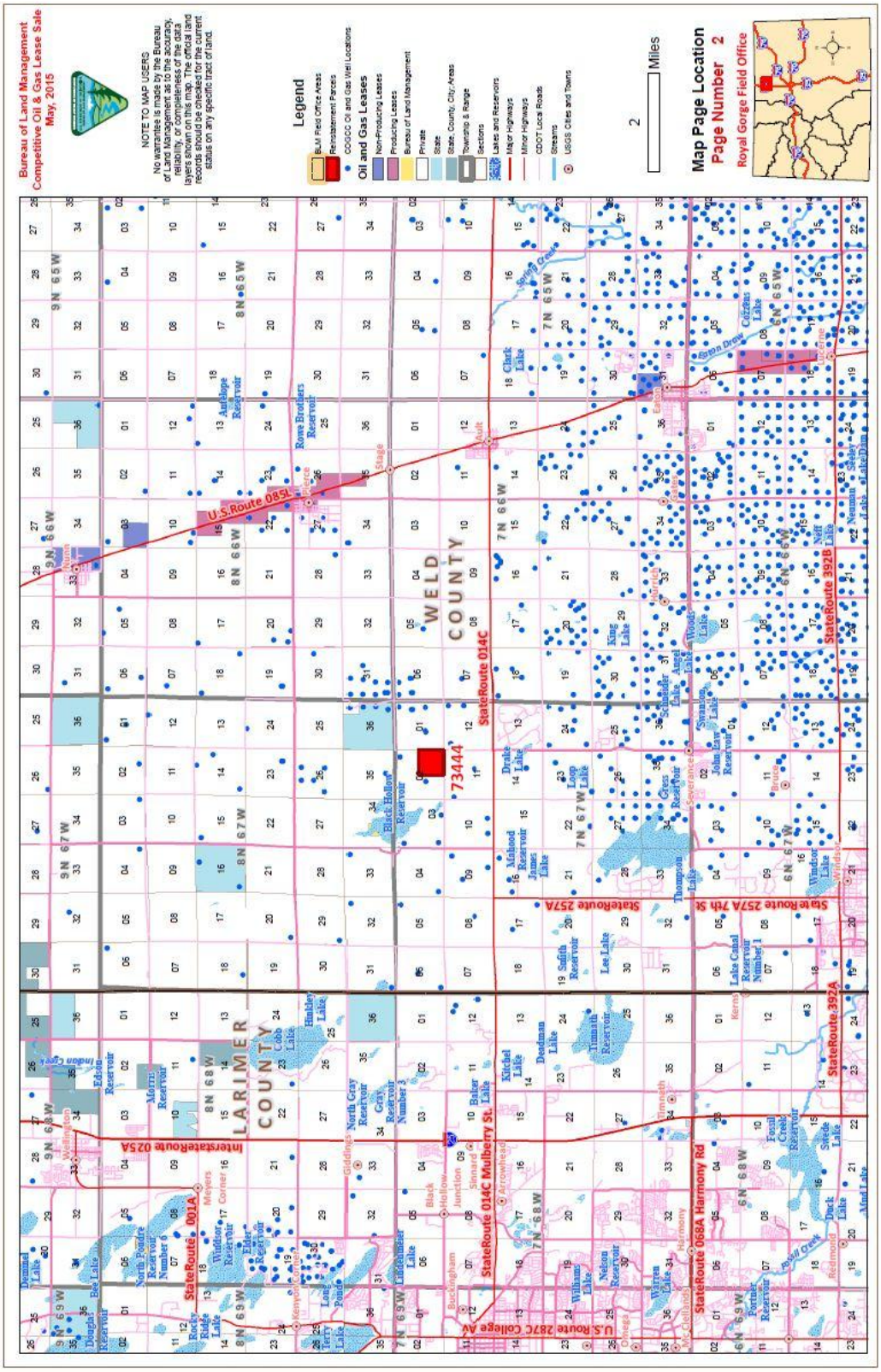
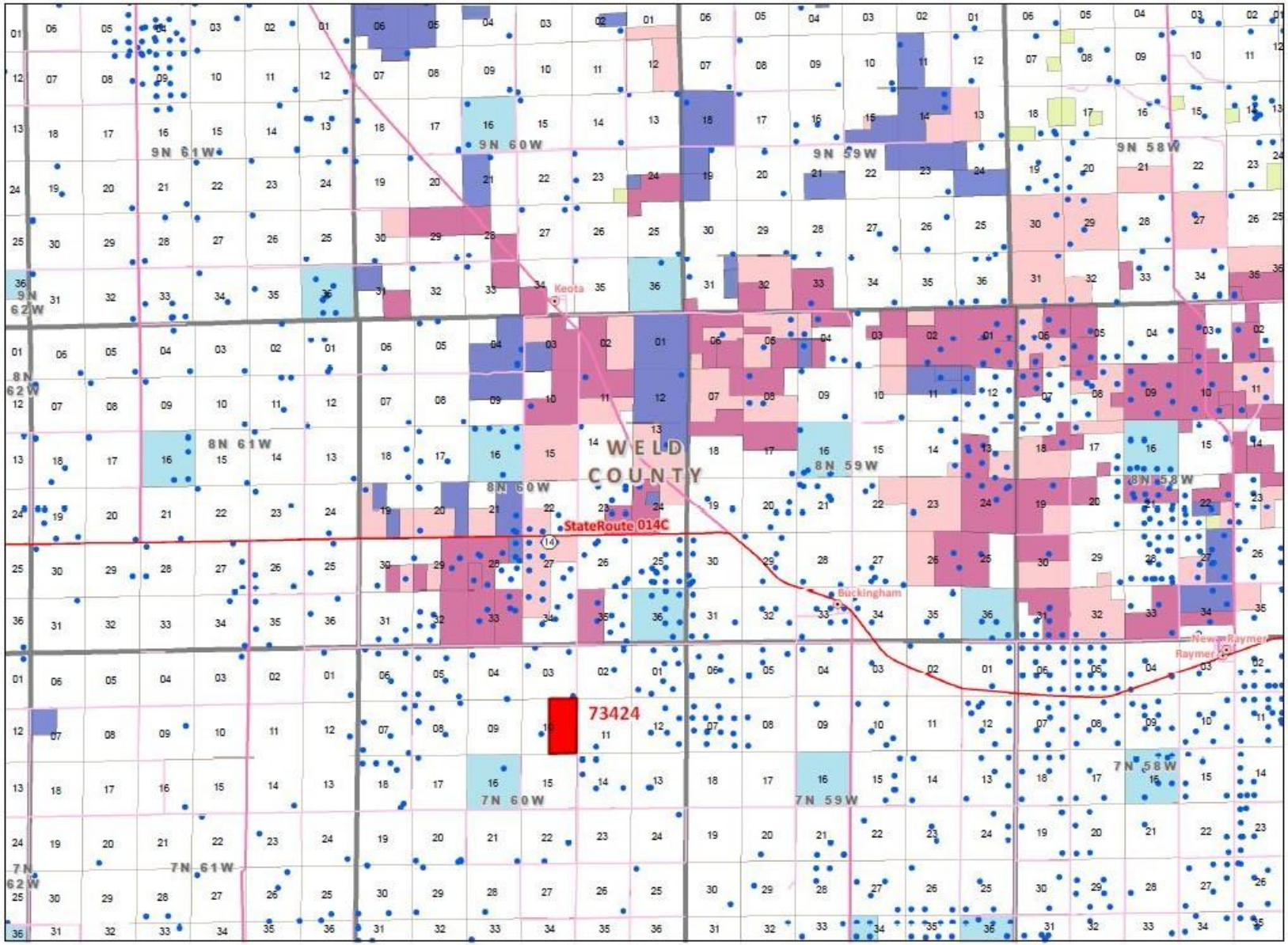
5 S 59 W


