United States Department of the Interior
Bureau of Land Management

Final Environmental Assessment
DOI-BLM-CO-S010-2012-0061

November 2012

Tres Rios February 2013 Oil and Gas Lease Sale

Location: 12 parcels in Archuleta, Dolores, La Plata, Montezuma and San Miguel Counties, Colorado

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BLM

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Table of Contents

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Tres Rios Field Office February 2013 Oil and Gas Lease Sale. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" effects could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27.

This document is tiered (40 CFR 1502.20) to, and incorporates by reference, both the Record of Decision for the Oil and Gas Plan Amendment to the San Juan/San Miguel Resource Management Plan (October 1991) /Final Colorado Oil and Gas Leasing and Development Environmental Impact Statement (FEIS), released in January 1991 (BLM 1991), and the San Juan /San Miguel Resource Management Plan and FEIS (1984)/Final Record of Decision and San Juan/San Miguel Resource Management Plan (RMP, 1985).

This chapter presents the purpose and need of the proposed project, as well as the relevant issues, i.e., those elements of the human environment that could be affected by the implementation of the proposed project. The BLM has considered a range of action alternatives to meet the purpose and need of the proposed project in a way that protects resource values. These alternatives are presented in Chapter 2. The BLM also has analyzed a no-action alternative. The potential environmental effects or effects resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues.

1.1 Background

Oil and gas leasing is one use of the public lands and current BLM policy encourages orderly development of leases and makes mineral resources available to meet national, regional, and local energy needs. This policy is based in various laws, including the Mineral Leasing Act of 1920 (MLA) and Section 102(a)(12), 103(1) of the Federal Land Policy and Management Act of 1976 (FLPMA). The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA) (Sec. 5102(a)(b)(1)(A)) directs the BLM to conduct quarterly oil and gas lease sales in each state whenever eligible lands are nominated and available for leasing. Leases would be issued pursuant to 43 Code of Federal Regulations (CFR) Subpart 3100. Stipulations are conditions or demands that modify the terms of the lease to provide additional resource protection when the environmental and planning record demonstrates the necessity for them.

Colorado Bureau of Land Management (BLM) Instruction Memorandum No. CO-2010-027 provides guidance and direction for implementing Washington Office (WO) IM 2010-117, Oil and Gas Leasing Reform-Land Use Planning and Lease Parcel Reviews. It also provides guidance for parcel review, timeframes, leasing recommendations and attachments to be included with the EA. This EA has been prepared in accordance with IM CO-2010-027 by the BLM Tres Rios Field Office (TRFO) to analyze leasing of twelve nominated parcels. It serves to

verify conformance with the approved land use plan, provides the rationale for deferring or dropping parcels from a lease sale, provides rationale for attaching lease stipulations to specific parcels, and analyzes the environmental effects of potential leasing decisions.

This EA was made available to the public, including the list of available lease parcels and stipulations, for a 30-day public comment period. After the end of the public comment period, the BLM analyzed the comments, developed responses and made changes as necessary. The final parcel list with stipulations and notices will be available to the public through a Notice of Competitive Lease Sale (NCLS) which will start the protest period (30 days). When possible, the Colorado BLM will resolve any protests between the end of the protest period and the lease sale. If any changes are needed to the parcels or stipulations/notices, an erratum will be posted to the BLM Colorado leasing website to notify the public of the change.

The parcels will be available for sale at an oral auction tentatively scheduled for February 14, 2013. If a parcel of land is not purchased at the lease sale by competitive bidding, it may still be leased within two years after the initial offering. Following issuance, a lease may be held for ten years before expiration unless oil or gas is produced in paying quantities. A producing lease can be held indefinitely by economic production.

Lease sale notices are posted on the Colorado BLM website at: http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas/lease_sale_notices.html. On rare occasions, additional information obtained after the publication of the NCLS may result in withdrawal of certain parcels prior to the day of the lease sale.

1.1.1 Leasing and Development Process

Leasing is only one step in the process of oil and gas development. First, federal minerals are made "Available to Lease" in Resource Management Plans (RMP), such as the 1985 San Juan/San Miguel RMP and 1991 Amendment that made the current lease parcels available. Next, minerals are offered for lease, with resource protections known as stipulations that are derived from the applicable RMP. That is the decision addressed in this EA. Finally, if parcels are leased, the lessee submits an Application for Permit to Drill (APD), which must be analyzed through the NEPA process, before a well is permitted and mineral extraction begins.

The act of leasing parcels would, in itself, have no direct effects on any resources in the field office. All indirect effects would be related to as yet undetermined future development of the leases. Even if parcels are leased, it remains unknown whether development would actually occur, and if so, where specific wells would be drilled and where facilities would be placed. This EA analyzes likely effects of mineral extraction under the parcel-specific stipulations (Appendix D) and available mitigation measures.

Many possible effects of mineral extraction cannot be considered "likely" since they depend on site-specific details of the well, pipeline and road locations as well as details of the target formations and drilling technology used. Thus, site-specific analysis of exploration and production cannot be analyzed at the leasing stage.

Instead, if the parcels are leased, the BLM conducts further NEPA analysis at the development stage to identify site-specific effects of proposed development. The lessee must submit to the BLM an Application for Permit to Drill (APD), which details information about proposed wells and facilities for particular leases. The BLM reviews APDs in accordance with NEPA. The lessee must comply with any stipulations attached to the standard lease form, and any Conditions of Approval (COA) attached to the APD.

If an APD is approved, the lessee may produce oil and gas from the well in a manner approved by BLM in the drilling permit or subsequent sundry notices. Operators must comply with state and local laws and regulations.

For an APD on split-estate land (i.e., federal minerals with privately or state owned surface), the lessee would submit an APD, which would be analyzed by the BLM through the NEPA process. In addition, operators are required to make a good faith effort to contact the surface owner before entering private surface to stake a well location and access road or to conduct cultural or biological surveys and to negotiate a Surface Use Plan of Operations with the surface owner. Constraints on development of split estate parcels are determined by the BLM in consultation with the appropriate surface management agency or the private surface owner. The BLM will offer the surface owner the same level of surface protection that the BLM provides on Federal surface. The BLM will not apply standards or conditions that exceed those that would normally be applied to Federal surface, even when requested by the surface owner. Development would be subject to recommendations and Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses.

If a surface owner cannot be found or a Surface Use Agreement cannot be reached, an operator may provide a bond to cover their reasonable access onto private land. There is no legal requirement for use of adjacent privately-owned surface to develop federal minerals.

1.1.2 Location of Proposed Action

The proposed February 2013 Oil and Gas Lease Sale parcel list includes twelve parcels within Tres Rios Field Office (TRFO) which are identified using the following parcel identification numbers: 6401, 6402, 6433, 6434, 6447, 6448, 6449, 6450, 6451, 6452, 6471, 6533. These twelve parcels comprise 12,175 acres, of which 3,369 acres are federal surface ownership, 7766 acres are private surface ownership, and 1040 acres are State of Colorado surface ownership. All parcels are entirely federally owned minerals. The parcels are located in Archuleta, Dolores, La Plata, Montezuma and San Miguel counties (Figure 1.1.2; See Attachment A for complete parcel legal descriptions, surface ownership acreage, and proposed stipulations).

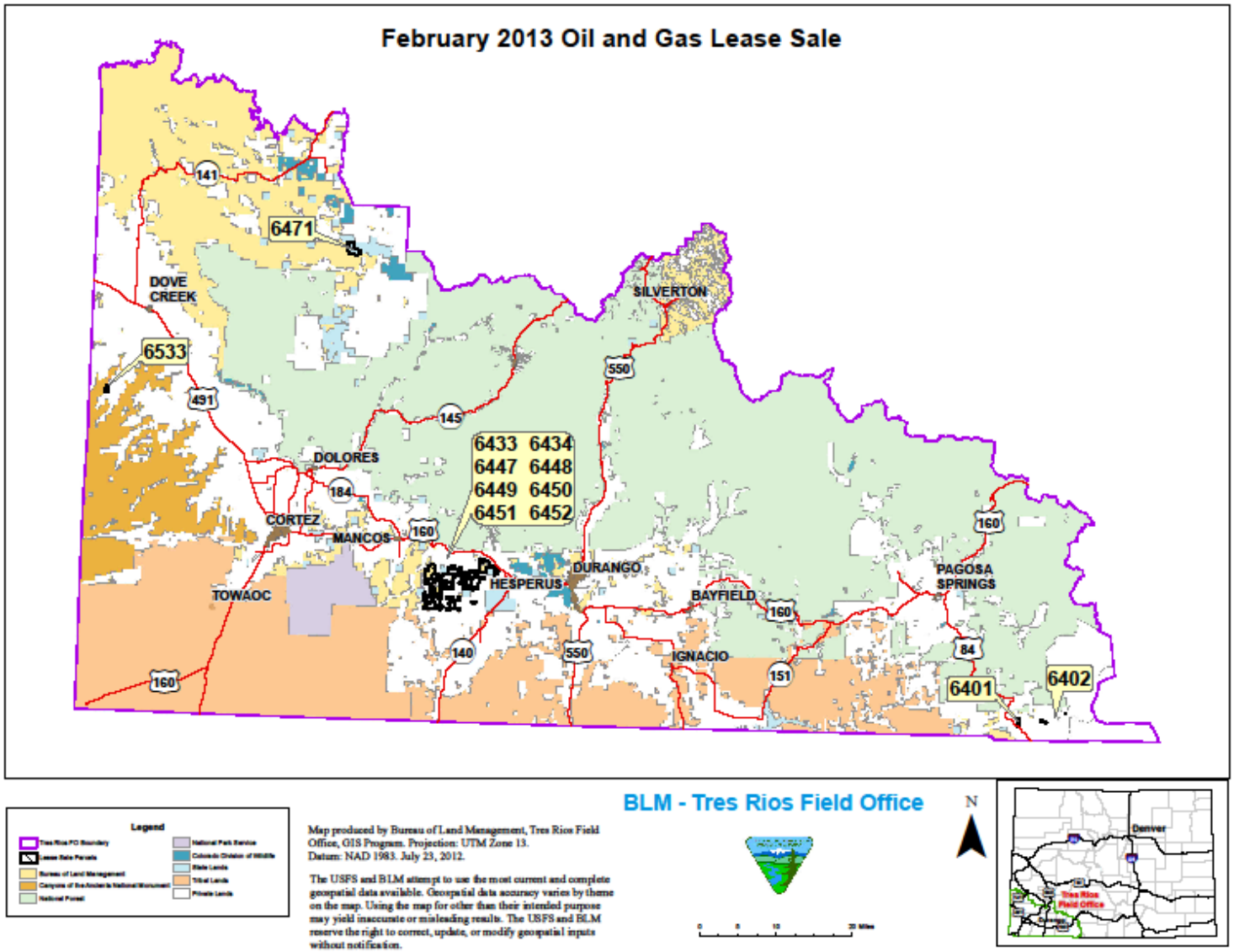


Figure 1.1.2 General Area Map

1.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to respond to the nomination of parcels for competitive leasing for private individuals or companies interested in exploring for and developing oil and gas resources on public lands.

The need of the action is to fulfill the BLM's responsibility under the MLA, as amended, to promote the development of oil and gas on the public domain, where consistent with the FLPMA, The National Environmental Policy Act (NEPA), and other applicable laws, regulations, and policies.

1.3 Decision to be Made

The 1985 San Juan/San Miguel Resource Management Plan and the 1991 Plan Amendment determined that the minerals in the lease areas are Available for Leasing. The BLM will use this EA to analyze the likely effects of leasing these twelve nominated parcels with the attached stipulations.

This EA will not address decisions on exploration and production of the minerals. The BLM makes exploration and development decisions after further analysis in response to Applications for Permits to Drill.

1.4 Conformance with BLM Land Use Plan(s)

- **Land Use Plan**: San Juan/San Miguel Planning Area Resource Management Plan (SJ/SM RMP).
- **Date Approved/Amended**: September 1985/ October 1991.

The proposed action and action alternatives analyzed in this EA are in conformance with the current resource management plan (RMP) and are specifically addressed in the following decision language:

MINERALS MANAGEMENT

Energy and Minerals Program

BLM actively encourages and facilitates the development by private industry of public land mineral resources so that national and local needs are satisfied and economically and environmentally sound exploration, extraction, and reclamation practices are provided. SJ/SM RMP page 17.

Resource Objectives

Oil and Gas Leasing. As a general rule, public land is available for oil and gas leasing. SJ/SM RMP page 17.

Planned Actions

Continue oil and gas leasing subject to environmental stipulations. SJ/SM RMP page 17.

Clarification: The 1991 Oil and Gas Amendment to the RMP contains both a written narrative and a map of areas not available for lease. The **"**No Lease" area description in the 1991 Amendment relates to the Wilderness Study Areas (WSA), and states that 103,152 acres of BLM-administered mineral estate under these WSAs will not be leased. In contrast, the "No Lease" area depicted on Map 2 of the 1991 RMP Amendment encompasses more acreage than what the narrative indicates. A potential conflict was identified when some of the current lease parcels appeared to be within the "No Lease" area depicted on Map 2.

The potential conflict was resolved after mapping the 103,152 acres designated as WSA using modern GIS technology and determining that none of the parcels currently nominated for lease are within the associated "No Lease" area boundary. At this time, all twelve parcels are being considered for leasing.

1.5 Relationship to Statutes, Regulations, or Other Plans

- Federal Land Policy and Management Act (1976), as amended
- National Historic Preservation Act (1966), as amended
- American Indian Religious Freedom Act (1978)
- Bald and Golden Eagle Protection Act (1962)
- Endangered Species Act (1973), as amended
- Migratory Bird Treaty Act (1918)
- Gunnison Sage-grouse Range-wide Conservation Plan (Colorado Division of Wildlife resources, 2005)
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
- MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (April 2012)
- Oil and Gas Leasing Reform—Land Use Planning and Lease Parcel Reviews (BLM WO IM 2012-117)
- MOU between Colorado BLM and State of Colorado Oil and Gas Conservation Commission (COGCC) and USDI BLM concerning Oil and Gas permitting on BLM and NFS Lands in Colorado (BLM MOU CO-485)(July 2009)
- Interagency Agreement between the USDI Bureau of Reclamation (BOR) and the USDI BLM. Coordination and land use planning, land resource management, land conveyance and exchange, and cooperative services (1983)
- Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands.
- Code of Federal Regulations, Title 43, part 3101 section1-2, Surface Use Rights.

These documents and their associated analysis and/or information are hereby incorporated by reference, based on their use and consideration by various authors of this EA.

1.6 Scoping and Identification of Issues

The proposed parcels were reviewed by an ID Team composed of resource specialists from the BLM TRFO. This team identified resources in the parcel areas which might be affected and considered potential effects using current office records and geographic information system (GIS) data. Information on the 2013 Lease Sale was posted to the TRFO BLM website, and letters with information about the parcels and proposed stipulations were sent to surface owners and posted online for a two week public scoping period starting on June 11, 2012. Sixteen comments were received and all timely and substantive comments were considered by the ID Team in identification of issues.

The results of the ID team review, including a list of all resource issues selected to be analyzed, are described below. The resource issues are analyzed in Chapter 3 of this EA.

In addition, this EA was made available for public review and comment for 30 days beginning August 17, 2012 with an extension of the comment period until October 2, 2012. All timely and substantive comments provided within the comment period were considered, responded to and incorporated in the EA as appropriate (Attachment E).

Through initial scoping and outreach, the TRFO identified the following key issues regarding the proposed action:

IDENTIFICATION OF KEY ISSUES

Wildlife

- How will the proposed action affect habitat fragmentation, displacement, and reduction of wildlife species?
- How will the proposed action affect bird species, including raptors?

Threatened, Endangered and Sensitive Species

- Are there Threatened & Endangered species that will be negatively affected by the proposed action?
- Are sensitive species, including the Colorado River Cutthroat Trout, going to be negatively affected by the proposed action?
- Will the proposed action negatively affect Gunnison sage-grouse (*Centrocercus urophasianus*) habitat and active leks around the proposed action?
- Will the proposed action negatively affect Threatened and Endangered plant species, including Pagosa Skyrocket (Ipomopsis polyantha), on the lease parcels?

Soil & Water Resources

- How will the proposed action affect riparian areas that are relied upon by the Colorado River Cutthroat Trout for sustenance?
- Will hydraulic fracturing affect groundwater resources in the areas proposed for leasing?

- Will the proposed action increase erosion, runoff, and slope failures due to the steep slopes?

Cultural

- How will the proposed action affect National Historic Landmarks and National Register Districts?
- How will the proposed action affect Traditional Cultural Properties?

Transportation

- How will the proposed action increase traffic and degrade existing road quality in the area?

Air Quality and Climate

- Will the proposed action affect air quality by increasing dust and other pollutants, or result in a changed climate of the area?

Socio-Economics

- What are the possible effects of this lease sale on employment, personal income, and relative to local, state, and federal governments?

Recreation and Visual Resources

- How will the proposed action affect the recreation value and visual integrity of the landscape in the area, especially the San Juan Scenic Byway?

Leasable Solid Minerals

- How will the proposed action affect existing mines?

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Alternative A – Proposed Action

The proposed February 2013 Oil and Gas Lease Sale parcel list includes twelve parcels within the management area of the TRFO and are identified using the following parcel numbers: 6401, 6402, 6433, 6434, 6447, 6448, 6449, 6450, 6451, 6452, 6471, 6533. These twelve parcels comprise 12,175 acres:

- 3,369 acres are federal surface ownership (approx. 28%)
- 7,766 acres are private surface ownership (approx. 64%)
- 1,040 acres are State of Colorado surface ownership (approx. 8%)

All parcels are entirely federally owned minerals.

The parcels are located in Archuleta, Dolores, La Plata, Montezuma and San Miguel counties. Stipulations are attached to these parcels to provide resource protections (Figure 2.1.1-2.1.4; See Attachment A for complete parcel legal descriptions, surface ownership acreage, and proposed stipulations for the Proposed Action).

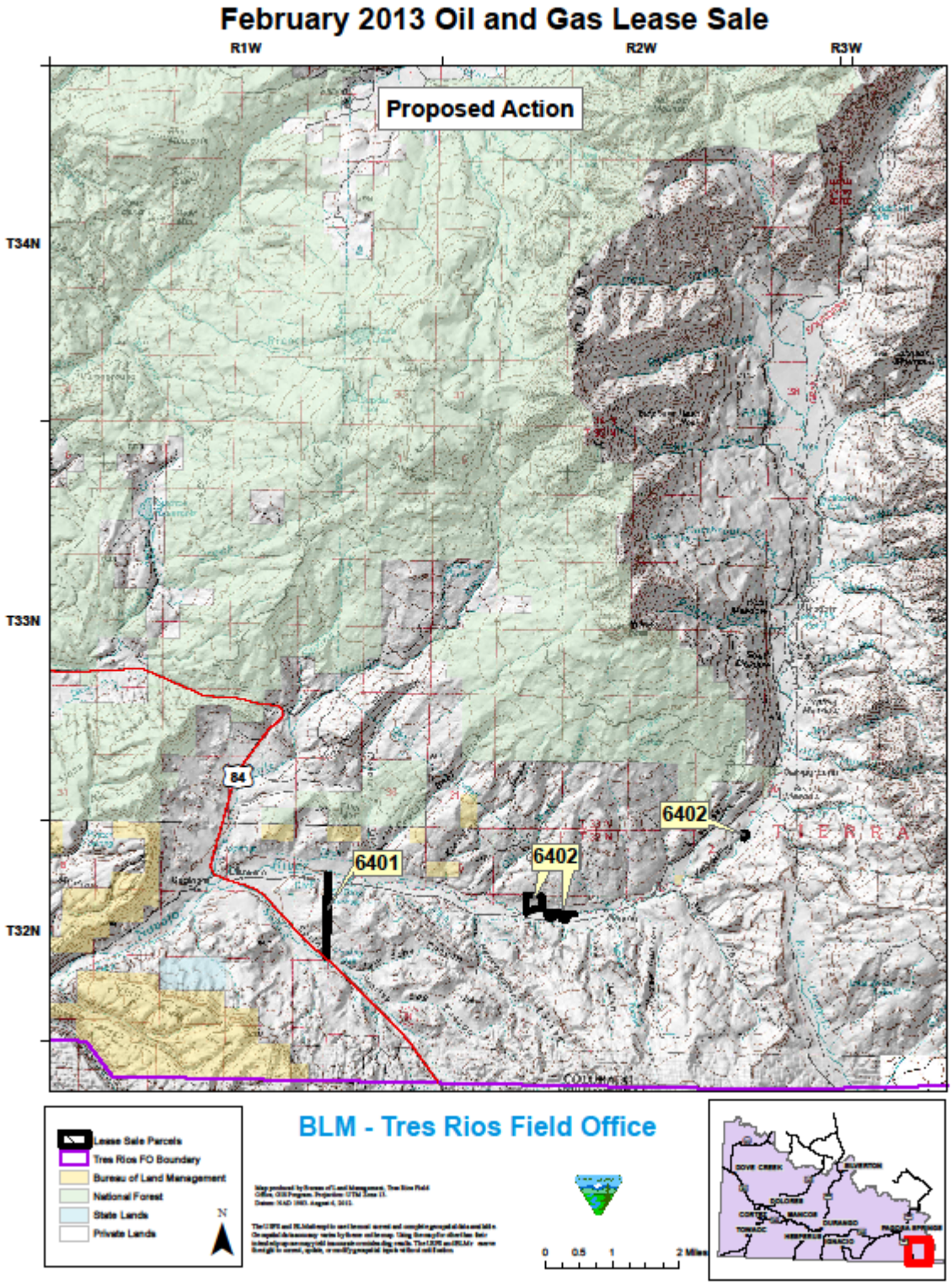


Figure 2.1.1 Chromo Area Parcels: 6401 and 6402

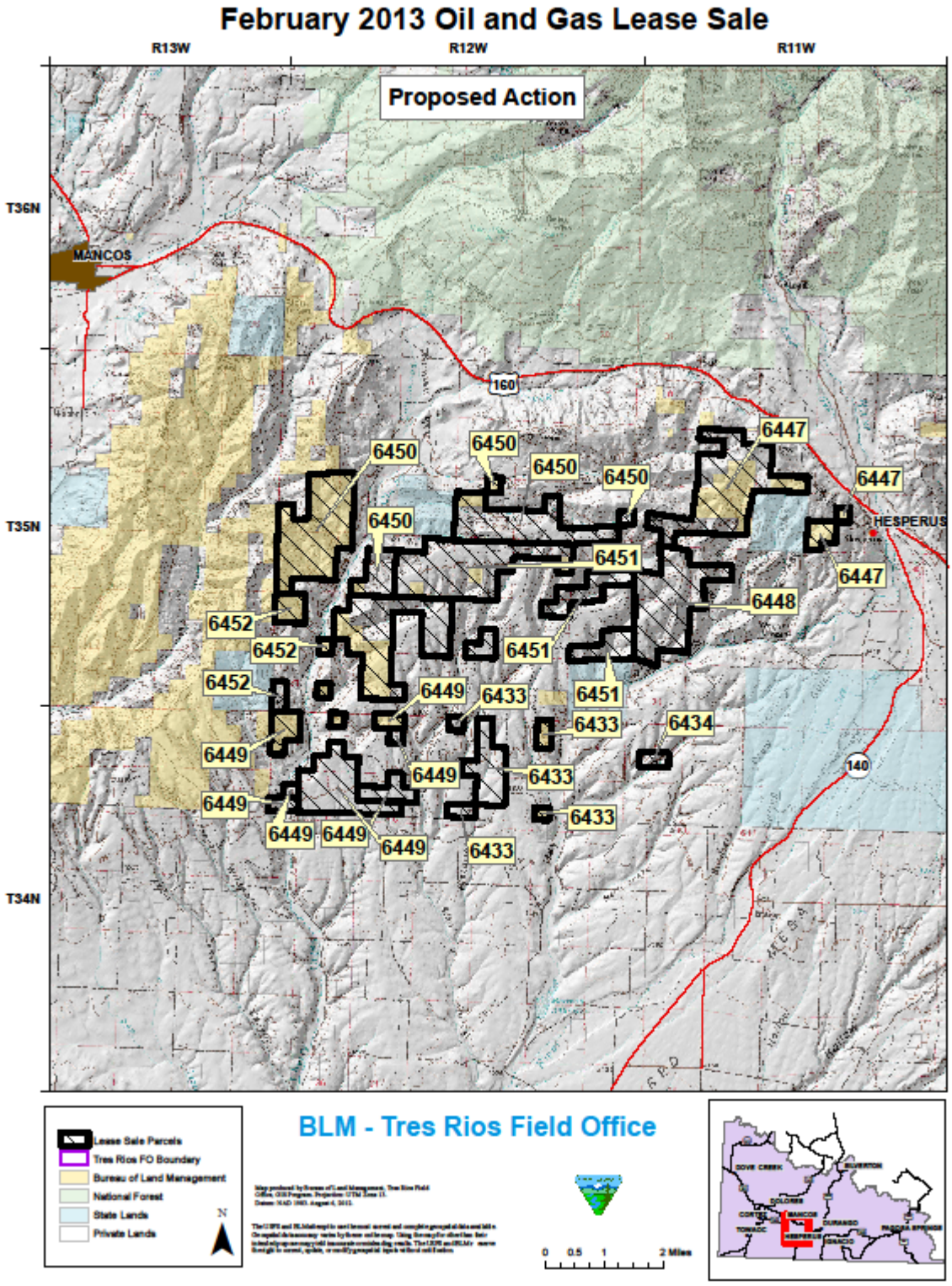


Figure 2.1.2 Hesperus Area Parcels: 6433, 6434, 6447, 6448, 6449, 6450, 6451, 6452

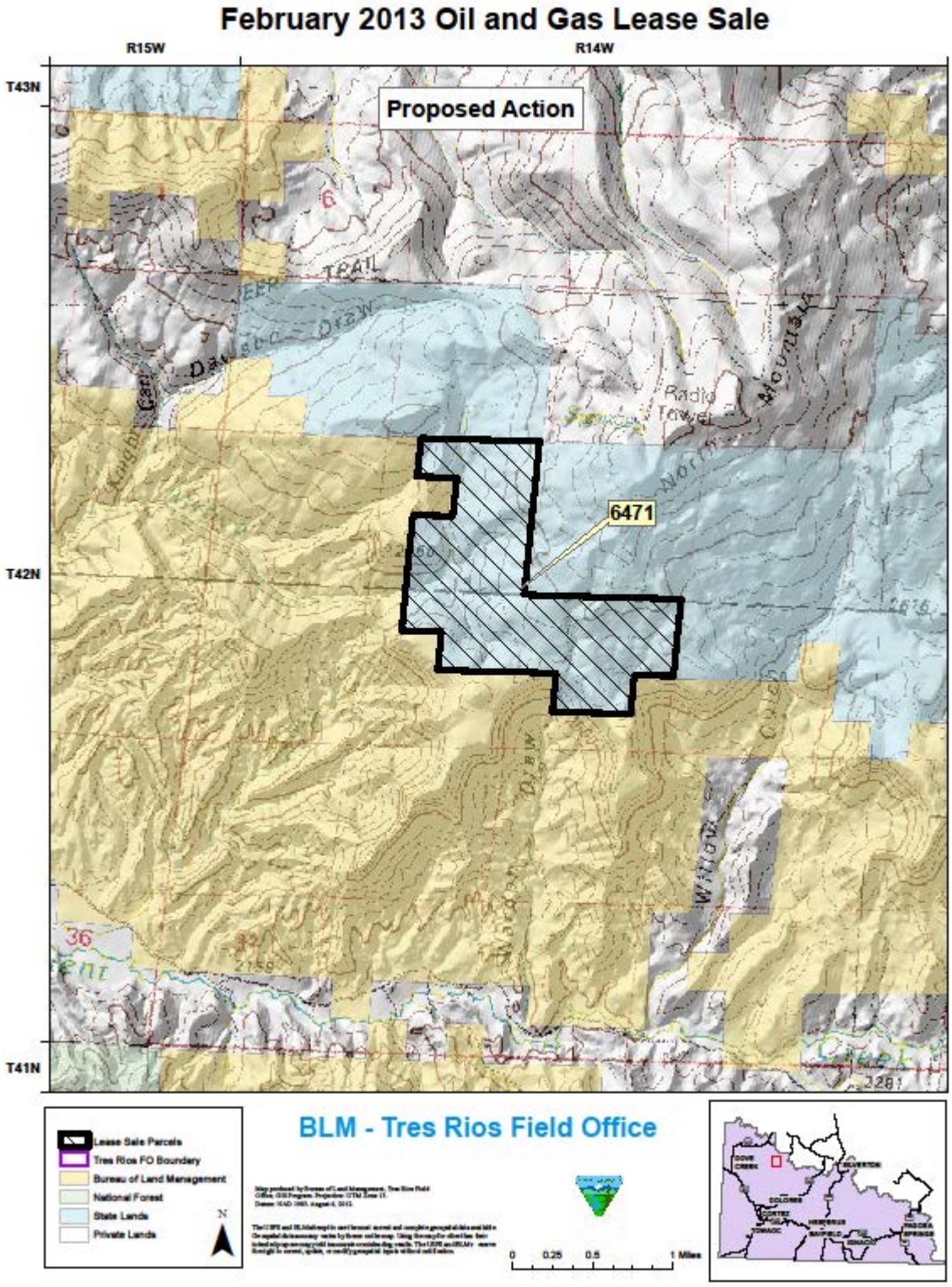


Figure 2.1.3 McKenna Peak Area Parcel: 6471

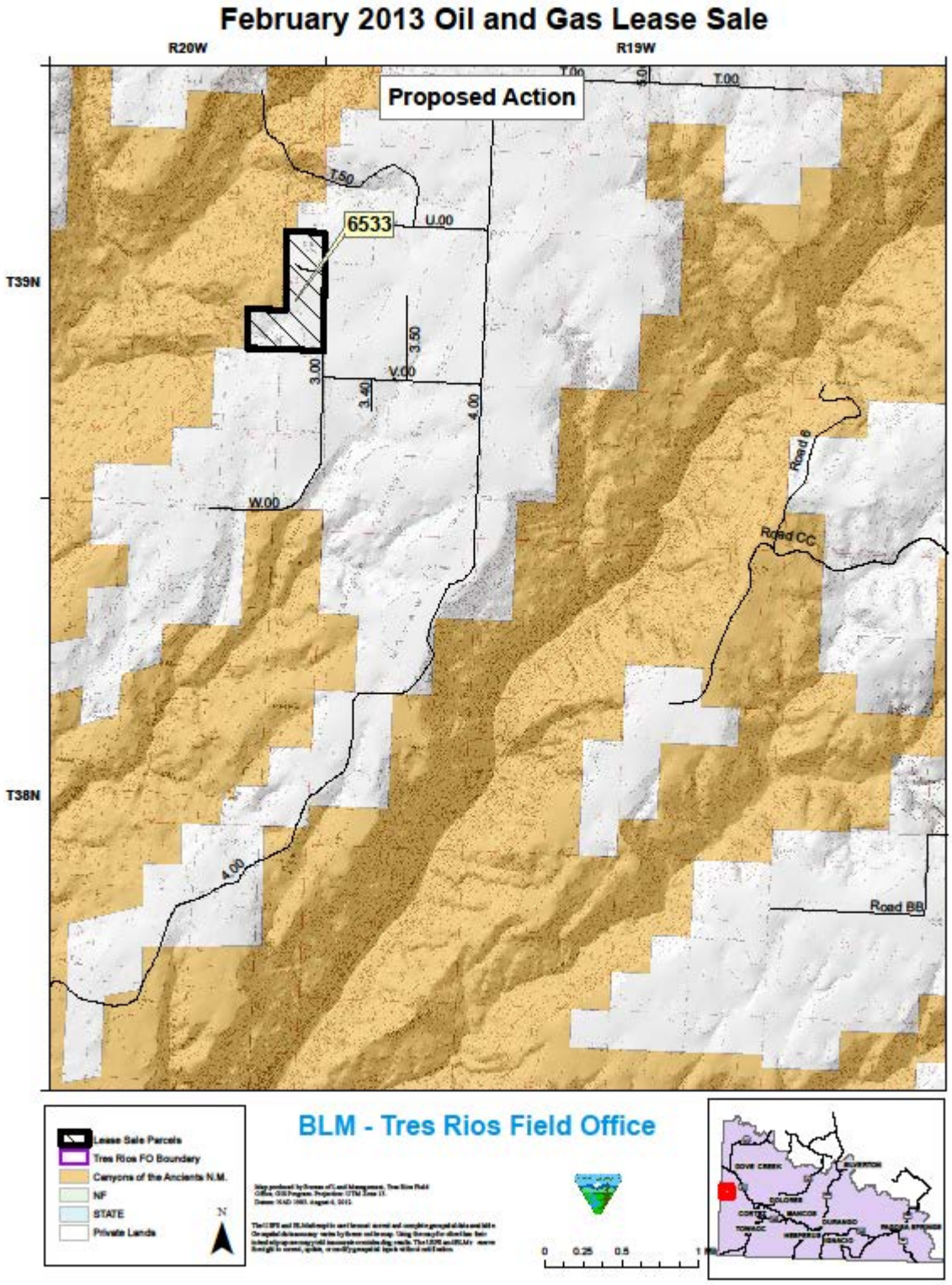


Figure 2.1.4 SW Dove Creek Area Parcel: 6533

2.2 Alternative B

Alternative B includes the same lease parcels as the Proposed Action. However, approximately 64 acres of Parcel 6447 would be deferred to allow for additional protections for the view-shed of the San Juan Scenic Byway (Figure 2.3, Attachment B). All other stipulations will be applied as in the Proposed Action (See Attachment C for complete parcel legal descriptions, surface ownership acreage, proposed stipulations, and lease notices for Alternative B). Because of the deferred 64 acres, the potential for mineral extraction may be slightly reduced.

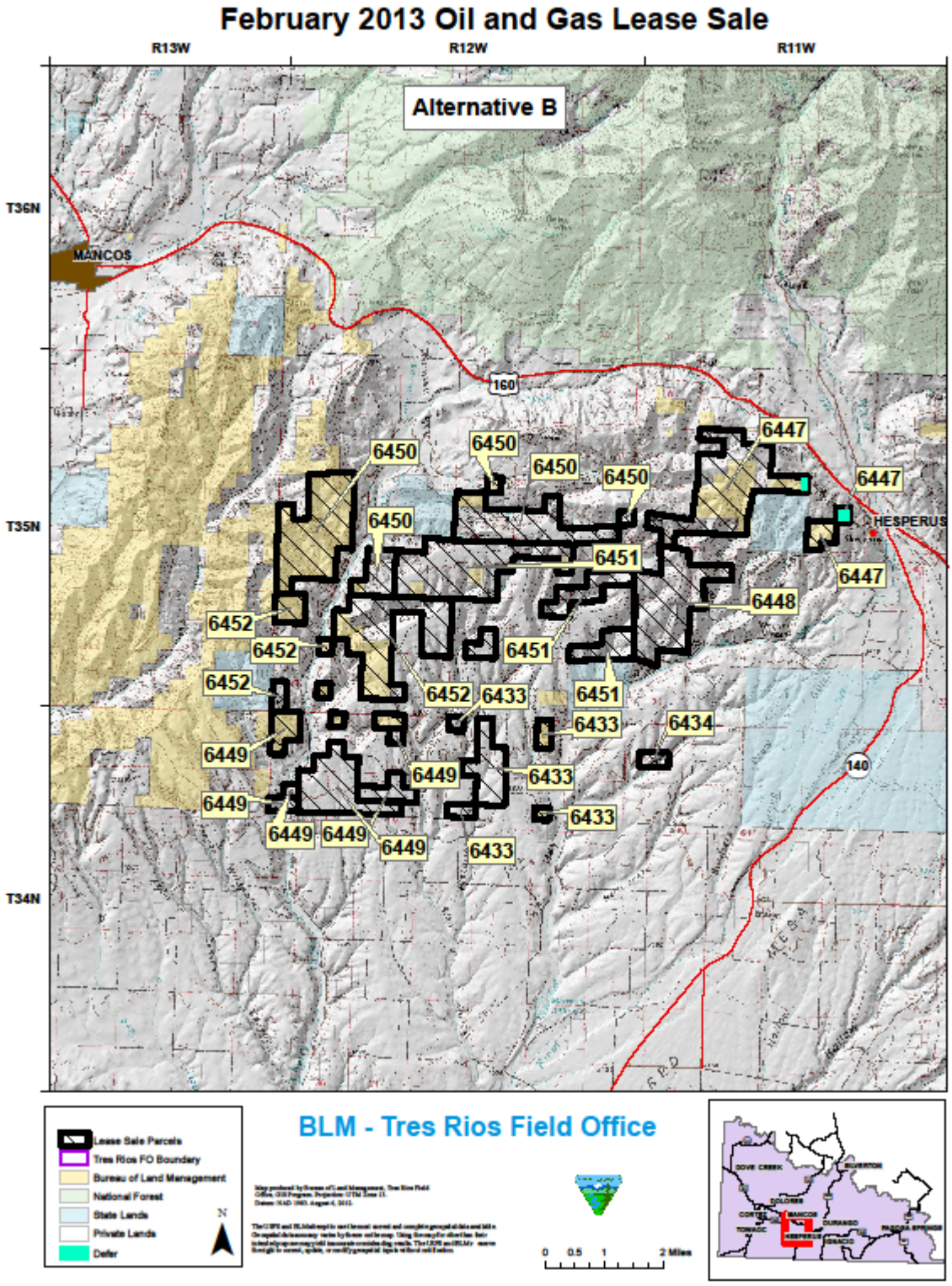


Figure 2.2. Alternative B-recommended deferral of 64 acres in Parcel 6447.