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
NOTE TO MAP USERS
No warranties is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers contained on this map. The actual land records should be checked for the current status on any specific tract of land.
Legend
BLM Field Office Areas
Recommended Oil & Gas Sale Status
Sale
COGCC Oil and Gas Well Locations
Private
State
Township & Range
Sections
Lakes and Reservoirs
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 11
ROYAL GORGE FIELD OFFICE
ADAMS COUNTY
WASHINGTON COUNTY
ARAPAHOE COUNTY
U.S. Route 036D
State Route 071D
Nelson Reservoir
6996
6994
7001
6999

:

Reinstatement Parcels





Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015

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Legend

- BLM Field Office Areas
- Reinstatement Parcels
- COGCC Oil and Gas Well Locations

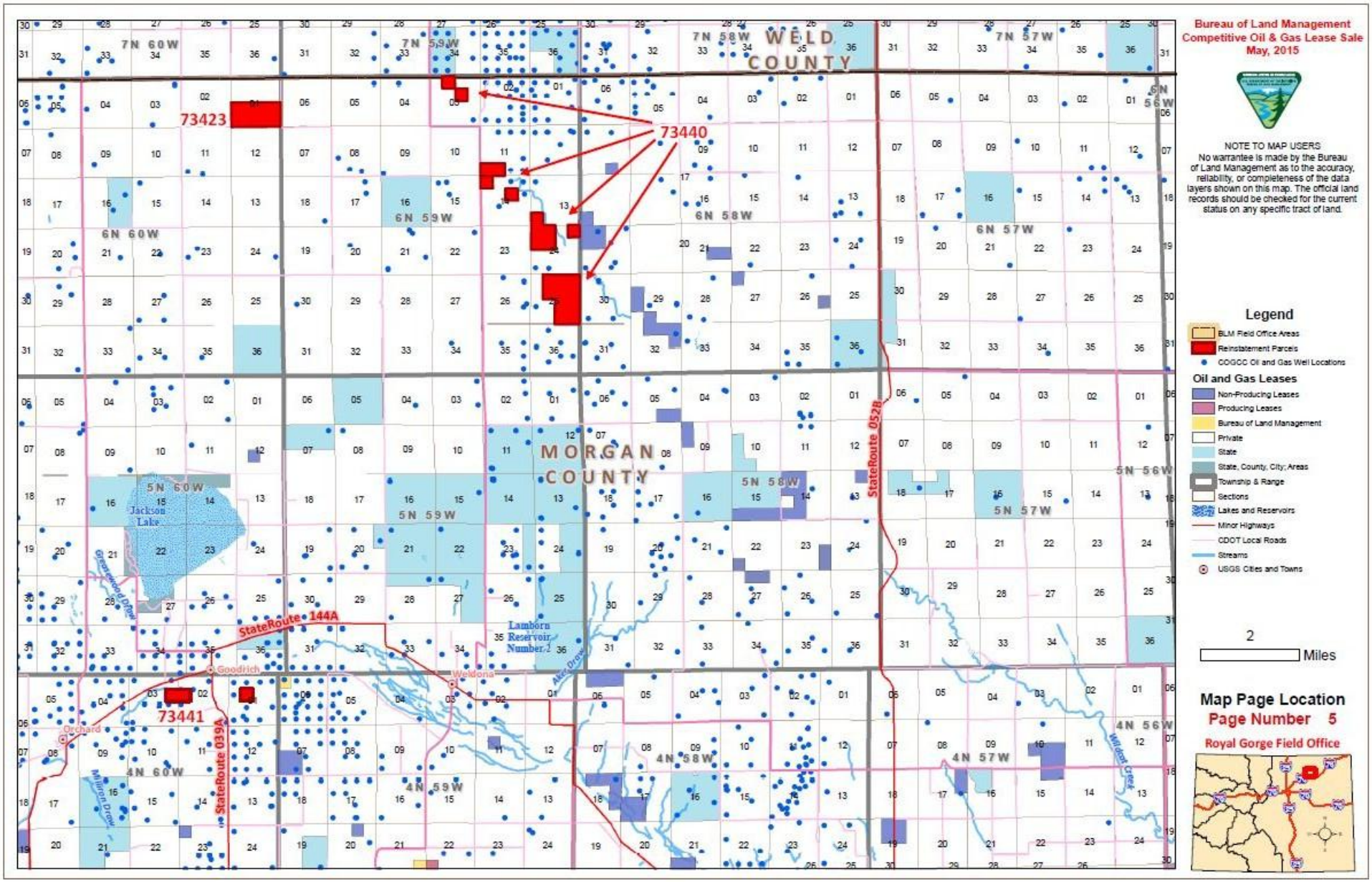
Oil and Gas Leases

- Non-Producing Leases
- Producing Leases
- National Grasslands
- Private
- State
- Bankhead-Jones Land Use Lands
- Township & Range
- Sections
- Minor Highways
- CDOT Local Roads
- USGS Cities and Towns

2 Miles

Map Page Location
Page Number 4

Royal Gorge Field Office


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
NOTE TO MAP USERS
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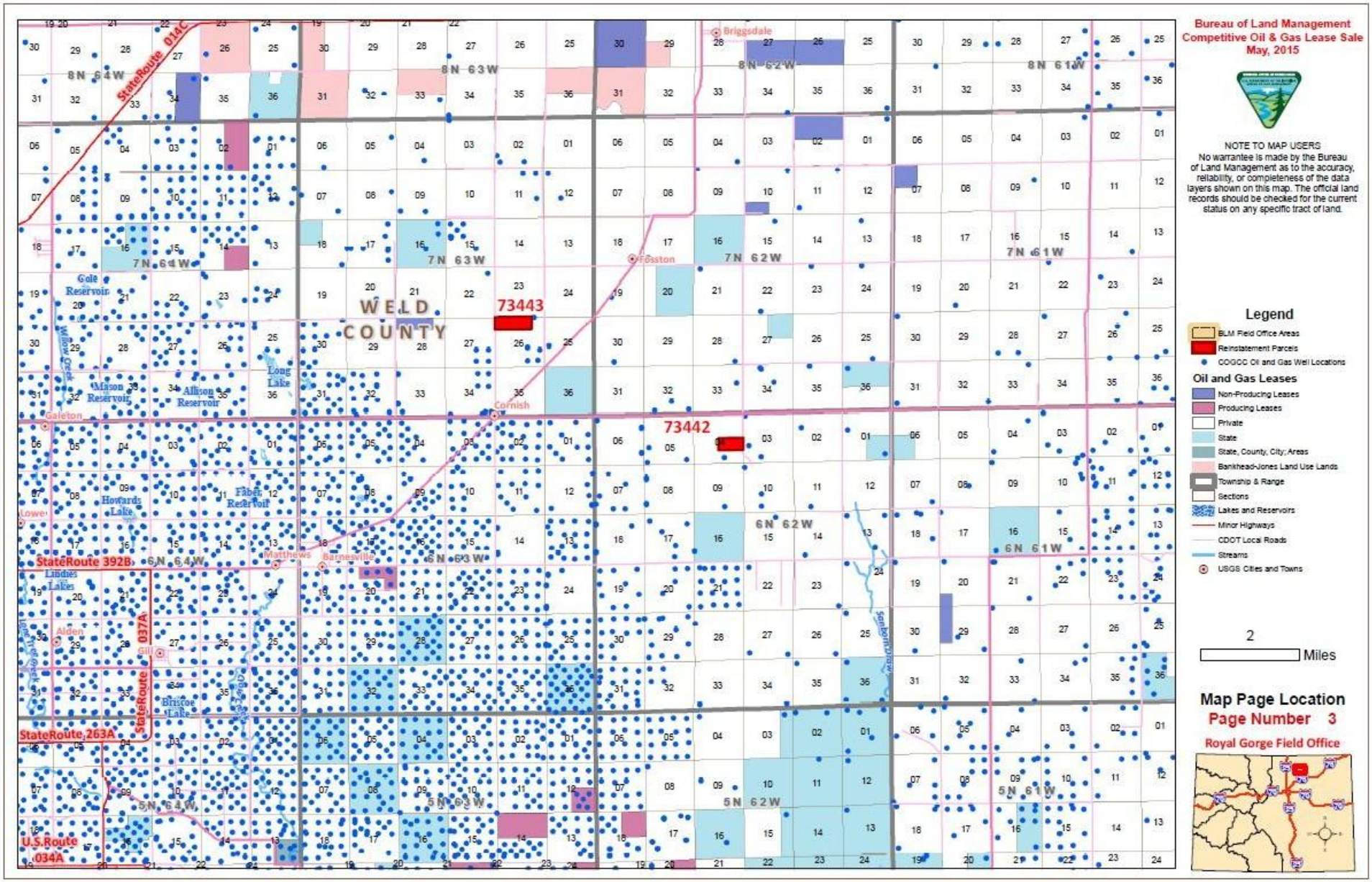
Legend
BLM Field Office Areas
Reinstatement Parcels
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Producing Leases
Bureau of Land Management
Private
State
State, County, City, Areas
Township & Range
Sections
Lakes and Reservoirs
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 5
Royal Gorge Field Office
WELD COUNTY
MORGAN COUNTY
73423
73440
73441
7N 60W
7N 59W
7N 58W
7N 57W
6N 60W
6N 59W
6N 58W
6N 57W
5N 60W
5N 59W
5N 58W
5N 57W
5N 56W
4N 60W
4N 59W
4N 58W
4N 57W
4N 56W
Jackson Lake
Lamborn Reservoir Number 1
StateRoute 144A
StateRoute 039A
StateRoute 052B
Goodrich
Weldona
Orchard
Greenhorn Draw
Milton Draw
Mill Creek