2.3 Alternative C – No Action

The BLM NEPA Handbook (H-1790-1) states that the No Action Alternative for externally initiated proposed actions means that the proposed action would not take place. In this case, the expression of interest to lease (parcel nomination) would be denied or rejected and the lease parcels would be removed from the February 2013 lease sale.

However, the parcels would remain available 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.

No mitigation measures would be required because no new oil and gas development would occur on the unleased lands. No rental or royalty payments would be made to the Federal government. It is not expected that demand for oil production would decrease. It is assumed that the continuing demand would be addressed through production elsewhere.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the affected area as presented in Chapter 1 of this EA. This chapter provides the baseline for comparison of effects described in Chapter 4.

3.2 General Setting

The parcels are located in Archuleta, Dolores, La Plata, Montezuma, and San Miguel counties in southwest Colorado. This area is known for a rich cultural heritage, diverse recreational opportunities, historic agricultural production, and mining properties.

3.2.1 Resources/Issues Considered

Potential effects to resources/concerns were evaluated to determine if detailed analysis was necessary. Consideration of some of these elements is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the BLM Tres Rios Field Office in particular.

Determination*	Resource	Rationale for Determination
PI	Air Quality	Emission not authorized at leasing stage.
NP	Areas of Critical Environmental Concern	None present.
PI	Cultural Resources	Potentially present but will not be affected by lease sale.

Determination*	Resource	Rationale for Determination
PI	Greenhouse Gas Emissions	Emissions not authorized at leasing stage.
PI	Environmental Justice	No environmental justice populations reside in the project area
NP	Farmlands (Prime or Unique)	None identified by NRCS soil survey.
PI	Fish and Wildlife Excluding USFWS Designated Species	Site specific analysis will occur if developed.
NP	Floodplains	None of 100 year and greater.
NI	Fuels/Fire Management	No concerns.
PI	Geology / Mineral Resources/Energy Production	Several proposed lease parcels overlap an existing coal lease.
PI	Hydrologic Conditions	Soils will be disturbed and timing of runoff.
NI	Invasive Species/Noxious Weeds	Will analyze effects if actual development occurs.
PI	Transportation	Possible increase in traffic or new roads.
NI	Livestock Grazing	Will analyze effects if actual development.
PI	Migratory Birds	Site specific analysis will occur if developed.
PI	Native American Religious Concerns	Potentially present but will not be affected by lease sale.
PI	Rangeland Health Standards	Standards 1, 2 and 3 analyzed in EA.
PI	Socio-Economics	Possible indirect effects of this lease sale could lead to an increase in employment, personal income, and revenue to local, state, and federal governments.
PI	Soils	Soils will be disturbed and timing of runoff altered.
PI	Threatened, Endangered or Candidate Plant Species	Generalized analysis included in EA. Site-specific effects will be analyzed if actual development occurs.
PI	Threatened, Endangered or Candidate Animal Species	Specific potential effects will be analyzed in detail if development occurs.
PI	Wastes (hazardous or solid)	Some analysis in the Soil and Water Resources section. More specific potential effects will be analyzed in detail if development occurs.
PI	Water Resources/Quality (drinking/surface/ground)	Soils will be disturbed and timing of runoff.
PI	Wetlands/Riparian Zones	Present but have No Surface Occupancy stipulations.
NP	Wild and Scenic Rivers	Resource not present in parcels.
NP	Wilderness/WSA	WSA near proposed action, but no overlap occurs.
NI	Woodland / Forestry	No concerns.

Determination*	Resource	Rationale for Determination
NI	Vegetation Excluding USFWS Designated Species	Will analyze effects if actual development occurs.
PI	Recreation/Visual Resources	Analysis found in EA for visuals. Recreation primarily based on proximity to Scenic Byway and Hesperus Ski Area.
NP	Wild Horses and Burros	No Wild Horses or Burros present in parcels.
NP	Areas with Wilderness Characteristics	Inventories for RMP have found no Wilderness Characteristics present in effect area.

***DETERMINATION OF STAFF:**

NP = not present in the area affected by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for relevant effects that need to be analyzed in detail in the EA

Elements Not Brought Forward for Detailed Analysis

As shown above, the following issues were eliminated from analysis because they were not applicable to the lands considered (not present or not affected to a degree that detailed analysis is required) in the proposed action.

Areas of Critical Environmental Concern

There are no Areas of Critical Environmental Concern within the proposed action area.

Farmlands (Prime or Unique)

There are no Farmlands (Prime or Unique) as defined by 7 CFR 657.5 within the proposed action area. Farmland of local importance is analyzed in the Soil and Water Resources sections.

Floodplains

There are no 100 year and greater floodplains within the proposed action area.

Wild and Scenic Rivers

There are no designated wild and scenic rivers in the proposed action area.

Wilderness and Wilderness Study Areas

There is no designated wilderness within or adjacent to the proposed area. There are Wilderness Study Areas adjacent to, but not within, the lease parcels.

Wild Horses and Burros

There are no wild horses and burros within the proposed action area.

Areas with Wilderness Characteristics

No lands within the leased parcels were found to possess wilderness characteristics.

Fuels/Fire Management

The proposed action is not anticipated to affect these resources to the degree that analysis is required. Development scenarios in Section 4.2 assume a total of 21.6 acres of short term

disturbance and 31.2 acres of long-term disturbance. This is less than 0.5% of the total lease parcel area, and at this time it is unknown if or how much development would take place on different vegetation types, so changes to fuel loads are minimal. Risks of wildfire are dependent upon details of development such as location, vegetation type and fire safety plans, which can be best analyzed during the development stage.

Invasive Species/Noxious Weeds
The proposed action is not anticipated to affect these resources to the degree that analysis is required. Potential for weed infestation depends in part on existing levels of weeds, previous disturbance and weed control efforts, which would be analyzed during the development stage.

Livestock Grazing
The proposed action is not anticipated to affect these resources to the degree that analysis is required. Only three parcels (6449, 6450, and 6452) overlap with federal grazing allotments. Development scenarios in Section 4.2 assume 4.4 acres of disturbance per parcel, and at this time it is unknown if the disturbance would take place on the grazing allotment. This would disturb between 0% and 0.25% of the acreage of each allotment, depending on the placement of development activities. Further analysis may take place during the development stage.

Woodland/Forest Resources
The proposed action is not anticipated to affect these resources to the degree that analysis is required. Past and present timber consumption consists mostly of firewood collection. Merchantable timber resource is very limited in federal lands in the area, and steep slopes and inaccessibility also limit harvest activities. Further analysis may take place during the development stage.

Vegetation Excluding USFWS Designated and Other Special Status Species
The proposed action is not anticipated to affect these resources to the degree that analysis is required. Development scenarios in Section 4.2 assume a total of 21.6 acres of short term disturbance and 31.2 acres of long-term disturbance. This is less than 0.5% of the total lease parcel area, and at this time it is unknown if or how much development would take place on private or public land, or in what ecotype. Further analysis may take place during the development stage.

3.3 Resources Brought Forward for Analysis

3.3.1 Wildlife

3.3.1.1 Wildlife – Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712 as supplemented) prohibits the unregulated "take" of most native bird species except gallinaceous birds. It covers direct harm to birds rather than including harm to habitat. MBTA does not exempt unintentional take of birds. Proposals that appear to risk direct damage to birds or live eggs must show diligence in avoiding or reducing this risk. The lead enforcement agency, the U.S. Fish and Wildlife Service (USFWS), publishes a list, "Birds of Conservation Concern" (BCC), indicating that avoiding

harm to the species on this list will contribute substantially to showing diligence to the requirements of the Migratory Bird Treaty Act. These are non-game migratory avian species that the USFWS has targeted as conservation priorities but are not currently federally listed as threatened or endangered. BCC species with potential to occur in the project area include, but are not limited to; Golden eagle (*Aquila chrysaetos*), gray vireo (*Vireo vicinior*), juniper titmouse (*Baeolophus ridgwayi*), plumbeous vireo (*Vireo plumbeus*), blue-gray gnatcatcher (*Polioptila caerulea*) and pinyon jay (*Gymnorhinus cyanocephalus*). Habitat on the proposed lands for leasing ranges from sage steppe habitat to pine forest with oak brush understory. This landscape diversity provides suitable habitat for a wide variety of key life function activities such as breeding, feeding and movement for these migratory bird species.

A Memorandum of Understanding (MOU) was recently signed between the U.S. Fish and Wildlife Service (USFWS) and the BLM outlining a collaborative approach to promote the conservation of migratory bird populations (4/12/10). The MOU states that BLM should evaluate the effects of actions on migratory birds during the NEPA process and identify where agency actions may have a measurable negative effect on migratory bird populations. The focus of this evaluation should be on species of concern, priority habitats, and key risk factors.

Table 3.1 shows the full list of BCC species found in the Tres Rios Field office. Species affected refers to a measurable negative effect on bird populations from the proposed action, and is addressed in greater detail in the discussion of effects from the proposed action alternative.

Table 3.1 USFWS Birds of Conservation Concern

Species	Habitat Present In Project Area?	Species Affected?
American Bald eagle	**Yes**	**No**
American bittern	**No**	**No**
Brewer's sparrow	**Yes**	**No**
Brown-capped rosy-finch	**No**	**No**
Cassin's finch	**No**	**No**
Ferruginous hawk	**Foraging habitat (winter only)**	**No**
Flammulated owl	**No**	**No**
Golden eagle	**Yes**	**No**
Grace's warbler	**No**	**No**
Gray vireo (BLM only)	**Yes**	**No**
Gunnison sage grouse	**Possible**	**No**
Juniper titmouse	**Yes**	**No**
Lewis' woodpecker	**No**	**No**
Peregrine falcon	**Yes**	**No**
Prairie falcon	**Yes**	**No**
Pinyon jay	**Yes**	**No**
Southwest willow flycatcher	**No**	**No**
Western burrowing owl	**No**	**No**
Yellow-billed cuckoo (BLM only)	**No**	**No**

3.3.1.2 Wildlife – Terrestrial

There are numerous and diverse terrestrial wildlife species that may occur in the analysis area. Mammals that may be within the lease parcels area include: red and gray fox (*Vulpes spp.)*, raccoon (*Procyon lotor*), coyote (*Canis latrans*), badger (*Taxidea taxus*), desert shrew (*Notiosorex crawfordi*) possibly the Merriam's shrew (*Sorex merriami*), black-tailed jackrabbit (*Lepus californicus*), desert and mountain cottontail (*Sylvilagus spp.*), chipmunks (*Tamias spp.*), ground squirrels (*Sciuridae spp.*), woodrats (*Neotoma spp.)*, mule deer (*Odocoileus hemionus*), elk (*Cervus Canadensis*), several species of mice (*Peromyscus spp.*), and the ringtail (*Bassariscus astutus*) (Fitzgerald 1994, pers. observations). Although all of the species are important members of native communities and ecosystems, most are common and have wide distributions within the state, region, and field office.

Several of the lease parcels are within or near important big game use areas including migratory routes, production areas and important winter range that provide forage for elk and deer throughout the winter months. Though leasing is not anticipated to compromise these important life functions for big game species, they will be addressed in greater detail in the discussion of effects from the proposed action alternative.

3.3.1.3 Wildlife – Aquatic

Several parcels are adjacent to or contain perennial streams which would provide potential habitat for aquatic wildlife. Additionally, these aquatic habitats provide food, cover and shelter for a variety of mammal, bird, and amphibian and reptile species common to southwest Colorado. Although all of the species are important members of native communities and ecosystems, most are common and have wide distributions within the state, region and field office (See Threatened, Endangered and Sensitive Species section for aquatic TES species).

In July 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addresses water depleting activities in the Colorado River Basin. In response to BLM's PBA, the USFWS issued a Programmatic Biological Opinion (PBO) (#ES/GJ-6-CO-08-F-0010) on February 25, 2009, which determined that water depletions from the Colorado River Basin resulting from BLM actions described in the PBO are not likely to jeopardize the continued existence of the Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*) or result in the destruction or adverse modification of their critical habitat. These threatened, endangered and sensitive fish species are addressed in the next section. The PBO addresses internal and external BLM projects including impoundments, diversions, water wells, pipelines, and spring developments. The USFWS determined that projects that fit under the umbrella of the PBA would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion effects to the Upper Colorado River Basin if they deplete relatively small amounts of water (less than 100 AF) and BLM makes a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by each project. The PBO instructed BLM to make an annual payment to the National Fish and Wildlife Foundation (NFWF) to cover all BLM authorized actions that result in water

depletions. Refer to the mitigation section relating to stock ponds and the USFWS programmatic Biological Opinion.

3.3.2 Threatened, Endangered and Sensitive Species

3.3.2.1 Threatened, Endangered and Sensitive Species – Wildlife

Analyzing and disclosing the effects of the proposed action to federally listed species is needed to comply with the Endangered Species Act of 1973 (16 U.S.C.1531 et seq.), as amended; BLM manual 6840 direction for special status species management; and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.4321 et seq.), as amended. For the reasons discussed below, the potential future development of the lease parcels is not expected to result in a requirement to consult with the US Fish and Wildlife Service (Section 7, Endangered Species Act).

There is no habitat for the boreal toad (*Bufo boreas*), a candidate species, in the proposed analysis area. The yellow-billed cuckoo (*Coccyzus americanus*), a candidate species, relies on cottonwood galleries within riparian areas. There are no documented observations and no mapped habitat for the yellow-billed cuckoo in the project area so no further analysis will be conducted. This project also falls outside of mapped habitat for the New Mexico Jumping mouse (*Zapus hudsonius luteus*) and no individuals of this species are known to occur within the project area so no further analysis will be conducted.

The Canada Lynx (*Lynx canadensis)* is a threatened species that has been successfully re-introduced to Southwest Colorado and is known to occur within the TRFO management area. The areas proposed for leasing are not in any mapped Lynx analysis units (LAU's) and are outside of suitable lynx habitat. Although there may be areas in the proposed leasing area that are used for travel by lynx, potential future development of lease parcels is not expected to have an effect to this species.

Table 3.3.2.1. Federally listed T&E and Candidate species

Federally Listed Species	Status	Habitat Present In Project Area?	Species Affected?
Mammals			
New Mexico jumping mouse	Candidate	**No**	**No**
Canada lynx	Threatened	**No**	**No**
Birds			
Southwestern willow flycatcher	Endangered	**Yes**	**No**
Western yellow-billed cuckoo	Candidate	**No**	**No**
Mexican spotted owl	Threatened	**Yes**	**No**
Gunnison sage grouse	Candidate	**Yes**	**No**
Fish			
Bonytail	Endangered	**No**	**No**
Colorado pikeminnow	Endangered	**No**	**No**

Razorback sucker	Endangered	**No**	**No**
Greenback cutthroat trout	Threatened	**No**	**No**
Humpback chub	Endangered	**No**	**No**

Table 3.3.2.2 Colorado Bureau of Land Management sensitive fish, plant, and wildlife species

Species	Habitat Present In Project Area?	Species Affected?
Mammals		
Allen's big-eared bat	**Yes**	**No**
Big free-tailed bat	**No**	**No**
Fringed myotis	**Yes**	**No**
Spotted bat	**Yes**	**No**
Townsend's big-eared bat	**Yes**	**No**
Gunnison's Prairie Dog	**Yes**	**No**
Desert Bighorn Sheep	**No**	**No**
New Mexico Meadow Jumping Mouse	**No**	**No**
Gunnison's Prairie Dog	**No**	**No**
Birds		
American Bald Eagle	**Yes**	**No**
American peregrine Falcon	**Yes**	**No**
Ferruginous hawk	**Winter Foraging**	**No**
Western Burrowing Owl	**No**	**No**
Colombian sharp-tailed grouse	**No**	**No**
Northern goshawk	**No**	**No**
White-faced ibis	**No**	**No**
Fish, Herps and Amphibians		
Bluehead sucker	**Possible**	**No**
Colorado River cutthroat trout	**No**	**No**
Flannelmouth sucker	**Possible**	**No**
Roundtail chub	**Possible**	**No**
Desert spiny lizard	**Yes**	**No**
Longnose leopard lizard	**Yes**	**No**
Canyon treefrog	**No**	**No**
Northern leopard frog	**N0**	**No**
Insects		
Great basin silverspot butterfly	**No**	**No**

3.3.2.2 Threatened, Endangered, and Sensitive Species – Plants

Federally listed threatened, endangered or candidate plant species that could potentially occur or have potential habitat in the vicinity of these parcels include the Pagosa skyrocket (*Ipomopsis polyantha*) and the Schmoll milkvetch *(Astragalus schmolliae). Ipomopsis polyyantha* is currently listed as endangered and *Astragalus schmolliae* is currently a candidate for listing.

Habitat for four BLM and one Forest Service (FS) sensitive plant species could potentially occur in the vicinity of lease parcels, including potential habitat for Pagosa Bladderpod *(Lesquerella pruinosa)*, Lone Mesa snakeweed (*Guiterrezia elegans*), Cushion Bladderpod (*Physaria pulvinata*), Ripley milkvetch (*Astragagalus ripleyi)*, and Naturita milkvetch (*Astragalus naturitensis*). Table 3.3.2.3 below illustrates which parcels contain potential habitat for special status species and which species may be present.

Table 3.3.2.3 Potential Special Status Plant Species in Proposed Parcels.

Parcel #	6401	6402	6433	6434	6447	6448	6449	6450	6451	6452	6471	6533
Federally Listed Species												
Pagosa skyrocket (*Ipomopsis polyantha*), Endangered	X											
Schmoll milkvetch (*Astragalus schmolliae*), Candidate			X	X	X	X	X	X	X	X		
BLM (FS) Sensitive Species												
Pagosa Bladderpod (*Lesquerella pruinosa*)			X	X	X	X	X	X	X	X		
Lone Mesa Snakeweed (*Guiterrezia elegans*)			X	X	X	X	X	X	X	X		
Cushion Bladderpod (*Physaria pulvinata*)			X	X	X	X	X	X	X	X		
Ripley Milkvetch (*Astragalus ripleyi*)			X	X	X	X	X	X	X	X		
Naturita Milkvetch (*Astragalus naturitensis*)												X

3.3.3 Soil and Water Resources

3.3.3.1 Soil and Water Resources – Surface Geology/Soils

All lease parcels occur within the physiographic province of the Colorado Plateau. The Colorado Plateau largely consists of thick horizontal beds of limestone, sandstone, siltstone, and shale that were laid down in shallow marine waters. The climate of the plateau is generally arid which facilitates the process of erosion; thus, the plateau is also made up of distinctive erosional features such as mesas, cuestas, rock terraces, retreating escarpments, canyons and dry washes. In some parts of the plateau volcanic necks and buttes are abundant.

The Chromo area lease parcels, #6401 and #6402, are largely located in Quaternary alluvium which is drained by the Navajo River. Quaternary alluvium consists of silt, sand, and gravel in stream valleys and floodplains. Some of the parcel is located on Mancos shale, Cretaceous age marine clay shale with thin platy beds of limestone and calcareous sandstone.

The Hesperus area lease parcel is located mostly on Cliffhouse sandstone. The Cliffhouse sandstone is thick fine- to medium-grained cross-bedded sandstone approximately 400 feet thick that includes some shale. Other geologic units in the parcel are the Menefee Formation, Point Lookout sandstone, and Mancos shale. The Menefee Formation is nonmarine and consists of sandstone, claystone, shale, coal seams, and ironstone and limestone concretions. Point Lookout sandstone is massive sandstone with some alternating thin beds of sandstone and shale in its lower part.

The McKenna Peak area lease parcel, #6471, predominantly consists of the Mesa Verde Group, which is comprised of Cliffhouse sandstone, the Menefee Formation, and Point Lookout sandstone. There is a small amount of Mancos shale and Quaternary eolian deposits.

The Southwest Dove Creek area parcel, #6533, is located on approximately equal amounts of the Dakota and Burro Canyon Formations and Quaternary eolian deposits. The Dakota and Burro Canyon Formations are comprised of quartzitic sandstone and conglomerate sandstone with minor amounts of claystone, siltstone, shale, and mudstone.

The Chromo area lease parcel is dominated by the Herm-Echolake complex soil map unit (SMU). This SMU consists of slope alluvium derived from shale. It occurs on hills of 3 to 10% slope. Another predominant SMU within the lease parcel is the Vigil very gravelly loamy find sand. This SMU also consists of slope alluvium derived from shale and occurs on hill landforms but its slope ranges from 3 to 35%. Hazard of erosion on roads and trails for the Herm-Echolake complex is moderate. Hazard of erosion on roads and trails for the Vigil SMU is severe and thus poorly suited for natural surface roads. Surface runoff for both SMUs is high.

Table 3.3.3.1.1: Soil Classifications for Predominant Soils in Chromo Area

Soil Classification	Acres
Herm-Echolake complex, 3 to 10 percent slopes	32
Vigil very gravelly loamy fine sand, 0 to 3 percent slopes	17
Carracas clay loam, 3 to 35 percent slopes	11

The Hesperus area lease parcel is dominated by the Archuleta-Sanchez complex SMU. This SMU consists of residuum weathered from interbedded sandstone and shale. It occurs on mountainsides, ridges, and hills of 12 to 65% slope. Another predominant SMU within the lease parcel is the Lazear-Rock outcrop complex. This SMU is residuum and/or slope alluvium derived from sandstone and shale. Slopes range from 12 to 65%. Approximately 36% of the Hesperus area lease parcels have greater than 40% slope and 57% has greater than 25% slope. Hazard of erosion on roads and trails for both SMUs is severe and thus poorly suited for natural surface roads. Surface runoff for both SMUs is very high.

Table 3.3.3.1.2: Soil Classifications for Predominant Soils in the Hesperus Area

Soil Classification	Acres
Archuleta-Sanchez complex, 12 to 65 percent slopes	3,894
Lazear-Rock outcrop complex, 12 to 65 percent slopes	1,554
Zau stony loam, 3 to 9 percent slopes	1,403

The McKenna Peak area lease parcel is dominated by the Leaps-Hofly loams SMU. This SMU consists of slope alluvium derived from sandstone and shale. It occurs on mountainside slopes and mesas with 5 to 40% slopes. Hazard of erosion on roads and trails is moderate. Suitability for natural surface roads is poor. Surface runoff is very high.

Table 1.3.3.1.3: Soil Classifications for Predominant Soils in the McKenna Peak Area

Soil Classification	Acres

Leaps-Hofly loams, 5 to 40 percent slopes	471
Lillylands loam, 15 to 50 percent slopes	192
Ryman loam, warm, 2 to 20 percent slopes	135

The Southwest Dove Creek area lease parcel is dominated by the Wetherill loam SMU. This SMU consists of eolian deposits derived from sandstone. It occurs on hills and mesas with 3-6% slopes. Hazard of erosion on roads and trails is moderate. It is moderately suited for natural surface roads. Surface runoff is high.

Table 3.3.3.1.2: Soil Classifications for Predominant Soils in Southwest Dove Creek Area

Soil Classification	Acres
Wetherill loam, 3 to 6 percent slopes	116
Romberg-Crosscan-Rock outcrop complex, 25 to 80 percent slopes	27
Gladel-Pulpit complex, 3 to 9 percent slopes	20

A review of soil mapping units within the entire proposed lease area did not yield any soils identified in the Draft Land Management Plan as prone to surface erosion and landslides. However, landslides have historically occurred to the north of the Hesperus area lease parcels and landslide deposits make up the very eastern edge of parcel 6450.

In addition to reviewing soils prone to surface erosion and landslides, farmland of local importance was reviewed for the Hesperus area parcels. While there are parcels in the area that have been identified as agricultural for tax purposes, there are no parcels in the area that have been designated agricultural by local ordinance. A query on the parcels identified for tax purposes yielded 1,369 acres of "Agricultural Dry Farmland" and 5,987 acres of "Agricultural Dry Grazing Land." Lease parcels occurring in Montezuma County are only classified down to the tax designation and actual primary use information is not available.

3.3.3.2 Soil and Water Resources – Floodplains, Wetlands, and Riparian Zones

The Chromo area lease parcel is located within the Navajo River watershed. The major drainage within this watershed is the Navajo River, a perennial river that runs southwest into the San Juan River. The Hersperus lease parcels are located within the Headwaters La Plata watershed. The La Plata River is the main river within the watershed. It is a perennial river that runs south into the San Juan River. The McKenna Peak area parcel is located within the Disappointment watershed. The major river for the Disappointment watershed is Disappointment Creek. Disappointment Creek is a combination of ephemeral, intermittent, and perennial reaches. It drains west to the Dolores River. The Southwest Dove Creek parcel is located within the Cross Canyon watershed. Cross Canyon is the major drainage and is similar to Disappointment Creek in that it is a combination of ephemeral, intermittent, and perennial reaches. Cross Canyon is tributary to Montezuma Creek which is tributary to the San Juan River. All drainages that intersect the lease parcels are tributary to the upper Colorado River Basin via the San Juan or Dolores Rivers. Floodplains and riparian habitat exist on the larger order perennial stream reaches. Intermittent reaches, depending upon channel type, are also likely to have associated floodplains and riparian zones. Ephemeral reaches due to their infrequent flows are not likely to

have substantial floodplains or riparian areas. Lentic standing water represented as seeps and/or springs, wetlands, or lakes are not present within the lease parcel areas.

3.3.3.3 Soil and Water Resources – Surface Water Quality

The Chromo area lease parcel is located within water quality control stream segment 1 of the "San Juan River" Basin (CDPHE-WQCD, June 2010, Regulation No. 34). Stream segment 1 is defined as the mainstem of the Navajo River and the Little Navajo River, including all wetlands, tributaries, lakes and reservoirs, from the boundary of the South San Juan Wilderness Area to the Colorado/New Mexico border except for specific listings in Segment 3. Beneficial use classifications include Aquatic Life Cold 1, Recreation E, Water Supply, and Agriculture. The Chromo area lease parcel is located immediately adjacent to Navajo Creek.

The Hesperus area lease parcels are located within water quality control stream segment 3a of the "La Plata River, Mancos River, McElmo Creek, and San Juan River in Montezuma County and Dolores County" basin (CDPHE-WQCD, June 2010, Regulation No. 34). Stream segment 3a is defined as all tributaries to the La Plata River, including all wetlands, lakes and reservoirs, from the Hay Gulch diversions south of Hesperus to the Southern Ute Indian Reservation boundary. More specifically, the Hesperus lease parcels are located near Deadman Gulch, West and East Alkali Gulch, and Hay Gulch, all of which are tributary to Cherry Creek which is tributary to the La Plata River. Beneficial use classifications include Aquatic Life Warm 2, Recreation N, and Agriculture. All streams in this segment are use-protected. A use-protected designation allows for some water quality degradation as long as parameters associated with use classifications continue to meet State water quality standards.

The McKenna Peak lease area parcel is located within water quality control stream segment 3a of the "Lower Dolores River" basin (CDPHE-WQCD, June 2011, Regulation No. 35). Stream segment 3a is defined as all tributaries to the Dolores River, including all lakes, reservoirs and wetlands, from the bridge at Bradfield Ranch (Forest Route 505, near Montezuma/Dolores County Line) to the Colorado/Utah border, except for specific listings in Segments 3b, 4 and 5. More specifically, the McKenna Peak lease area parcel is located at the headwaters of Salt Arroyo and Warden Draw, tributaries to Disappointment Creek. Beneficial use classifications include Aquatic Life Warm 2, Recreation E, and Agriculture. All stream segments are use protected.

The Southwest Dove Creek area parcel is located within water quality control stream segment 10a of the "La Plata River, Mancos River, McElmo Creek, and San Juan River in Montezuma County and Dolores County" basin (CDPHE-WQCD, June 2011, Regulation No. 34). Stream segment 10a is defined as all tributaries to the San Juan River in Montezuma and Dolores Counties, including all wetlands, lakes and reservoirs, except for the specific listings in Segments 2 through 8b and Segments 10b and 11. More specifically, the Southwest Dove Creek area parcel is located near Squaw Canyon. Beneficial use classifications include Aquatic Life Warm 2, Recreation E, and Agriculture. All stream segments are use protected.

In association with designated beneficial uses, there are numeric and/or narrative standards associated with the surface waters in Colorado. Numeric standards include physical, biological,

inorganic and metal parameters. The salinity standard applicable to Colorado's surface waters is a unique numeric standard that is defined in the document *Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975*. The standard requires that water characteristics in the headwaters of the Colorado River are such that a total dissolved solid (TDS) value of 723 mg/L can be maintained below Hoover Dam. The temperature standard for the San Juan and Dolores River Basins is a narrative standard that states that temperatures must maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes. In addition to these standards, the Colorado Water Quality Control Commission (CDPHE-WQCD, June 2011, Regulation No. 31) has included a narrative statement for all surface waters that states all water (except in wetlands and/or except where authorized by approved permits, certificates, or plans of operation) shall be free from substances attributable to human caused point or non-point source discharges in amounts, concentrations, or combinations that can settle to form bottom deposits detrimental to the beneficial uses (this would include the accumulation of fine sediments); are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; and, produce a predominance of undesirable aquatic life. These are often referred to as the "free from" standards.

Stream segments that are not fully supporting their designated beneficial uses (by exceeding the one or more of the numeric or narrative standards) are defined as impaired and placed on the State's 303(d) List. Cherry Creek within the Hesperus area parcel is listed as impaired for iron. In addition to the 303(d) List of Impaired Waters, there is a Monitoring and Evaluation (M&E) List (CDPHE-WQCD, March 2012, Regulation No. 93), which identifies water bodies that are suspect of water quality problems, but uncertainty exists regarding several factors, such as reliability of the data. The Navajo River is listed on the M&E for E. Coli, Cherry Creek is listed for copper, and Disappointment Creek is listed for Selenium and E. Coli.

Disappointment Creek has been sampled for salinity concentrations by the BLM. Results of this sampling indicate that salinity concentrations can be high in Disappointment Creek but due to the wording of the salinity standard, it cannot be determined if the salinity concentration in Disappointment Creek exceeds the standard. For more information about salinity concentrations in Disappointment Creek refer to the *Upper Disappointment Valley Salinity and Erosion Control Monitoring Project* report by Weber and Jensen.

Table 3.3.3.3 identifies stream classifications and water quality standards for all segments affected by the four lease parcel areas.

Table 3.3.3.3: Summary of Water Quality Information

Lease Area	Stream Segment	Basin	Use Protection	Beneficial Use Classifications	303(d) list	M&E list
Chromo (Parcel 6401 and 6402)	1	San Juan	No	Aquatic Life Cold 1 Recreation E Water Supply Agriculture	None	E. Coli in Navajo River
Hesperus (Parcels	3a	La Plata River, Mancos River,	Yes	Aquatic Life Warm 2	Iron in Cherry	Copper in Cherry

6433, 6434, 6447, 6448, 6449, 6450, 6451 and 6452)		McElmo Creek, and San Juan River in Montezuma County and Dolores County		Recreation N Agriculture	Creek	Creek
McKenna Peak (Parcel 6471)	3a	Lower Dolores River	Yes	Aquatic Life Warm 2 Recreation E Agriculture	None	Selenium, E. Coli in Disappoint ment Creek
Southwest Dove Creek (Parcel 6533)	10a	La Plata River, Mancos River, McElmo Creek, and San Juan River in Montezuma County and Dolores County	Yes	Aquatic Life Warm 2 Recreation E Agriculture	None	None

In addition to maintaining beneficial uses, the BLM is required to comply with the Safe Drinking Water Act for managing public water supplies or source water areas. In 1996, the Safe Drinking Water Act was amended to include ensure safe public drinking water supplies. The Colorado Department of Public Health and Environment (CDPHE), the BLM, and other agencies and citizen groups, developed the Source Water Assessment and Protection program.

The SWAP program is a two phased process designed to assist public water systems in preventing accidental contamination of their untreated drinking water supplies (CDPHE, 2004). The first phase of the plan is to assess all public water supplies to identify existing and potential pollution sources. This phase is conducted by CDPHE and is complete for the entire state of Colorado for over 1700 public water systems. The second phase consists of developing a protection plan. This is developed by the individual communities and public water systems by involving stakeholders to address the risks identified in the SWAP. The protection plan should be designed to reduce the risk of accidental contamination of drinking water sources and will require monitoring to ensure effectiveness. As Protection Plans are completed for public water supply areas on public lands in the planning area, it is anticipated that agreements will be prepared between the BLM and water providers to ensure that BLM management activities provide adequate protection of public water supplies (BLM AMS, 2010). There are no protection plans in place that overlap with the lease area parcels.

3.3.3.4 Soil and Water Resources – Groundwater Quality

All lease parcels fall within the Colorado Plateaus aquifer which covers an area of approximately 110,000 square miles. The Colorado Plateaus aquifer is contained in a thick sequence of poorly

to well-consolidated conglomerate, sandstone, siltstone, and shale. Relatively minor amounts of volcanic rocks, carbonate rocks, and evaporite deposits are also present. Structural deformation, faulting, and lateral changes in the lithology of the rocks have produced a complex sequence of water-yielding layers. In addition to the Colorado Plateau aquifer are surficial aquifers that occur primarily at shallow depth in unconsolidated sediments along parts of major river valleys.

The Colorado Plateaus Aquifer is made up of four smaller aquifers, the Uinta-Animas, the Mesa Verde, the Dakota-Glen, and the Coconino-De Chelly. The general composition of the aquifers is moderately to well-consolidated sedimentary rocks ranging from Permian to Tertiary. All but the Chromo area lease parcels are located within the Dakota-Glen aquifer. The Chromo area lease parcel is located within the Unita-Animas aquifer.

The Dakota-Glen Aquifer covers most of the Colorado Plateau aquifers region and is split into several basins with their own unique characteristics. The rocks that make up this aquifer are late Cretaceous to Triassic in age. There are four areas of permeable rock that are then referred to as the Dakota aquifer, the Morrison aquifer, the Entrada aquifer, and the Glen Canyon aquifer. These four aquifers are considered one unit however because they are confined from all of the other principal aquifers in the region.

The Uinta-Animas aquifer spans northwestern Colorado, eastern Utah, and northwestern New Mexico. There are three basins that make up this particular aquifer: the Uinta basin in Utah, the Piceance basin in Colorado, and the San Juan basin in New Mexico. The aquifer is composed of lower Tertiary sandstones, conglomerates, and siltstones. The thickness of the aquifer varies in each basin and generally increases from the margins in. The average thickness ranges from 500 feet in the Uinta basin to 3,500 feet in the San Juan basin.

Ground water is the primary water source for seventy-five percent of the public water supply systems in Colorado (CDPHE-WQCD, November 2009, Regulation No. 41). There are approximately 825,000 people in Colorado that rely either wholly or partially on ground water. Ground water is principally used for the public water supply and agricultural use. Water quality standards for groundwater were adopted in 1987. Since that time approximately 50 groundwater locations have been assigned use classifications and site specific water quality standards. For those areas that do not have assigned use classifications and standards there are standards that apply for certain toxic organic pollutants and radioactive materials. All lease parcels occur within areas that have not been assigned use classifications or standards. Therefore, they are subject only to the general statewide standards.

The statewide standards are that groundwater shall be free from pollutants not specifically identified by the State which alone or in combination with other substances are in concentrations shown to be (a) carcinogenic, mutagenic, teratogenic, or toxic to human beings, and/or (b) a danger to the public health, safety, or welfare. For all other radioactive materials and organic pollutants that may be present, they shall be maintained at the lowest practical level. That practical level may be the existing ambient quality or the criteria set forth by the State, whichever is less restrictive. At the present time, the groundwater quality of the aquifers in the vicinity of the lease parcels is unknown.