Bureau of Land Management
Competitive Oil & Gas Lease Sale
May, 2015
NOTE TO MAP USERS
No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records should be checked for the current status on any specific tract of land.
Legend
BLM Field Office Areas
Reinstatement Parcels
COGCC Oil and Gas Well Locations
Oil and Gas Leases
Non-Producing Leases
Producing Leases
Private
State
State, County, City, Areas
Bankhead-Jones Land Use Lands
Township & Range
Sections
Lakes and Reservoirs
Minor Highways
CDOT Local Roads
Streams
USGS Cities and Towns
2
Miles
Map Page Location
Page Number 3
Royal Gorge Field Office
WELD COUNTY
73443
73442
8 N 64 W
8 N 63 W
8 N 62 W
8 N 61 W
7 N 64 W
7 N 63 W
7 N 62 W
7 N 61 W
6 N 64 W
6 N 63 W
6 N 62 W
6 N 61 W
5 N 64 W
5 N 63 W
5 N 62 W
5 N 61 W
Briggsdale
Fosston
Cornish
Galeton
Matthews
Barnesville
Alden
Gill
Lower
Cole Reservoir
Mason Reservoir
Allison Reservoir
Long Lake
Howards Lake
Faber Reservoir
Lindes Lakes
Briscoe Lake
Willow Creek
Sanborn Draw
StateRoute 014C
StateRoute 392B
StateRoute 263A
StateRoute 037A
U.S.Route 034A

Attachment F

The following comments are summarized from comments received from Wild Earth Guardians on 12/15/2014 for the RGFO May 2015 O&G lease sale EA

NEPA related comments:

1. **Summary**: Page 2 lines 26-43. The Resource Management Plan (RMP) and the 1991 Oil and Gas EIS does not address or analyze impacts of fracking and horizontal drilling.

   Response: While the RMP or the Oil and Gas EIS do not specifically analyze fracking and horizontal drilling, they likewise do not preclude such technologies being analyzed in leasing and APD EAs and even discuss horizontal drilling as a newly developed method that could reduce environmental impacts by accessing much more of the producing formation while reducing surface impacts with fewer drilling pads and infrastructure. The potential impacts of fracking and developmental design features to safeguard the environment from these potential impacts are discussed in the water quality section of the EA.

2. **Summary**: Page 8 lines 28-37. In accordance with 40 CFR § 1502.9(c)(1)(ii) the BLM should revise or supplement 1994 RMP FEIS and/or the 1991 oil and gas FEIS to address the Field Office-wide impacts of horizontal drilling and fracking.

   Response: The EIS, not being supplemented on a programmatic level requires that each EA analyze the impacts of fracking and horizontal drilling that are reasonably foreseeable at the leasing stage.

3. **Summary:** Page 8 line 39- page 9 line 4. The BLM must consider and analyze cumulative effects of fracking and horizontal drilling including the well development that has already been approved.

   Response: Cumulative effects of oil and gas development are analyzed in the EA and include the effects all known oil and gas development on both private and federal minerals as well as any other known actions that might cause an impact to the human or natural environment.

4. **Summary**: Page 18 line 28-page 20 line 30. BLM and the Secretary have failed to make a finding, under 30 USC § 21a, that oil and gas leasing "both fosters and encourages both the orderly and the economic development of oil and gas mineral resources and helps to assure the satisfaction of environmental needs." A programmatic or project by project analysis of those elements defined in the statute is required before oil and gas leasing occurs. Further, "the EA includes no meaningful economic analysis at all."

   Response: The statute provides: "The Congress declares that it is the continuing policy of the Federal Government in the national interest to foster and encourage private

enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs . . . ." The quoted statutory language is a statement of policy. It neither directs nor requires agency action, such as a specific Secretarial finding that a particular action comports with the policy, or a programmatic analysis of oil and gas leasing and development. The BLM analyzed the reasonably foreseeable impacts of oil and gas leasing and subsequent development in the applicable RMP and in the EA for the May 2015 lease sale. Nothing in the quoted policy statement directs the BLM to undertake a more comprehensive analysis at a nationwide scale. BLM has, however, included in the EA an analysis of socioeconomic impacts from oil and gas leasing and potential development; the commenter has not explained why it considers that analysis deficient.

5. **Summary:** Page 20 line 34-Page 21 line 20. BLM has failed to analyze the programmatic impacts of the Onshore Oil and Gas Management Program, particularly with respect to greenhouse gas/climate impacts, and BLM cannot approve leasing until s a programmatic EIS is prepared.

   Response: The BLM analyzed the reasonably foreseeable impacts of oil and gas leasing and subsequent development in the applicable RMP and in the EA for the May 2015 lease sale. A broader programmatic analysis is not needed in order for the BLM to sufficiently understand the reasonably foreseeable impacts from the proposed action under consideration in this EA.

Water related comments:

6. **Summary**: Page 3 lines 1-12 and page 8 lines 17-24 and page Water consumption impacts, comment states that more than 51 acre feet of water are required to drill and fracture one horizontal well in the Niobrara formation, and that the 1991 Oil and Gas EIS never addressed the impacts of water use for energy development.

   Response: Based on information gathered from several operators in the DJ basin, BLM estimates the average amount of water used to drill and fracture treat a typical horizontal well in the region takes about 11.2 acre feet of water. Although many of the wells recently drilled in the region are horizontal in nature, some of the leases may be developed with vertical and directional wells, which BLM estimates require 1.8 and 2 acre feet of water, respectively, to drill and fracture treat. At the lease stage, it is impossible to know how many and what types of wells will be drilled (and if development will take place at all) on a particular lease parcel. Recycling of water is common, so not all of the water required to drill and complete a well is first use water, nor is it all permanently lost.

7. **Summary**: Page 3 line 14-page 4 line 2. Water quality impacts, risk of groundwater and surface water contamination due to horizontal drilling and fracturing, including contamination due to spills.

Response: The majority of spills take place inside secondary containment berms, and many others never leave the surface of the oil and gas location. Federal and State regulations require operators to clean up all spills regardless of where they take place. Clean up must meet requirements of federal and state regulations before operators are released from liability.

The fracturing process involves pressuring up the formation with a fluid at a pressure high enough to break down and fracture the formation, yet low enough to be within the design of the cement and casings making up the well. In addition, the rock strata above the producing formations provide a natural barrier to vertical migration of fluids. These barriers created the reservoir in the first place by forming a trap where fluids could accumulate. There are strong incentives to keep the fractures from encroaching into these natural barriers as the target zone is only the oil and gas zone. Hydraulic fracturing programs are designed for the target formation, using knowledge of in-situ properties and modeling of the formation. The target Niobrara/Codell zones to be horizontally drilled and fractured in the in the area of the May 2015 Oil and Gas Lease Sale in Weld County occurs at a depth of approximately 6300' to 7200' TVD. The fresh and usable water zones generally occur from 1500' to the surface. The target zone is isolated from the fresh and usable water zones by over 4500' of shale, siltstones and sandstones with the majority of the rock being shale. The fracturing will not produce fissures to reach the water zones through over 4000' of rock.

In accordance with 43 CFR 3162.3-1, Drilling Applications and Plans, the well is approved only after appropriate environmental and technical reviews by the authorized officer (AO) of the BLM. Permitting is a site-specific process. A thorough review of submitted materials for each individual well by BLM resource specialists is completed. The geologist performs independent review utilizing Colorado Division of Water Resources data, Colorado Geological Survey maps and publications and Colorado Oil & Gas Conservation Commission records to generate a geological report. The geologist identifies usable ground water and mineral-bearing zones that require protection. The petroleum engineer reviews the casing and cementing portions of the drilling plan to ensure the protection of those zones identified by the geologic report. Conditions of approval (COAs) are attached to the APD as necessary.

Usable ground water resources are protected during drilling in accordance with BLM Onshore Oil and Gas Order No. 2, Drilling Operations. Onshore Order No. 2 requires that all formations containing usable quality water (≤10,000 mg/L total dissolved solids) be isolated and protected utilizing cement. "If encountered while drilling, usable quality water requires protection by bringing the cement at least +/- 200' above the usable water quality zone". BLM geologists and petroleum engineers review the drilling and completion data to insure that oil/gas zones and usable water zones are protected by wellbore. BLM natural resource specialists and petroleum engineering technicians (PETs) conduct inspections to ensure that the operator's plans have successfully avoided environmental impacts. PETs inspect well sites during drilling, completion and production for technical and safety compliance.

In accordance with 43 CFR 3162.4-2, Samples, Tests and Surveys, "during the completion of a well, the operator shall, when required by the authorized officer (AO),

conduct, test, run logs and make other surveys reasonably necessary to determine the presence, quantity, and quality of oil, gas, other minerals, or the presence or quality of water." These tests and logs are reviewed and correlated with geologic and hydrologic data. "When needed, the operator shall conduct reasonable tests which will demonstrate the mechanical integrity of the down-hole equipment" (43 CFR 3162.4-2(b)). In order to protect fresh water and other minerals, "tests and surveys of the effectiveness of such measures (to isolate and protect usable water) shall be conducted by the operator using such procedures and practices approved or prescribed by the AO". The BLM has the authority to require companies to do reasonable testing if deemed necessary. The BLM AO may require an operator to conduct cement bond log surveys to verify cement adequacy.

Air related comments:

8. **Summary:** Page 4 lines 4-13. When the Royal Gorge RMP and 1991 oil and gas FEIS were prepared, Weld County was not even included in an ozone nonattainment area and oil and gas development was not even known to be a significant source of ozone precursor emissions.

   Response: Nowhere in the air quality analysis do we mention that we rely on the 1991 O&G EIS for making this particular leasing decision with respect to air. For this EA and other leasing EAs, we explain that we will do thorough analyses when we have more information at the project-level stage, and we disclose CARMMS planning area specific and cumulative air quality impacts for a hypothetical discussion for future emissions scenarios (high, medium, low), which includes all sources of ozone precursor emissions.

9. **Summary**: Page 4 lines 15-26. Studies report that the carbon footprint of horizontal wells is greater than the footprint of vertical or conventional oil and gas wells. This is not only due to the fact that horizontal drilling and fracking requires more energy, thereby requiring more fuel, equipment, etc., but also due to higher methane emissions.

   Response: The oil shale development in this area of Weld County does produce natural gas but not at the rates / quantities as would be produced from shale gas wells, therefore, application of the argument of shale gas wells producing much more GHG emissions than conventional wells to oil shale wells is not correct. The "advanced" technologies and practices required by the new Colorado Regulations for GHG emissions should greatly reduce GHG emissions from future Colorado-based wells. Further, BLM Colorado routinely conducts analyses and permits well development for wells where the operators' design plans include closed-loop systems and green completion practices that reduce GHG emissions.

10. **Summary**: Since the 1994 RMP FEIS and1991 oil and gas FEIS were prepared, the Denver Metro/North Front Range ozone nonattainment area was designated, the link between oil and gas development and high ozone levels has been thoroughly established, and studies continue to emphasize that oil and gas development poses tremendous public health risks with regards to air quality. The BLM has yet to analyze and assess the Field

Office-wide impacts of all oil and gas development, including horizontal drilling and fracking, such that it can assure that project-level decisions will not significantly impact the environment or otherwise assure compliance with federal air quality standards as required by the Federal Land Policy and Management Act.

Response: Page 4 line 44 –page 5 line 15. Cumulative impacts were disclosed for the proposed project through discussion of the CARMMS model (high development scenario). The BLM has initiated the CARMMS study to address cumulative impacts from oil and gas development on a statewide basis. We have also incorporated preliminary results of the study (where available) into our EA for the purposes of disclosing RGFO area impacts as well as other quasi-cumulative source groups (see below). All of the pollutants analyzed by CARMMS are based on the current (as of Dec. 2014) EPA standards. We disclosed the preliminary CARMMS results in the EA, and that the predicted impacts from federal oil and gas development were not significant. The CARMMS report is now final and the entire report is available on our website at: http://www.blm.gov/style/medialib/blm/co/information/nepa/air_quality.Par.97516.File.dat/CARMMS_Final_Report_w-appendices_012015.pdf.