While there are no designated use classifications within the lease area, there are two Public Water Supply wells within 0.3 to 0.6 miles of the Hesperus parcels with groundwater well sensitivity zones that overlap lease parcels 6447 and 6448. Sensitivity zones are used to assess the vulnerability of a public water source to potential sources of contamination. They are based on distance and/or time of travel criteria. There are three zones: zone 1 is the area closet to the well and is the most sensitive area, zone 2 is of moderate distance and sensitivity, and zone 3 is the furthest distance and least sensitive of the zones. Lease parcel 6447 overlaps both zones 2 and 3 of the Hesperus Ski well and the Kennebec Café well. Lease parcel 6448 overlaps zone 3 of the Hesperus Ski well.

3.3.4 Cultural Resources

3.3.4.1 Cultural Sites

Occupation in southwestern Colorado dates back to approximately 12,000 years before present, with the first migrations into the area by Paleoindians. Since that time the area has been occupied by various Native peoples and Euro-American groups. Cultural groups that have occupied or migrated though the area include, but are not limited to, Paleoindians, Archaic hunter-gatherers, Ancestral Puebloans, Ute, Navajo, Spanish explorers and settlers, and a mix of Euro-American miners, ranchers, loggers, and homesteaders.

Both prehistoric and historic sites are known to occur within the lease parcel areas. Prehistoric site types include habitation areas that contain architectural elements, seasonal-use campsites, artifact scatters, rock art sites, and resource procurement sites. Historic site types include areas related to early mining, logging, ranching, and homesteading activities.

The leasing of federal mineral rights for potential oil and gas exploration and production is considered an undertaking under Section 106 of the National Historic Preservation Act (NHPA).

BLM conducted a literature review of records in the BLM-TRFO and database, and reviewed relevant information in the Compass database maintained by the Colorado Office of Archaeology and Historic Preservation. The area evaluated for cultural resources during the Class I (records search) for this lease sale included all lands within a section proposed for lease, including those lease parcels that are located on private and state lands. This is to ensure that all cultural properties in the area may be evaluated and trends established.

A Complete Class III Cultural Resource Inventory (100% pedestrian survey) of the proposed lease parcels have not been completed. Three previous surveys of the total lease parcels have been completed. Of the approximately 12,175 acres proposed in these lease sales, only 382 acres (3%) within those leases have been inventoried at a Class III level. Of the 382 acres surveyed, 234 are on BLM lands while 148 acres are private lands. Only one site is recorded within the total proposed lease parcels, and it is located on BLM lands in parcel 6447. However, that site, a historic feature, is not eligible for inclusion onto the National Register of Historic Places and will not be affected by the sale of lease parcels.

3.3.4.2 Native American Religious Concerns

As with cultural resources, there is some potential that any of the nominated parcels may contain sites and areas of cultural and religious concern to Native American tribes, including Traditional Cultural Properties (TCPs). These areas are associated with "cultural practices or beliefs of a living community that (a) are rooted in the community's history, and (b) are important in maintaining the continuing cultural identity of the community" (National Register Bulletin 38:1). TCPs are areas that are eligible for inclusion in the National Register of Historic Places. The recognition of TCPs is often difficult for non-Tribal members because the term "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. In order to determine if there are sites and areas of cultural and religious concern to Native American tribes, including TCPs, the BLM consulted with officials from 24 Native American tribes with cultural and historic connections to the BLM Tres Rios Field Office area. These tribes were consulted on September 5 and 6, 2012. Consultation was completed with 22 tribes, and no concerns were identified. The Ute Mountain Ute and the Hopi Tribes requested additional consultation with the BLM, which will be scheduled for December 2012. BLM will not consider the Native American consultation process complete until all affected tribes have had an opportunity to comment.

3.3.5 Transportation

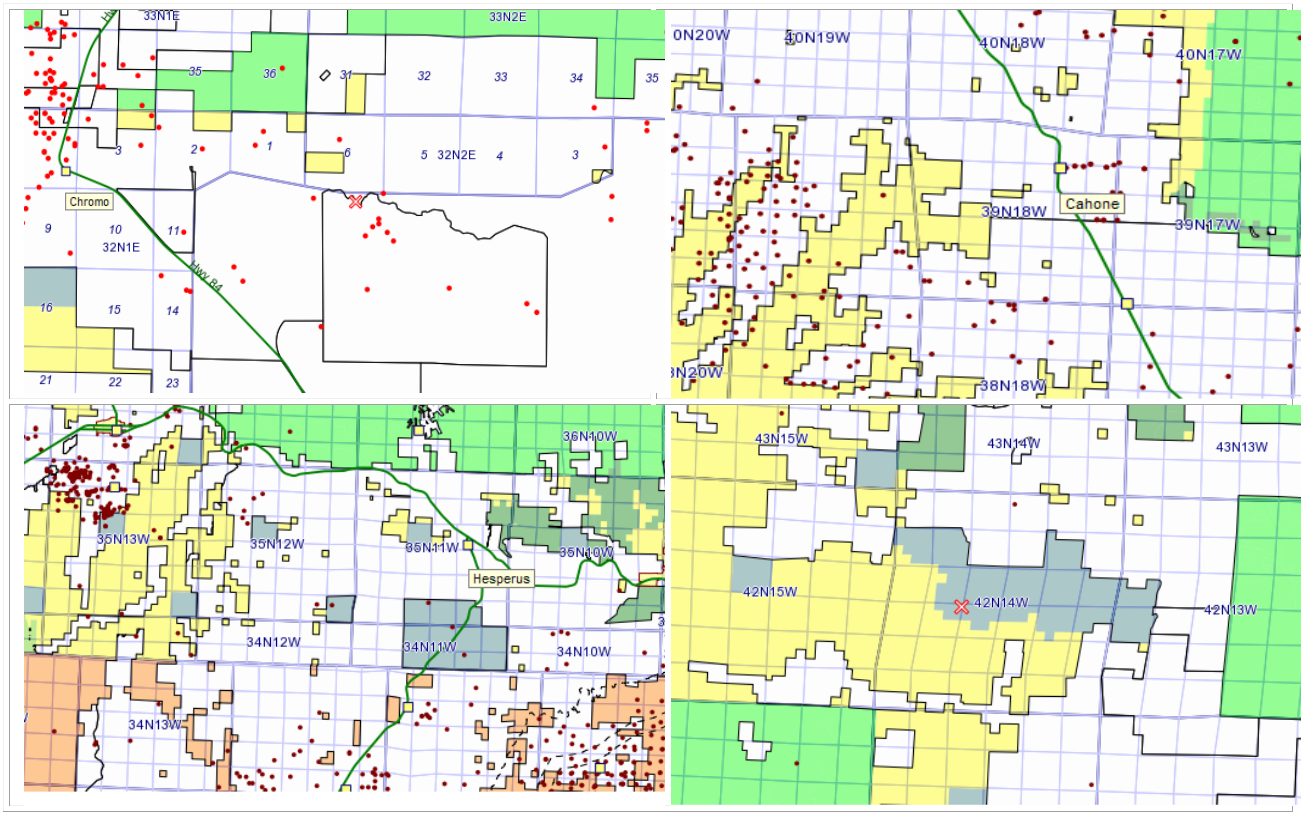
Of the 12,175 acres under consideration for lease, 3,369 surface acres are managed by the BLM. The majority of the BLM surface acres are isolated parcels surrounded by private land with no designated BLM roads and no designated traffic restrictions. Nominated lease parcels located on private surface do not fall under BLM's travel management. Roads on private surface on and accessing the lease parcels are mostly private ownership or rural county roads. Traffic on these routes varies by season, but road use appears to be predominately private landowners in the area. It should be noted that there is industrial traffic near parcels 6448 and 6451 due to extraction at the King Coal II coal mine.

3.3.6 Air Quality and Climate

The proposed lease parcels are primarily located in rural portions of the Tres Rios Field Office planning area boundaries. Nominated parcels include 2 in the Chromo area (Archuleta County); 1 in the SW Dove Creek area (Dolores County); 1 in the McKenna Peak area (approx. 50% in Dolores and 50% in San Miguel County), and 8 in the Hesperus area[1] (Montezuma and La Plata County). The Colorado Oil and Gas Conservation Commission (COGCC) parcel maps shown in Figure 3.3.6 below provide a relative scale of current or proposed oil and gas well activity within the vicinity of the nominated parcels. The wells indicated (shown as red dots) include producing, dry, abandoned, shut in, and located but not yet drilled well locations. An analysis of the COGCC database for producing wells near the parcel areas showed limited activity, save for the Southwest Dove Creek area parcel (6533). By far this parcel had the highest concentration of producing wells (approx. 29) within 5 km of the center of the parcel.

[1] A small portion of parcel 6450 lies within Montezuma County.

Figure 3.3.6. COGCC Area Maps (clockwise as identified above)[2]



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 effect 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.

[2] Maps also show surface area ownership within parcel vicinities (BLM lands shown in yellow).

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. However, ozone monitoring data suggests existing air quality concentrations are approaching the ambient 8-hour air quality standard of 75 ppb (3 year average of the annual 4th highest 8-hour average). 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, generally results from a combination of significant quantities of VOCs and NO_X emissions from various sources within a region, and has the potential to be transported across long ranges.

Condensable particulate matter does not appear to be a pollutant of concern at this time. The current available air monitoring data for the region is shown in Table 3.3.6 below.

Table 3.3.6. Current Area Monitoring Data

Monitor Name and Location	Owner	Pollutant (Standard, Limit)	Monitor Data (tons)		
			2008	2009	2010
Durango - 1235 Camino Del Rio	CDPHE	PM_{10} (24 hour, 150 μg/m^3)	125	50	139
Cortez – Health Dept. 106 W. North St.	CDPHE	$PM_{2.5}$ (24 Hour, 35 μg/m^3)	25.3	19.0	17.0
Cortez – Health Dept. 106 W. North St.	CDPHE	$PM_{2.5}$ (Annual, 15 μg/m^3)	6.0	7.0	6.0
Cortez – Health Dept. 106 W. North St.	CDPHE	O_3 (8 hour, 0.075 ppm)	0.064	0.064	0.064
Mesa Verde National Park	NPS	O_3 (8 hour, 0.075 ppm)	0.075	0.071	0.073

There is broad scientific consensus that humans are changing the chemical composition of our 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), water vapor, 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, precipitation rates, etc., which is commonly 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 effects 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.

3.3.7 Socio-Economics and Environmental Justice

Executive Order 12898 requires federal agencies to assess projects to "identify and address the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." There are no environmental justice communities in the study area, either based on race, ethnicity, or income. The areas involved in the lease sale are rural in nature, and small communities and sparsely populated subdivisions exist within variable distances from the proposed lease parcels.

Profile of County Demographics, 2000-2010

	Archuleta	Dolores	La Plata	Montezuma	San Miguel	Colorado	U.S.
Population (2010*)	12,136	2,027	50,149	25,279	7,299	5,029,196	303,965,272
Population (2000)	9,898	1,844	43,941	23,830	6,594	4,301,261	281,421,906
Population Percent Change (2000-2010*)	22.6%	9.9%	14.1%	6.1%	10.7%	16.9%	8.0%

* The data in this table are calculated by ACS using annual surveys conducted during 2006-2010 and are representative of average characteristics during this period.
Data Sources: U.S. Department of Commerce. 2012. Census Bureau, American Community Survey Office, Washington, D.C.; U.S. Department of Commerce. 2000. Census Bureau, Systems Support Division, Washington, D.C.

The five-county region has experienced varying degrees of fluid mineral development. La Plata and Montezuma currently contain the highest density of fluid minerals development within the field office. Employees in the oil and gas sector within the five counties earn an average of approximately $60,000 per year (US Census Bureau, County Business Patterns 2010).

The following table reports the average annual fluid minerals production for each county, including an estimated revenue value, figured using the average state wellhead prices from 2009:

Oil at $52.33/bbl and natural gas at $3.21/MCF (IPAA, August 2011 Report http://ipaa.org/reports/docs/2010-2011IPAAOPI.pdf). The production values are averaged over the past ten full years of production (2002-2011); (Colorado Oil and Gas Conservation Commission http://cogcc.state.co.us/).

Average Annual Production and Revenue

	Archuleta	Dolores	La Plata	Montezuma	San Miguel	Total
Oil Production (Thousand bbl)	2.55	38.0	36.0	225	12.5	314
Oil Revenue ($Thousand)	133.3	1,989	1,885	11,756	656	16,420
Gas Production (MMCF)	5,092	16,337	433,342	322,992	15,610	793,373
Gas Revenue ($Thousand)	16,345	52,441	1,391,029	1,036,803	50,108	2,546,727

Federal oil and gas leases generate a one-time lease bonus bid as well as annual rents. The minimum competitive lease bid is $2.00 per acre. If parcels do not receive the minimum bid they may be leased later as noncompetitive leases that don't generate bonus bids. Within the Tres Rios field office, average bonus bids are approximately $75 per acre for oil and gas leases. Lease rental is $1.50 per acre per year for the first five years and $2.00 per acre per year thereafter. Typically, oil and gas leases expire after 10 years unless held by production. During the lease period annual lease rents continue until one or more wells are drilled that result in production and associated royalties. The royalty rate is 12.5 percent of revenue associated with mineral extraction on federal leases.

Federal mineral lease revenue for the State of Colorado is divided thusly: 48.3 percent of all state mineral lease rent and royalty receipts are sent to the State Education Fund (to fund K-12 education), up to $65 million in FY 2009 – FY 2011, and growing at four percent per year thereafter. Any amounts greater than the upper limit flow to the Higher Education Capital Fund. 10 percent of all state mineral lease rent and royalty receipts are sent to the Colorado Water Conservation Board (CWCB), up to $13 million in FY 2009, and growing at four percent per year thereafter. Any amounts greater than the upper limit flow to the Higher Education Capital Fund. 41.4 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 effects due to mining, and the remaining half directly to the counties and municipalities originating the FML revenue or providing residence to energy employees.

Bonus payments are allocated separately from rents and royalties, in the following manner: 50 percent of all state mineral lease bonus payments are allocated to two separate higher education trust funds: the "Revenues Fund" and the "Maintenance and Reserve Fund". The Revenues Fund receives the first $50 million of bonus payments to pay debt service on outstanding higher education certificates of participation (COPs). The Maintenance and Reserve Fund receives 50 percent of any bonus payment allocations greater than $50 million. These funds are designated

for controlled maintenance on higher education facilities and other purposes. The remaining 50 percent of state mineral lease bonus payments are allocated to the Local Government Permanent Fund, which is designed to accumulate excess funds in trust for distribution in years during which FML revenues decline by ten percent or more from the preceding year.

3.3.8 Recreation and Visual Resources

Of the 12,175 acres under consideration for lease, 3,369 surface acres are managed by the BLM upon which dispersed recreational activities could occur. However, the majority of the BLM surface acres are isolated parcels surrounded by private land through which no formalized legal access exists. A portion of Parcel 6450 (approx. 1400 acres) is technically accessible to the public via the Menefee Mountain Wilderness Study Area (WSA), though a 4 mile hike over rugged terrain would be required to access the parcel. Similarly, public access to Parcel 6471 (located on State managed lands and approx. 1000 acres) is accessible via the McKenna Peak WSA, also requiring a substantial and difficult hike. The recreational activity most likely to occur on these units is big game hunting. Due to the remote nature, and difficult access of these areas, the expectation of a successful hunt, and the importance of an undisturbed natural setting are likely important elements to the hunting experience.

Parcel 6447 abuts a portion of the Hesperus Mountain Ski area, a developed recreation ski facility located on private land.

The SJ/SM RMP did not assign Visual Resource Management Classes to the lands under consideration for lease and there are no visual management objectives upon which to base management decisions. However, direct and indirect effects to the existing setting can still be analyzed in general terms for the proposed action.

The parcels under consideration occur on a mixture of private surface/federal minerals, state surface/federal minerals and federal surface/federal minerals. Topographic relief is substantial across much of the area, oftentimes separating the parcels under consideration for lease from high use corridors and likely points of observation.

Parcel 6447 is within the viewshed of the San Juan Skyway Scenic Byway. According to the Colorado Department of Transportation webpage, the San Juan Skyway was designated by the U.S. Secretary of Transportation as an All-American Road, the highest level of designation, in 1996 and is one of ten America's Byways designated in Colorado. The San Juan Skyway Corridor Management Plan states that its overall goal for scenic and natural areas “is the maintenance and enhancement of the scenic and natural character of the corridor through the preservation of significant open space areas.”

3.3.9 Leasable Solid Minerals

There are no known coal deposits within the area of the McKenna Peak, or Southwest Dove Creek parcels. The Chromo Parcel is located in an area that has been identified as having low potential for coal by the USGS and there is no indication of any mining for coal in the Chromo Parcel Area.

A seam of coal (Cretaceous Menefee Formation) is located within the area of the Hesperus Parcel Area. It outcrops at the surface to the east and south of Hesperus, and dips gently to the south. Thickness of the coal is typically between six to eight feet. The coal is a high-quality bituminous, with relatively low sulfur and low ash content. Historically, small underground mines were developed to serve local demand by ranchers, farmers, and the Durango and Rio Grande Western Railroad. Surface mines were not economic due to the increasing overburden of the seam. These mines were all closed by the early 1960's.

The King Coal II Mine near Hesperus is the only active mine in the Tres Rios Field Area. The coal is mined by the underground room and pillar method. Surface disturbance is restricted to the existing adit, located on State land. To date, there is no evidence of subsidence. Furthermore, the coal mine is dry; it has not encountered any aquifers nor does it produce any methane or other gases.

4.0 ENVIRONMENTAL EFFECTS

4.1 Introduction

This chapter will analyze the direct, indirect, and cumulative effects of the alternatives on resources brought forward for analysis as identified in Section 3.3 based on the key issues previously identified in Section 1.8. The direct and indirect effects for each alternative will be analyzed in Section 4.3 followed by the cumulative effects in Section 4.4. Recommended mitigations will be provided based on the effects analysis at the conclusion of each resource section.

4.2 General Analysis Assumptions and Guidelines

4.2.1 Parcel Development Potential

The act of leasing parcels would, in itself, have no direct effects on any resources in the field office. All indirect effects would be related to as yet undetermined future development of the leases. Even if parcels are leased, it remains unknown whether development would actually occur, and if so, where specific wells would be drilled and where facilities would be placed. This information would not be available until the BLM receives an APD in which detailed information about proposed wells and facilities would be provided for particular leases. Below are assumptions on the oil and gas development potential of each parcel. This EA examines the effect of leasing, and when practical, the reasonably foreseeable future development of the lease parcels.

Chromo Area Parcels: 6401 and 6402

These parcels are between the Chromo and Price-Gramps Oil Fields where historical oil and gas activity occurred in the 1920's and 30's. However, the most recent activity was a dry hole drilled 15 years ago and most wells in the area are plugged and abandoned. These parcels are small and irregularly shaped and would have to be combined with neighboring parcels to meet

minimum drilling spacing requirements. Due to the requisite combining of parcels, it is assumed that development will be limited to one well or less per parcel.

Hesperus Area Parcels: 6433, 6434, 6447, 6448, 6449, 6450, 6451 and 6452

These parcels occur over a relatively large area with a sparse amount of wells, most of which were dry, or have been depleted and abandoned. Regionally, both abandoned and actively producing, small and large oil and gas fields are present to the northwest, south, and southeast of these parcels. Potential drilling targets for these parcels are Mancos Shale and deeper. It is likely that an exploratory well will be drilled in the area, but at this time it is difficult to predict how much more development the area will receive.

McKenna Peak Area Parcel: 6471

There is no established production in the area, so any development potential is purely speculative.

SW Dove Creek Area Parcel: 6533

This parcel is within the Papoose Canyon Field, with a number of producing oil and gas wells. Because the parcel is only 160 acres, spacing requirements will likely limit parcel development to one new well.

4.2.2 Estimated Surface Disturbance

Leases are valid for 10 years or as long as there is at least one producing well. It is assumed that the purchasers of these leases would drill at least one well on each lease associated with the sale in order to secure the lease rights. As explained above, the development potential for each of these parcels is either low and/or difficult to predict, and therefore, this EA will focus on analysis of the potential effects from the development of one well on each parcel.

The 2006 San Juan National Forest and BLM Public Land Oil and Gas Reasonable and Foreseeable Development (RFD) assumed a total of 1.5 acres of surface disturbance for a new conventional oil and gas well on a one-well pad, while the 2009 RFD Amendment assumed a 2.5 acre well pad for a new well targeting unconventional shale hydrocarbons (USDI BLM 2006 and 2009). Both assumed 2.4 acres of surface disturbance for associated access road and flowline Rights-of-Way (ROW). Because of the uncertainty in the drilling targets, geologic potentials and drilling technology on these lease parcels, this EA will assume an average of the 2006 and 2009 RFD surface disturbance: a 2 acre well pad with 2.4 acres of associated access road and flowline ROW. Approximately 1.8 acres is short-term disturbance (could be reclaimed within three years), and the remaining 2.6 acres is long-term disturbance (reclaimed after the life of the well). The table below depicts the total acres of surface disturbance predicted for drilling one well on each parcel.

Table 4.2.2. Surface Disturbance on each Parcel

Timeframe	Well pad (acres)	Road/Flowline ROW (acres)	Total (acres)
Short-term Reclamation	1	0.8	1.8
Long-term Disturbance	1	1.6	2.6
Total	2	2.4	4.4

4.3 Direct and Indirect Effects

Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

4.3.1 Alternative A – Proposed Action

4.3.1.1 Wildlife

4.3.1.1.1 Wildlife – Migratory Birds

The proposed action of leasing would not affect any migratory bird species or their habitat, however, potential future development of the proposed leased parcel could affect migratory birds. Site-specific analysis would be conducted at the APD stage to determine and to mitigate potential effects. If future activities should occur within appropriate habitats, those activities could have the potential to affect nesting raptor and migratory bird species through habitat degradation and/or displacement of individual birds. Effects to breeding birds would vary depending on needs for essential life functions such as roosting, nesting, or foraging. The duration, intensity, seasonality and type of disturbance all has potential for disturbance based on the species-specific sensitivity.

Spatial buffers from development and other human activities are a proven management tool to address effects on breeding activities at raptor nest sites (Richardson and Miller 1997, Romin and Muck 1999, Demarchi and Bentley 2005, BLM 2006, Fuller 2010). CPW has established Recommended Buffer Zones and Seasonal Restrictions for Raptors in Colorado (Klute 2009).
Habitat for other migratory birds could be lost as a result of potential future activities through surface disturbances. Habitat fragmentation could also occur, reducing the amount of suitable habitat. Due to the limited size of long-term surface disturbance resulting from potential activities, effects to songbird habitat within the project area should be low. Noise produced by potential construction, drilling, and operational activities could deter birds from roosting, foraging, breeding or nesting in the area. The intensity, duration, and frequency of noise won't be known until the APD stage, and effects would vary over the life of any project, but would be most intense during construction activities which could last approximately one month per well.

Design Features

The following raptor timing limitations and NSO restrictions will be applied to all parcels when applicable to reduce the likelihood of adverse effects on raptors:

No Surface Occupancy stipulation – CO-03

- No surface occupancy within one-eighth mile radius of raptor nest (not including bald eagles).

Timing Limitation stipulation – CO-18

- No surface use is allowed during the following time period: Feb.1 – Aug. 15, within one-quarter mile radius around the nest site for the purpose of protecting raptors from disturbance.

Mitigation

To reduce the potential effects to Migratory Birds or Special Status Raptor nest sites, the following mitigation measures on potential future development could be applied as conditions of approval at the time of development:

- Covering the entire surface of the reserve pit with bird netting that meets a minimum requirement of 1.5-inch mesh to exclude passerines and other small-sized birds;
- Maintaining bird netting for as long as there are liquids in the reserve pit;
- Limiting, if feasible, surface disturbing activities during the core breeding period for migratory birds (May 15 through July 15);
- If construction or surface disturbing activities do occur during critical breeding and reproduction periods, appropriate noise stipulations could be required.
- Completing surveys within at least a 0.5-mile radius around all types of project specific surface disturbance activity in potential habitat for the presence of nesting raptors. Survey dates may vary by species.
- Project activities shall retain and avoid modifying identified cavity trees, snags, and perches in the project area.
- Stacks and exhaust pipes to the dehydrators, separators, heaters, and production tanks and similar features shall be excluded from bird entry with appropriate durable, cone-shaped screening material.
- Operators shall keep all hatches/ doors closed to the production tanks when not in use.
- A preventative, containment system (e.g., a sturdy bucket) shall be placed under the take-out pipes of the condensate tanks to prevent fluid leakages onto the soil surface.
- Powerlines and transmission facilities design shall comply with guidelines in the publication, *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (http://www.aplic.org/).

4.3.1.1.2 Wildlife – Terrestrial

Although the proposed action of leasing itself has no direct effects on wildlife in the area, future potential drilling could affect wildlife species and their habitat. At the time an exploration or development proposal is presented to the BLM for these lease parcels; additional NEPA analysis will take place to assess the effects of that proposal and BLM may recommend modifications. Any effects to specific species would be addressed at the APD stage and appropriate mitigation would be developed. Noise and human presence associated with potential development could temporarily displace wildlife from the area around the wells and roads during drilling and construction activities. The proposed action of leasing has no direct effects on wildlife in the area. However, documented ungulate displacement distance and avoidance buffers from well

pads and roads (Hebblewhite 2008, Sawyer 2006, 2009) indicates that residual unavoidable adverse effects to ungulates increases dramatically when well pad densities exceed one pad/square mile (corresponding with a road density of approximately ½ mile of road/square mile) (Wilbert et al. 2008). These residual adverse effects occur from reduced habitat effectiveness regardless of the use of Timing Limitation Stipulations on drilling activities or other site specific Best Management Practices designed to reduce effects (Sawyer 2006, 2009, Wyoming Game and Fish Department 2008). Effects to big game populations are considered extreme when well pad densities exceed four pads/square mile (Wyoming Game and Fish Department 2008, Lutz et al. 2011). Most displaced wildlife would be expected to return after drilling is completed, except where full field development exceeds 1 well per square mile. Most of the above cited research is related to full-scale gas development, and does not necessarily account for exploratory drilling or pre-existing habitat disturbances and fragmentation. After interim reclamation, direct effects to wildlife would be minimal, except for periodic disturbance by personnel if wells are productive.

Developing these leases could affect designated big game use areas. All of the proposed parcels are in or near designated big game winter range and elk production areas. Although specific effects associated with lease development cannot be predicted at the leasing stage, BLM policy and current SJ/SM ROD/RMP decisions allow for the site-specific development of COAs (Conditions of Approval) at the APD stage that are effective in substantially reducing direct and indirect effects on aquatic and terrestrial wildlife including facility relocations of up to 200 meters. Implementation of State and federally-imposed design measures to control erosion and spills also limits the risk of contaminants migrating off-site and degrading water quality.

The BLM continues to apply traditional timing limitations to important big game summer and winter (i.e., severe winter and critical winter) ranges, although these measures were not designed or intended to deal effectively with new drilling and completion technologies (e.g., deep directional, multi-well pads) and the disposal of large quantities of produced fluids. Sawyer (2006) demonstrated strong avoidance response of natural gas development activity in Wyoming deer and the pronounced influence of residual activity associated with maintenance/production phases and subsequent recreational use of well access roads. Later, Sawyer (2009) acknowledged that avoidance response in deer could be substantially reduced (40-60 percent) in these fields by employing technologies that reduce the truck transport of produced fluids (i.e., fluid transport via pipeline). These studies provide compelling evidence that behavioral effects (habitat disuse from avoidance, elevated energetic demands) associated with human and vehicular activity attributable to oil and gas development are the primary effects on big game and are, in these circumstances, more expansive and deleterious than direct habitat loss associated with longer term infrastructure occupation and shorter term vegetation modifications.

Industry is actively planning or implementing fluids gathering systems that would drastically reduce the frequency of vehicle activity on affected big game ranges. Complementary actions that are being employed to further reduce direct or indirect effects include pooled employee transport, on-site employee housing, adjusting lease requirements or offering year-round development incentives to promote clustered development, increasing the number of wells sequentially drilled at each location, and phased reclamation instituted soon after the pad is constructed. Site-specific conditions and opportunities are also reflected in COAs developed at

the APD stage, including restricting public access on well access roads and pipeline rights-of way and siting facilities and infrastructure in a manner that balances the interspersion of cover and forage compatible with the behavioral traits of deer and elk. Although the proposed lease parcel may not be developed in this manner, more advanced objectives and principles are likely to be universally promoted and applied where practical. BLM believes serious effects to big game abundance and distribution can be largely averted through the use of such measures.

Design Features

The following stipulations will be applied to big game winter concentration areas and elk calving areas in parcels 6401, 6433, 6449 and 6452, to reduce the potential environmental effects described above if development were to occur:

Big Game Crucial Winter Habitat Timing Limitation CO-09

- Big Game crucial winter habitat December 1 – April 30.

Big Game birthing areas; Elk Calving Timing Limitation CO-10

- Elk production area April 16 – June 30

Mitigation

All development would be subject to Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses.

4.3.1.1.3 Wildlife – Aquatic

Although the proposed action of leasing itself has no direct effects on aquatic wildlife in the area, future potential drilling could affect associated wildlife species and their habitat. Any effects to specific species would be addressed at the APD stage and appropriate mitigation would be developed. Potential future activities could have effects to connected, downstream habitats for aquatic wildlife (See Threatened, Endangered and Sensitive Species section for aquatic TES species, Section 4.3.1.2.1). After interim reclamation, direct effects to wildlife would be minimal, except for periodic disturbance by personnel if wells are productive.

Design Features

To reduce the potential environmental effects described above if development was to occur, the following stipulations should be applied to all parcels with riparian zones.

Controlled Surface Use stipulation C0-28

- For the protection of perennial water impoundments and streams, and/or riparian/wetland vegetation zones, activities associated with oil and gas exploration and development including roads, transmission lines, storage facilities, are restricted to an area beyond the riparian vegetation zone.

This stipulation will not be applied where the Authorized Officer determines that relocation up to 200 meters can be applied to protect the riparian system during well sighting.

Mitigation
All development would be subject to Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses.

4.3.1.2 Threatened, Endangered and Sensitive Species

4.3.1.2.1 Threatened, Endangered and Sensitive Species – Wildlife

Under all the alternatives, the proposed lease sale will have no effect to the below listed threatened, endangered or candidate species and formal consultation with the USFWS is not necessary. The TES species that may occur in the analysis area are discussed in detail below with the appropriate effects determination for those species. Though leasing itself will not affect these species, potential future development of the parcels could have an effect, and will be analyzed at the time of development. Since it is unknown if the parcels would be developed or the extent of the development, it is difficult to assess potential effects to specific species. Site-specific analysis would be conducted at the APD stage to determine and to mitigate potential effects to Special Status Species. At that time, species specific Recovery Plans and Conservation Agreements would be reviewed for the species with potential effects. Effects could potentially include (but not be limited to) displacement into less suitable habitat, habitat fragmentation and habitat degradation. Noise and increased human activity could also disrupt breeding and nesting activities. Site-specific biological resource surveys would be required at the APD stage, and depending on the location and nature of the proposed development and results of the surveys, Endangered Species Act Section 7 consultation with USFWS would be required if development would affect Federally listed species.

The Bonytail (*Gila elegans*), humpback chub (*Gila cypha*), Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*) are federally endangered fish species that are potentially found in the Tres Rios management area. Critical habitat for all of these species is outside of the proposed parcels area and the proposed action will have no effect to these species. Viewed narrowly, water depletions are not associated with leasing parcels, so there would be no effect to listed fishes from these activities. However, future development of these parcels may result in water depletion. These types of projects are considered under a programmatic assessment and the responsive programmatic biological opinion by the U.S. Fish and Wildlife Service for depletions in the Upper Colorado River. Effects to these fish species from water depletions will not be addressed further in this assessment.

- *The proposed alternatives will have "No Effect" to the Bonytail, Humpback Chub, Colorado pikeminnow and the razorback sucker.*

The Mexican spotted owl (*Strix occidentalis lucida*) is a threatened species with habitat definitions refined for Colorado which include the importance of sandstone cliffs for nesting. Though there is no mapped critical habitat for the Mexican spotted owl in the analysis area, there

is potentially suitable habitat for Mexican spotted owls near parcel 6533. Stipulations **CO-06** and **CO-21** will be applied as Design Features to protect Mexican spotted owl roosts and nests, and nesting and fledgling habitat. Survey efforts will continue in ensuing years to locate Mexican spotted owls and define the best potential habitat.

- *The proposed action will have "No Effect" on the Mexican Spotted owl.*

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally endangered species that predominately uses riparian areas with slow moving water and a multi-structured vegetation component, usually comprised of willow with a cottonwood over-story. As described in the Southwest Willow Flycatcher Recovery Plan (USFWS 2002), none of the proposed leases are within the Upper Colorado Recovery Unit and there is no critical habitat within the analysis area. Though there is potential habitat for this species around lease 6402, there are no known occurrences within the analysis area.

- *This proposed action will have "No Effect" on the Southwestern Willow Flycatcher.*

The Gunnison sage grouse (*Centrocercus minimus*) is a USFWS candidate species and a BLM sensitive species. The Gunnison sage grouse (grouse) is currently petitioned for listing by the USFWS. There are no recent documented occurrences of grouse in the analysis area; however parcel 6533 is within mapped "potentially suitable" habitat, as designated by the Gunnison Sage Grouse Rangewide Conservation Plan (RCP 2005). The RCP defines "potentially suitable" habitat as: "*Unoccupied habitats that could be suitable for occupation of sage-grouse if practical restoration were applied"*. The BLM currently adheres to the RCP for management direction in regards to the grouse. Gunnison sage grouse are currently located in two distinct sub- population areas within the Tres Rios field office; the Dove Creek and Dry Creek populations. The closest known occupied habitat for grouse in relation to parcel 6533 is in Dove Creek, to the north of this parcel. If listed, the Gunnison sage grouse may have designated "critical habitat" within the boundaries of the parcel 6533. If grouse are discovered within the parcel analysis area, or if critical habitat is designated in the analysis area; the guidelines in the RCP and in the eventual recovery plan for this species will be adhered to. If this species is documented, the direction outlined in the RCP in relation to oil and gas leasing and development will be implemented and every effort will be taken to manage grouse habitat appropriately. In addition, stipulations **CO-2, CO-15, CO-30** and **CO-40** will be applied as Design Features to protect sage grouse. Because grouse are not currently known to occur in the analysis area and are not affected by leasing itself, this species will not be affected by the proposed action.

- *This proposed action will not jeopardize the continued existence of Gunnison Sage-grouse.*

Design Features

The following stipulation will be applied to all lease parcels:

Exhibit CO-34 Endangered Species Act Section 7 Consultation

- The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. 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. 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. 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.

In addition, the following stipulations and lease notices would be applied to parcel 6533 to protect the Gunnison sage grouse:

CO-2 – NSO within 0.6 mile radius of a grouse lek site.
CO-15 – Timing limitation - NSO between December 16th and March 15th to protect grouse winter habitat.
CO-30 – Lease notice between March 1st and June 30th to protect grouse nesting habitat.
CO-40 – Lease notice to protect sage grouse habitat.

The following stipulations would be applied to parcel 6533 to protect the Mexican spotted owl:

CO-06 – NSO one-quarter mile from a Mexican spotted owl roost or nest
CO-21 – Timing limitation on Mexican spotted owl nesting and fledgling habitat

Mitigations

All parcels would be subject to recommendations and Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses. BLM must fulfill the requirements of the National Environmental Policy Act, the Endangered Species and other applicable laws regarding surface resources.

BLM Sensitive Species

Several BLM sensitive species that may be found in the project were brought forward for analysis in this assessment. These include the Brewer's sparrow, Bald eagle, Allen's big-eared bat, fringed myotis, Yuma myotis, big free-tailed bat, spotted bat, peregrine falcon, northern leopard frog, Colorado cutthroat trout, flannelmouth suckers, bluehead suckers, roundtail chubs, desert spiny lizard and long-nosed leopard lizard. There is a diversity of habitats suitable for terrestrial species from vegetated riparian areas to pinyon-juniper woodlands. There are several sensitive species that may have suitable habitat within the proposed lease areas.

The Gunnison's prairie dog (*Cynomys gunnisoni zuniensis* – BLM Sensitive) is the smallest of Colorado's prairie dogs and inhabits grasslands and semidesert and montane shrublands.

Gunnison's prairie dogs are restricted to southwestern and south-central Colorado and range in elevation from 6,000- 12,000 feet (Fitzgerald 1994). This species occurs in two range portions, the montane and prairie populations. The montane population is a candidate for listing with the U.S. Fish and wildlife service and does not occur within the Tres Rios field office management area. The prairie population is known to occur within the Tres Rios field office management area and is managed as a BLM sensitive species. Leasing itself will not affect this species, and there are no known colonies on the proposed lease parcels. However if development were to occur and signs of prairie dog occupation were observed, mitigation measures would be placed on the parcels in order to protect potential Gunnison prairie dog colonies.

Brewer's sparrow (*Spizella breweri* - BLM sensitive) is a small, commonly found migratory songbird that is found in the plains and foothills of the western U.S. Habitat loss has contributed to the overall decline of this species, but this proposed action in itself will not threaten this species.

American bald eagles (*Haliaeetus leucocephalus* -BLM sensitive) and Golden eagles (*Aquila chrysaetos*) are known to occupy the proposed lease areas throughout the year. Portions of lease parcels 6449 and 6402 are in mapped bald eagle winter concentration areas. Though leasing itself will not affect these species, if development were to occur stipulations would be presented, particularly for these leases.

The following BLM sensitive bat species; Allen's big-eared bats (*Idionycteris phyllotis*), fringed myotis (*Myotis thysanodes*),Yuma myotis (*Myotis yumanensis*), Big free-tailed (*Nyctinomops macrotis*) and spotted bats (*Euderma maculatum*) are found in semi-desert environments and are known to roost in mines, rock crevices and caves. There may be roosts, as well as foraging areas, within the proposed project area. These species are also tied to surface water and riparian areas and therefore would likely occur in riparian areas such as the Navajo river. There are no consequences to bat species from leasing, but they could be affected by the potential development of these parcels.

Peregrine falcons (*Falco peregrinus*) are known to occur and reproduce near several of the parcels in the analysis area. This species is rebounding and was recently delisted from protection under the Endangered Species Act. They are beginning to re-occupy cliff sites that have not been used in decades. New sites are located in southwest Colorado annually. Peregrine falcon annual breeding success is strongly tied to prey availability. There are no consequences to this species from the proposed action. Review of suitable habitat, timing limitations and surveys may be required if APD's are applied for on some of the lease parcels in the proposed alternative.

The Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) is not known to occur within any of the proposed parcels. The Navajo river is adjacent to parcels 6401 and 6402; however Colorado River cutthroat trout are not present in the Navajo river where the parcels are available for lease (CPW, pers. Communication). There is a known population in the Navajo river above these parcels that is isolated by a man-made barrier. There are no effects to the cutthroat trout from the proposed action of leasing these parcels. However, if this species were found to be present in this portion of the Navajo river, development of these leases could affect

this fish. Surveys and applicable mitigations may be required if development were to occur within potential habitat for this species.

The three warm water BLM sensitive species; the flannelmouth sucker (*Catostomus latipinnis*), bluehead sucker (*Catostomus discobolus*) and the roundtail chub (*Gila robusta*) may occur in the Navajo river. Lease parcel 6401 and 6402 is along the Navajo River and there is potential that these species could occur near these parcels. The proposed leasing itself is not anticipated to affect any potential occurrences of these species. If this parcel or other parcels that may contain habitat are proposed for development, the proper mitigation measures would be taken to avoid any possible effects.

The northern leopard frog (*Rana pipiens*) is known to occur throughout Colorado and is associated with wet meadows and water's edge. This species is likely to occur in riparian areas located within the analysis area.

Design Features

To reduce the potential environmental effects described above if development were to occur, the following Lease Notices should be applied to proposed parcels 6449, 6433, 6401 and 6402.

Bald Eagle Winter Roost Sites CO-23 and SJ-7

- The lessee is hereby notified that, a bald eagle winter roost site exists on a portion of the lease tract. Development activities may be modified to prevent impacts to bald eagles protected by the Migratory Bird Treaty Act of 1918 (16 U.S. code, Sec. 703-712, as amended), and the Bald and Golden Eagle Protection Act (16 U.S. Code, Sec. 668-668d, 1940 as amended). In order to avoid violation of these statutes, the lessee should contact the BLM Authorized officer prior to surveying or other surface activities on the lease tract.
- To protect bald eagle winter roost sites, a timing limitation is applied between November 16th and April 15th.
- To protect bald eagle winter concentration areas, a timing limitation is applied between December 1st and April 15th.

To reduce the potential environmental effects described above if development were to occur, the following Lease Notice should be applied to all parcels.

Bald Eagle roost and nest sites CO-04 and CO-22

- To protect bald eagle winter roost sites and nest sites, a no surface use applies to within one-quarter mile of a known roost or nest site.
- To protect bald eagle nesting habitat, a one-half mile timing limitation stipulation buffer zone around the nest site is required from December 15th – June 15th.

To reduce the potential environmental effects described above if development was to occur, the following stipulations should be applied to all parcels with riparian zones.

Controlled Surface Use stipulation CO-28

- For the protection of perennial water impoundments and streams, and/or riparian/wetland vegetation zones, activities associated with oil and gas exploration and development including roads, transmission lines, storage facilities, are restricted to an area beyond the riparian vegetation zone.

The following stipulation would be applied to all parcels:

CO – 31 Sensitive Species Protection

- Special biological and/or botanical inventory and special mitigative measures to reduce impacts of surface disturbance to the sensitive plant or animal species may be required.
- Surveys may be required before development to insure Gunnison prairie dog habitat is not impacted. If an active Gunnison Prairie dog colony is located where development is to occur, the development may be moved to avoid impacts to this species.

Mitigations

All development would be subject to Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses.

4.3.1.2.2 Threatened, Endangered, and Sensitive Species – Plants

The proposed action of leasing the proposed parcels would not affect any Federally listed BLM or USFS plants designated as sensitive. However, potential future development of the parcels may affect these species. Since it is unknown if the parcels would be developed or the extent of the development, it is difficult to assess potential effects to specific species. Effects could potentially include (but not be limited to) habitat fragmentation and habitat degradation. Site-specific rare plant surveys would be required at the APD stage, and depending on the location and nature of the proposed development and results of the surveys, Endangered Species Act Section 7 consultation with USFWS would be required if development would affect Federally listed species.

Parcel 6401 is within suitable habitat for Pagosa skyrocket (*Ipomopsis polyantha*), which is listed as endangered under the Endangered Species Act. Pagosa skyrocket is not known to occur on Parcel 6401, although the area has not been surveyed for this species.

Design Features

To ensure that there will be no effect to the Pagosa skyrocket, the following No Surface Occupancy (NSO) Stipulation **(CO-08)** would apply to Parcel 6401.

Exhibit CO-08

- NSO on habitat areas with special status plant species (Includes federally-listed and proposed species for listing and candidate species.) Exception for special status plant species habitat. The NSO may be altered after important factors are considered in a site-specific impact analysis such as the type and amount of surface disturbance, plant frequency and density, and the relocation of disturbances.

Mitigation

All development would be subject to Conditions of Approval (COAs) at the time an APD is processed through site-specific NEPA analyses.

4.3.1.3 Soil and Water Resources

4.3.1.3.1 Soil and Water Resources – Surface Geology/Soils

The proposed action allows the subsequent exploration and development of the lease, subject to BLM's review and approval of an APD or development proposal. Exploration and development includes activities which would physically disturb soils (e.g., building well pads, access roads, installation of pipelines, etc.). The size of any well pad will depend on the number of wells and the type of drilling that is being done. Access roads, pipelines and other infrastructure would be developed during both exploration and development activities.

Direct effects resulting from the construction of well pads, access roads, pipelines and reserve pits would include removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of topsoil, and possible contamination of soils with petroleum constituents. The mixing of shallow soil horizons would result in a blending of soil characteristics and types. This blending would modify physical characteristics of the soils, including structure, texture, and rock content. These direct effects would occur on all designated land types: rangeland, pinyon-juniper forested land, and agricultural lands.

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 effect. Depending on the size and type of spill, the effect to soils would primarily consist of the loss of soil productivity.

Indirect effects would include increased runoff, erosion due to wind and water, and off-site sedimentation downstream. The amount of runoff, erosion, and off-site sedimentation would depend on soil type and steepness of slope. In areas prone to landslides surface disturbance would exacerbate the potential for slope failure. As discussed in the soil and water effected environment section several of the lease parcel soil types have naturally high to very high runoff potential, are poorly suited for natural surface roads, and have slopes as great as 65%. Construction and use of roads, structures, and drill pad locations in areas with slopes that are greater than 25% would likely destabilize soils. For slopes greater than 40% construction activities would result in severe cut and fill slopes, increase the potential for future slope failures, and be extremely difficult to reclaim.

Design Features

To decrease the potential effects of development on slopes greater than 40%, the Controlled Surface Use (CSU) Stipulation **CO-27** will be applied to parcels 6433, 6434, 6447, 6448, 6449, 6450, 6451, 6452, and 6471. It requires an engineering/reclamation plan to be approved by an Authorized Officer prior to any surface disturbance.

Mitigation

Steep Slopes

Lease Notice (LN-101) would be applied to all of or portions of the following parcels:
6401, 6433, 6434, 6447, 6448, 6449, 6450, 6451, 6452, 6471, 6401, 6402 (see Attachment A for complete description). Prior to surface disturbance on Slopes between 25-40%, an engineering/reclamation plan must be approved by the Authorized Officer. Such plans must demonstrate how the following will be accomplished:

a. Site productivity will be restored.
b. Surface runoff will be adequately controlled.
c. Off-site areas will be protected from accelerated erosion such as drilling, gullying, piping, and mass wasting.
d. Surface-disturbing activities will not be conducted during extended wet periods.
e. Construction will not be allowed when soils are frozen.

4.3.1.3.2 Soil and Water Resources – Floodplains, Wetlands, and Riparian Zones

Clearing, grading, and soil stockpiling activities associated with exploration and development actions would alter overland flow and natural groundwater recharge patterns. As previously discussed in the surface geology/soils environmental consequences section, potential effects include surface soil compaction caused by construction equipment and vehicles, which would likely reduce infiltration and increase the volume and rate of surface runoff. In addition, new oil and gas roads and pads could intersect shallow groundwater along cut slopes and alter channel and floodplain characteristics at drainage crossings. The combination of increased surface runoff, decreased infiltration, and changes in drainage features would likely result in increased peak flows and an increase in the frequency and extent of flooding downstream in proportion to the amount of area in the watershed that is affected by oil and gas development activity. This has the potential to alter floodplain function and affect riparian conditions along intermittent and perennial streams.

Design Features

To decrease the potential effects on riparian zones, stipulation **CO-28** will be applied to parcels with riparian zones.

4.3.1.3.3 Soil and Water Resources – Surface Water Quality

Oil and gas development could increase sediment runoff. This sediment would be readily moved downstream during periods of high runoff into perennial tributaries of the San Juan and Dolores Rivers and ultimately into the Colorado River. Additional inputs of sediment from shale derived

soils are likely to increase salinity concentrations in all perennial drainages downstream and ultimately increase the salinity of the Colorado River. It is important to note that the magnitude of the effects to surface water resources from future development activities depends not only on the success or failure of stormwater controls but also on the proximity of disturbances to drainage channels, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of construction activities, and the timely implementation and success/failure of mitigation measures. Surface erosion would be greatest shortly after the start of construction activities and would likely decrease over time due to stabilization, reclamation, and revegetation efforts

Mitigation

The implementation of Best Management Practices (BMPs) as mitigation will help to manage stormwater and reduce erosion during the construction and operation of oil and gas facilities. How well the BMPs function will determine much of the effect with regard to surface water quality. If BMPs fail runoff associated with storm events is likely to deposit sediment in minor drainages down gradient of disturbed areas.

4.3.1.3.4 Soil and Water Resources – Ground Water Quality

Effects to groundwater resources could occur due to failure of well integrity, surface spills, or the loss of drilling, completion, and hydraulic fracturing fluids into groundwater. Chemical additives used in completion activities would be introduced into the producing formations. Loss of drilling fluids may occur at any time in the drilling process due to changes in porosity or other properties of the rock being drilled through. When this occurs, drilling fluids may be introduced into groundwater. Site specific conditions and drilling practices determine the probability of this occurrence and determine the groundwater resources that could be affected. In addition to changing the producing formations' physical properties by increasing the flow of water, gas, and/or oil around the well bore, hydraulic fracturing can also introduce chemical additives into the producing formations. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. These additives are not always used in drilling activities and some are likely to be benign such as bentonite clay and sand. Concentrations of these additives also vary considerably and are not always known since different mixtures can be used for different purposes in the same oil and gas development and even in the same well bore.

If contamination of aquifers from oil and gas development occurs, changes in groundwater quality could affect downstream users diverting water from groundwater sources (e.g. domestic wells and springs). The severity of water quality effects to down gradient users would be subject to the type and volume of contaminant introduced. The timing of these effects would vary based in aquifer properties. Known water bearing zones in the project area are protected by drilling requirements, regulations, and industry practice.

Mitigations

During analysis of an APD, Conditions of Approval can be applied to mitigate effects to groundwater. Typical groundwater protections include construction of surface casing through all fresh water bearing zones (in some instances, intermediate casing is also added to further isolate fresh water ones), using only fresh water to drill through fresh water zones and constructing the surface casing, including gas blocker additives to cement jobs to effectively isolate fresh water zones, containment of drilling fluids in closed loop systems, implementation of approved disposal methods for oil field waste products, and utilization of non-toxic chemicals in fracturing fluids (chemicals would not be toxic in the quantities utilized for the fracturing process). Operators would also be required to develop and implement a Spill Prevention Control and Countermeasures (SPCC) plan in accordance with 40 CFR Part 112 to mitigate against potential effects resulting from spills. With proper drilling and completion practices, potential contamination of groundwater resources will be minimized.

4.3.1.4 Cultural Resources

4.3.1.4.1 Cultural Sites

The act of leasing oil and gas parcels has no direct potential for surface disturbance, and no effect to any known properties is anticipated from this action. Exploration and development activities that might be proposed as a result of leasing include those which could physically disturb cultural resource sites (e.g., building well pads, access roads, installation of pipelines, etc.). The size of well pads would depend on the number of wells and the type of drilling that is being done. Access roads, pipelines and other infrastructure would be developed during both exploration and development activities.

The BLM is required by statute and regulation to ensure that BLM initiated or BLM authorized actions do not inadvertently harm or destroy cultural resource values. Because most cultural resources are unidentified, irreplaceable, and highly sensitive to ground disturbance, it is necessary that the resources are properly identified, evaluated, and reported prior to any future activity that may affect their integrity or condition.

Design Features

Before any APDs are approved for exploration or drilling, a Class III cultural resource survey would be undertaken to comply with Section 106 of the National Historic Preservation Act (NHPA). All parcels would be subject to Exhibit **CO-39** to protect cultural resources. The TRFO requires a minimum 10 to 40-acre inventory block around proposed well locations, per its current standards and practices. This buffer typically allows for the relocation of proposed well pads more than 100 meters away from newly discovered sites potentially eligible for listing in the National Register of Historic Places (NRHP). Proposed construction or operation activities associated with development of these lease parcels would be relocated to avoid potentially-eligible sites by at least 100 meters, or that any related undertaking's Area of Potential Effect (APE) could be situated to avoid such sites.

If cultural resources are discovered during required Class III cultural resource inventories or during later construction or other operations, TRFO archaeologists would consider the potential

of the proposed activity to affect the site type(s) present and the NRHP eligibility determinations of each site potentially affected to formulate mitigations.

Mitigation

Where resource conflicts are discovered, mitigation would likely include the relocation of the proposed well pad(s) or infrastructure to avoid potentially Eligible sites by more than 100 meters, or relocation such that the Area of Potential Effect (APE) for the activity does not affect potentially-Eligible sites. Mitigation measures would be developed during the NEPA review of individual ground disturbing activities.

4.3.1.4.2 Native American Religious Concerns

The act of leasing oil and gas parcels has potential to cause effects on sites and areas of cultural and religious concern to Native American tribes, including TCPs. Though there are no direct or indirect effects to these resources caused by ground disturbance, the BLM must take into account the potential affect to cultural landscapes from future entry to explore and develop the parcels.

Tribal consultation did not identify sites and areas of cultural and religious concern to Native American tribes, including TCPs. There will be no effect to these resources from this action.

Before any future APD actions are approved for exploration or drilling, a Class III cultural resource inventory would be undertaken to comply with Section 106 of the National Historic Preservation Act (NHPA). The TRFO requires a minimum 10 to 40-acre inventory block around proposed well locations, per its current standards and practices. This buffer typically allows for the relocation of proposed well pads more than 100 meters away from newly discovered sites and areas of cultural and religious concern to Native American tribes, including TCPs. Proposed construction or operation activities associated with development of these lease parcels would be relocated to avoid sites and areas by at least 100 meters, or that any related undertaking's Area of Potential Effect (APE) could be situated to avoid these resources.

Design Features

All lands are subject to Exhibit **CO-39** to protect resources of cultural and religious significance.

Mitigations

Before any future APD actions are approved for exploration or drilling, additional tribal consultation will be conducted for these undertakings to comply with Section 106 of the National Historic Preservation Act (NHPA).

4.3.1.5 Transportation

While the act of leasing oil and gas parcels has no effects, subsequent exploration and development activities that might be proposed as a result of a lease could alter traffic or the transportation system. Because the development potential of the parcels is speculative, estimates

of traffic, vehicle type or number of trips, access routes or road construction and maintenance requirements cannot be done until an APD is submitted and site-specific analysis is conducted.

The Stock Raising Homestead Act of 1916 and Mineral Leasing Act of 1920 provide for reasonable surface access for mineral exploration and extraction. Thus, if new roads, or upgrades to current roads, are necessary for access to leased minerals, they could be built on private, State or BLM surface. Subsequent development could also increase traffic on existing roads with possible delays in some areas depending on the proposed level of development.

Mitigations

Effects on private roads could be mitigated at the development stage through Conditions of Approval applied by BLM or Surface Use Plans negotiated with the surface owner. Operators must make a good faith effort to notify the surface owner before entry and obtain a surface use agreement with the surface owner. This gives surface owners the opportunity to negotiate mitigations such as requiring the operator to conduct road maintenance, locating roads in preferred areas, and requiring full reclamation after the well is abandoned. Mitigations to county or state roads are under the jurisdiction of county and state governments.

4.3.1.6 Air Quality and Climate

The decision to offer the identified parcels for lease would not result in any direct emissions of air pollutants. However, the future development of these leases will result in emissions of criteria, HAP and GHG pollutants. The assessment of the relationship between GHG emissions and climate change is in a formative phase. While it is not possible to accurately quantify potential GHG emissions in the affected areas as a result of making the proposed tracts available for leasing, some general assumptions can be made (e.g., selling the proposed tracts may lead to the drilling of new wells). Subsequent development of any leases sold would result in an incremental increase in overall emissions of pollutants, including GHGs.

While the act of leasing the parcels would produce no substantial air quality effects, potential future development of the lease could lead to increases in area and regional emissions. Since it is unknown if the parcels would be developed, or the extent of the development, it is not possible to reasonably quantify potential air quality effects through dispersion modeling or another applicable method at this time. Additional air effects 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 photochemically by combining VOC and NO_X emissions), nitrogen dioxide, and sulfur dioxide. These would also occur due to combustion of fossil fuels during exploration and development activities. 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 effects 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. 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 effects of oil and gas exploration and development on the global climate, and apply appropriate management techniques and BMPs to address changing conditions. Research has identified the general potential effects 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 with time, and are subject to a wide range of driving factors and complex interrelationships. Research on climate change effects 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 effects based on potential GHG emissions from any specific project's incremental contributions to the global GHG burden.

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

Mitigations

Oil and or gas may be developed and produced subsequent to the proposed lease sale and ultimately be utilized to produce energy. The BLM will evaluate potential emissions of regulated air pollutants (including GHGs) associated with the development of the oil and gas resources in a subsequent analysis at the APD stage of the lease life cycle.

Conditions of approval (COAs) may be added at the permitting stage based on the review of site specific proposals, other applicable analysis of future exploration/development activities, or if new information becomes available and the mitigation proposed is supported by concise site specific NEPA analysis. COAs cannot take away lease rights or prevent development. All proposed activities including, but not limited to, exploration drilling activities would be subject to local, State, Tribal, and Federal air quality laws and regulations.

Project specific emissions can generally be quantified and compared to overall sector, regional, or global (GHGs) estimates, as well as current air quality monitoring data and trends to provide some measures/context of the level and significance of any potential effects. 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.

4.3.1.7 Socio-Economics and Environmental Justice

No minority or low income populations would be directly affected in the vicinity of the proposed action.

The direct effect of the proposed action would be the payments received, if any, from the leasing of the 12,175 acres of federal mineral estate, or a subset thereof. Indirect effects that might result, should exploration and development of the leases occur, could include increased employment opportunities related to the oil and gas and service support industry in the region as well as the economic benefits to federal, state, and county governments related to lease payments, royalty payments, severance taxes, and property taxes. Other effects could include the potential for a small increase in transportation, roads and noise disturbance associated with development. These effects would apply to all public land users in the project area.

It is, however, highly speculative to predict exact effects of this action, as there are no guarantees that the leases will receive bids, that any leased parcels will be developed, or that any developed parcels will produce any fluid minerals. A rough estimate for the amount to be raised in the lease sale can be determined using recent lease sales in the field office as a guideline. Approximately 90% of all acres proposed for leasing are bid upon, with an average bid of approximately $75 per acre. Using these values, the lease sale could result in $821,813 in total bonus bids, though the actual amount may vary widely. To predict the results of future development would be too speculative in nature. Any APD received in would result in future NEPA analysis taking place, in which further socio-economic effects would be examined. Likewise, any negative socio-economic effects resulting from disturbance and drilling on leased parcels would also be examined in future site-specific analysis. It is unknown when, where, how, or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, the types of technologies and equipment would be used and the types of infrastructure needed for production of oil and gas. Thus, the types, magnitude and duration of potential effects cannot be precisely quantified at this time, and would vary according to many factors.

Lease development could result in social effects, including (1) decrease in the recreational character of the area, (2) reduced scenic quality, (3) increased dust levels, (4) increased traffic, (5) increased noise, and (6) increased demand on local services. However, most of these effects would be minor and limited to the relatively short duration of drilling and completion activities. Development could also result in specific adverse effects to local residents and their property values. Although it would be further examined once the specific site is proposed at the APD stage, any drilling activity directly adjacent to or within the viewshed of a residence would likely have large, though temporary, adverse socioeconomic effects. These would likely include effects

to noise, traffic, and aesthetics, all due to the intensive nature of the drilling and completion stages. These effects would likely have an adverse effect on property values, depending on the proximity of the well to the property (BBC b, 2001; Thode, Stephen, 2006). However, these effects would be short-term in nature and soon after production began on the well, the site would be reclaimed to its earlier state, thereby causing minimal to no effects on the surrounding residences.

4.3.1.8 Recreation and Visual Resources

Under the proposed action, there would be no direct effects associated with making the nominated parcels available for lease. If an APD is submitted, a site specific analysis for proposed development would be conducted. Indirect effects resulting from foreseeable physical development of the parcels would be anticipated in the form of roads and well pads construction. The development of this infrastructure would result in short term (2-3 months, typically) effects such as noise, increased traffic, night time lighting, and other effects typical of construction sites. After initial development, the resultant well sites would transition into long term production mode and these effects would lessen substantially. In lease Parcel 6450 and 6471, these short term effects could affect the quality of the hunting experience (hunting success and naturalness of the setting). While hunting and other recreational pursuits likely occur on the private parcels, there is not enough information to analyze effects other than that they would likely be similar to those described for the publicly accessible surface acres.

In Parcel 6447 this could, dependent on actual siting, effect the visual quality of the San Juan Scenic Byway and the recreational experience for visitors to the adjacent Hesperus Ski Area. There are no special recreation management areas, where intensive use and associated setting character are managed for recreational experiences, which would be affected by this action.

The proposed action of selling oil and gas leases does not create a visual effect. The subsequent development of a lease could affect landscape character. For example, temporary or permanent facilities that have height, such as produced water, condensate or oil storage tanks could provide a strong vertical and horizontal visual contrast in form and line to the characteristic landscape and vegetation. Since oil and gas well locations cannot be accurately determined at the leasing stage, it is not possible to accurately predict the visual effects. A single well pad screened by terrain in an area absent of visual receptors may have low to negligible effects. The possible effects on nighttime lighting of drilling activities would have a temporary affect and would affect those in close proximity to the drilling activity. The Hesperus Ski Area, which is in close proximity to nominated lease Parcel 6447, and located directly adjacent to the San Juan Skyway Scenic Byway, provides night skiing, representing a similar night lighting effect within the existing characteristic landscape during the winter months.

Design Features

Exhibit **SJ-03** would be applied to Parcel 6450 in order to protect the visual value of Weber and Menefee Wilderness Study Areas.

4.3.1.9 Leasable Solid Minerals

Coal resources cannot be fully developed in the area of existing wells. Potential conflicts between oil and coal leases are described on page 4-6 of the Oil and Gas Plan Amendment to the SJ/SM RMP/EIS (1991). If a coal mine extended into an oil and gas well, the well would be destroyed, or dangerous gasses could be released from the well bore into the mine, creating a hazardous working condition for miners. To avoid this, mines would have to deviate around existing wells, and the use of explosives would have to be limited in the area of wells. This would leave coal resources in the ground.

In addition to the above dangers, hydrologic fracturing may affect the integrity of a coal mine. Sometimes, an operator may choose to fracture the reservoir in order to improve permeability and therefore production. This is a common practice in tight shales, such as the Mancos Formation. The practice is commonly known as fracking. If fracking is conducted in the vicinity of a coal mine, it may fracture the rock around the underground rooms. In such an event, working conditions in the mine could be hazardous.

The San Juan/San Miguel Record of Decision for the Oil and Gas Amendment (p. 17, 1991), declares that, "Controlled Surface Use stipulations will be used to protect coal mines where the mining method or location is such that location of subsequent wells can avoid significant conflicts, riparian/wetland vegetation, and steep slopes."

Design Features

Exhibit **CO-01** would be applied to parcels in the Hesperus Parcel Area.. No surface occupancy would be allowed on leases within the area of federally leased coal lands where oil and gas development would likely be incompatible with coal extraction. This stipulation may be waived without a plan amendment if the lessee agrees that the drilling of a well will be subject to the following conditions: (1)(a) well must be plugged when the mine approaches within 500 feet of the well and re-entered or re-drilled upon completion of the mining operation; (b) well must be plugged in accordance with Mine Safety and Health Administration (formerly Mine Enforcement and Safety Administration) Informational Report 1052; (c) operation will provide accurate location of where the casing intercepts the coal by providing a directional and deviation survey of the well to the coal operator; or (2) relocate well into a permanent pillar or outside the area to be mined. A suspense of operations and production will be considered for the oil and gas lease only when a well is drilled and later plugged, and a new well or re-entry is planned when the mine moves through the location" (p. 17, San Juan/San Miguel Resource Management Plan Amendment, 1991).

4.3.2 Alternative B

The only difference between Alternative A and B is that approximately 64 acres of Parcel 6447 along the San Juan Scenic Byway would be deferred in Alternative B. It remains likely that one exploratory well would be drilled on the parcel, and it is difficult to predict any further development. Because 64 fewer acres of minerals would be leased, the potential for mineral extraction is slightly reduced.

The indirect effects of Alternative B on visual resources associated with foreseeable physical development of the nominated parcels would differ from Alternative A with the deferral of 64 acres of Parcel 6447. This deferral would remove development potential from the foreground viewshed of the San Juan Scenic Byway, maintaining the visual quality within this nationally recognized scenic corridor. This alternative would also resolve potential conflict between future well pad development and recreational enjoyment of the adjoining Hesperus Ski Area.

The direct and indirect effects on all other resource areas would be the same for Alternative A and B.

4.3.3 Alternative C –No Action

Under the No Action Alternative, the 12 parcels totaling 12,175 acres would not be leased. There would be no subsequent effects from oil and/or gas construction, drilling, and production activities. The No Action Alternative would result in the continuation of the current land and resource uses in the proposed lease areas. The No Action Alternative is also used as the baseline for comparison of the alternatives.

It is an assumption that the No Action Alternative (no lease option) may result in a slight reduction in domestic production of oil and gas. This would likely result in reduced federal and state royalty income, and the potential for Federal lands to be drained by wells on adjacent private or state lands. 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 BLM were to forego its leasing decisions and potential development of those minerals, the assumption is that the public's demand for the resource would not be expected to change.

Since the No Action Alternative is a continuation of current land and resource uses, there would be no effects to other resources from this alternative.

4.4 Cumulative Effects Analysis

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." The CEQ states 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" or more simply put, the area that might be affected by the proposed action.

Offering the subject parcels for lease, and the subsequent issuance of leases, in and of itself, would not result in any cumulative effects. The San Juan /San Miguel Resource Management Plan and FEIS (1984)/Final Record of Decision and San Juan/San Miguel Resource Management Plan (RMP, 1985) and the Record of Decision for the Oil and Gas Plan Amendment to the San

Juan/San Miguel Resource Management Plan (October 1991) /Final Colorado Oil and Gas Leasing and Development Environmental Impact Statement (FEIS), released in January 1991 (BLM 1991), provide cumulative affects analysis for oil and gas development based on the reasonable, foreseeable oil and gas development scenario. This analysis is here by incorporated by reference. The offering of the proposed lease parcels is consistent with that analysis.

Past, present and reasonably foreseeable future actions and trends considered in the cumulative effect analysis are described below. Quantification of cumulative effects is difficult for the resources, land uses, and management actions due to:

• 64% of the lease parcels are privately-owned surface, and another 8% is state-owned surface. Many surrounding lands are privately-owned as well. Thus, surface activities in these areas are managed by the private or state surface owner, creating uncertainties regarding the location, scale, and/or rate of changes on the lands.

• As described in Section 4.2, there are uncertainties regarding the location, scale, and/or rate of changes on lands resulting from development of these proposed leases.

• There are uncertainties about the location, scale, and rate of changes resulting from the general human population growth of the surrounding area.

Past and Present Actions

There is a history of oil and gas development in the area of the proposed lease parcels. Most wells around the Hesperus area and Chromo area parcels are dry and abandoned, but active oil and gas production continues around Parcel 6533. There is no past oil and gas activity around Parcel 6471.

Historically, small mines were developed by and for local ranchers, farmers, and the town of Durango. At this time, most coal mines have been closed or are undergoing reclamation, with the exception of the King Coal II mine west of Hesperus, which continues to be active.

Uses on private lands on and around the lease parcels are mostly residential developments and agriculture. Recent housing developments include the 35-lot Vista de Oro Subdivision overlapping Parcels 6433 and 6451, but many houses there remain to be built. A conservation easement over Parcel 6401 restricts further private development there, but does not restrict development for mineral extraction.

BLM grazing allotments overlap with portions of Parcels 6449, 6450 and 6452. In addition, private landowners may graze livestock on their land, and wildlife may graze all lands. These actions are likely to continue at or near present levels.

Past and present timber consumption consists mostly of firewood collection. Merchantable timber resource is very limited in federal lands in the area, and steep slopes and inaccessibility also limit harvest activities.

There is little developed recreation on or around the lease parcels; however, the area is widely used for dispersed recreational activities such as hunting, four-wheeling and hiking.

Wildfires, both natural and human-caused, are a constant danger. Recent fires include the 2006 Horn Fire, which overlapped a portion of Parcel 6449, and the 2012 the Weber Fire just west of Parcels 6450 and 6452.

Future Actions

The population of the Four Corners Region is continuing to increase at a rapid pace. The population of Archuleta County is predicted to increase from 10,028 to 27,048 (a 170% increase) by 2030. La Plata County population is projected to increase from 44,500 to 80,600 (an 81% increase) during the same time period. Montezuma County is projected to increase from 23,900 to 40,200 (a 68% increase) (Davis et al., 2004). These increases are likely to result in more vehicle traffic, more air pollution, more residential developments on private land, and more recreation use of public and private land.

Increased human activity on private land will concentrate wildlife on undeveloped areas and federal or state land, increasing their importance for maintaining big game winter range.

The operator of the King Coal II Mine has submitted an application to amend their coal lease. If approved, the amendment would expand the boundaries of Federal minerals which the existing operation may mine. The existing adit would be used. No new facilities or access would be associated with the amendment. At the close of the King Coal II Mine, all surface disturbance would be reclaimed. The only effects to coal resources are associated with conflicting oil and gas leases.

Two APDs for split-estate wells east of Parcel 6533 have been submitted, but no other APDs have been received in leases adjacent to the proposed lease parcels. Future oil and gas activity in the vicinity of the lease parcels is difficult to predict, but the 2006 and 2009 RFD for the entire Tres Rios Field Office is estimated at 2,954 wells on 2,317 new or existing well pads with 9,072 acres of well-related surface disturbance by 2024. Combined infrastructure-related surface disturbance amounts to an additional 1,847 acres. Total gross surface disturbance (i.e. well-related and infrastructure-related effects) is estimated at 10,919 acres or about 0.3% of the total land base for the field office (USDI BLM 2006 and 2009).

No prescribed fires are currently planned around the lease parcels. Livestock grazing and timber consumption are expected to continue at or near current levels.

4.4.1 Wildlife

The area analyzed for cumulative effects were determined based on the following criteria: (1) current development within the planning area, (2) projected development on existing federal leases within the planning area, (3) and projected development on future federal leases within the planning area. The area that was analyzed based on the above criteria include the Cherry Creek basin drainage and associated access roads; the Navajo river corridor adjacent and connected to the proposed leases; and the area around parcel 6533, including the access roads leading to this parcel and Squaw Canyon below this parcel.

4.4.1.1 Wildlife – Migratory Birds

Oil and gas development of lands made available for lease or already leased is projected to continue over the next 15-years within the Tres Rios Field office management area. Existing and projected wells on all jurisdictions are factors that would contribute to the cumulative wildlife effects.

In total, it is estimated that surface disturbance would be approximately 4.4 acres per parcel. This combined potential surface disturbance form the 12 parcels being proposed equals 52.8 acres of surface disturbance. The timing and exact location of these disturbances is unknown but it is likely that development would not be concentrated in time or space.

Leasing and subsequent development of this lease parcel in combination with the past, present, and reasonably foreseeable actions is likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect effects, but it would not likely elevate cumulative effects to levels that would compromise the viability of any wildlife population or the utility of broader landscapes as habitat. The size and distribution of habitat patches ultimately created through lease development (instigating species-area effects) or whether barriers persist long enough to manifest inbreeding depression (reduced fitness of individuals and isolated populations) is subject to much speculation, but considering only the parcel recommended for leasing, in combination with the past, present, and reasonably foreseeable actions; these principles of fragmentation are not known to be operating at a level that prompts imminent concern.

The approval of future potential APDs could displace and affect migratory birds in the area. These actions when combined with the disturbances of the past, present and reasonably foreseeable future could contribute to the displacement or take of migratory birds across the proposed lease sale area. However, conditions of approval at the development phase are expected to minimize these effects.

4.4.1.2 Wildlife – Terrestrial

The effects resulting from development of existing leases to the species groups would be as described in the direct effects section above. Effects of concern would include direct loss of habitat, habitat fragmentation, loss of habitat effectiveness, and potential for increased wildlife harassment over a larger area and across mixed jurisdictions.

Oil and gas development of existing leases in the Tres Rios Field Office management area would be intermingled with development of future leases. Effects resulting from development of future leases would be minimized by implementing the above wildlife stipulations to future leases, implementation of comparable stipulations attached to existing leases, and through implementation of standards and guidelines and referenced management direction.

Oil and gas development that may occur on private lands would contribute to adverse effects to wildlife by broadening the area of potential effects. LMP direction applicable to the species

would not apply to private land/private mineral estate development, but newly promulgated State of Colorado regulations require lessee consultation with the Colorado Division of Wildlife prior to an undertaking. Nonetheless, private land development could compound effects such as habitat fragmentation and loss of habitat effectiveness that may occur to wildlife, particularly for elk and deer.

Another action of concern is accessing lease development sites within winter range, on or off of designated trails. On the public lands, important areas of winter range would be closed to or have restricted over-snow winter travel. In addition, timing limitations on oil and gas development, road closures and utilization of remote telemetry to monitor wells would address winter habitat effectiveness. The degree of winter habitat effectiveness loss should not change overall elk population trends across the San Juan NF.

Human population in Dolores, San Miguel, and Montezuma Counties is projected to increase by a moderate to high rate over the life of the leases. This trend in human growth may result in increased fragmentation and the loss of habitat on private lands that surround the proposed lease parcels. The trend in human population growth may also result in an increased demand for goods and services from the public lands. These increases would place additional pressures on the public lands to supply the various types of habitat, and seclusion, required by the variety of wildlife species that utilize the planning area. Design criteria applicable to the species would not generally apply to private land development. This may compound effects such as habitat fragmentation and loss of habitat effectiveness that may occur to wildlife on federal lands.

Oil and gas development of lands made available for lease or already leased is projected to continue over the next 15-years within the Tres Rios Field Office management area. Existing and projected wells on all jurisdictions are factors that would contribute to the cumulative wildlife effects.