The EA discusses the potential PSD pollutant increments - including $PM_{2.5}$ - (not to be confused with an increment analysis, for which the State of Colorado has authority), and AQRVs (visibility and deposition) impacts at nearby or maximally impacted Class I and sensitive Class II areas. We also disclosed the preliminary DVF ozone impacts at RRF monitors within the region. Further, where we had data for source apportionment groups we provided the relative contributions to these results from; 1) new oil and gas sources with the RGFO Area 1 (i.e. weld county, northern Colorado), 2) cumulative new federal oil and gas in Colorado , 3) cumulative new federal and non-federal oil and gas in Colorado , and 4) ALL cumulative sources (not just oil and gas, but others such as minor point sources, EGUs, and mobile sources) within the 4km CARMMS modeling domain. The available data provides an adequate basis for a FONSI for the May 2015 lease sale EA, especially when you consider the disclosed impacts are for the year 2021, and that the contemporaneous emissions from oil and gas (i.e. right now) are far below the projected oil and gas emissions increases modeled by CARMMS.

11. **Summary**: Page 5 lines 17-33. Since the 1994 RMP and 1991 oil and gas decisions were issued, other new national ambient air quality standards ("NAAQS") have been adopted. Since these standards were adopted, the BLM has not analyzed or assessed the impacts of oil and gas development within the Royal Gorge Field Office to these NAAQS.

    Response The current EA shows maximum $PM_{2.5}$ 24-hour and annual concentration contributions at nearby Class I Areas for the RGFO-wide source group (source apportionment area in PGM). As previously mentioned the BLM utilizes the entire CARMMS report for authorizing O&G activities and routinely discloses regional $PM_{2.5}$ and NO_2 modeling results (O&G sources in the area are very minor SO_2 emitters) in project-level EAs. It is important to note that the primary pollutants of concern for near-field analyses at the project-level stage are NO_2 and $PM_{2.5}$ and future BLM Colorado project-level near-field analyses will consider these pollutants before authorizing Federal O&G development.

12. **Summary**: Page 8 lines 13-15. Before the BLM can approve any further oil and gas development, including the proposed leases, the agency must analyze and assess the greenhouse gas emissions and carbon costs associated with oil and gas development in the Royal Gorge Field Office.

    Response: The current EA provides GHG emissions for project-area counties, and briefly discusses Climate Change in general. The EA also discloses GHG emissions for "typical" O&G wells. As mentioned, the BLM will conduct an accounting-like analysis at the project-level stage taking into consideration up-to-date cumulative GHG emissions inventories and new GHG emissions associated with any proposed project.

    The BLM has provided for a state of the practice climate change analysis associated with global projected emissions as appropriate within the EA. We will estimate quantifiable GHG emissions during our required subsequent NEPA analysis when and if we receive APD(s) for any actual proposed development in the future. Any potential future emissions resulting from an approval of any APD(s) are not expected to change the predictions made describing the impacts of climate change, due to the cumulative and global scale of the issue

13. **Summary:** Page 10 line 37- page 15 line 1. The BLM has not ensured conformity with the Clean Air Act. The action is not exempt from the conformity requirements. BLM has described foreseeable future emissions but has not provided a quantitative analysis for all of the parcels to ensure General Conformity is satisfied. BLM recently prepared an RFD for the field office, and developed parcel-specific emissions inventories for seven of the parcels under consideration; a similar strategy could be used to estimate emissions and determine conformity for all parcels under consideration.

    Response: The BLM has addressed general conformity at length in the EA. Contrary to the commenter's position, the BLM does not find that emissions are reasonably foreseeable at the leasing stage of oil and gas development. And thus the proposed action is exempted from the requirement for a conformity analysis under 40 CFR § 93.153(c)(3). The emissions from any potential future development are highly uncertain because: 1) We do not know and will not speculate on the timing or overall pace of development for any particular parcel such that we can estimate tons per year for any pollutant(s); 2) We do not know and will not speculate about what equipment sets might be proposed (for both mobile and stationary sources, e.g., a Tier II or Tier IV rig, flare or vapor recovery unit) or how proposed wells will be developed (i.e. will they be hydraulically fractured or not, will they be vertical or horizontal bores), or what equipment might be explicitly exempted under the general conformity rules; 3) We do not know and will not speculate as to what resources a well might target (oil vs. gas) and what the production rates might be for the various resources that might be recovered, all of which will affect the inventory in ways that makes a conformity analysis impractical and unforeseeable at the leasing stage. For the purposes of a NEPA cumulative impacts analysis, the BLM has made some broad and reasonable assumptions to provide for an appropriate analysis such as was done for the CARMMS analysis. But a conformity analysis requires project specific information and cannot simply rely on broad

assumptions, or speculation concerning development timing, pace, or overall project design features.

The RGFO RFD is appropriate for estimating emissions on a broad scale, and was the basis for the Bureau's CARMMS emissions inventory development. However, BLM has determined that it is inappropriate to scale down RFD from a field office wide scenario that includes both federal and non-federal mineral development reported on a township basis (36 X 640 = 23,040 acres), to individual parcels, some of which are no more than 40 acres. To illustrate this point consider the following example. A township with the maximum projected development (150 wells from the RGFO RFD very high estimate) would yield 0.26 wells for a 40 acre parcel. Obviously, a quarter well is not something that exists. The results of scaling can be even more severely skewed in townships with far less estimated development. Scaling RFD like this can lead to either under or over predictions for any given parcel, and BLM considers this method too speculative to support an analysis for an action that does not authorize emissions, particularly given that specific temporal and spatial air quality impacts will be evaluated when and if any development is proposed in the future. To be clear, the RFD is an appropriate resource for estimating potential emissions on a field office scale, but not on the scale of individual parcels that may be developed in widely varying ways.