In total, it is estimated that surface disturbance would be approximately 4.4 acres per parcel. This combined potential surface disturbance from the 12 parcels being proposed equals 52.8 acres of surface disturbance. The timing and exact location of these disturbances is unknown but it is likely that development would not be concentrated in time or space.

Leasing and subsequent development of this lease parcel in combination with the past, present, and reasonably foreseeable actions is likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect effects, but it would not likely elevate cumulative effects to levels that would compromise the viability of any wildlife population or the utility of broader landscapes as habitat. The size and distribution of habitat patches ultimately created through lease development (instigating species-area effects) or whether barriers persist long enough to manifest inbreeding depression (reduced fitness of individuals and isolated populations) is subject to much speculation, but considering only the parcel recommended for leasing, in combination with the past, present, and reasonably foreseeable actions; these principles of fragmentation are not known to be operating at a level that prompts imminent concern.

The lease sale associated with the future potential APDs could affect terrestrial species found in the area. These actions when combined with the disturbances of the past, present and reasonably foreseeable future could contribute to the disturbance or temporary displacement of terrestrial species found in proposed lease sale area. However, conditions of approval at the development phase are expected to minimize these effects.

4.4.1.3 Wildlife – Aquatic

Oil and gas development of lands made available for lease or already leased is projected to continue over the next 15-years within the Tres Rios Field Office management area. Existing and projected wells on all jurisdictions are factors that would contribute to the cumulative wildlife effects.

In total, it is estimated that surface disturbance would be approximately 4.4 acres per parcel. This combined potential surface disturbance form the 12 parcels being proposed equals 52.8 acres of surface disturbance.

Leasing and subsequent development of this lease parcel in combination with the past, present, and reasonably foreseeable actions is likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect effects, but it would not likely elevate cumulative effects to levels that would compromise the viability of any wildlife population or the utility of broader landscapes as habitat. The size and distribution of habitat patches ultimately created through lease development (instigating species-area effects) or whether barriers persist long enough to manifest inbreeding depression (reduced fitness of individuals and isolated populations) is subject to much speculation, but considering only the parcel recommended for leasing, in combination with the past, present, and reasonably foreseeable actions; these principles of fragmentation are not known to be operating at a level that prompts imminent concern.

The lease sale associated with the future potential APDs could affect aquatic species found in the area. These actions when combined with the disturbances of the past, present and reasonably foreseeable future could contribute to the disturbance or temporary displacement of aquatic species found in proposed lease sale area. However, conditions of approval at the development phase are expected to minimize these effects.

4.4.2 Threatened, Endangered, and Sensitive Species

4.4.2.1 Threatened, Endangered and Sensitive Species – Wildlife

The Cumulative Effects Area was determined based on the following criteria: (1) current development within the planning area, (2) projected development on existing federal leases within the planning area, (3) and projected development on future federal leases within the planning area. The CEA analyzed based on the above criteria include the Cherry Creek basin drainage and associated access roads; the Navajo river corridor adjacent and connected to the proposed leases; and the area around lease parcel 6533, including the access roads leading to this parcel and Squaw Canyon below this parcel.

Development of these lease parcels would contribute to activity simultaneous with and in addition to ongoing mineral development and recreation use in the TRFO. Initial disturbance to TES species (e.g., construction, drilling, and completion activities), as conditioned by timing limitations, CSU and COAs would be relatively localized and temporary. After these initial activities have subsided, human activity and effects of habitat fragmentation would continue throughout the production phase and persist for the life of well or field. The consequences of these influences on TES species would vary according to species-specific response through time as modified by habituation or circumstance, such as the use of access restrictions or BMPs that reduce the frequency and duration of well visitation.

Development would result in further unavoidable modifications and reductions in habitat communities. Roads and working surfaces of pads represent incremental accumulation of acreage removed from habitat base for the life of the well or field.

Leasing and subsequent development of this lease parcel in combination with the past, present, and reasonably foreseeable actions is likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect effects, but it would not likely elevate cumulative effects to levels that would compromise the viability of any wildlife population or the utility of broader landscapes as habitat. The size and distribution of habitat patches ultimately created through lease development (instigating species-area effects) or whether barriers persist long enough to manifest inbreeding depression (reduced fitness of individuals and isolated populations) is subject to much speculation, but considering only the parcel recommended for leasing, in combination with the past, present, and reasonably foreseeable actions; these principles of fragmentation are not known to be operating at a level that prompts imminent concern.

The only TES species that may be affected with any cumulative foreseeable development scenarios is the Gunnison sage grouse. As described in the TES proposed action section above, parcel 6533 is almost entirely within what is mapped as historic habitat and will be considered potentially suitable habitat in the TRFO new RMP. This parcel could also be included in "critical habitat" if the US Fish and Wildlife service decides to list this species. It has been documented in numerous studies that grouse can be negatively affected by habitat fragmentation and habitat loss due to oil and gas development, particularly during critical life function periods such as lekking, breeding and nesting. If parcels are proposed for development in occupied or potential habitat for the Gunnison sage grouse, extensive measures that may include no surface occupancy and timing limitations could be applied.

The combination of CSU and TL lease stipulations and complementing sighting criteria that attempt to minimize or avoid adverse modification of TES raptor nest habitat characteristics have been effective in preventing reproductive failures and maintaining the integrity of the nest substrate or woodland stand for subsequent nest attempts. Raptor nest surveys are required prior to project implementation in those areas potentially influenced by proposed development activities. Information on functional nest sites found in the course of survey are used as the basis for developing siting alternatives or applying timing limitations that reduce the risk of nest

activity disruptions that could result in reproductive failure or compromising the long-term utility of nest habitat.

The lease sale associated with the future potential APDs could affect threatened, endangered or candidate species found in the area. These actions when combined with the disturbances of the past, present and reasonably foreseeable future could contribute to the disturbance or temporary displacement of threatened, endangered or candidate species found in proposed lease sale area. However, conditions of approval at the development phase are expected to minimize these effects.

4.4.2.2 Threatened, Endangered and Sensitive Species – Plants

The geographic boundaries of a cumulative effect analysis for Special Status plant species having potential habitat within the leasing parcels would be the respective known ranges of the specific plants listed in the Table 3.1. However, because of a lack of data concerning known occurrences of these specific species in the project area, the surrogate of potential habitat based on where species have been found in similar habitats must be used. As a result of the rationale stated above, the geographic boundaries of such an analysis are identical to those resources, specifically Soil and Water Resources, which dictate the bounds of potential habitat. The site specific analysis which would precede any actual development of leased parcels will help define the CEA and effects based on actual biological surveys wherever possible.

See Section 4.4.3 for potential cumulative effects to special status plant species habitats. The future effects from this lease sale as leases are developed, when combined with the past, present and reasonably foreseeable actions could increase effects from habitat fragmentation in the region through incremental increases in surface disturbing activities, resulting in cumulative effects to sensitive species and their habitats which may increase negative population trends in some species associated with the lease parcels area.

4.4.3 Soil and Water Resources

4.4.3.1 Soil and Water Resources – Surface Geology/Soils

The cumulative effect area for the Chromo area lease parcel is located within the HUC5 Navajo River watershed. The cumulative effect area for the Hesperus lease parcels is located within the HUC5 Headwaters La Plata watershed. The cumulative effect area for the McKenna Peak area parcel is located within the HUC5 Disappointment watershed. The cumulative effect area for the Southwest Dove Creek parcel is located within the HUC5 Cross Canyon watershed. All watersheds are part of the upper Colorado River Basin.

Oil and gas development of lands made available for lease or already leased is projected to continue over the next 15-years within the Tres Rios Field Office management area. Existing and projected wells on all jurisdictions are factors that would contribute to the cumulative watershed effects. Other past actions include roads, livestock grazing, and activities on private land. The subsequent development of leasing these areas, continued livestock grazing, and the continuation of activities on private lands are all part of the RFAS.

The combination of past, present, and RFAS combined with the effects of leasing development is unlikely to affect soil and water conditions within the Navajo River, Disappointment, and Cross Canyon watersheds. However, the combination of past, present, and RFAS in the La Plata watershed is likely to affect soil and water conditions due to the number, size, and location of the lease parcels even with the implementation of BMPs. The hazard of erosion and potential for surface runoff in the Hesperus lease parcel area is high to severe and approximately 36% the slopes are >40%. Cumulatively, these conditions have the potential to increase soil surface erosion and runoff which could alter stream channel morphology downstream of the project area. Changes to stream channel morphology such as lateral and vertical adjustment combined with inputs of sediment from upslope would degrade water quality conditions potentially to the point of not meeting water quality standards. Development in the Hesperus lease parcel area could also increase the potential for slope failure.

This lease sale, when combined with the past, present and reasonably foreseeable actions will elevate *potential* for the deterioration of soil health. Increased development of fluid minerals will result in a cumulative increase in surface disturbances as well as increase potential for leaks or spills during drilling and completion activities. The type of effects will be the same as described under environmental effects associated with the proposed action. However, the severity of the effects will be elevated with increased development in the watershed.

4.4.3.2 Soil and Water Resources – Floodplains, Wetlands, and Riparian Zones

The Cumulative Effects Area is determined by the location of the riparian areas located within each lease parcel. Oil and gas development of lands made available for lease or already leased is projected to continue over the next 15-years within the Tres Rios Field Office management area. Existing and projected wells on all jurisdictions are factors that would contribute to the cumulative watershed effects. Other past actions include roads, livestock grazing, and activities on private land. The subsequent development of leasing these areas, continued livestock grazing, and the continuation of activities on private lands are all part of the RFAS.

The combination of past, present, and RFAS combined with the effects of leasing development is unlikely to affect riparian areas. This is because of the NSO stipulation surrounding riparian areas.

Leasing the proposed parcel, in combination with the past, present and reasonably foreseeable actions would not have any cumulative effects on riparian zones. Effects on riparian zones should be limited due to existing lease stipulations and CSU restrictions that provide protection to these areas. Some effects could occur if creek crossings cannot be avoided during oil and gas exploration and development activities. Placement of facilities away from riparian areas located in or adjacent to the proposed lease parcel would reduce or eliminate direct effects.

4.4.3.3 Soil and Water Resources – Surface Water Quality

This lease sale, when combined with the past, present and reasonably foreseeable actions will elevate *potential* for the deterioration of surface water quality in the lease parcel areas. Increased

development of fluid minerals will result in a cumulative increase in surface and subsurface disturbances as well as increase potential for leaks or spills during drilling and completion activities. The type of effects will be the same as described under environmental effects associated with the proposed action. However, the severity of the effects will be elevated with increased development in the watershed.

4.4.3.4 Soil and Water Resources – Groundwater Quality

This lease sale, when combined with the past, present and reasonably foreseeable actions will elevate *potential* for the deterioration of groundwater quality in the lease parcel areas. Increased development of fluid minerals will result in a cumulative increase in surface and subsurface disturbances as well as increase potential for leaks or spills during drilling and completion activities. The type of effects will be the same as described under environmental effects associated with the proposed action. However, the severity of the effects will be elevated with increased development in the watershed.

4.4.4 Cultural Resources

4.4.4.1 Cultural Sites

The area of cumulative effects analysis is the lease parcel boundary because that is the area that could receive ground disturbance due to the proposed action. The cumulative effects of development of a particular lease may include secondary effects to cultural sites arising from increased visitation to the area, better access to previously inaccessible sites, increased erosion of surface properties from road and pad construction and the increased potential for inadvertent and/or deliberate vandalism of historic properties. The potential for and severity of these secondary effects cannot be analyzed at the lease stage, only when an APD or plan of development is submitted. Lessees must comply with existing laws and regulations, and any potential cumulative and secondary effects to cultural resources will be addressed when development plans are submitted for BLM approval.

4.4.4.2 Native American Religious Concerns

Analysis of cumulative effects to Native American religious concerns cannot be addressed until the nature of both the development actions and the concerns are known. Since there are no known concerns for this area it is unlikely that any cumulative effects may occur. If, however, future consultations or investigations reveal the presence of such concerns, said concerns must be mitigated in consultation with the appropriate tribal, state and federal entities. Cumulative effects to Native American Religious Concerns may include visual degradation of a landscape important in traditional religious practice, interruption of accessibility to a particular site and a change or alteration in the character of a site, place or landscape important to traditional beliefs and practices.

Longer term cumulative effects are similar to the direct and indirect effects described previously. In addition, the cumulative effects of development of a particular lease may include secondary effects to cultural sites arising from increased visitation to the area, better access to previously

inaccessible sites, increased erosion of surface properties from road and pad construction and the increased potential for inadvertent and/or deliberate vandalism of historic properties. The potential for and severity of these secondary effects cannot be analyzed at the lease stage, only when an APD or plan of development is submitted. Lessees must comply with existing laws and regulations, and any potential cumulative and secondary effects to cultural resources will be addressed when development plans are submitted for BLM approval.

4.4.5 Transportation

Development intensity, terrain, and proximity to main travel corridors, towns, and recreation facilities will greatly influence transportation effects. It is possible that post-lease industrial development could result in increased traffic. At the development phase, the surface use plan or conditions of approval can be used to minimize cumulative effects to highways, county roads, and existing and/or designated routes and minimize construction of new routes.

4.4.6 Air Quality and Climate

Due to the geographic extent of the nominated lease parcels, the cumulative effects area (CEA) development of the lease parcels may contribute incrementally to the deterioration of air quality in the region. Increased development of fluid minerals will result in a cumulative increase in surface and subsurface disturbances as well as increase emissions during drilling and completion activities and production. The type of effects will be the same as described under environmental effects associated with the proposed action. However, the severity of the effects could be elevated based on any contemporaneous development in surrounding areas.

A regional air quality analysis was recently conducted for the TRFO, in part for use in the San Juan Public Lands (SJPL) Draft EIS that is being prepared for an updated RMP. The analysis was conducted using an amended oil and gas RFD for the planning area prepared in 2009 (incorporated information for GSGP - Gothic Shale Gas Play) using the far field CALPUFF dispersion model. The analysis included design features for new oil and gas development within the region that will be incorporated as conditions of approval for new oil and gas development activities within the region. The model predicted that BLM-authorized activities would have minimal effects to area air quality (including Class I and sensitive Class II receptors) for the pollutants analyzed. The model predicted the potential for cumulative effects to air quality within the region, most often at the Mesa Verde National Park (Class I Air Quality Area).

These cumulative effects do not signify an actual violation of air quality standards. Rather they show that cumulative effects from existing sources may need to be carefully examined by the regulatory agencies prior to issuing permits for new construction in the area. Further, the effects were predicted for the worst-case emissions year, which is typically the last inventory year analyzed, where linear construction emissions/pace would occur along with full field production operations. The analysis may not accurately characterize the initial inventory years. Further, any variability or deviation in the pace of development or emissions inventory assumptions (including background sources) can have positive or negative effects that would ‘nudge’ the analysis as far as project-level significance is concerned, and thus it is appropriate to re-evaluate project-level emissions prior to authorizing future lease parcel development. For more detailed

information on the modeling analysis, please see the TRFO air quality technical support document at the following link: http://ocs.fortlewis.edu/forestPlan/supplement/SJPLC-TSD_Report_051111.pdf

Currently, global climate models are inadequate to forecast local or regional effects on resources (IPCC, 2007; CCSP, 2008). However, there are general projections regarding potential effects to natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time; however these effects are likely to be varied, including those in the southwestern United States (Karl et al., 2009). For example, if global climate change results in a warmer and drier climate, increased particulate matter effects could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely effect the timing and quantity of snowmelt, which, in turn, could affect water resources and species dependant on historic water conditions (Karl et al., 2009).

The *Final Colorado Greenhouse Gas Inventory and Reference Case Projections 1990-2020* estimates that approximately 6.5 million metric tons of GHGs from the natural gas industry and .18 million metric tons of GHGs from the oil industry are projected in 2010 as a result of oil and natural gas production, processing, transmission and distribution (CCS, 2007).

When compared to the total GHG emission estimates from the total number of oil and gas wells in the State, the average number of oil and gas wells drilled annually in the Field Office and associated GHG emission levels, represent an incremental contribution to the total regional and global GHG emission levels. The number of oil and gas wells that would eventually result from the proposed action would therefore likely represent an even smaller incremental contribution to GHGs emissions on a global scale.

The effect of climate change on BLM resources depends upon the location of the affected resource, its vulnerability and resiliency to change, and its relationship to the human environment. There will be positive and negative effects of climate change, even within a single region. For example, warmer temperatures may bring longer growing seasons in some regions, benefiting farmers who can adapt to new conditions, but potentially harming native plant and animal species. In general, the larger and faster the changes in climate are, the more difficult it will be for human and natural systems to adapt.

According to the Colorado Water Conservation Board, temperatures in Colorado increased by approximately 2° F between 1977 and 2006. As reported in the 2007 Colorado Climate Action Plan developed by the state of Colorado, climate change effects within Colorado have included:

- shorter and warmer winters with a thinner snowpack and earlier spring runoff;
- less precipitation overall with more falling as rain;
- longer periods of drought;
- more and larger wildfires;
- widespread beetle infestations;

- rapid spread of West Nile virus due to higher summer temperatures.

In relation to a 1950-1999 baseline, climate models project that Colorado will warm 2.5° F by 2025, and 4° F by 2050. The 2050 projection indicates that summers will warm by +5° F, and winters by 3° F (Colorado Water Conservation Board 2008). Future predicted climate change effects on Colorado include:

- more frequent and longer lasting heat extremes that stress electrical utility demands
- longer and more intense wildfire seasons
- midwinter thawing and earlier melting of snowpack
- lower river flows in summer months
- water shortages for irrigated agriculture
- slower recharge of groundwater aquifers
- migration of plant and animal species to higher elevations
- more insect infestation in forests.

4.4.7 Socio-Economics and Environmental Justice

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.

4.4.8 Recreation and Visual Resources

Due to the geographic extent of the nominated lease parcels, the CEA for visual/recreation resources is defined as all lands within the Tres Rios Field Office. Within this CEA area, there are about 605,000 acres (public and private surface, excluding tribal lands) of land currently leased for oil and gas development. This action would add up to 12,175 additional acres available for lease, resulting in cumulative total of 617,175 acres under lease. The direct and indirect effects described for visual resources/recreation above would then potentially cumulatively affect an additional 2% of lands within the TRFO.

Existing stipulations, found in the SJ/SM RMP and State Office Stipulations, do not address recreational resources beyond those designed to protect the viewsheds of the Dolores Canyon, Weber WSA, and Menefee WSA.

Mitigation SJ-03 would provide some visual protection for lands within parcel 6450, the viewshed of the Weber and/or Menefee WSAs.

The cumulative effects of Alternative B on visual resources would be similar to those described under the Proposed Action. However, the deferral of approximately 64 acres of parcel 6447 would slightly lessen the potential cumulative total of leased lands within the CEA.

4.4.9 Leasable Solid Minerals

The cumulative effects area consists of the Hesperus Parcel Area. This area was selected as it represents those proposed oil and gas leases that overlap known coal resources where economic

activities have occurred. Historically, small mines were developed by and for local ranchers, farmers, and the town of Durango. At this time, most coal mines have been closed.

It is not known what the status is of the mines that closed prior to the mid- 1970s and early 1980s. At that time, the BLM and the State of Colorado developed authorities which require all mining operations to be permitted and reclaimed. All mines that were permitted after this time either have been reclaimed or are undergoing reclamation. The one exception is the King Coal II Mine which is still active.

The operator of the King Coal II Mine has submitted an application to amend their coal lease. If approved, the amendment would expand the boundaries of Federal minerals which the existing operation may mine. The existing adit would be used. No new facilities or access would be associated with the amendment. At the close of the King Coal II Mine, all surface disturbance would be reclaimed. The only effects to coal resources are associated with conflicting oil and gas leases.

Under the Proposed Action, full development of coal resources would be allowed. Exploration and development activities would be allowed in areas of existing coal mines where possible.

The past, present, and reasonably foreseeable development of coal is not expected to increase surface disturbance associated with the Proposed Action in the short-term. Over time, existing coal mine reclamation projects will be completed. Eventually, the King Coal II Mine will cease mining and complete reclamation of its surface facilities. Over the long term, cumulative surface disturbance is expected to decrease as reclamation of the mines is completed.

Under the No Action Alternative, coal resources would continue to be fully developed.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

The issue identification section of Chapter 1 identifies those issues analyzed in detail in Chapter 4. The ID Team Checklist provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described in sections 5.2 and 5.3 below.

5.2 Persons, Groups, and Agencies Consulted

Table 5.2

List of all Persons, Agencies and Organizations Consulted for Purposes of this EA.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
The Hopi Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA	Further consultation scheduled for Nov 2012.

	(16 USC 1531)	
Jicarilla Apache Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Navajo Nation	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Northern Ute Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Acoma	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Cochiti	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Isleta	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Jemez	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Laguna	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Nambe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Picuris	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Pojoaque	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of San Felipe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of San Juan	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Sandia	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Santa Ana	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Pueblo of Zia	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
San Ildefonso Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.

Santa Clara Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Santo Domingo Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Southern Ute Indian Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Taos Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Tesuque Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.
Ute Mountain Ute Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	Further consultation scheduled for Nov 2012.
Zuni Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	All concerns were addressed.

In addition, TRFO coordinated with CPW on wildlife related issues and incorporated changes where appropriate.

5.3 Summary of Public Participation

Information on the 2013 Lease Sale was posted to the TRFO BLM website, and letters with information about the parcels and proposed stipulations were sent to surface owners and posted online for a two week public scoping period starting on June 11, 2012. Sixteen comments were received and all timely and substantive comments were considered by the ID Team in identification of issues of the EA. In addition, the preliminary EA and unsigned FONSI, along with the list of available lease parcels and stipulations were made available for public review and comment for 30 days beginning August 17, 2012 until September 17, 2012. As a result of public comments received, the Tres Rios Field office extended the deadline comments for the preliminary EA from Sept. 18, 2012, to October 2, 2012. In addition, tribal consultation was initiated and partner agencies were notified early on in the process to participate. Approximately 365 people signed a submitted petition. Eighty-eight comment letters were received from ten government agencies, 73 individuals and five organizations. After review of the comment letters, substantive comments were received on the following topics (see Attachment E for summary of comments and responses):

- Air Resources
- Oil and gas
- NEPA
- Recreation
- Socio-economic
- Soils

- Water Resources
- Travel and Transportation
- Visual Resource Management
- Wildlife – Terrestrial, Aquatic
- Special Status Species

After the end of the public comment period, the BLM analyzed the comments and made changes as necessary to the EA. A summary of public comments and responses is included as Attachment E.

5.4 List of Preparers

Table 5.4 List of Preparers
5.4.1 BLM

Name	Title	Responsible for the Following Section(s) of this Document
Julie Bell	Archaeologist	Cultural Resources, Native American Religious Concerns
Jeff Christenson	Supervisory Outdoor Recreation Planner	Recreation and Visual Resources
David Epstein	Economist	Socio-economics and Environmental Justice
Eric Freels	Wildlife Biologist	Wildlife
Helen Mary Johnson	Solid Minerals Geologist	Other Minerals
Tina Transtrom Kincaid	Planning and Environmental Coordinator	Environmental Coordination
Pam Leschak	Geologist	Technical Coordination and Quality Control
Chad Meister	Air Resource Specialist	Air Quality
John Pecor	Petroleum Engineer	Development Assumptions
Tracy Perfors	Team Lead	Technical Coordination and Quality Control, Noise and Transportation
Kylie Whited	Rangeland Management Specialist	Plants – Threatened, Endangered and Sensitive Species
Gina Jones	NEPA Coordinator	Environmental Coordination

Name	Title	Responsible for the Following Section(s) of this Document
Sara Brinton	Forest Service Botanist	Plants – Threatened, Endangered and Sensitive Species
Shauna Jensen	Forest Service Hydrologist	Soil and Water Resources
Tom Kochanski	Forest Service GIS	GIS

6.0 REFERENCES AND ACRONYMS

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6.2 List of Acronyms

APCD – Air Pollution Control Division
APD – Application for Permit to Drill
APE – Area of Potential Effect
BCC – Birds of Conservation Concern
BLM – Bureau of Land Management
BMPs – Best Management Practices
BOR – Bureau of Reclamation
CAAQS – Colorado Ambient Air Quality Standards
CDPHE – Colorado Department of Public Health and Environment
CFR – Code of Federal Regulations
CH_4 – Methane
CEA – Cumulative Effect Area
CO – Colorado or Carbon Monoxide
CO_2 – Carbon Dioxide
COA – Condition of Approval
COGCC – Colorado Oil and Gas Conservation Commission
CPW – Colorado Parks and Wildlife
CSU – Controlled Surface Use
CX – Categorical Exclusion
DR – Decision Record
EA – Environmental Assessment
EIS – Environmental Impact Statement
EPA – Environmental Protection Agency
FLPMA – Federal Land Policy and Management Act
FONSI – Finding of No Significant Impact
FOOGLRA - Federal Onshore Oil and Gas Leasing Reform Act
FS – Forest Service
FWS – Fish and Wildlife Service
GHG – Greenhouse Gasses
GIS – Geographic Information Systems

GSGP – Gothic Shale Play Area
HAPs – Hazardous Air Pollutants
ID Team – Inter-disciplinary Team
IM – Instruction Memorandum
IPCC – Intergovernmental Panel on Climate Change
LAU – Lynx Analysis Units
LN – Lease Notice
M&E – Monitoring and Evaluation
MBTA – Migratory Bird Treaty Act
MLA – Mineral Leasing Act
MOU – Memorandum of Understanding
NAAQS – National Ambient Air Quality Standards
NCLS – Notice of Competitive Lease Sale
NDIS – Natural Diversity Information Source
NEPA – National Environmental Policy Act
NFS – National Forest Service
NFWF – National Fish and Wildlife Foundation
NHPA – National Historic Preservation Act
NO_2 – Nitrogen Dioxide
NPS – National Park Service
NRHP – National Registry of Historic Places
NSO – No Surface Occupancy
O_3 – Ozone
PBA – Programmatic Biological Assessment
PBO – Programmatic Biological Opinion
PM – Particulate Matter
RCP – Rangewide Conservation Plan
RFAS – Reasonably Foreseeable Action Scenario
RFD – Reasonable and Foreseeable Development
RMP – Resource Management Plan
ROD – Record of Decision
ROW – Rights-of-Way
SC – State Special Concern
SJ/SM RMP – San Juan/San Miguel Resource Management Plan
SJPL – San Juan Public Lands
SMU – Soil Map Unit
SPCC – Spill Prevention, Control and Countermeasure
ST – State Threatened
SW – Southwest
TCP – Traditional Cultural Properties
TDS – Total Dissolved Salt
TES – Threatened, Endangered, and Sensitive
TL – Timing Limitation
TRFO – Tres Rios Field Office
TSP – Total Suspended Particulates
VOCs – Volatile Organic Compounds

WO – Washington Office
WQCD – Water Quality Control Division
WSA – Wilderness Study Area
USDA – United States Department of Agriculture
USDI – United States Department of Interior
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey

ATTACHMENT A
Alternative A- Proposed Action
Parcels Available for Lease with Applied Stipulations

PARCEL ID: 6401 SERIAL #:

T. 0320N., R 0010E., NMPM
Sec. 2: Lot 8;
Sec. 11: Lot 1-4;

Archuleta County
Colorado

23.810 Acres – Approximately 23.810 acres in private surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 32N R 1E Sec. 11 Lot 1-4
The following lands are subject to Exhibit CO-10 to protect elk calving:
T 32N R 1E Sec. 11 Lot 1-4
The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:
T 32N R 1E Sec. 2 Lot 8
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas:
T 32N R 1E Sec. 2 Lot 8

PARCEL ID: 6402 SERIAL #:

T. 0320N., R 0020E., NMPM
Sec. 2: Lot 1;
Sec. 8: Lot 2,5;
Sec. 9: Lot 5;

Archuleta County
Colorado

47.720 Acres – Approximately 2.7 acres in BLM surface ownership, 45.02 acres in private surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-28 to protect riparian areas.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:
T 32N R 2E Sec. 8 Lot 2,5, Sec. 9 Lot 5
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas:
T 32N R 2E Sec. 8 Lot 2,5, Sec. 9 Lot 5

PARCEL ID: 6433 SERIAL #:

T. 0340N., R 012W., NMPM
Sec. 2: Lot 2;
Sec. 2: SWNE;
Sec. 3: Lot 2,4;
Sec. 3: SWNE,SESW,SE;
Sec. 10: Lot 3,4;
Sec. 10: NE;
Sec. 11: Lot 2;

La Plata County
Colorado

664.910 Acres – Approximately 113 acres in BLM surface ownership, 551.91 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-23 to protect bald eagle winter roosts.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 34N R 12W Sec. 3 Lot 2,4, SWNE,SESW,SE, Sec. 10 Lot 4, NE
The following lands are subject to Exhibit CO-10 to protect elk calving:
T 34N R 12W Sec. 3 Lot 2,4, SWNE,SESW,SE, Sec. 10 Lot 4, NE
The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 34N R 12W Sec. 2Lot 2, SWNE, Sec. 3 Lot 2,4, SESW, Sec. 10 Lot 4
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 34N R 12W Sec. 2 Lot 2, SWNE, Sec. 3 Lot 2, 4, SESW, Sec. 10 Lot 4

PARCEL ID: 6434 SERIAL #:

T. 0340N., R 011AW., NMPM
Sec. 6: NESW,NWSE;

La Plata County
Colorado

80.000 Acres – Approximately 80.0 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-27 to protect steep slopes.

All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

PARCEL ID: 6447 SERIAL #:

T. 0350N., R 0110W., NMPM
Sec. 8: Lot 1-15;
Sec. 8: NWSW;
Sec. 9: Lot 1,6-9;
Sec. 9: NWSW;
Sec. 15: Lot 3-5;
Sec. 15: SWNE,N2SW;
Sec. 17: Lot 7-11;
Sec. 17: NE,N2SW,NWSE;
Sec. 18: Lot 6,8;
Sec. 18: NESW,N2SE;

La Plata County
Colorado

1600.860 Acres – Approximately 833 acres in BLM surface ownership, 767.86 in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 11W Sec. 8 Lot 1-15, NWSW, Sec. 9 Lot 1, 6, 7, Sec. 15 Lot 3-5, SWNE, N2SW, Sec. 17 NE, N2SW, NWSE, Sec. 18 Lot 6, 8, NESW, N2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 11W Sec. 8 Lot 1, 10, 11, 12, 14, 15, NWSW, Sec. 15 Lot 3-5, NESW Sec. 17 Lot 8, NE, NWSE

PARCEL ID: 6448 SERIAL #:

T. 0350N., R 0110W., NMPM
Sec. 19: Lot 3-5;
Sec. 19: E2,E2SW;
Sec. 20: SWNE,S2NW,W2SW;
Sec. 30: Lot 1-4;
Sec. 30: NE,E2NW,E2SW,N2SE;

La Plata County
Colorado

1232.240 Acres – Approximately 1232.24 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 11W Sec. 19 Lot 4, SE, W2NE, SENE, SESW Sec. 20 SWNE,S2NW,W2SW, Sec. 30 Lot 1,2, E2NE, SWNE, E2NW, E2SW, N2SE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 11W Sec. 19 Lot 4, W2NE, SENE, E2SW, SE Sec. 20 SWNE,S2NW,W2SW, Sec. 30 Lot 1,2, NE, E2NW, E2SW, N2SE

PARCEL ID: 6449 SERIAL #:

T. 0340N., R 012AW., NMPM
Sec. 4: Lot 4;
Sec. 4: SWNW;
Sec. 5: Lot 1,4;
Sec. 5: NWSW,S2SW;
Sec. 6: Lot 3-6;
Sec. 6: SENW,SESE;
Sec. 7: Lot 3-6;
Sec. 7: NE,SENW;
Sec. 8: Lot 1-4;
Sec. 8: S2NE,NW;
Sec. 9: Lot 4;
Sec. 9: NWNW,S2NW;

La Plata County
Colorado

1393.200 Acres – Approximately 320 acres in BLM surface ownership, 1073.2 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, Sec. 7 Lot 3 Sec. 8 Lot 1, Sec. 9 Lot 4, NWNW
The following lands are subject to Exhibit CO-10 to elk calving:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, Sec. 7 Lot 3 Sec. 8 Lot 1, Sec. 9 Lot 4, NWNW
The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:
T 34N R 12W Sec. 7 Lot 3-6, NE, SENW

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, 4, NWSW, Sec. 6 Lot 3-6, SENW, SESE Sec. 7 Lot 3, 4, N2NE, SENW, Sec. 9 SENW
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 34N R 12W Sec. 5 NWSW
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas.
T 34N R 12W Sec. 7 Lot 3-6, NE, SENW
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, 4, NWSW, Sec. 6 Lot 3-6, SENW, SESE, Sec. 7 Lot 3, 4, 5, SENW, N2NE Sec. 9 SENW

PARCEL ID: 6450 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 13: S2SW,NESE,SWSE;
Sec. 14: SWNE,SW,W2SE,SESE;
Sec. 15: NWNE,S2NW,S2;
Sec. 17: W2W2;
Sec. 18: Lot 3,4;
Sec. 18: E2,SESW;
Sec. 19: Lot 1-4;
Sec. 19: NE,E2NW,NESW,N2SE;
Sec. 20: S2NE,NWNW,SESW,SE;

Montezuma and
La Plata Counties
Colorado

2369.810 Acres – Approximately 1259.66 acres in BLM surface ownership, 1110.15 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-27 to protect steep slopes.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 13 NESE, SWSE, Sec. 14 SWNE, Sec. 15 NWNE, Sec. 18 Lot 4
The following lands are subject to Exhibit SJ-03 to protect visual values:
T 35N R 12W, Sec. 18 Lot 3, 4, W2NE, SESW, W2SE Sec. 19 Lot 1, 2

PARCEL ID: 6451 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 21: E2,S2NW,SW;
Sec. 22: N2,SW,W2SE;
Sec. 23: N2N2,SENE,SESE;

Sec. 24: Lot 1;
Sec. 24: NESW,S2SW,NWSE;
Sec. 25: Lot 3-6;
Sec. 25: S2SW,W2SE;
Sec. 26: N2NE;
Sec. 27: SESW,W2SE;

La Plata County
Colorado

2000.000 Acres – Approximately 120 acres in BLM surface ownership, 1880 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 12W Sec. 21 N2NE, SWNE, S2NW, SW, NESE, S2SE, Sec. 22 S2NE, N2NW, SWNW, SW, W2SE, Sec. 23 N2N2, SENE, SESE, Sec 24 Lot 1, NESW, S2SW, NWSE, Sec 25 Lot 3-6, S2SW, W2SE, Sec 26 N2NE, Sec 27 SESW, W2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 22 NENE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 12W Sec. 21 N2NE, SWNE, S2, S2NW, Sec. 22 N2, SW, W2SE, Sec. 23 N2N2, SENE, SESE, Sec 24 Lot 1, NESW, S2SW, NWSE, Sec 25 Lot 3-6, S2SW, W2SE, Sec 26 N2NE, Sec 27 SESW, W2SE

PARCEL ID: 6452 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 28: E2,N2NW;
Sec. 29: N2SW,SESW;
Sec. 29: E2,E2NW,SWNW;
Sec. 30: Lot 1,2;
Sec. 30: E2NW,SESE;
Sec. 31: Lot 3,4;
Sec. 31: NESE;
Sec. 32: NE,N2SE;
Sec. 33: NWSW;

La Plata County
Colorado

1562.000 Acres – Approximately 720 acres in BLM surface ownership, 842 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.

All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T35N R 12W Sec. 28 E2, N2NW, Sec. 32 NENE, Sec. 33 NWSW
The following lands are subject to Exhibit CO-10 to protect elk calving:
T35N R 12W Sec. 28 E2, N2NW, Sec. 32 NENE, Sec. 33 NWSW
The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 12W Sec. 28 N2NE, SWNE, N2NW, Sec. 29 E2, N2SW, SESW, E2NW, SWNW, Sec. 30 Lot 1,2, E2NW, SESE, Sec. 31 Lot 3, 4, NESE, Sec. 32 NE, N2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 31 Lot 3, 4, NESE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 12W Sec. 28 N2NE, SWNE, N2NW, Sec. 29 E2, N2SW, SESW, E2NW, SWNW, Sec. 30 Lot 1,2, E2NW, SESE, Sec. 31 Lot 3, 4, NESE, Sec. 32 NE, N2SE Sec. 33 NWSW

PARCEL ID: 6471 SERIAL #:

T. 0420N., R 0140W., NMPM
Sec. 17: NE,NENW,E2SW,SE;
Sec. 20: NE,NENW;
Sec. 21: N2,NESW,NWSE;

San Miguel County
Dolores County
Colorado

1040.000 Acres – Approximately 1040 acres in State surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 42N R 14W Sec. 17 NENE, S2NE, NENW, E2SW, SE, Sec. 20 NE, NENW, Sec. 21 N2NE, SWNE, E2NW, NESW, NWSE,
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 42N R 14W Sec. 17 NE, NENW, E2SW, SE, Sec. 20 NE, NENW, Sec. 21 NE, E2NW, NESW, NWSE,

PARCEL ID: 6533 SERIAL #:

T. 0390N., R 0200W., NMPM
Sec. 25: TR 62;

Dolores County
Colorado

160.000 Acres – Approximately 160 acres in private surface ownership

All lands are subject to Exhibit CO-2 to protect grouse leks.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-06 to protect Mexican Spotted Owl roost and nest sites.
All lands are subject to Exhibit CO-15 to protect grouse winter habitat.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-21 to protect Mexican Spotted Owl nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-30 to protect nesting grouse habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit CO-40 to protect sage grouse habitat.

ATTACHMENT B
Deferred Portions of Parcels

PARCEL ID: 6447 SERIAL #:

T. 0350N., R 0110W., NMPM
Sec. 9: Lot 9;
Sec. 15: SWNE,

Approximately 63.51 acres

La Plata County
Colorado

ATTACHMENT C
Alternative B
Parcels Available for Lease with Deferred Portions, and Applied Stipulations

PARCEL ID: 6401 SERIAL #:

T. 0320N., R 0010E., NMPM
Sec. 2: Lot 8;
Sec. 11: Lot 1-4;

Archuleta County
Colorado

23.810 Acres – Approximately 23.810 acres in private surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 32N R 1E Sec. 11 Lot 1-4
The following lands are subject to Exhibit CO-10 to protect elk calving:
T 32N R 1E Sec. 11 Lot 1-4
The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:
T 32N R 1E Sec. 2 Lot 8
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas:
T 32N R 1E Sec. 2 Lot 8

PARCEL ID: 6402 SERIAL #:

T. 0320N., R 0020E., NMPM
Sec. 2: Lot 1;
Sec. 8: Lot 2,5;
Sec. 9: Lot 5;

Archuleta County
Colorado

47.720 Acres – Approximately 2.7 acres in BLM surface ownership, 45.02 acres in private surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-28 to protect riparian areas.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:
T 32N R 2E Sec. 8 Lot 2,5, Sec. 9 Lot 5
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas:
T 32N R 2E Sec. 8 Lot 2,5, Sec. 9 Lot 5

PARCEL ID: 6433 SERIAL #:

T. 0340N., R 012W., NMPM
Sec. 2: Lot 2;
Sec. 2: SWNE;
Sec. 3: Lot 2,4;
Sec. 3: SWNE,SESW,SE;
Sec. 10: Lot 3,4;
Sec. 10: NE;
Sec. 11: Lot 2;

La Plata County
Colorado

664.910 Acres – Approximately 113 acres in BLM surface ownership, 551.91 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-23 to protect bald eagle winter roosts.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 34N R 12W Sec. 3 Lot 2,4, SWNE,SESW,SE, Sec. 10 Lot 4, NE
The following lands are subject to Exhibit CO-10 to protect elk calving:
T 34N R 12W Sec. 3 Lot 2,4, SWNE,SESW,SE, Sec. 10 Lot 4, NE
The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 34N R 12W Sec. 2Lot 2, SWNE, Sec. 3 Lot 2,4, SESW, Sec. 10 Lot 4
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 34N R 12W Sec. 2 Lot 2, SWNE, Sec. 3 Lot 2, 4, SESW, Sec. 10 Lot 4

PARCEL ID: 6434 SERIAL #:

T. 0340N., R 011AW., NMPM
Sec. 6: NESW,NWSE;

La Plata County
Colorado

80.000 Acres – Approximately 80.0 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-27 to protect steep slopes.

All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

PARCEL ID: 6447 SERIAL #:

T. 0350N., R 0110W., NMPM
Sec. 8: Lot 1-15;
Sec. 8: NWSW;
Sec. 9: Lot 1,6-8;
Sec. 9: NWSW;
Sec. 15: Lot 3-5;
Sec. 15: N2SW;
Sec. 17: Lot 7-11;
Sec. 17: NE,N2SW,NWSE;
Sec. 18: Lot 6,8;
Sec. 18: NESW,N2SE;

La Plata County
Colorado

1537.350 Acres – Approximately 769.49 acres in BLM surface ownership, 767.86 in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 11W Sec. 8 Lot 1-15, NWSW, Sec. 9 Lot 1, 6, 7, Sec. 15 Lot 3-5, SWNE, N2SW, Sec. 17 NE,N2SW,NWSE, Sec. 18 Lot 6, 8, NESW, N2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 11W Sec. 8 Lot 1, 10, 11, 12, 14, 15, NWSW, Sec. 15 Lot 3-5, NESW Sec. 17 Lot 8, NE, NWSE

PARCEL ID: 6448 SERIAL #:

T. 0350N., R 0110W., NMPM
Sec. 19: Lot 3-5;
Sec. 19: E2,E2SW;
Sec. 20: SWNE,S2NW,W2SW;
Sec. 30: Lot 1-4;
Sec. 30: NE,E2NW,E2SW,N2SE;

La Plata County
Colorado

1232.240 Acres – Approximately 1232.24 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 11W Sec. 19 Lot 4, SE, W2NE, SENE, SESW Sec. 20 SWNE,S2NW,W2SW, Sec. 30 Lot 1,2, E2NE, SWNE, E2NW, E2SW, N2SE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 11W Sec. 19 Lot 4, W2NE, SENE, E2SW, SE Sec. 20 SWNE,S2NW,W2SW, Sec. 30 Lot 1,2, NE, E2NW, E2SW, N2SE

PARCEL ID: 6449 SERIAL #:

T. 0340N., R 012AW., NMPM
Sec. 4: Lot 4;
Sec. 4: SWNW;
Sec. 5: Lot 1,4;
Sec. 5: NWSW,S2SW;
Sec. 6: Lot 3-6;
Sec. 6: SENW,SESE;
Sec. 7: Lot 3-6;
Sec. 7: NE,SENW;
Sec. 8: Lot 1-4;
Sec. 8: S2NE,NW;
Sec. 9: Lot 4;
Sec. 9: NWNW,S2NW;

La Plata County
Colorado

1393.200 Acres – Approximately 320 acres in BLM surface ownership, 1073.2 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, Sec. 7 Lot 3 Sec. 8 Lot 1, Sec. 9 Lot 4, NWNW
The following lands are subject to Exhibit CO-10 to elk calving:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, Sec. 7 Lot 3 Sec. 8 Lot 1, Sec. 9 Lot 4, NWNW
The following lands are subject to Exhibit CO-23 to protect bald eagle winter roosts:

T 34N R 12W Sec. 7 Lot 3-6, NE, SENW
The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, 4, NWSW, Sec. 6 Lot 3-6, SENW, SESE Sec. 7 Lot 3, 4, N2NE, SENW Sec. 9 SENW
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 34N R 12W Sec. 5 NWSW
The following lands are subject to Exhibit SJ-07 to protect bald eagle winter concentration areas.
T 34N R 12W Sec. 7 Lot 3-6, NE, SENW
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 34N R 12W Sec. 4 Lot 4, Sec. 5 Lot 1, 4, NWSW, Sec. 6 Lot 3-6, SENW, SESE, Sec. 7 Lot 3, 4, 5, SENW, N2NE Sec. 9 SENW

PARCEL ID: 6450 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 13: S2SW,NESE,SWSE;
Sec. 14: SWNE,SW,W2SE,SESE;
Sec. 15: NWNE,S2NW,S2;
Sec. 17: W2W2;
Sec. 18: Lot 3,4;
Sec. 18: E2,SESW;
Sec. 19: Lot 1-4;
Sec. 19: NE,E2NW,NESW,N2SE;
Sec. 20: S2NE,NWNW,SESW,SE;

Montezuma and
La Plata Counties
Colorado

2369.810 Acres – Approximately 1259.66 acres in BLM surface ownership, 1110.15 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-27 to protect steep slopes.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit LN-101 to protect slopes 25-40%.

The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 13 NESE, SWSE, Sec. 14 SWNE, Sec. 15 NWNE, Sec. 18 Lot 4
The following lands are subject to Exhibit SJ-03 to protect visual values:
T 35N R 12W, Sec. 18 Lot 3, 4, W2NE, SESW, W2SE, Sec. 19 Lot 1, 2

PARCEL ID: 6451 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 21: E2,S2NW,SW;
Sec. 22: N2,SW,W2SE;

Sec. 23: N2N2,SENE,SESE;
Sec. 24: Lot 1;
Sec. 24: NESW,S2SW,NWSE;
Sec. 25: Lot 3-6;
Sec. 25: S2SW,W2SE;
Sec. 26: N2NE;
Sec. 27: SESW,W2SE;

La Plata County
Colorado

2000.000 Acres – Approximately 120 acres in BLM surface ownership, 1880 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 12W Sec. 21 N2NE, SWNE, S2NW, SW, NESE, S2SE, Sec. 22 S2NE, N2NW, SWNW, SW, W2SE, Sec. 23 N2N2, SENE, SESE, Sec 24 Lot 1, NESW, S2SW, NWSE, Sec 25 Lot 3-6, S2SW, W2SE, Sec 26 N2NE, Sec 27 SESW, W2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 22 NENE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 12W Sec. 21 N2NE, SWNE, S2, S2NW, Sec. 22 N2, SW, W2SE, Sec. 23 N2N2, SENE, SESE, Sec 24 Lot 1, NESW, S2SW, NWSE, Sec 25 Lot 3-6, S2SW, W2SE, Sec 26 N2NE, Sec 27 SESW, W2SE

PARCEL ID: 6452 SERIAL #:

T. 0350N., R 0120W., NMPM
Sec. 28: E2,N2NW;
Sec. 29: N2SW,SESW;
Sec. 29: E2,E2NW,SWNW;
Sec. 30: Lot 1,2;
Sec. 30: E2NW,SESE;
Sec. 31: Lot 3,4;
Sec. 31: NESE;
Sec. 32: NE,N2SE;
Sec. 33: NWSW;

La Plata County
Colorado

1562.000 Acres – Approximately 720 acres in BLM surface ownership, 842 acres in private surface ownership

All lands are subject to Exhibit CO-01 to protect coal deposits.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-08 to protect special status plant species.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-09 to protect big game winter habitat:
T35N R 12W Sec. 28 E2, N2NW, Sec. 32 NENE, Sec. 33 NWSW
The following lands are subject to Exhibit CO-10 to protect elk calving:
T35N R 12W Sec. 28 E2, N2NW, Sec. 32 NENE, Sec. 33 NWSW
The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 35N R 12W Sec. 28 N2NE, SWNE, N2NW, Sec. 29 E2, N2SW, SESW, E2NW, SWNW, Sec. 30 Lot 1,2, E2NW, SESE, Sec. 31 Lot 3, 4, NESE, Sec. 32 NE, N2SE
The following lands are subject to Exhibit CO-28 to protect riparian areas:
T 35N R 12W Sec. 31 Lot 3, 4, NESE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 35N R 12W Sec. 28 N2NE, SWNE, N2NW, Sec. 29 E2, N2SW, SESW, E2NW, SWNW, Sec. 30 Lot 1,2, E2NW, SESE, Sec. 31 Lot 3, 4, NESE, Sec. 32 NE, N2SE Sec. 33 NWSW

PARCEL ID: 6471 SERIAL #:

T. 0420N., R 0140W., NMPM
Sec. 17: NE,NENW,E2SW,SE;
Sec. 20: NE,NENW;
Sec. 21: N2,NESW,NWSE;

San Miguel County
Dolores County
Colorado

1040.000 Acres – Approximately 1040 acres in State surface ownership

All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.

The following lands are subject to Exhibit CO-27 to protect steep slopes:
T 42N R 14W Sec. 17 NENE, S2NE, NENW, E2SW, SE, Sec. 20 NE, NENW, Sec. 21 N2NE, SWNE, E2NW, NESW, NWSE
The following lands are subject to Exhibit LN-101 to protect slopes 25-40%:
T 42N R 14W Sec. 17 NE, NENW, E2SW, SE, Sec. 20 NE, NENW, Sec. 21 NE, E2NW, NESW, NWSE

PARCEL ID: 6533 SERIAL #:

T. 0390N., R 0200W., NMPM
Sec. 25: TR 62;

Dolores County
Colorado

160.000 Acres – Approximately 160 acres in private surface ownership

All lands are subject to Exhibit CO-2 to protect grouse leks.
All lands are subject to Exhibit CO-03 to protect raptor nests.
All lands are subject to Exhibit CO-04 to protect bald eagle roost and nests sites.
All lands are subject to Exhibit CO-06 to protect Mexican Spotted Owl roost and nest sites.
All lands are subject to Exhibit CO-15 to protect grouse winter habitat.
All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.
All lands are subject to Exhibit CO-21 to protect Mexican Spotted Owl nesting and fledgling habitat.
All lands are subject to Exhibit CO-22 to protect bald eagle nesting habitat.
All lands are subject to Exhibit CO-30 to protect nesting grouse habitat.
All lands are subject to Exhibit CO-31 to protect sensitive species.
All lands are subject to Exhibit CO-34 to protect TES species.
All lands are subject to Exhibit CO-39 to protect cultural resources.
All lands are subject to Exhibit CO-40 to protect sage grouse habitat.

ATTACHMENT D

Exhibits, Stipulations, Lease Notices

EXHIBIT CO-01

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:

> Protection of surface and longwall coal mines where oil and gas development is incompatible with planned coal extraction.

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:
This stipulation may be waived if the lessee agrees that any well approved for drilling will be plugged below the coal when the crest of the highwall or longwall approaches within 500 feet of the well. A suspension of operations and production will be considered for the lease only when a well is drilled and then plugged, and a new well or reentry is planned when the mine moves through the location.

EXHIBIT CO-2

NO SURFACE OCCUPANCY STIPULATION

Grouse (includes sage grouse, mountain sharp-tailed, lesser and greater prairie chickens). NSO within 0.6 mile radius of a lek site (courtship area).

Exception for grouse leks. The NSO area may be altered depending upon the active status of the lek or the geographical relationship of topographical barriers and vegetation screening to the lek site.

EXHIBIT CO-03

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 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

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 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-06

NO SURFACE OCCUPANCY STIPULATION

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

<LEGAL_DESCRIPTION>

For the purpose of:

To protect Mexican spotted owl 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.)

EXHIBIT CO-08

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 special status plant species (including federally listed species, proposed species, and candidate species) on habitat 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

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-10

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.

April 16 through June 30

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect elk calving

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-15

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 16 through March 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect grouse (including sage and mountain sharp-tailed grouse, and lesser and greater prairie chickens) crucial winter habitat

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

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

On the lands described below:

<LEGAL_DESCRIPTIONS>

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-21

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 July 31

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect Mexican spotted owl core habitat areas (that is, nesting and fledgling 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-22

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 15 through June 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect bald eagle nesting habitat within a one-half mile buffer 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-23

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:

<LEGAL_DESCRIPTIONS>

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-27

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 soils on surfaces greater than 40 percent slope. Prior to surface disturbance of steep (greater than 40 percent) an engineering/reclamation plan must be approved by the Authorized Officer. Such plans must demonstrate how the following will be accomplished:

a. Site productivity will be restored.

b. Surface runoff will be adequately controlled.

c. Off-site areas will be protected from accelerated erosion such as drilling, gullying, piping, and mass wasting.

d. Surface-disturbing activities will not be conducted during extended wet periods.

e. Construction will not be allowed when soils are frozen.

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-28

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:

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

Exception Criteria:

Exceptions may be granted only if an on-site impact analysis shows no degradation of the resource values.

EXHIBIT CO-30

LEASE NOTICE

In order to protect nesting grouse species, surface-disturbing activities proposed during the period between March 1 and June 30 will be relocated, consistent with lease rights granted and section 6 of standard lease terms, out of grouse nesting habitat.

Sage grouse nesting habitat is described as sage stands with sagebrush plants between 30 and 100 centimeters in height and a mean canopy cover between 15 and 40 percent.

Greater prairie chicken nesting habitat is described as tall to mid-grass communities with a mean height density index of 5.85 decimeters with 11 percent bare ground and an average height of sandsage at 84 centimeters; grasses 111 centimeters; and forbs 83 centimeters. (Nesting occurs within an average distance of 2.4 km of a lek.)

Lesser prairie chicken nesting habitat is described as short-mid grass and sandsage communities with a mean height density index of *3.5* decimeters with an average grass canopy coverage of 30 percent and 7 percent sandsage. The predominate plant associated with nesting cover is sandsage with an average height of 40-50 centimeters. (Nesting occurs within an average distance of 1.8 km [.2 to 4.8 km] of the lek site.)

Sharptail grouse nesting habitat is described as mountain shrub communities with a density of shrub plants from 1,700 to 32,000 shrubs per hectare and average shrub height of 30 centimeters. Nests are found primarily in shrub clumps where the shrubs are taller than average. (Nesting occurs within an average distance of 2 km of a lek.)

On the lands described below:

<LEGAL_DESCRIPTIONS>

EXHIBIT CO-31

LEASE NOTICE

Special biological and/or botanical inventory and special mitigative measures to reduce impacts of surface disturbance to the sensitive plant or animal species may be required.

On the lands described below:

<LEGAL_DESCRIPTIONS>

EXHIBIT CO-34

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. 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. 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. 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.

On the lands described below:

<LEGAL_DESCRIPTIONS>

EXHIBIT CO-39

CONTROLLED SURFACE USE

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.)

On the lands described below:

<LEGAL_DESCRIPTIONS>

.

EXHIBIT CO-40

LEASE NOTICE

The lessee is hereby notified the lease contains Sage Grouse habitat that has been designated as "high value" by the Colorado Division of Wildlife. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on the Sage Grouse populations and habitat quality. Such measures shall be developed during the Application for Permit to Drill on-site process and during the preparation of the required NEPA analysis and will be consistent with the lease rights granted

On the lands described below:

<LEGAL_DESCRIPTIONS>

EXHIBIT SJ-03

NO SURFACE OCCUPANCY STIPULATION

Dolores River Canyon, Menefee and Weber Mountains: Protection of recreational and visual values.

No specific exception criteria are currently identified.

EXHIBIT SJ-07

TIMING LIMITATION STIPULATION

Bald Eagle Winter Concentration Areas: December 1 to April 15.

No specific exception criteria are currently identified.

LEASE NOTICE 101

Prior to surface disturbance on Slopes between 25-40%, an engineering/reclamation plan must be approved by the Authorized Officer. Such plans must demonstrate how the following will be accomplished:

a. Site productivity will be restored.
b. Surface runoff will be adequately controlled.
c. Off-site areas will be protected from accelerated erosion such as drilling, gullying, piping, and mass wasting.
d. Surface-disturbing activities will not be conducted during extended wet periods.
e. Construction will not be allowed when soils are frozen.

No specific exception criteria are currently identified.

ATTACHMENT E

Public Comments and Responses

NEPA – Public Participation	
Comments Topic Summary	
BLM Tres Rios Field Office has not done an adequate job of public outreach or provided adequate notification of the proposed comment period. BLM should extend the comment period to provide additional time for citizens to submit comments.	
BLM Summary Response	
The comment period for public review of the EA was extended two weeks. Section 1.7 of preliminary EA identifies public scoping, information on the 2013 Lease Sale was posted to the TRFO BLM website, and letters with information about the parcels and proposed stipulations were sent to surface owners and posted online for a two week public scoping period starting on June 11, 2012. Sixteen comments were received and all timely and substantive comments were considered by the ID Team in identification of issues. In addition, the preliminary EA was made available for public review and comment for 30 days beginning August 17, 2012 until September 17, 2012. As a result of public comments received, the Tres Rios Field office extended the deadline for providing comments for the preliminary EA from Sept. 18, 2012, to October 2, 2012.	
Comments	
Commenter Western Environmental Law Center	**Comment** It should follow, then, that the BLM's decision to offer the leases after having previously deferred them would come with a thorough public input process wherein the neighbors most likely to be affected by the leases were actively engaged, where comment was sought and considered, and all involved had the opportunity to weigh in and have questions answered. That does not appear to have been the case.
Commenter Dolores River Coalition	**Comment** To date, the Tres Rios Field Office has done an inadequate job of notifying and involving relevant stakeholders, which further warrants a deferral of the February lease sale until all of the involved parties have been offered ample time to participate in the process.
Commenter Gary Skiba	**Comment** The BLM has not sought comment on the Environmental Assessment from anyone other than the surface land owners. In the process, they have not contacted individuals and organizations that submitted initial scoping comments.
Commenter Tamsen Wiltshire	**Comment** The opportunity for public comment has been compromised by the BLM's lack of general noticing of the release of the EA, the proposed actions, and an associated "public" meeting. The need for a thorough scientific analysis, along with a vigorous public process, is not only legally required, but is extremely warranted. Unfortunately, it appears that the Tres Rios Field Office of the BLM is doing neither.

Commenter La Plata County	**Comment** It has come to the attention of the La Plata County Commissioners that many citizens of La Plata County were unaware of the Proposed Lease Sale until a story was published in the Durango Herald on August 30th, 2012. Since the publication of this story, the La Plata County commissioners have received several inquiries about the proposed lease sale and numerous complaints about the short time period in which to comment. Based on this, La Plata County respectfully requests that the Bureau of Land Management provide additional time for citizens' comments. By extending the comment period by 30 days, there would be adequate time for citizens to research the lease sale in more depth and provide appropriate comments.
Commenter National Park Service	**Comment** [Policy-WO-IM-2010-117] clarifies that BLM is to "exercise its discretionary authorities....through the use of an informed, deliberative process." This deliberative process is to include communication with other governmental and non-governmental entities, incorporate current scientific information and other available data, and evaluate whether leasing decisions are consistent with the protection of other resources and values and in compliance with existing laws, regulations and policies...We believe that the current proposed Tres Rios Leasing decision does not adhere to the Leasing Reform policy given ... the need for improved coordination with the NPS regarding this decision.
Commenter La Plata County	**Comment** La Plata County specifically requested that it be informed of and included in the distribution of additional information regarding the oil and gas lease sale. Pursuant to 40 CFR 1506.6(b)(1), BLM is required to mail notice of the availability of environmental documents to those who have requested it. However, the BLM did not mail notice to La Plata County when the preliminary EA and the draft FONSI were released for public comment on August 17,2012. La Plata County does not believe that just posting the preliminary EA and draft FONSI to the website of the Tres Rios BLM office satisfies the requirements of 40 CFR 1506.6(b)(1).
NEPA- RMP Revision	
Comments Topic Summary	
The BLM cannot issue leasing decisions relying on an RMP, which is outdated. BLM Tres Rios Field Office is currently in the process of revising its Resource Management Plan (RMP) for the region and any new analysis or decision should be deferred until the revision is complete to reflect the decisions in that plan. The parcels proposed for sale were among a group that was deferred from being leased when a similar effort was made in 2008. The reason the BLM gave was that the agency was updating its resource management plan ("RMP") and to perform additional community outreach and any new leases should reflect the protocol laid out in the new plan.	
BLM Summary Response	

"Existing land use plans decisions remain in effect during an amendment or revision until the amendment or revisions is completed and approved…For example, if current land use plans have designated lands open for a particular use, they remain open for that use." (BLM Land Use Planning Handbook, H-1601-1, p. 47). Thus, lands which are open for leasing under an existing RMP (in this case dated 1985, amended 1991) may be leased during a revision process when BLM management determines that leasing will not constrain the choice of reasonable alternatives under consideration in the planning process A Reasonable Foreseeable Development (RFD) was prepared in 2010 to reflect comments received from the oil and gas industry during review of the Draft EIS and RMP. As a result of the updated RFD, a Supplement was issued in 2011 which addressed potential oil and gas development in the Project area. Parcels previously identified and deferred from leasing were deferred based on air quality and current informational issues relating to the outdated RFD. With completion of the draft RMP and associated analyses and the updated RFD, current information is now available to adequately evaluate this leasing proposal. The BLM has considered the draft RMP, Supplement (August 2011) and Reasonably Foreseeable Development scenario (2010) associated with the planning process currently underway to determine if the effects of the leasing action are detailed enough to identify the types of stipulations which must be attached to the leases to protect or mitigate effects on other resources. Additional public outreach in 2009 was done in association with the Supplement as well as the public involvement outlined in the current EA. The BLM has developed this EA to examine the effects from leasing and potential development. This analysis and the future site-specific analysis will supplement the analysis in the existing RMP in order to address the resource concerns identified.

Comments	
Commenter Judy Rust-Huerta, David Huerta	**Comment** If in 2009 your agency found that these oil and gas leases should not be auctioned previous to the completion of a new Resource Management Plan, I do not understand why these parcels are being proposed for auction. The plan has not yet been completed, and it would seem to me that, rather than act without the best data available, it would be prudent to wait for an up to date Resource Management Plan. Additionally, it would seem to me that going against your own recommendation in 2009 creates public distrust of your decision-making process and undermines the credibility of your agency. It is difficult for me and other property owners in our area to act with any certainty when your agency reverses decisions without adequate outreach to the public for comments. We usually find out about these decisions as a result of newspaper articles or rumors from neighbors.
Commenter San Juan Citizens Alliance	**Comment** Proceeding with the February 2013 Lease Sale – or any other major Federal action covered by the stale 1991RMP – is impermissible due to the inherent prejudice that this action will cause to the pending revision of the TRFO RMP and EIS. Revision of the outdated RMP is fundamental to the public land use decision-making process in the TRFO – creating the foundation upon which all mineral resource management decisions are made – and in its current form is woefully incapable of performing this function.

Commenter	Comment
San Juan Citizens Alliance	Parcels were deferred by the BLM pending “further community outreach.” To the best of our knowledge, a major part of “further community outreach” has consisted of updating the BLM’s current RMP and the SEIS, both of which are currently not complete and have yet to be released for public comment or agency implementation.
Tim Thomas	I would like to submit the following concerns for the leasing of lands in western La Plata County and eastern Montezuma County for oil and/or gas development: The BLM cannot proceed with the proposed development based upon 27 year old analyses, especially when the updated planning documents will be completed later in 2012. This is either poor planning or intentional to avoid what would likely be a more thorough analyses of the proposed leases.
Archuleta County	The parcels proposed for sale were among a group that was deferred from being leased when a similar effort was made in 2008. The stated reason offered by the BLM was that the agency was updating its resource management plan for the region and any new leases should reflect the protocol laid out in the new plan. That was then and continues today to be well reasoned - the existing plan was written in excess of twenty years ago and is long overdue for an update. And had the agency completed its update since the leases were defined, there would be consistency in the BLM's decision-making. But it has not; the plan revision is still in the works, and, as such, the leases are governed by an out-of-da te prescription that does not necessarily consider all sorts of important variables that are affected by gas and oil development: cumulative air quality, where the requisite water for development will be acquired, how wastewater will be handled and impacts on county roads, to name a few. Those questions were present in 2008, and they are no less so now. An updated plan surely will answer many of them, but without it, the agency is using old information to inform critical decisions about new projects.
Archuleta County	Where, as here, there is a pending revision to the Resource Management Plan ("RMP") and environmental impact statement ("EIS") - updating the out-of-date and inoperable 1985, amended 1991 San Juan/San Miguel RMP ("SJ/SM RMP") – National Environmental Policy Act ("NEP A") establishes a duty "to stop actions that adversely impact the environment, that limit the choice of alternatives for the EIS, or that constitute an 'irreversible and irretrievable commitment of resources.'" Conner v. Blllford, 848 F.2d 1441, 1446 (9th Cir. 1988). When an EIS is underway, as here, NEPA regulations established by the Council of Environmental Quality ("CEQ") prohibit an agency from taking any actions that would significantly impact the environment. 40 C.F.R. § 1506.I(c) (1997).

Archuleta County	Pursuant to these CEQ regulations: "While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action: (1) Is justified independently of the program; (2) Is itself accompanied by an adequate environmental impact statement; and (3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives."
Chama Peak Alliance	In 2008, the BLM proposed leasing parcels in essentially the same location but eventually deferred those leases until the final draft of the new San Juan Public Lands Management Plan was released. We applauded the BLM's willingness to reconsider and to evaluate those parcels within the broader landscape context. However, it is our understanding that the plan is not yet complete. We are concerned that the BLM is considering lease offerings prior to the completion of the new plan. With the old plan outdated and no longer relevant and the new plan as yet incomplete, we cannot evaluate the likely scope or impacts of potential development to our community. Is the BLM contemplating widespread leasing in this area? What might be the cumulative effects on our valley? We strongly encourage you to defer any leases until the plan is finalized.
Commenter Western Environmental Law Center	**Comment** The parcels proposed for sale were among a group that was deferred from being leased when a similar effort was made in 2008. The reason the BLM – which until recently was managed jointly with the U.S. Forest Service – gave was that the agency was updating its resource management plan ("RMP") for the region and any new leases should reflect the protocol laid out in the new plan....But it has not; the plan revision is still in the works, and, as such, the leases are governed by an out-of-date prescription that does not necessarily consider all sorts of important variables that are affected by gas and oil development: cumulative air quality, where the requisite water for development will be acquired, how wastewater will be handled and impacts on county roads, to name a few. Those questions were present in 2008, and they are no less so now. An updated plan surely will answer many of them, but without it, the agency is using old information to inform critical decisions about new projects.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Moreover, there is no updated, current analysis that identifies what overall level of development – and the nature of that development (e.g., oil or natural gas, what technologies and drilling techniques, etc., would be used to extract resources) – is reasonably foreseeable. Without this analysis, it seems self-evident that there is considerable uncertainty and controversy regarding the size, nature, and impacts of further leasing, in particular relative to cumulative impacts.

Commenter	Comment
Western Environmental Law Center	During the comment period [for the Plan Revision] significant, new information surfaced regarding the potential for oil and gas development. After reviewing the information, the San Juan Public Lands Center determined that it was necessary to publish a Supplement to the DEIS. In making this determination, the agency and provided: The Supplement will include and analyze the consequences of the new development projections for oil and gas leasing and include a more rigorous air-quality modeling study, as requested by the Environmental Protection Agency." See BLM Tres Rio Field Office Home Page (http://www.blm.gov/co/st/en/fo/sjplc.html). Despite this earlier recognition, the BLM is moving forward with this lease sale absent the analysis San Juan Public Lands Center determined was needed.
Western Environmental Law Center	Given the significant challenges and management issues that must be addressed in the pending SJ/SM RMP, it would be impossible for BLM to sell off these lands – particularly in the area where these parcels are located – without prejudicing the ultimate mineral development decisions made in the revised RMP.
Western Environmental Law Center, San Juan Citizens Alliance	Through RMP effectiveness monitoring and periodic RMP evaluations, state and field offices will examine resource management decisions to determine whether the RMPs adequately protect important resource values in light of changing circumstances, updated policies, and new information (H-1601-1, section V, A, B). The results of such reviews and evaluations may require field office resource information updates and land use plan maintenance, amendment, or revision. In some cases state and field office staff may determine that the public interest would be better served by further analysis and planning prior to making any decision whether or not to lease. There can be no better example than the present situation of where the public interest would be better served by completing the RMP and EIS before deciding whether it is appropriate to lease the lands proposed here.
Western Environmental Law Center, San Juan Citizens Alliance	Similarly, regarding proposed leases in the Columbine Public Lands Office, Matt Janowiak, Acting Field Office Manager, decided "not to implement the project until the San Juan Public Lands Plan Revision is complete and further public involvement as described in the DNA has been completed." See Colorado Competitive Oil and Gas Lease Sale Number: DOI-BLMCO_ S010-2009-0046 DNA, March 2, 2009. While Mr. Janowiak was written specifically to address parcels in the Perins Peak and Bodo State Wildlife Areas, there is no reason to infer that his conclusions about the inadequacies of the outdated RMP serving as the controlling development document do not apply to the entirety of the parcels that were up for lease in 2009, the same parcels that are up for lease in

	2013.
Commenter Western Environmental Law Center	**Comment** In June 2012, the BLM again proposed, and again deferred these same parcels, once again citing the need for "further community outreach." The major part of this "further community outreach" is the updating the SJ/SM RMP and SEIS, both of which are, as of this writing, are still works in progress and neither of which has yet been released for public comment or agency implementation.
Commenter Western Environmental Law Center	**Comment** BLM has repeatedly demonstrated that, for development of any new field, it considers its existing RMP to be inadequate to fully examine, control, and direct new development. It has written EIS's to address the new issues that it knows will arise with new development. This proposed lease sale is no different, and the draft EA is contrary to established BLM practice and is inadequate for addressing the new field development that this lease sale initiates.
Commenter Dolores River Coalition	**Comment** We believe that the Tres Rios Field Office should defer gas leasing until the various land management plans in the watershed are completed. It is essential that the Tres Rios oil and gas - leasing program does not contradict with the ongoing citizen and agency efforts in the basin. In the least, waiting until the forthcoming San Juan Land Use Plan/RMP is finalized and released is warranted prior to moving forward to ensure complementary management of public lands. Relying on an outdated 1985 Resource Management Plan and the 1991 Oil and Gas Amendment is irresponsible.
Commenter San Miguel County Commissioners	**Comment** It is our understanding that the McKenna Peak area Parcel 6471 and the eleven other parcels in neighboring counties, had been offered for leasing in 2008 but a decision was made at that time to defer the leasing of this parcels until the San Juan Resource Management Plan (RMP) was updated and/or rewritten. The RMP has not yet been rewritten and adopted. We would like to know what has changed and why the BLM is proposing to now offer these parcels and specifically the approximately 500 acres in San Miguel County at the February 2013 lease sale and prior to your agency's re-writing of the RMP for this area.
Commenter Gary Skiba	**Comment** Leasing of these parcels was put on hold in 2009 pending an updated Resource Management Plan (RMP) and accompanying Supplemental Environmental Impact Statement (SEIS). Moving forward with leasing now would rely on analyses in the 1985 RMP and its 1991 update. Revisions of the RMP are expected to be completed within

	a year; it is unclear why this leasing should go forward with outdated analyses. Further, this leasing would allow development of nearly 40% more lands than were projected in the RMP.
Commenter Tamsen Wiltshire	**Comment** In 2009, these same parcels were put on hold from leasing pending the completion of an updated Resource Management Plan (RMP) and Supplemental environmental Impact Statement (SEIS). Those documents have not yet been completed, yet the BLM is now proceeding with leasing based on the clearly outdated 1985 RMP and 1991 EIS. The parcels should remain on hold.
Commenter Archuleta County	**Comment** The parcels proposed for sale were among a group that was deferred from being leased when a similar effort was made in 2008. The stated reason offered by the BLM was that the agency was updating its resource management plan for the region and any new leases should reflect the protocol laid out in the new plan. That was then and continues today to be well reasoned - the existing plan was written in excess of twenty years ago and is long overdue for an update. And had the agency completed its update since the leases were defined, there would be consistency in the BLM's decision-making. But it has not; the plan revision is still in the works, and, as such, the leases are governed by an out-of-da te prescription that does not necessarily consider all sorts of important variables that are affected by gas and oil development: cumulative air quality, where the requisite water for development will be acquired, how wastewater will be handled and impacts on county roads, to name a few. Those questions were present in 2008, and they are no less so now. An updated plan surely will answer many of them, but without it, the agency is using old information to inform critical decisions about new projects.
Commenter National Park Service	Section I.A. (IM 2010-117) clarifies that BLM offices should ensure that RMPs, which form the basis for leasing decisions, are adequate to protect important resources and values "in light of changing circumstances, updated policies and new information." ... We believe that the current proposed Tres Rios Leasing decision does not adhere to the Leasing Reform policy given...new air modeling analyses, data and information that have come to light since the 1991 RMP amendment. This policy indicates that in situations like Tres Rios decisions would need to draw on the updated RMP and attach protective lease stipulations that have been identified through the RMP process.
NEPA- Inadequate Analysis	
Comments Topic Summary	
The BLM has not adequately addressed the requirements of NEPA and has failed to take a 'hard look' at the proposed action's effects. The EA cannot claim that there are no effects from leasing and put off analysis until the APD stage. The EA fails to address effects of new technology and is inadequate in addressing effects to numerous resources. BLM hasn't analyzed effects from leasing itself and	

merely relies on mitigating impacts this only allows oil and gas lessees to exercise their surface use rights to lease at the expense of other resource values.
BLM Summary Response
The BLM addressed effects from leasing and development to the extent possible given available information and assumptions. Additional analysis will be done prior to development and when more specific information is available at the Application for Permit to Drill (APD) stage. When additional information is known about potential development, the BLM will develop site-specific analysis of the effects and address any needed mitigation. This information, such as the target formation, type of completion activities that will be used, and well pad, road and pipeline locations, are typically only available following filing an application for a permit to drill (APD). Please see Chapter 3.0 Affected Environment and Chapter 4.0 Environmental Effects of the EA for detailed information regarding resource concerns and analysis. This EA has been prepared in accordance with IM CO-2010-027 by the BLM Tres Rios Field Office (TRFO) to analyze leasing of twelve nominated parcels. It serves to verify conformance with the approved land use plan provides the rationale for deferring or dropping parcels from a lease sale, provides rationale for attaching lease stipulations to specific parcels, and analyzes the environmental effects of leasing decisions. Oil and gas leasing is a principal use of the public lands and current BLM policy encourages orderly development of leases and makes mineral resources available to meet national, regional, and local energy needs. This policy is based in various laws. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA) (Sec. 5102(a)(b)(1)(A)) directs the BLM to conduct quarterly oil and gas lease sales in each state whenever eligible lands are nominated and available for leasing. Leases would be issued pursuant to 43 Code of Federal Regulations (CFR) Subpart 3100. Stipulations attached to leases serve as terms and conditions which provide protections to other resources on the parcel.
Comments

Commenter	**Comment**
Archuleta County	5) The approach being undertaken by the BLM fails to establish any baseline information from which a future impacts analysis can be measured, 6) The air quality impacts have not been sufficiently analyzed, 7) The climate change impacts have not been sufficiently analyzed, 8) The impacts to farmlands have not been sufficiently analyzed, 9) The impacts to transportation have not been sufficiently analyzed, 10) The impacts to soil slopes and surface runoff have not been sufficiently analyzed, 11) The impacts to groundwater and surface water resources have not been sufficiently analyzed or protected, 12) The impacts to wildlife species have not been sufficiently analyzed, 13) The impacts to visual, recreation and socio-economic resources have not been sufficiently analyzed, 14) The possibility of the presence or suitable habitat of rare plants, I5) The substantial public benefit and public investment in protecting the surface (scenic) resources; and16) The low to moderate leasable mineral potential of the property.