In 2013, to meet various data objectives, the BLM completed an estimated 20-year emissions inventory for the RGFO based on the recent RFD scenario discussed above. The RGFO emissions inventory formed the foundation for the projected emissions that went into the CARMMS modeling effort. The cumulative air quality impacts analysis in the EA relied entirely on the CARMMS analysis, which looked at expected cumulative development across the RGFO and the state, including any future development on the parcels under consideration. The CARMMS analysis includes an analysis of ozone and ozone precursors.

As noted by the commenter, the BLM included in the preliminary EA an appendix containing parcel-specific estimated emissions inventories that BLM had prepared for the seven parcels under consideration for lease reinstatement. These inventories were created because BLM was exploring the possibility of developing a quasi-quantitative analysis for ozone precursors for the seven parcels, by deriving parcel specific emissions inventories from the broader RGFO inventory based on the scaled RFD , and qualitatively contrasting the potential emissions in the context of existing air quality in the vicinity of the parcels. As explained above, BLM air specialists later determined that there was too much uncertainty associated with the scaled RFD used to develop the parcel-specific inventories for the parcel-specific results to be reliable.

The CARMMS project was initiated in 2013, and the results of the CARMMS photochemical grid modeling (PGM) were available for use in the air quality impacts analysis in the EA. The BLM did not rely on the seven parcel-specific emission inventories for any portion of the air quality impacts analysis in the preliminary or revised EA. The parcel specific inventories were an artifact from the previous strategy that BLM explored, and subsequently determined to yield results that were too imprecise to be reliable, particularly given the availability of the more robust results of the CARMMS analysis. As the parcel-specific inventories did not inform the analysis in the

preliminary EA, they need not have been included with the document. Because the parcel-specific inventories were not used in the EA, are unreliable, and could cause confusion, BLM has removed the appendix that contained those inventories from the revised EA. The BLM fully relied on CARMMS in the EA to provide information to the public and the decision maker with respect to potential impacts of development in source apportionment development areas and in the state of Colorado as a whole.

We further state in the EA that leasing does not authorize development, and that the specific impacts of development will be analyzed later when the Bureau has information about project specifics. Since leasing does not authorize development there are no specific emissions to analyze, and thus the proposed federal action, i.e. offering parcels for lease and reinstating seven leases, is exempt from further analysis under the General Conformity requirements. BLM routinely analyzes the CAA conformity of development-stage project proposals in the NAA.

14. **Summary:** Page 15 line 5-line 20. "The EA appears to fall short of adequately analyzing and assessing air quality impacts" because "the BLM does not actually analyze and assess reasonably foreseeable emissions associated with development of the proposed leases" and "it appears there is no actual analysis and assessment of impacts to the 1-hour NO_2 NAAQS, the 24-hour $PM_{2.5}$ NAAQS . . . and the annual $PM_{2.5}$ NAAQS.".

    Response: The BLM conducted an appropriate analysis of the impacts to air quality that are reasonably foreseeable at the leasing stage. The EA describes the actual O&G development that has occurred in the area in recent years as compared to the projections made by the RFD, and then provides the development phase and production phase annual emission rates for "typical" O&G wells. This level of potential emissions disclosure is reasonable due to the fact that the amount, location and timing of new development is not known at this time. It is likely that most of future O&G development will occur in a year when there is a very different cumulative emissions inventory for the region as compared to now. The EA does disclose CARMMS baseline year 2011 and future year 2021 O&G emissions for RGFO Area #1 (most of the nominated parcels are located in CARMMS RGFO Area #1). It is reasonable to assume that any future emissions associated with new O&G development on the nominated parcels would be included in the CARMMS 2021 emissions inventories, and therefore associated with the incremental impact contributions described in the EA.

    As previously described, the primary pollutants of concern for near-field analyses at the project-level stage are NO_2 and $PM_{2.5}$ and future BLM Colorado project-level near-field analyses will consider these pollutants before authorizing Federal O&G development. The full CARMMS report includes all of the pollutants described in the comment and CARMMS air quality impact summaries for these pollutants and averaging times are routinely provided in project-level EAs and used to review the impacts of O&G development. The current EA provides a pollutants / AQRVs regional impact summary and does not focus on near-field pollutants / concerns that will be addressed at the project-level stage when project-specific information is available. The current EA does disclose CARMMS projected cumulative visibility impacts (includes impact contributions from $PM_{2.5}$ and PM_{10}), nitrogen deposition (related to NOx emissions) and

ozone contributions (related to NOx emissions) for the RGFO-wide source group / source apportionment area.

As stated in the EA, the Bureau will not speculate on what rates and types of development may be proposed for any future APD(s) for any specific parcel (see comment response 14). The EA adequately disclosed the preliminary CARMMS results for the affected environment for the future RFD within the region and showed that the future Federal development is expected to have no significant effects on air quality. The EA further states that before any emissions (direct or indirect) can be authorized, the BLM must provide analysis for an actual development proposal. Where such an analysis of an actual proposal demands additional environmental protections the Bureau will provide for Conditions of Approval (COAs) to ensure significant effects are mitigated appropriately (as stated in the EA). The commenter suggests stipulations as an appropriate means of providing for environmental protection, however, based on the analysis contained in the EA, BLM has concluded that sufficient protection of air quality can be achieved through the application of COAs.

15. **Summary**: Page 6 line 11- page 7 line 38 and Page 15 line 26-page 18 line 24. The BLM has not adequately analyzed and assessed impacts in the context of the social cost of carbon.

    Response: The social cost of carbon protocol (SCC) was developed by an Interagency Working Group (IWG), including the Environmental Protection Agency (EPA) and others, for use in cost-benefit analyses of proposed regulations that could impact cumulative global emissions (Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, available at: http://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf).

    Executive Order 13514 required Federal agencies to submit a 2020 greenhouse gas pollution reduction target within 90 days, and to increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage Federal purchasing power to promote environmentally-responsible products and technologies. This EO does not apply to land management decisions.