Commenter	Comment
Western Environmental Law Center, San Juan Citizens Alliance	The approach BLM has taken in its EA fails to establish any baseline information from which a future impacts analysis can be measured. NEPA requires that the agency provide data on which it bases its environmental analysis. See The Lands Council v. McNair, 537 F.3d 981, 994 (9th Cir. 2008) (holding that an agency must support its conclusions with studies that the agency deems reliable). Such analysis must occur before the proposed action is approved, not afterward.
Commenter San Juan Citizens Alliance, Western Environmental Law Center	**Comment** The evasive approach BLM has taken in its EA not only delays or averts any actual NEPA analysis – instead relying on future mitigation – but it further fails to establish any baseline information from which a future impacts analysis can be measured. NEPA requires that the agency provide data on which it bases its environmental analysis.
Commenter Tim Thomas	**Comment** There is inadequate analysis of air quality, wildlife (threatened and endangered species), soil and water quality, cultural resources (like lands adjacent to Canyon of the Ancients N.M. & McKenna Peak WSA), transportation (significant increases in heavy truck traffic on the Hesperus/Red Mesa Highway (Route 140), Hay Gulch, and other roads), and recreation and visual resource impacts. The reality that the BLM has proposed not leasing only 60 acres (.5 %) of the industry-proposed 12,175 acres is sufficient information to note that their analyses of the nominated lease parcels in nothing less than inadequate.
Commenter San Juan Citizens Alliance	**Comment** BLM went on [in the EA] to perfunctorily describe the reasonably foreseeable impacts that may or would result from parcel development, but which would only undergo actual analysis at the application for permit to drill ("APD") stage. BLM's shell game – which inevitably results in decisions that blindly sell our public lands for oil and gas development – fails to meet its mandate as stewards of our public lands, and moreover is explicitly contrary to NEPA's requirement that the analysis of impacts take place before the federal action can proceed. If BLM cannot take a "hard look" at site-specific impacts at the lease stage, we fail to see how the agency can reasonably make a site-specific commitment of mineral resources.
Commenter Chama Peak Alliance	**Comment** The possibility of increased traffic, road impacts, noise, dust, air pollution and lights is of great concern to our members. Also of great interest to our members is the impact of these disturbances to elk and mule deer seasonal migrations. We request the BLM consider these impacts in the EA rather than deferring them for

	consideration following the lease sale. We also request that the potential cumulative impacts be considered to the extent the BLM anticipates continued development of the federal leases in the valley. If every BLM lease must be considered individually and without the consideration of a full development, then at no time will there be the opportunity to address the real, cumulative impacts or to factor those potential impacts into a decision making process.
Commenter Nan Burroughs	**Comment** From reading the EA, it can be learned that the energy companies seeking leases (and the identities of these companies are never divulged) have assumed that the Mancos shale areas may be profitable for natural gas production using hydro fracturing technology. The impacts of this technology will certainly not be found in resource management documents dating from 1985, or even from 1991.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** The 1991 RMP contains very little analysis of oil and gas drilling in the Tres Rios area generally, much less any analysis of the impacts that could be caused by drilling in this particular area. See 1991 RMP at 28, 31. The 1991 RMP, amendment for oil and gas simply did not analyze the site-specific impacts of gas development using today's modern extraction techniques – specifically the use of hydraulic fracturing, or fracking (indeed these terms do not even appear in the 1991 RMP) – much less any analysis of the parcels nominated in the February 2012 Lease Sale.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** If BLM cannot take a "hard look" at site-specific impacts at the lease stage, then the agency can reasonably make a site-specific commitment of mineral resources. The agency, in effect, is presupposing that any site-specific impacts from oil and gas development can be mitigated without significant, unacceptable impacts at the APD stage before even knowing what those site-specific impacts are. The agency is also presupposing that oil and gas resources, if developed, outweigh non-oil and gas resources, like wildlife habitat, air quality, and water quality.
Commenter Western Environmental law Center	**Comment** The BLM has failed to sufficiently analyze impacts with regard to soil, slopes, and surface runoff. In the EA, BLM acknowledges that the proposed action allows the subsequent exploration and development of leases, which would result in soil disturbances. EA at 50. But, after reciting numerous potential effects, including contamination of soils from oil spills and leaks, increased runoff, erosion due to wind and water, and off-site sedimentation downstream, they utterly fail to engage in any analysis of these effects. Rather BLM offers mitigation through Controlled Surface Use stipulations (requiring an engineering/reclamation plan for disturbance of slopes greater than 40%), and No Surface Occupancy Stipulations (restricting activity in riparian zones) and the use of BMPs

	(which they acknowledge may be inadequate). EA at 51-52. For the reasons previously articulated, BLM's failure to establish a baseline for soil impacts and its reliance exclusively on mitigation and BMPs to mitigate these undetermined impacts fail to meet the requirements of NEPA.
Commenter San Juan Citizens Alliance	**Comment** Without analyzing impacts from the lease sale itself, any subsequent analysis intrinsically shifts from preventing impacts (and managing lands for other resource values) to merely mitigating impacts (and allowing oil and gas lessees to exercise their surface use rights to the lease at the expense of other resource values). This approach is fundamentally incongruous with NEPA's mandate.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** As soon as BLM sells an oil and gas parcel that sale confers a guaranteed right to the leaseholder, which includes the right of occupancy. In other words, once a lease sale occurs, the train has already left the station. Without analyzing impacts from the lease sale itself, any subsequent analysis intrinsically shifts from preventing impacts (and managing lands for other resource values) to merely mitigating impacts (and allowing oil and gas lessees to exercise their surface use rights to the lease at the expense of other resource values). This approach is inconsistent with NEPA's mandate.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** BLM's assertion that it can put off any analysis of impacts until the APD stage, after the agency has made an irretrievable commitment of resources at the lease sale stage is incorrect. …. BLM's failure to perform a hard look NEPA analysis, before the February 2013 Lease Sale, represents a fundamental error that cannot be overlooked.
Commenter Judy Rust-Huerta, David Huerta	**Comment** While I am aware that the oil and gas industry has a right to nominate parcels to be leased by the BLM, I do not understand why their right to do so should be unimpeded by the rights of those who live in the areas whose property and environment will be impacted by oil and gas drilling activity. I am asking your agency to remove the parcels 6401 and 6402 until a new Resource Management Plan is finished and can be reviewed by and commented upon by the public. I am confident that your agency is seeking to serve the interests of all of its constituents and will consider and act in accordance with my requests in order to do so. Thank you for your time and consideration.
NEPA- Irretrievable Commitment of Resources	
Comments Topic Summary	
The BLM needs to address all effects at the leasing stage because the leaseholder is then given the right to develop, and an	

irretrievable commitment of resources will occur. There will be severe effects associated with development which BLM acknowledges is likely to happen. An assessment of all "reasonably foreseeable" effects must occur at the earliest practicable point, and must take place before an "irretrievable commitment of resources" is made. The stipulations, mitigation measures, and lease notices developed are not adequate to protect resources.	
BLM Summary Response	
Future lease development is not a proposal before the agency for review. Specific actions related to any future development are not reasonably foreseeable, absent such proposals. It is highly speculative to predict exact effects of this action, as there are no guarantees that the leases will receive bids, that any leased parcels will be developed, or that any developed parcels will produce any fluid minerals. An accurate analysis can be made at the Application for Permit to Drill (APD) stage through the National Environmental Policy Act (NEPA) process where a proposal for development has been initiated by a project proponent. BLM reviews Applications for Permit to Drill (APD) in accordance with NEPA. Stipulations attached to leases serve as terms and conditions which provide protections to other resources on the parcel. Any stipulations attached to the standard lease form must be complied with before an APD may be approved. If site-specific analysis determines that significant effects are possible, an EIS would be developed at that stage. Additionally, the existing RMP and amendments analyzed the effects of leasing oil and gas resources on other resources and determined acceptable levels of effects in consideration of the benefits of the use. While leasing does convey a right to develop the resource, it does not imply or permit an operator to do so in a manner that does not conform to Federal Land Policy Management Act (FLPMA), CAA, or other applicable requirements.	
Comments	
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** New Mexico ex rel. Richardson, 565 F.3d at 717-18 (citations omitted). When analyzing those two factors, the Tenth Circuit held that (1) environmental impacts were reasonably foreseeable at the leasing stage, and (2) that leasing constituted an irretrievable commitment of resources because oil and gas regulations entitle the leaseholder to drill. Id. at 718-19 ("we conclude that issuing an oil and gas lease without an NSO stipulation constitutes such a commitment."). Thus, the Tenth Circuit held that the agency violated NEPA by failing to analyze site-specific impacts at the leasing stage.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Significant environmental impacts, based on those lease rights, may occur once a lease is issued. Following the February 2013 Lease Sale, BLM's authority will thereafter be limited to imposing mitigation measures consistent with the terms of the lease. In other words, BLM TRO will not be able to impose conditions inconsistent with the lease terms and cannot deny the developer the right to drill altogether.

Commenter	Comment
Western Environmental Law Center, San Juan Citizens Alliance	The EA provides no analysis – much less specificity with regard to particular resources – concerning how this BMP list will create a sufficient buffer against impacts, nor is the suggested mitigation anything more than a list of possible measures to be chosen from at the APD stage.
Gary Skiba	It is almost certain that these leases will be used to develop shale oil and/or gas. We don't know for sure only because those proposing the leases—i.e., the oil and gas companies—do not have to reveal the formations they are targeting. Much of the technology that will be used to develop these resources (specifically deep horizontal drilling and hydraulic fracturing) was unknown when the RMP was revised; as a result, the RMP does not meet either the letter or spirit of NEPA.
Gary Skiba	Section 1.1.1. of the Preliminary Environmental Assessment states that "…[t]he act of leasing parcels would, in itself, have no direct effects on any resources in the field office. All indirect effects would be related to as yet undetermined future development of the leases." In reality, the act of leasing itself is an irreversible and irretrievable commitment of resources, and requires detailed analysis under NEPA. In order to satisfy the legal requirements, the analysis must evaluate the site-specific impacts of oil and gas leasing. There is little mystery about how leases are developed and site specific concerns such as endangered species habitat or water resources can be readily identified and a reasonable prediction of potential impacts completed.
Western Environmental Law Center, San Juan Citizens Alliance	Here, BLM has failed to meet even the primary threshold for its NEPA process – taking a hard look. BLM's failure is made evident by the TRO's consistent refusal in their EA to acknowledge and analyze impacts that will result from the sale of over 12,000 acres of federal, state and private lands for oil and gas development. BLM's position throughout the EA was some variation of: "the act of leasing the parcels would produce no impacts…." See, e.g., EA at 5, 33, 40, 42, 43, 45, 46, 48, 49, 50, 53, 54, 55, 57, 58, and 59. Following nearly every instance of this statement, BLM went on to briefly describe the reasonably foreseeable impacts that may or would result from parcel development, but which would only undergo actual analysis at the application for permit to drill ("APD") stage. BLM's approach results in decisions that sell our public lands for oil and gas development without the agency meeting its mandate to be a steward of our public lands, and is contrary to NEPA's requirement that the analysis of impacts take place before the federal action can proceed.

Commenter	Comment
Western Environmental Law Center, San Juan Citizens Alliance	Looking to the standards set out by regulation and by statute, assessment of all "reasonably foreseeable" impacts must occur at the earliest practicable point, and must take place before an "irretrievable commitment of resources" is made. Each of these inquiries is tied to the existing environmental circumstances, not to the formalities of agency procedures. Thus, applying them necessarily requires a fact-specific inquiry.
Comment Archuleta County	**Comment** We have grave concerns over the process as well. The February 2013 Lease Sale represents an irretrievable commitment of resources that requires a thorough NEPA analysis.

NEPA- FONSI

Comments Topic Summary

BLM did not perform a true NEPA hard look site-specific analysis and must include the preparation of a comprehensive Environmental Impact Statement. By putting off analysis of effects until a later date BLM does not provide a convincing statement explain the insignificance of effects from the sale of over 12,000 acres. BLM cannot rely on the inadequate analysis in the EA to reach a Finding of No Significant Impact. In addition, pursuant to FLPMA, BLM must account for unnecessary and undue degradation in its EA before the February Lease Sale can proceed.

BLM Summary Response

As clarified in section 1.0 of the EA as a result of public comments, "This document is tiered [40 CFR 1508.28] to, and incorporates by reference, both the Record of Decision for the Oil and Gas Plan Amendment to the San Juan/San Miguel Resource Management Plan (October 1991) /Final Colorado Oil and Gas Leasing and Development Environmental Impact Statement (FEIS), released in January 1991 (BLM 1991), and the San Juan /San Miguel Resource Management Plan and FEIS (1984)/Final Record of Decision and San Juan/San Miguel Resource Management Plan (RMP, 1985)." Resource Management Plans identify uses that are allowable, restricted or prohibited on public lands for the duration of the plan. For oil and gas the RMP establishes which areas are open to oil and gas leasing and which are closed. For open areas, the RMP analyzes effects of reasonably foreseeable development and spells out any stipulations needed to provide extra protection for sensitive resources. These plans also identify unnecessary and undue degradation of resources associated with potential oil and gas development. At this time, it is not reasonably foreseeable to identify these types of effects, as the site-specific locations are not known. See Chapter 4.0 of EA for Environmental Effects analysis. Also see the draft Finding of No Significant Impacts which explains the reasons why the action would not have a significant effect on the human environment and, why, therefore, an EIS will not be required (40 CFR 1508.27).

Comments

Commenter	Comment
Western Environmental	BLM is required to make its threshold determination with respect to the significance of impacts based on a hard look at two factors: "context" and "intensity." 40 C.F.R. § 1508.27.While the BLM has made conclusions on these

Law Center, San Juan Citizens Alliance	factors in its draft FONSI, those conclusions rely on BLM's EA, which lacks sufficient evaluation of impacts. The sale of 12,175 acres of land to oil and gas development is far more than a mere paper transaction: it commits oil and gas resources to development and will forever impact the nature of landscape. See New Mexico ex rel. Richardson, 565 F.3d at 718 (holding the agency violated NEPA by failing to analyze site-specific impacts at the leasing stage). While BLM is mandated to give these impacts a true "hard look" – the failure of which is further discussed below. Based on the standards established by CEQ regulations, 40 C.F.R. § 1508.27, significant impacts must be analyzed in an EIS before the lease sale can proceed.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Moreover, in the absence of an EIS, BLM TRO "must put forth a convincing statement of reasons' that explains why the project will impact the environment no more than insignificantly. This account proves crucial to evaluating whether the [agency] took the requisite 'hard look.' " Ocean Advoc. v. U.S. Army Corps of Engrs., 402 F.3d 846, 864 (9th Cir. 2005). Nowhere in BLM's EA/FONSI does there exist a convincing statement explaining the insignificance of impacts from this sale. To the contrary, BLM suggests in its draft FONSI that oil and gas development is well known, well understood, uncontroversial, acceptable to the community, with no known health risks and in any event all adverse impacts will be mitigated down the road. But there is no analysis to support any of these conclusory statements in the EA; any real analysis of impacts has been pushed off until the APD stage – which, as described above, is deficient.
Commenter San Juan Citizens Alliance	**Comment** BLM's Finding of No Significant Impact (FONSI) has numerous deficiencies that must be addressed prior to proceeding with the proposed action. BLM cannot proceed with the February 2013 lease sale due to numerous deficiencies that create an inadequate FONSI.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Further, these Unnecessary Undue Degradation requirements are distinct from requirements under NEPA. "A finding that there will not be significant impact [under NEPA] does not mean either that the project has been reviewed for unnecessary and undue degradation or that unnecessary or undue degradation will not occur." Ctr. for Biological Diversity, 623 F.3d at 645 (quoting Kendall's Concerned Area Residents, 129 I.B.L.A. 130, 140 (1994)). In the instant case, BLM's failure to specifically account for UUD in its EA – which is distinct from its compliance under NEPA – is also actionable on procedural grounds and must occur before the February 2012 Lease Sale can proceed
Commenter Western	**Comment** While the threshold for finding agency predetermination is high – "occur[ing] only when an agency irreversibly

Environmental Law Center, San Juan Citizens Alliance	and irretrievably commits itself to a plan of action that is dependent upon the NEPA environmental analysis producing a certain outcome, before the agency has completed that environmental analysis," Forest Guardians, 611 F.3d at 714 (emphasis in original) – here, BLM's process has met that threshold. BLM made the express determination that an analysis of impacts is not necessary at the lease sale stage – a determination that is made evident within the four-corners of the EA. This conclusion guarantees that a FONSI will be issued during the lease sale stage NEPA process.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** In other words, NEPA requires the analysis to dictate whether mitigation is appropriate not, as here, an assumption that mitigation can satisfy the effects of development and, without any analysis, support a FONSI. The TRO's EA/FONSI cannot be sustained. An EIS, analyzing actual impacts and specific mitigation measures, must be performed.
NEPA-Cumulative Effects	
Comments Topic Summary	
The analysis of cumulative effects is not adequately addressed in this Environmental Assessment. Relying on the existing analysis and assumptions of the 1991 Resource Management Plan is not sufficient to establish baseline data and analysis for future development. The leasing stage, not the development stage, is the appropriate time to analyze cumulative effects. The current analysis does not address existing development or reasonable foreseeable development. BLM did not address connected actions associated with the lease sale and should analyze all 2013 lease sales in one Environmental Impact Statement.	
BLM Summary Response	
Please see section 4.2.1 Parcel Development Potential regarding general analysis assumptions in the Environmental Assessment. As a result of public comments, Tres Rios has incorporated by reference the Addendum to the Oil and Gas Potential and Reasonably Foreseeable Development (RFD) Scenarios in the San Juan National Forests and BLM Public Lands (July 2010) into this section. The cumulative effects analysis relies upon information about reasonably foreseeable effects associated with potential future development of the leases, as well as information compiled in the Amendment for Oil and Gas Environmental Impact Statement (BLM 1991), and the Reasonably Foreseeable Development. Cumulative effects associated with oil and gas leasing in the area were analyzed in greater detail in the San Juan/San Miguel Resource Management Plan of September, 1985 and the associated San Juan/San Miguel Resource Management Plan Amendment for Oil and Gas Environmental Impact Statement (BLM, 1991). The EA relies on the RMP as well as supplements the cumulative effects analysis and the site specific analysis. Please see Chapter 4.0 for the Environmental Effects Analysis. Connected actions refer to those actions that automatically trigger other actions that may require an EIS; cannot or will not proceed unless other actions are take previously or simultaneously; or if the actions are interdependent parts of a larger action and depend upon the larger action for their justification (40 CFR 1508.25 (a)(I,ii,iii). The act of leasing parcels cannot assume connection. It is highly speculative how these parcels will be developed, if development occurs, and it cannot be assumed what infrastructure will	

be required over the life of the leases if issued.	
Comments	
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** In the present case, the proposed February 2013 Lease Sale comes within the context of broader oil and gas development in the area as disclosed by the BLM website of scheduled 2013 sales (and past 2012 scheduled sales). All of these projects will likely tie together and use the same infrastructure to deliver natural gas to local and national markets. Moreover, it is also likely that other extraction infrastructure, such as roads, powerlines, etc. may also be shared. If so, these are connected, as well as cumulative, actions – that are currently segmented, improperly, into separate EAs – and must be considered under a single comprehensive EIS. 40 C.F.R. §§ 1508.25(a)(1), (2). BLM must therefore evaluate what level of infrastructure may be required and whether that infrastructure will, in fact, be tied together.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** As provided above, an EIS is not only warranted but also required under these circumstances – particularly because the TRO is operating from a stale 1991 RMP that fails to address oil and gas development in the present context, and thus puts into serious question the accuracy of the agency's reasonably foreseeable development assumptions. This EIS is required not only for the February 2013 Lease Sale, but must also consider the other oil and gas projects in the area – specifically those additional sales scheduled for May 9, 2013, August 8, 2013 and November 14, 2013. Failure to include cumulative impacts of all the leasing and permitting decisions "impermissibly subjects the decision making process contemplated by NEPA to 'the tyranny of small decisions.'" Kern v. BLM, 284 F.3d 1062, 1078 (9th Cir. 2002);
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** While BLM includes a Cumulative Effects Analysis in their EA, see EA at 62-72, BLM fails to actually conduct any meaningful cumulative analysis of those impacts. See Natural Resources Defense Council v. Hodel, 865 F.2d 288, 298 (D.C. Cir. 1988) (providing that section headings without the "requisite analysis" are insufficient); see also 40 C.F.R. § 1508.27(b)(7) (BLM must consider whether the proposed action is related to other actions that together may have cumulatively significant impacts.
Commenter Dolores River Coalition	**Comment** The area's overall mineral and energy footprint, which includes uranium, potash, and other oil and gas developments, have direct and potential impacts on water quality and quantity, air quality, plant and wildlife habitat, threatened and endangered species, historic resources, and cultural resources. The cumulative impacts

	on these values must be assessed and clearly addressed prior to leasing. The cumulative analysis must also address surface disturbance, soils and erosion, and development infrastructure. Future development in the Dolores basin will also impact communities along transportation routes, and has implication on the larger Colorado River Basin, which supplies water to millions of people. Thus the Cumulative Impact Area must incorporate this greater region of potential impact, including communities and public lands downstream.
Commenter Western Environmental Law Center	**Comment** Within BLM's cumulative effects section, the TRO simply repeatedly states that when combined with past, present and reasonably foreseeable actions there could be cumulative effects such as habitat fragmentation and disturbance, even for threatened, endangered or candidate species found in the proposed lease sale area. See, e.g., EA at 67. But these "conclusory remarks," as are consistently provided throughout BLM's EA, "do not equip a decision maker to make an informed decision about alternative courses of action." NRDC, 865 F.2d at 298.
Commenter Western Environmental Law Center	**Comment** With respect to riparian areas BLM concludes there will be no affect because an NSO stipulation will prevent any impact. In doing so they fail to consider the impacts to riparian areas outside of the well development area to which the NSO applies. BLM's adopted approach to its analysis falls strikingly short of the cumulative impact mandate provided by NEPA's implementing regulations. See 40 C.F.R. § 1508.27(b)(7) (BLM must consider whether the proposed action is related to other actions that together may have cumulatively significant impacts. "Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.").

NEPA-Other

Commenter	**Comment**	**Response**
La Plata County	Alternative B in the Draft EA, would defer 60 acres of Parcel 6447, in order to protect the viewshed of the San Juan Scenic Byway. Another alternative not outlined in the Draft EA, but that could protect the view-shed, would be to stipulate the portions of Parcel 6447 with a No Surface Occupancy stipulation. This would allow for	The 1985 San Juan/San Miguel RMP and the 1991 RMP Amendment do not provide stipulations for No Surface Occupancy to protect visual resources, so this alternative would not be in conformance with the land use plans. The BLM considered Alternative B in the EA, which defers 60 acres to protect the view shed.

	mineral development without the negative visual impacts of the surface development within the view-shed.	
Commenter Scott Jack	**Comment** 1.1.1 Site Specific Analysis The act of leasing parcels would, in itself, have no direct effects there would be no development unless a lease is done, so leasing is the direct action that allows all future effects on any resources. It could theoretically allow at least one well on 40 acre spacing throughout the 12,000 acres. This could be as many as 300 wells. If more than one formation is being drilled into, it could be many more. Are the leases to be geologic formation specific or broader where everything is leased?	**Response** See section 1.1.1 of the EA. Even if lease parcels are leased, it remains unknown whether development would actually occur, and if so, where specific wells would be drilled and where facilities would be placed. The EA analyzes the potential effects from leasing and potential development and when more detailed information is available, additional NEPA will be developed. While leasing does convey a right to develop the resource, it does not imply or permit an operator to do so in a manner that does not conform to Federal Land Policy Management Act (FLPMA), CAA, or other applicable requirements. A lessee must submit an APD (Form 3160-3) to the BLM for approval and must possess an approved APD (i.e. a drilling permit) prior to any surface disturbance in preparation for drilling." Also see section 4.2.1 of EA for assumptions regarding Parcel Development Potential. The proposed leases are non-geologic formation specific. If leased, an APD would be submitted and that information would be specified in the APD.
Commenter Scott Jack	**Comment** How can BLM even come up with standard lease forms since the stipulating and concerns appear to be so site specific to those who did the writing of this ea. BLM has done numerous pipeline environmental statements addressing many environmental issues within in some cases 3-mile wide corridors. Not very	**Response** Development of the proposed parcels is speculative at this time. A lease expires after 10 years if it is not considered a producing lease. Should a lease be developed and show production the leasee holds the right until no longer producing. Due to the extent of time available for development and the uncertainty surrounding production, it is not reasonable to make assumptions about the exact timing or location of drilling and development. The BLM reviews Applications for Permits to Drill (APD) in accordance with NEPA. Any stipulations (identified in this analysis) attached to the

	site specific, so the reasoning in this ea is at fault. Are there not established drilling windows where wells have to be drilled within certain areas within sections? These pretty well determine areas that can be addressed in an ea.	standard lease form must be complied with before an APD may be approved. Using the existing knowledge available about current resource concerns and potential development and operation of oil and gas, the BLM has identified the effects disclosed in this EA. Also see section 4.2.1 of EA for assumptions regarding Parcel Development Potential.
Commenter Scott Jack	**Comment** Rather than going further issue-by-issue in the EA, I raise the issue of cumulative impacts off of BLM. Many of these BLM parcels are isolated parcels surrounded by private ownership or minerals. In order to develop the BLM leases the adjoining private parcels or minerals will have to be leased or acquired. The environmental issues required to be addressed under NEPA increase greatly. BLM is not an isolated entity. The impacts the action of blm leasing, which effectively forces the development of the adjacent private parcels, have to be addressed under nepa standards and impacts. I don't see where this was done anywhere.	**Response** The BLM considers effects to resources in context with their extent both on public and private lands. Effects identified are considered in relation to their broader context both geographically and temporally. The effects to private surface are considered in BLM NEPA analysis. At this time, it is speculative to assume the exact location of development activities. At the APD stage, when additional information is available, the BLM will address the effects of development. On a broader scale, the BLM has addressed the cumulative effects of leasing and development across the Field Office in the support RMP/EISs and Amendments as well as in this EA.
Commenter CPW	**Comment** CPW has identified a number of parcels nominated for the February 2013 sale where the best available information indicates that the lease stipulations in BLM's existing RMP and the proposed	**Response** Through the Environmental Analysis the BLM will decide whether or not to lease some or all of the twelve nominated parcels and, if so, under what stipulations. The EA considers whether the existing stipulations are adequate to protect resource concerns or if potential effects warrant additional analysis or mitigation. The

	plan maintenance identified in the EA will not be adequate to effectively address impacts to wildlife resources. With this in mind, we encourage BLM to use this opportunity to update the existing RMP with the appropriate lease stipulations as outlined above and those contained in our December 2010 Lease Recommendations (Attachment 1 of letter). If this cannot be accomplished through this EA and the contemplated land use plan maintenance it describes, we recommend that the identified parcels be deferred until such time that the lease stipulations can be updated to reflect the best available information.	BLM also considers the ability to apply additional mitigation measures at the APD stage if warranted by the potential for significant effects.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** According to BLM oil and gas statistics, there are currently 4,380,275 acres of leased land that is "in effect" in Colorado. See BLM, Oil and Gas Statistics by Year for Fiscal Years 1988 – 2011 (attached as Exhibit 1). Given this vast quantity, as well as a current price of natural gas at 10-year lows of $2.27/MMBtu, it seems both ill-advised and unnecessary to proceed with this Lease Sale given these conditions. See Steve Hargreaves, Natural gas prices hit 10-year low, CNN MONEY, March 9,	**Response** According to the 1920 Mineral Leasing Act, the BLM must respond to Expressions of Interest nominating a parcel for lease. Market conditions are not always indicative of industry interest in leasing, and current market conditions may change appreciably in the 10-year time frame a lease can be held before initial production must begin, therefore the leasing process will be followed regardless of the current supply and demand of natural gas.

	2012 (attached as Exhibit 3). We therefore strongly encourage you to not move forward with this Lease Sale pending completion of the SJ/SM RMP and EIS.	
Commenter Western Environmental Law Center	**Comment** Furthermore, a Government Accountability Office report showed that the BLM has used categorical exclusions to approve 28 percent of APDs. See Scoping Exhibit 5. For example, on February 1, 2012, BLM UFO issued a categorical exclusion ("CX") and determination of NEPA adequacy ("DNA") on two APDs submitted for federal lease parcel COC 65106, therefore avoiding APD stage NEPA analysis via an EA or EIS altogether. If BLM TRO determines that the CX and DNA process is appropriate in the approval of APDs, it is entirely possible that the detailed review BLM has promised will occur at the APD stage, may, in fact, never take place.	**Response** As described in the Environmental Assessment, a lessee must submit an Application of Permit to Drill (Form 3160-3) to the BLM for approval and must possess an approved APD (i.e. a drilling permit) prior to any surface disturbance in preparation for drilling. BLM reviews APDs in accordance with NEPA. The BLM uses various types of documents to meet NEPA requirements depending on the site-specific action. If it is unclear whether the action would have a significant effect, BLM prepares an environmental assessment (EA) (40 CFR 1508.9(a)). If a proposed action will have a significant environmental effect, BLM must prepare an Environmental Impact Statement (EIS) (40 CFR 1502.1).). If the proposed action belongs to a category of actions that have no potential for significant environmental impacts, you may categorically exclude the action from analysis in an EA or EIS before deciding to implement it. The BLM NEPA procedures also provide for the use of existing NEPA analysis documents. If a proposed action is adequately covered by an existing EIS or EA, then you may document a "Determination of NEPA Adequacy" (DNA) (516 DM 11.6).
Commenter Western Environmental Law Center	**Comment** Throughout BLM's discussion of the various resource values – as discussed in specific detail below – the TRO consistently relies on mitigation measures to avoid a finding of significance relative to resource	**Response** Standard Lease Terms and Conditions are required by law and are attached to every oil and gas lease regardless of other considerations. Any stipulations attached to the standard lease form must be complied with before an APD may be approved. Mitigations measures described as discretionary in this analysis are applied at the site-specific level because it is not possible to know

	impacts. BLM states: "Mitigation measures on potential future development could include requiring appropriate BMPs…. EA at 45. (emphasis added). Indeed the vast majority of the mitigation measures are described in discretionary, not mandatory terms. See EA at 43, 45, 49, 54, 56, and 59. Attachments A & D, in turn, provides a list of stipulations regarding surface use, but many of these in turn provide exceptions to their application. See e.g., EA at page 110 (CO-28). Others leave room for negotiation at the APD stage and application of the generic measures are subject to negotiation with the operator cannot suffice as the exclusive means for mitigating impacts to a level that is below the threshold of significance. This approach is in direct opposition to BLM's hard look mandate under NEPA, and doesn't provide a basis for BLM's FONSI.	at this time whether there would be potentially significant effects associated with development. Should significant effects be determined, these mitigations measures would be applied to reduce effects as applicable. Exemptions to stipulations are only applied if the criteria are met. For example, a stipulation concerning a particular habitat restriction could be exempted if it were determined that the habitat no longer existed or if greater effects would be identified without the exemption. Site-specific analysis would be used to determine the effects of any exemption.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** this alternative [applies best management practices ("BMP") for oil and gas development as stipulations] should further consider as a stipulation the ten technical proven and commercially available methane	**Response** Losses of methane is speculative at this point - methane emissions depend on the target drilling formation, the type of product, and the completion technology used, among other things. These details are not available until the APD is submitted for particular wells, so this effect cannot be analyzed or mitigated until then.

	emissions reduction technologies identified in the Harvey Report at 18, Table 4, attached as Exhibit 72, which together can capture more than 80 percent of the methane currently going to waste.	
Commenter La Plata County	**Comment** La Plata County urges the BLM to add a section in the current preliminary EA and draft FONSI that explains this new phased NEPA approach, as summarized above (see letter for context). Such a section would significantly reduce confusion among the public and help to dispel the concern that the current EA is inadequate because it only analyzes impacts from the sale of the leases and not the impacts from exploration and development of the leases.	**Response** Language from WO-IM-2010-117 regarding leasing reform has been added to Chapter 1.0 of the Environmental Assessment to clarify the process.
Commenter Western Environmental Law Center	**Comment** The stipulations contained in Attachment D are wholly insufficient in their ability to protect both the resources values and citizens of the lease area from oil and gas development and, therefore, must be amended and revised accordingly. Generally, the following deficiencies must be addressed throughout Attachment D including: The use of the word “may” implies that the lessee also	**Response** In the stipulations listed in Attachment D, the word "may" is only used for stipulations with exception criteria, and then only when describing the exception criteria. In this case, the word "may" is appropriate as the exception criteria is only applied in certain cases, which are described with full transparency in the stipulation itself. In Exhibit CO-34 and CO-39, the word "may" is used to describe possible actions required by the Endangered Species Act or National Historic Preservation Act. Again, the word "may" is appropriate because the actions demanded by those laws depend on site-specific considerations. The word "may" does not make the protections discretionary since the Endangered Species Act

	"may not" be held accountable with regard to implementing the steps outlined in the stipulation/lease notice.	and National Historic Preservation Act will be applied regardless of what the stipulation says.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** ("MLP") According to BLM IM 2010-117, the MLP process is to be conducted before lease issuance and will reconsider RMP decisions pertaining to leasing.	**Response** An MLP would be inappropriate for the parcels in this lease sale. According to IM 2010-117, parcels must meet all criteria before a Master Leasing Plan is required. The full description of MLP criteria in IM 2010-117 includes criteria for "additional analysis or information is needed to address likely resource or cumulative impacts..." (Criteria 4) As shown in this EA, adequate resource analysis has been completed for all parcels. In addition, Parcel 6533 is in an area where most federal minerals are currently leased (contradicting Criteria 1). Parcels 6401 and 6402 have low mineral potential (1991 RMP Amendment) (contradicting Criteria 3). The Hesperus area parcels have only dry and abandoned wells for over 4 miles around (contradicting Criteria 3's requirement for confirmed moderate or high potential of oil and gas in the general area). Parcel 6471 has no wells - no confirmed discovery of oil and gas in the general area (again contradicting Criteria 3).
Commenter Western Environmental law Center, San Juan Citizens Alliance	**Comment** BLM's NEPA process should include analysis of an alternative that applies best management practices ("BMP") for oil and gas development as stipulations that attach to all the parcels offered in the February 2013 Lease Sale. BMPs are mitigation measures applied to areas being developed for oil and gas to promote energy development in an environmentally sensitive manner. Such measures are both reasonable and	**Response** Through the Environmental Analysis the BLM will decide whether or not to lease some or all of the twelve nominated parcels and, if so, under what stipulations. The EA considers whether the existing stipulations are adequate to protect resource concerns or if potential effects warrant additional analysis or mitigation. The BLM also considers the ability to apply additional mitigation measures at the APD stage if warranted by the potential for significant effects. The EA analyzes a no action alternative, a proposed leasing action (leasing the parcel(s) in conformance with the land use plan), and an alternative to the proposed action that addresses unresolved resource conflicts.

	immediately deployable and should be mandated, via stipulation, at the least stage.	
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** As provided in the EA, under the No Action Alternative, "parcels would remain available for inclusion in future lease sales." EA at 19. Differing from the No Action Alternative, this alternative would require the affirmative removal of the subject lease parcels from further consideration, pursuant to BLM's authority under FLPMA, which delegates authority to permanently withdraw lands. 43 U.S.C. § 1714. This authority is independent of BLM's land use planning process, as provided through a RMP, and authorizes the Secretary to "make, modify, extend, or revoke withdrawals." Id. Therefore, BLM must consider as a reasonable alternative to the proposed action an alternative that affirmatively withdraws all 12 parcels and 12,000 acres from present and future oil and gas development.	**Response** Resource Management Plans identify uses that are allowable, restricted or prohibited on public lands for the duration of the plan. For oil and gas the RMP establishes which areas are open to oil and gas leasing and which are closed. For open areas, the RMP analyzes effects of reasonably foreseeable development and spells out any stipulations needed to provide extra protection for sensitive resources. As stated in Chapter 1 of the EA, the BLM's purpose is to respond to the nomination of parcels for the competitive leasing process by private individuals or companies interested in exploring for and developing oil and gas resources on public lands. A Secretarial withdrawal is outside the scope of this purpose, and was not analyzed in this EA.
Wildlife – Gunnison Sage-grouse		
Comments Topic Summary		
Parcel 6471 appears to lie within several miles of Gunnison sage-grouse leks. Also Parcel 6471 lies southwest of the Miramonte Reservoir/Dan Noble State Wildlife Area and State Natural Area. One of the most important subpopulations of Gunnison sage-grouse in the San Miguel satellite population is in the vicinity of the Miramonte Reservoir. Research suggests that development of oil and gas within 3.9 miles of a lek results in significant effects to leks and nesting habitat. The BLM should avoid energy development		

within several miles of a lek or potential habitat. To protect the satellite subpopulation of Gunnison sage-grouse leasing of parcel 6471 should be deferred until the proposed rule, critical habitat designation, and recovery plan are determined.	
BLM Summary Response	
BLM coordinates with Colorado parks and Wildlife in the management and monitoring of the Gunnison sage-grouse and are aware of the Miramonte subpopulation. Both the Miramonte and the Dry Creek Basin subpopulations are almost exclusively tied to those specific areas. The BLM has current radio telemetry data that shows no birds have used the area around parcel 6471. However, the Environmental Assessment incorporates stipulations and mitigations in the analysis, including Exhibit CO-34, which is the Endangered Species Act Section 7 consultation stipulation. In addition, stipulations CO-2, CO-15, CO-30 and CO-40 will be applied as Design Features to protect sage grouse. Please see Attachment D for full description of stipulations.	
Comments	
Commenter Dolores River Coalition	**Comment** Parcel 6471 … appears to lie within several miles of Gunnison sage grouse leks. Research on greater sage-grouse suggests that placement of an oil and gas well within 3.9 miles of a lek results in significant impacts to leks and nesting habitat (http://sagemap.wr.usgs.gov/monograph.aspx; Chapter 21 and citations therein). Declines in male greater sage-grouse lek attendance were reported with 3 km (1.9 mil) of a well or haul road with a traffic volume exceeding one vehicle per day (Holloran 2005, p 40, http://frwebgate.access.gpo.gov/cgi--bin/getdoc.cgi?dbname=2010_register&docid=fr28se10--25 at 59827. Therefore, energy development even within several miles of a lek or potential habitat must be rigorously avoided.
Commenter Dolores River Coalition	**Comment** Parcel 6471 … also lies southwest of the Miramonte Reservoir/Dan Noble State Wildlife Area and State Natural Area. The Miramonte vicinity supports one of the most important subpopulations of Gunnison sage-grouse in the San Miguel satellite population. State and federal agencies have invested considerable effort and funds to preserve and expand this Miramonte subpopulation. Any nearby development that may impair those efforts, should be avoided.
Commenter Dolores River Coalition	**Comment** Further, Gunnison sage-grouse are impending a proposed rule to list the species under the Endangered Species Act, and "satellite" populations such as the San Miguel population are expected to receive prominent attention in the proposed rule as areas essential to the recovery of the species. Certainly at minimum, leasing of parcel 6471 should be deferred until the proposed rule, critical habitat designation, and recovery plan are determined.
Wildlife - Inadequate Analysis	
Comments Topic Summary	

Results (Sawyer 2009) suggest that for mule deer the effect reduction benefit from a liquid gather system (LGS) is highly site-specific and dependent on the specific traffic volumes and traffic reductions achieved. There is a recommendation for limiting the density of surface facilities in crucial big game winter and migratory habitats to one well pad (or less)/mile2 to maintain existing big game populations, if the well pad density cannot be limited to one pad/mile2 through appropriate lease stipulations, then BLM should defer these parcels until the existing RMP can be amended to address this well pad and road density issue with respect to big game populations. There are various habitats for migratory birds that BLM failed to analyze. Once again, BLM has decided to defer performing any site-specific analysis until the APD stage. Accordingly, BLM's approach violates NEPA, the Migratory Bird Treaty Act and Executive Order 13186, as well as the Bald and Golden Eagle Protection Act, and must be rejected.