    The Social Cost of Carbon (SCC) protocol was developed by the Office of Management and Budget using an interagency working group in response to Executive Order 12866, which requires federal agencies, to the extent permitted by law, "to assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs." SCC estimates the monetary cost incurred by the emission of one additional metric ton of carbon dioxide (CO2), and is not applicable to non-CO2 GHG emissions, such as methane. It includes (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change. The SCC was developed to assist agencies in meeting Executive Order (EO) 12866's requirement to assess costs and benefits during the development of regulations,

and to support agencies in responding to EO 13514; not for use in making land management decisions.

Estimating SCC is challenging because it is intended to model effects on the welfare of future generations at a global scale caused by additional carbon emissions occurring in the present and does not account for the complexity of multiple stressors and indicators. Uncertainty of production rates, volumes, and end uses from the proposed action and alternatives would seriously limit application of the SCC protocol. The Agency does not know how quickly those resources would be developed; whether the fuel would be used in vehicles, power plants, or other consumptive use with varying emission rates; or what changes in technology or climate affecting end-uses may occur. The speculative nature and high variability of such an analysis would be of little use in making a leasing availability decision and subsequent determination of whether specific parcels of federal minerals should be leased for oil and gas development. It is BLM's determination that in this particular instance, calculating the SCC from CO2 emissions from the combustion of an unknown quantity of produced oil and gas would be highly speculative but likely would be negligible in relation to the impacts from oil and gas burned on a nationwide or global basis.

EO 12866 requires cost-benefit analyses when developing regulations, and the IWG encourages the use of the SCC protocol in those cases. The May 2015 Oil and Gas Lease Sale is not a regulatory action but rather a leasing action. The act of leasing land for oil and gas development in itself does not emit any carbon or greenhouse gases. The EA was prepared in accordance with NEPA to inform the BLM's decisions as to whether or not to make specific land available for oil and gas leasing, and the terms and conditions under which those lands may be leased.

Unlike EO 12866, NEPA does not require a quantitative cost-benefit analysis, although CEQ NEPA regulations allow agencies to use it in NEPA analyses in certain circumstances. (40 CFR 1502.23). As contemplated in the CEQ regulations, the EA recognizes that there are environmental costs associated with the development and use of fossil fuels, and also identifies benefits that oil and gas development provide to the local economy and tax base, and in helping to meet the energy needs of the country. The analysis appropriately weighs the merits and the drawbacks of the proposed action and alternatives.

The EA includes an analysis of socioeconomic impact that acknowledges the monies received from leasing the parcels. The socioeconomic impact analysis estimates the distributional effects of the proposed action on sectors of the regional economy, primarily by measuring the changes in employment and income within the Adams, Arapaho, Logan, Morgan, and Weld County, Colorado. Because of the speculative nature of development, however, the analysis does not attempt to quantify costs and benefits associated with drilling, possible production or eventual combustion of fluid minerals from the lease parcel.

A cost-benefit analysis, by contrast, would examine the economic efficiency of a proposed action—the net change in social welfare resulting from the costs and benefits of

a proposal, including consideration of market and non-market values. The economic impact analysis for this project is not the "benefit" side of a SCC cost-benefit analysis.

Rather, SCC provides one element of a benefit-cost analysis: the monetization of all meaningful economic benefits and costs. Monetizing only certain effects on social welfare can lead to an unbalanced assessment. Reporting the SCC in isolation could be misleading. As a federal District Court in Oregon recently held in *League of Wilderness Defenders/Blue Mts. Biodiversity Project v. Connaughton*, 2014 U.S. Dist. LEXIS 170072 (D. Or. Dec. 9, 2014), a SCC analysis is not required to comply with NEPA where there is no clear way to quantify costs and benefits. Because anticipated production from a particular lease parcel is speculative, and the resulting CO2 emissions from eventual combustion of that production is even more speculative, a qualitative evaluation of climate change, as presented in the EA, is appropriate.

The EA quantified the estimated greenhouse gas emissions that would result from a 20-year high development scenario (p. 25-27). The total potential greenhouse gas emissions reported in the EA is conservatively high because "it is reasonable to conclude that project-level O&G development (based on actual development plans) would have even lower contributions to the overall cumulative air quality" (p. 26). The EA qualitatively describes the potential increases in GHG emissions on the environment using climate projections specific to Colorado. This information is at a scale that is relevant and useful to the decision-maker and meets the requirements of NEPA.

The BLM also has acknowledged that climate science does not allow a precise connection between project-specific GHG emissions and specific environmental effects of climate change. This approach is consistent with the approach that federal courts have upheld when considering NEPA challenges to BLM federal coal leasing decisions. *WildEarth Guardians v. Jewell*, 738 F.3d 298, 309 n.5 (D.C. Cir. 2013); *WildEarth Guardians v. BLM*, 8 F. Supp. 3d 17, 34 (D.D.C. 2014).

Threatened and endangered species related comment:

16. **Summary:** Page 5 line 48 – page 6 line 9. The BLM has not yet assessed to what extent oil and gas activities authorized by the RMP and the 1991 oil and gas decision impact threatened and endangered species, including but not limited to piping plover, whooping crane, pallid sturgeon and least tern. This includes how the potential water depletion and contamination in the South Platte river as a result of water use for oil and gas development affect these species.

    Response: The act of leasing mineral rights for oil and gas exploration and/or development will have no impact on threatened or endangered species. The leasing decision provides the right to explore and produce, but future production activities are subject to separate authorizations, and leasing does not assure that development will occur. However, if exploration and/or development does occur, stipulation CO-34, to alert lessee of potential habitat for threatened, endangered, candidate, or other special status plants or animals, has been applied to all parcels available for this lease sale. If

development is proposed for leased parcels, review of site specific proposals will be completed and, if appropriate, protective requirements will be applied. The U.S. Fish and Wildlife Service will be notified if proposals may affect threatened or endangered species and/or their habitat, at which time a determination of need for Section 7 consultation, as required by the Endangered Species Act, will be made.