BLM Summary Response

The BLM addressed effects from leasing and development to the extent possible given available information and assumptions. Additional analysis will be done prior to development and when more specific information is available at the Application for Permit to Drill (APD) stage. When additional information is known about potential development, the BLM will develop site-specific analysis of the effects and address any needed mitigation and in accordance with the Migratory Bird Treaty Act as well as the Bald and Golden Eagle Protection Act and crucial big game winter and migratory habitats. Information, such as the target formation, type of completion activities that will be used, and well pad, road and pipeline locations, are typically only available following filing an application for a permit to drill (APD). Portions of lease parcels 6449 and 6402 are in mapped bald eagle winter concentration areas. To protect Bald Eagle winter roost sites, stipulated Lease Notices (CO-23 and SJ-7) would be applied to proposed parcels 6449, 6433, 6401 and 6402. In addition, stipulated Lease Notice, CO-04 and CO-22 would be applied to all parcels to protect Bald Eagle roost and nest sites. LGS systems prove to reduce the effect to wildlife species due to a decrease in vehicular traffic; the BLM would consider this as a Condition of Approval (COA) on future developments. The EA has been updated to reflect the research associated with well pad densities and the potential effect to big game species from development. If development were to occur in big game use areas, the BLM would evaluate the potential effects based on the existing body of literature related to this issue and recommend mitigation measures that would minimize this effect.

Comments

Commenter	**Comment**
CPW	The EA notes that a liquid gather system (LGS) could substantially reduce vehicular traffic and describes additional BMPs (clustered development, phased reclamation, restricted public access, pooled employee transport, etc.) that could be implemented at the APD stage to reduce direct and indirect impacts to big game and other wildlife (EA p. 44). Our experience has been that the actual availability of the described BMPs at the APD stage is dependent on the specific type of oil or gas development, and in many cases the operator indicates that the implementation of specific BMPs is not practical for their development. In addition, note that with the exception of the LGS, we are not aware of published literature documenting the effectiveness of any of the other measures at reducing direct and indirect impacts to wildlife.

Commenter	Comment
CPW	We are aware of one study that evaluated the effectiveness of an LGS at reducing impacts to wildlife, and that study only looked at impacts to mule deer (Sawyer 2009). In that study, Sawyer (2009) demonstrated that all well pads, including those with an LGS installed, continued to displace mule deer. The presence of an LGS partially reduced the displacement of mule deer in the specific instance where vehicular traffic was reduced from 7-8 trips/day to 3 trips/day. These results suggest that for mule deer the impact reduction benefit from a LGS is highly site-specific and dependent on the specific traffic volumes and traffic reductions achieved.
Commenter CPW	**Comment** To address the decrease in the effectiveness of crucial big game winter and migratory habitats with increasing density of oil and gas facilities, CPW recommends limiting the density of surface facilities in these habitats to one well pad (or less)/mile2 to maintain existing big game populations (see Attachment 1 - Lease Recommendations). This recommendation is consistent with recommendations made by other state fish and game agencies in the Rocky Mountain Region (Wyoming Game and Fish Department 2008, Lutz et al. 2011). If the well pad density in these habitats cannot be limited to one pad/mile2 through a Master Leasing Plan or appropriate lease stipulations, we recommend that BLM defer these parcels until the existing RMP can be amended to address this well pad and road density issue with respect to big game populations.
Commenter Western Environmental Law Center	**Comment** The BLM has failed to sufficiently analyze and protect wildlife species. Various migratory bird habitats exist on the proposed parcels, with parcels providing "potential habitat for several species on the USFWS's Birds of Conservation Concern List." EA at 22, Table 3.1. Species include the Golden Eagle, which is protected under the Bald and Golden Eagle Protection Act Id. Despite these known bird species and habitats of concern, BLM provides that "[t]he proposed action of leasing would not impact any migratory bird species or their habitat." EA at 42. Once again, BLM has decided to defer performing any site-specific analysis until the APD stage, where it will then "determine and mitigate potential impacts." Id. Accordingly, BLM's approach violates NEPA, the Migratory Bird Treaty Act and Executive Order 13186, as well as the Bald and Golden Eagle Protection Act, and must be rejected.
Commenter Western Environmental Law Center	**Comment** Here, BLM states that impacts to species may result from the lease sale. Thus, NEPA requires BLM to analyze those impacts before action is taken. Despite this recognition, BLM again provides that the proposed action of leasing itself has no direct effects on wildlife, and that any impacts to specific species would be addressed at the APD stage and appropriate mitigation would be developed. Id. at 43. As provided above, this is not congruent with what NEPA requires.

Wildlife – Colorado River Cutthroat Trout	
Comments Topic Summary	
There is a Colorado River cutthroat trout core conservation population on the main stem of the Navajo River, which BLM did not consider. These populations are the subject of substantial conservation efforts by Colorado Parks and Wildlife, USFWS, private landowners and Trout Unlimited. In order to avoid effects to Recovery and Conservation Waters relative to this species, it is recommended to apply a 300-foot No Surface Occupancy buffer for Parcels 6402, 6449, and 6452 from the riparian zone outward along the river. To protect cutthroat trout spawning, no in-stream work between June1 and September 1 should be performed for parcel 6402. These parcels should be deferred if these protections are not incorporated in the RMP and corresponding lease stipulations. BLM cannot conclude that there will be "no effect to these species." EA at 46, because BLM recognizes the hydrologic connectivity and, therefore, the connectivity of effects, between waters in the lease area and resources found in the Colorado River and its tributaries, which contain endangered fish. This fails to meet the threshold requirements of NEPA and the ESA.	
BLM Summary Response	
The EA has been clarified regarding the location of cutthroat trout population. The Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) is not known to occur within any of the proposed parcels. The Navajo river is adjacent to parcels 6401 and 6402; however Colorado River cutthroat trout are not present in the Navajo river where the parcels are available for lease (CPW, pers. Communication). There is a known population in the Navajo river above these parcels that is isolated by a man-made barrier. The population known population is located upstream and separated by the man-made barrier, so effects are unlikely. Stipulations, Exhibit CO-28, Controlled Surface Use states, "activities associated with oil and gas exploration and development including roads, transmission lines, storage facilities, are restricted to an area beyond the riparian vegetation zone" is applied to portions of parcels 6402, 6449, 6450, 6451, 6452, 6447 to protect riparian areas. Exhibit CO-34, which is the Endangered Species Act Section 7 consultation stipulation, also applies. Please see Attachment D for full descriptions of Exhibits.	
Comments	
Commenter Martin Moses	**Comment** Furthermore, according to the 2005 CO River Cutthroat Status Review the Navajo River does have an unaltered population as does three tributaries to the Navajo River. The EA states that the Navajo does not have a cutthroat population.
Commenter CPW	**Comment** Parcels 6402, 6449, and 6452 contain mapped Aquatic Recovery and Conservation Waters. Parcel 6402 also contains designated critical habitat for Colorado River cutthroat trout. There is a Colorado River cutthroat trout core conservation population on the main stem of the Navajo River. In order to avoid impacts to Recovery and Conservation Waters, CPW recommends a 300-foot No Surface Occupancy buffer for Parcels 6402, 6449, and 6452 extending from the outermost limit of the riparian vegetation zone. For parcel 6402 we also recommend no

	in-stream work between June 1 and September 1 to protect cutthroat trout spawning. If these protections cannot be added under the existing RMP, CPW recommends deferring these parcels until such time that these protection are incorporated into the RMP and corresponding lease stipulations.
Commenter Chama Peak Land Alliance	**Comment** The EA states there are no Colorado River Cutthroat trout in the Navajo River system (p. 48). To the contrary, the upper Navajo River is the site of several intensive conservation and restoration efforts for genetically pure Colorado River Cutthroat trout populations. Both Colorado Parks and Wildlife and the U.S. Fish and Wildlife Service are involved in these efforts in partnership with private landowners. There are additional efforts downstream to restore other species of native fish as well. We request the BLM review the current status of native fish restoration projects underway in the Navajo River. We understand the NRCS also has plans to do a river restoration in this stretch of river. Will the proposed lease have any impacts on these projects or aquatic wildlife?
Commenter Western Environmental Law Center	**Comment** Elsewhere in the EA, however, BLM places greater import on impacts such as sedimentation, contamination, and water depletion that may result from the proposed action. For example, BLM recognizes that oil and gas activity may contaminate surface and subsurface soils and water, EA at 51, 52, and that "sediment would be readily moved downstream during periods of high runoff into perennial tributaries of the San Juan and Dolores Rivers and ultimately into the Colorado River." Id. at 52. Moreover, the BLM acknowledges "[a]dditional inputs of sediment from shale derived soils are likely to increase salinity concentrations in all perennial drainages downstream and ultimately increase the salinity of the Colorado River." [cite]. Thus, BLM recognizes the hydrologic connectivity and, therefore, the connectivity of impacts, between waters in the lease area and resources found in the Colorado River and its tributaries, which contain endangered fish. Nevertheless, BLM concludes that there will be "no effect to these species." EA at 46. This fails to meet the threshold requirements of NEPA and the ESA.
Commenter Western Environmental Law Center	**Comment** And in some instances the BLM is simply wrong as a factual matter. BLM claims "[t]he Colorado River cutthroat trout is not known to occur within any of the proposed parcels. The Navajo River is adjacent to parcel 6402; however Colorado River cutthroat trout have not been documented in this river system…. However, if this species were found to be present in the river, development of these leases could impact this fish." EA at 48- 49. BLM is wrong: at least two highly significant populations of Colorado River cutthroat trout in the Navajo River are well documented and the subject of substantial conservation efforts by Colorado Parks and Wildlife, USFWS, private

	landowners and Trout Unlimited. See Dept. of the Interior, Recovery Investments, available at: http://recovery.doi.gov/press/us-fish-andwildlife- service/new-mexico-fish-and-wildlife-conservation-office/. The populations occur upstream of the proposed lease site, and thus triggers both the substantive and procedural requirements of the ESA.
Wildlife– Buffers, Stipulations	
Comments Topic Summary	
Based on the best available science, CPW currently recommends a 0.5-mile No Surface Occupancy Stipulation around ferruginous hawk, northern goshawk, peregrine and prairie falcon nests. For bald and golden eagles, osprey, and Swainson's hawk, a 0.25-mile No Surface Occupancy Stipulation is recommended, with an additional 0.5-mile Timing Limitation Stipulation during the breeding season. If these species-specific recommended buffers and seasonal restrictions cannot be incorporated and attached as lease stipulations to the parcels identified in the EA, it's recommended that BLM defer these parcels until the existing RMP can be amended to address the most current information available to protect raptor populations during oil and gas development. BLM must consider and compare the following additional reasonable alternatives in its NEPA analysis prior to the February 2013 Lease Sale: An alternative that analyzes and applies the best available information and science through stipulations aimed to protect federally listed species and their habitats.	
BLM Summary Response	
Currently, the stipulations from the 1991 ROD (RMP amendment) are incorporated into the EA to protect raptors and bald and golden eagles and other wildlife species; these include Exhibits CO-03, CO-05, and CO-18. Please see Attachment D for descriptions of Stipulations. Additional site specific NEPA analysis will be done prior to development and when more specific information is available at the Application for Permit to Drill (APD) stage. When additional information is known about potential development, the BLM will develop site-specific analysis of the effects and address any needed mitigation, including conditions of approval (COAs) and in accordance with the Migratory Bird Treaty Act as well as the Bald and Golden Eagle Protection Act, and Endangered Species Act. Through the EA process, in addition to the no-action, BLM considered a range of alternatives based off (1) stipulations set forth in the RMP, and (2) deferrals in response to resource conflicts. You could also mention that these alternatives address the best available information and protect federally listed species. In addition, though the act of leasing itself as addressed in this EA will not have an effects on bald eagles, there are stipulations included as design features of the alternatives which protect bald eagles if development were to occur on the parcels. This includes CO-04, CO-23 and SJ-07. Additionally, plan maintenance was conducted to update the maps in the existing plan which would apply stipulations to certain affected areas of the Tres Rios field office, not just to the polygons shown in the 1991 ROD.	
Comments	
Commenter CPW	**Comment** CPW has established Recommended Buffer Zones and Seasonal Restrictions for Raptors in Colorado (Klute 2009). These recommended buffer zones were summarized and submitted to BLM's State Office in our December, 2010

	Lease Recommendations (see Attachment 1). They differ from the lease stipulations contained in the EA and Land Use Plan Maintenance Sheet, and reflect species-specific differences in tolerance to human activities. Based on the best available science, CPW currently recommends a 0.5-mile No Surface Occupancy Stipulation around ferruginous hawk, northern goshawk, peregrine and prairie falcon nests. For bald and golden eagles, osprey, and Swainson's hawk, a 0.25-mile No Surface Occupancy Stipulation is recommended, with an additional 0.5-mile Timing Limitation Stipulation during the breeding season.
Commenter CPW	**Comment** CPW encourages BLM to adopt in the EA and Land Use Plan Maintenance Sheet the recommended buffer zones and seasonal limitations outlined in CPW's Recommended Buffer Zones and Seasonal Restrictions for Raptors in Colorado (Klute 2009). If these species-specific recommended buffers and seasonal restrictions cannot be incorporated and attached as lease stipulations to the parcels identified in the EA, we recommend that BLM defer these parcels until the existing RMP can be amended to address the most current information available to protect raptor populations during oil and gas development.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** BLM must consider and compare the following additional reasonable alternatives in its NEPA analysis prior to the February 2013 Lease Sale: An alternative that analyzes and applies the best available information and science through stipulations aimed to protect federally listed species and their habitats. According to the EA, stipulations aimed to protect Endangered Species Act ("ESA") listed species are provided for through the mitigation measures listed in Appendix C. See infra (discussing the ESA). Indeed, BLM suggests that "[a]dherence to applicable BMPs listed in Appendix C would minimize the potential for impacts to Threatened, Endangered, and Candidate species." EA at 66. These BMPs, however, only amount to a general requirement that the "operator will comply with all applicable Federal and State laws and regulations including … the Endangered Species Act," Appendix C-2, as well as a requirement specifying that the "operator will consult with the USFWS and BLM if any Threatened and Endangered species are discovered," id. at C-9. Such general and perfunctory measures are incapable of protecting ESA listed species.
Wildlife – Consultation	
Comments Topic Summary	
It is recommended that BLM consult in accordance with Section 7 on the proposed action, especially because the BLM passes on any effort to analyze the effect of water depletions on endangered or threatened species. The process that BLM relies on, using general stipulations to protect listed species is inappropriate, and BLM is instead required to comply with ESA Section 7 consultation obligations. The analysis is insufficient in regards to southwestern willow flycatcher, how could leases affect the potential habitat?	
BLM Summary Response	

Currently there are no known populations of T&E species on any of the identified lease parcels. Site-specific biological resource surveys would be required at the APD stage, and depending on the location and nature of the proposed development and results of the surveys, Endangered Species Act Section 7 consultation with USFWS would be required if development would affect Federally listed species. The BLM has concurrence and a Biological Opinion from the U.S. Fish and Wildlife Service in regards to water depletions in the upper Colorado river system. If development were to occur in potential southwestern willow flycatcher (SWWFL) habitat, CO-34 and the Endangered Species Act would require consultation with the Fish and Wildlife Service and to implement the required surveys for this species. BLM is also required to adhere to the mitigation measures that are in the recovery plan for the SWWFL and any conservation measures that result from section 7 consultations with the Fish and Wildlife Service, the agency responsible for the management of T&E Species.	
Comments	
Commenter Western Environmental Law Center	**Comment** The BLM similarly passes on any effort to analyze the effect of water depletions on endangered or threatened species, stating that "these types of projects are considered under a programmatic assessment and the responsive programmatic biological opinion by the U.S. Fish and Wildlife Services for depletions in the Upper Colorado River" therefore "water depletions or effects on these species will not be addressed further in this assessment." Id. at 46.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** BLM admits that there is potential habitat for the southwestern willow flycatcher around lease 6402, but rather than engage in analysis, dismisses the potential impact on this federally protected species by remarking "there are no known occurrences within the analysis area." Id. Remarkably, BLM does not share with us how they came to this conclusion nor is there any analysis of how the leases could impact this potential habitat.
Commenter Western Environmental law Center, San Juan Citizens Alliance	**Comment** When listed species may be present, as here, the ESA requires BLM to minimally conduct a biological assessment ("BA") to determine impacts. 16 U.S.C. § 1536(c); see also 50 C.F.R. §402.12(f) (providing elements to be included for review in a BA). BLM's cursory approach fails to satisfy even this initial threshold requirement of the ESA. Moreover, formal consultation and a biological opinion ("BiOp") are required where, as here, an acting agency determines that any action it takes "may affect listed species or critical habitat." 50 C.F.R. § 402.14(a); see also, Colorado Environmental Coalition v. Office of Legacy Management, 819 F.Supp.2d 1193, 1222 (D. Colo. 2011) (holding the agency "acted arbitrarily and capriciously by failing to consult with FWS prior to or immediately following the issuance of the EA, in violation of the ESA.").

Commenter	Comment
Western Environmental law Center, San Juan Citizens Alliance	With respect to endangered, threatened and sensitive species, BLM acknowledges that cumulative impacts are "likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect impacts, but it would not likely elevate cumulative effects to levels that would compromise the viability of any wildlife population or the utility of broader landscapes as habitat." Id. at 66. This conclusion is sufficient to trigger requirements for further analysis under NEPA, as well as the ESA. Yet BLM does neither, rather once again relying on a combination of lease stipulations and BMPs to diminish these impacts. Yet, there is no analysis of exactly how these management practices will prevent this decline in species abundance and habitat or of impacts if such BMPS and stipulations are neither followed nor included in subsequent leases.

Wildlife-Other

Commenter	Comment	Response
La Plata County	Table 3.1 USFWS Birds of Conservation Concern, page 22, Listed in this table are acronyms next to some of the species, such as Gunnison sage grouse (SC). Please review and revise the EA where necessary to make sure that all acronyms are properly defined, Conservation such as the acronyms (SC) and (ST) used in Table 3.1.	Table 3.1 will be edited to delete the acronyms from the table.
Commenter La Plata County	**Comment** Section 4.3.1.1.1. Wildlife - Migratory Birds, page 43, Under the bullet list of Mitigation, please revise bullet number 5 to state as quoted below, to clarify when the surveys would take place. "Prior to construction, drilling, and completion activities, complete surveys within at least a 0.5-mile radius around all types of surface disturbance activity in potential habitat for the presence of nesting raptors. "	**Response** EA updated regarding the required raptor surveys if development were to occur on these parcels. The following was added to the EA, "Survey dates may vary by species, contact the Tres Rios Field Office prior to initiating surveys."

Commenter	Comment	Response
La Plata County	In regards to Exhibit CO-09 Timing Limitation Stipulation, page 103, For this stipulation, there is an optional suspension of the last 60 days of the seasonal limitation period. It seems that if the timing limitation were to be suspended, it would be preferable to suspend the limitation at the beginning of the timing limitation. Towards the end of winter/early spring, big game tend to be in poor body condition, and removing the timing limitation would allow for surface activity during this sensitive period. When animals go into winter/fall, they tend to have good body condition and are less susceptible to stress induced mortality.	The big game species are more likely to be more vulnerable in the spring after a long winter. However, since winter conditions can vary from year to year any request to suspend a portion of a timing restriction would be analyzed on a case by case basis. Additionally, coordinates with Colorado Parks and Wildlife to suspend any of the big game timing limitations. Timing restrictions would be suspeneded only if it can be demonstrated that no detrimental effects to big game populations would occur.
Commenter	**Comment**	**Response**
CPW	Crucial winter habitats and migratory corridors are known to be a limiting factor on big game populations in western Colorado and other high mountain areas of the western United States (Sawyer et al. 2009, Bishop et al. 2009, Bartman et al. 1992). Parcels 6401, 6449, 6452, and 6433 include elk migration corridors, mapped elk winter concentration areas, and mule deer critical winter range. The EA addresses potential impacts to big game with a Timing Limitation Stipulation (Exhibit CO-09) for crucial deer and elk winter ranges (EA p. 45).	As you stated in your comments, the existing stipulations in the EA (CO-09 and CO-10) apply to big game winter ranger and production areas in the lease areas. Only one parcel is actually located in a mapped big game migration corridor, parcel 6401. This parcel is also located in a mapped elk winter concentration area and a mapped bald eagle winter concentration area. Because stipulations applicable to this parcel would be implemented because of these existing mapped use area, we are confident that the migration corridor will receive the needed protections to limit any effects if development were to occur. In regards to limiting surface density of facilities, we will make every effort to use the latest science in developing COA's if development were to

	It does not, however, contain a Timing Limitation or other stipulation to protect migration corridors, nor does it address the impacts of road and well density on the effectiveness of crucial deer and elk winter ranges and migration corridors. There is a growing body of evidence that Timing Limitation Stipulations on oil and gas development activities are not adequate to protect crucial winter habitats and migratory corridors for big game, and that limits on the density of surface facilities may be necessary to maintain big game populations in developing areas (Sawyer et al. 2006, 2009, Sawyer and Neilsen 2010).	occur in any big game use area.
Commenter CPW	**Comment** The EA states that "Most displaced wildlife species would be expected to return after drilling is completed" (EA p. 44). This statement contradicts recent research documenting continued displacement of some species well after drilling activities have ceased and wildlife community composition changes resulting from disturbance associated with the production phase of oil and gas development (Sawyer 2006, 2009, LaGory et al. 2001, Francis et al. 2009, Francis et al. 2011). Based on documented ungulate displacement distance and avoidance buffers from well pads and roads (Hebblewhite 2008, Sawyer	**Response** The EA has been updated to reflect the research associated with well pad densities and the potential effect to big game species from development. The statement you cited refers to exploratory drilling and if well pads are kept to the recommended minimum. If development were to occur in big game use areas, BLM would evaluate the potential impacts based on the existing body of literature related to this issue. The BLM would also analyze the existing impacts from fragmentation and development as it is occurring now.

	2006, 2009), residual unavoidable adverse impacts to ungulates increase dramatically when well pad densities exceed one pad/mile2 (corresponding with a road density of approximately ½ mile of road/mile2) (Wilbert et al. 2008). These residual adverse impacts occur from reduced habitat effectiveness regardless of the use of Timing Limitation Stipulations on drilling activities or other site-specific Best Management Practices (BMPs) designed to reduce impacts (Sawyer 2006, 2009, Wyoming Game and Fish Department 2008).	
Commenter CPW	**Comment** Our mapping records indicated that there is suitable habitat for Gunnison's prairie dog in Parcels 6401, 6402, 6449, and 6533. Gunnison's prairie dog is Federal Candidate (montane population) and BLM sensitive species. Conserving existing populations of Gunnison's prairie dog to prevent potential Federal listing of this species is a high priority for the State of Colorado. While localized Gunnison's prairie dog populations fluctuate primarily due to plague and habitat conversion for other uses, CPW recommends that prospective lease holders for these parcels be notified that pre-construction surveys for active colonies may be required. In addition, CPW encourages BLM to require avoidance of direct	**Response** The population of Gunnison's prairie dog present in the management area is the prairie population and is listed only as a BLM sensitive species - not a candidate species. The EA has been updated with a brief description of the Gunnison's prairie dog and have added it to the sensitive species table (table 3.3.2.2) in the EA. We have also added the Lease Notice CO-31, Sensitive species protection. This would notify potential bidders that a survey for various sensitive species would be required prior to development in order to identify and mitigate any potential effects.

	disturbance to active colonies when possible, and we recommend a Timing Limitation Stipulation for new surface disturbance in active colonies from March 1-June 15 to minimize impacts to reproduction (see Attachment 1).	
Commenter Chama Peak Land Alliance	**Comment** The EA does not consider the conservation easements and explicitly protected scenic, wildlife, conservation, and agricultural values on surrounding and nearby parcels. We request that the BLM evaluate both surface and subsurface values in a landscape-scale context to determine the most suitable locations for well pads and related production activities. Given the extent of BLM minerals in the area, there may be opportunities to reduce impacts to parcels under conservation easement by placing well pads in other locations. In this particular lease sale, for instance, the BLM proposes to lease the subsurface of a very narrow strip of property which is under a conservation easement. Given the possibility of horizontal drilling, are there other more appropriate locations for such a well? Has the BLM considered this question in its current leasing plan?	**Response** A conservation easement by a private property owner does not include conservation of the mineral estate unless the mineral owner enters into such an agreement. The mineral estate is the dominant estate, and therefore leasing and development can continue despite the conservation easement. Well locations are not determined at the leasing stage, and it is possible that a well head could be located on an adjacent surface (with surface-owner consent), then directional or horizontal drilling could be utilized to extract the minerals.
Commenter Western Environmental Law	**Comment** Finally, as noted in the wildlife section, this lease [chromo area] could have significant	**Response** Change made in EA - Section 4.3.1.7: Socio-Economics and Environmental Justice. Explains the short-term duration of

Center	impact on the elk and mule deer populations on which these activities [Thousands of acres of land along highway 84, including the surface area directly over a proposed lease parcel, have been protected by conservation easements designed specifically to protect scenic values] rely. The EA fails entirely to address the both the individual and cumulative economic results of each of these considerations. (see letter at 34-35 for context).	possible effects.

Oil and Gas – Development Process and Surface Owner Role	
Comments Topic Summary	
There is confusion about the phased NEPA process for mineral development, from the leasing stage through the development stage. Why isn't BLM analyzing effects of development in this EA? What is the private landowner's role during oil and gas development?	
BLM Summary Response	
Additional explanation of the mineral development process was included in Sections 1.1, 1.1.1 and 1.4 of the EA. Essentially, there are three phases of NEPA analysis: first, when minerals are designated "Available to Lease" in an RMP; second, when mineral parcels are offered to lease with stipulations attached, as in this EA; and third, when wells or facilities are proposed for mineral development. The BLM addressed effects from leasing and development to the extent possible given available information and assumptions. Additional analysis will be done prior to development and when more site-specific information, such as the target formation, type of completion activities that will be used, and well pad, road and pipeline locations, is available at the Application for Permit to Drill (APD) stage. An APD will not be approved if it proposes an action contradicting lease stipulations. If development is proposed on split estate land (i.e., private or state surface ownership, and federally owned minerals), there are opportunities for the surface owner to work with BLM or directly with the company to influence the development and mitigations. More information can be found at BLM's split-estate website: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html	
Comments	
Commenter	**Comment**
La Plata County	Based on the information obtained by staff, as outlined above (see entire letter), it may be helpful to add additional information in the current Draft EA and Draft FONSI that would explain the phased approach for NEP A analysis. Without this information, it appears that the current Draft EA is attempting to analyze impacts from Leasing as well as Exploration and Production, in which case it would appear to the reader that the Draft EA and FONSI are not

	sufficient.	
Commenter San Juan Citizens Alliance	**Comment** The EA fails to sufficiently identify reasonable forseeable development…since the impacts of development differ greatly with the target formation (individual formations are developed differently), lacking the information of which formations are being proposed for development creates a built-in deficiency in the final document. If BLM does not know what it is supposed to be analyzing, how can it credibly make statements about impacts.	
Commenter San Miguel County Commissioners	**Comment** (Parcel 6471) The surface estate is owned by the State of Colorado and that the sub-surface mineral estate is held by the federal government. It would be helpful to have an explanation and understanding concerning what the BLM's role and the State Land Board's role, if any might be if this lease parcel is proposed to be developed and the lessee files an Application for a Permit to Drill. Is it the BLM or the State Land Board that addresses impacts to visual resources, environmental impacts, to include impacts to air quality in the area?	
Commenter Scott Jack	**Comment** The ea states that stipulations must be complied with before an apd can be approved. Many of the stipulations cannot be complied with before, since they require approval of the apd before the stipulations can be accomplished.	
Commenter Scott Jack	**Comment** Please give examples of constraints on development of split estate parcels that are determined by blm alone? Then those determined in consultation? What is blm's process for consultation with agencies or private surface owners? What are considered valid concerns of surface owners that will result in constraints? Discuss these questions fully in the ea.	
Oil and Gas-Other		
Commenter San Juan Citizens Alliance	**Comment** Impacts from hydraulic fracturing resulting in seismic activity must be considered prior to the lease sale.	**Response** Actions related to any future development are not reasonably foreseeable absent such proposals. It is unknown whether any wells would undergo hydraulic fracturing, and fracking itself is only documented to result in micro-seismic activity. Induced seismicity is generally due to injection of fluids, which is regulated by the EPA and would be analyzed with site-specific NEPA if such development is proposed.
Commenter La Plata	**Comment** Section 4.3.1.3.4. Soil and Water Resources- Ground	**Response** Section 1.1.1, Site Specific Analysis, was edited to note that

County	Water Quality, page 52, This section discusses effects to groundwater related to hydraulic fracturing. It would be helpful to clarify if future production and exploration wells within the lease areas would be subject to COGCC Rule 205 A. Ground Water Hydraulic Fracturing Chemical Disclosure.	operators would have to comply with all state and local laws and regulations. Discussion of specific regulations, such as COGCC Rule 205A, is not appropriate because there is no way to know how state and local laws may change through the life of a lease.
Commenter San Juan Citizens Alliance	**Comment** The EA…fails to draw a meaningful distinction between different areas nominated for sale.	**Response** The EA presents analysis for distinct parcels as appropriate to fully understand the environmental effects. For example, Wildlife (Section 4.3.1.1.2), threatened and endangered species (Section 4.3.1.2) and plants (4.3.1.2.2), soil and water resources (Section 4.3.1.3), and visual resources (Section 4.3.1.8), to name a few, all have distinct analysis for different parcels.
Commenter La Plata County	**Comment** There is no reference to following the BLM Surface Operating Standards and Guidelines for O&G Exploration and Development, The Gold Book. Please add references to the Gold Book where applicable in the EA and in the lease stipulations, or explain why BLM has decided to not include such references.	**Response** The 2007 Gold Book is the 4th Edition of BLM's Operating Standards and Guidelines are guidelines developed for operator use, not regulations. Discussion of these guidelines is not appropriate because this document may change during the life of a lease.
Commenter Chama Peak Land Alliance	**Comment** The EA states there are no agricultural lands present in the vicinity of the proposed leases (p.20). In fact, the leases are completely surrounded by actively managed agricultural lands. We request the BLM include an assessment of any potential impacts to agricultural operations, land and water at each phase of exploration, drilling and production. Agricultural producers in the area are particularly concerned with	**Response** Section 3.2.1 says there are no farmlands (prime or unique) as defined by 7 CFR 657.5. "Agricultural lands" is a different definition, and in fact, section 3.2 states that the area is known for the historic agriculture. Detailed assessment of potential effects to agricultural operations at each phase of exploration, drilling and production is beyond the scope of this EA. The effects of what is potentially an infinite number of scenarios for development are too

	the question of whether fracking poses a risk to their water supply, including natural springs, wells and irrigation sources.	complex to analyze accurately at the leasing stage of the oil and gas resource development life cycle. Site-specific analysis will take place if a parcel is leased and an operator submits an Application for Permit to Drill.
Commenter Paul Bendheim	**Comment** I do not see any mention in any of your documents connected to this proposed sale that recognize and consider that my parcel, or other lands in the Chromo area, have been preserved and are to be forever managed for the qualities set forth in my conservation easement. It does not appear that your agency took into consideration this fact as these uses and qualities are contrary to any development of this land for oil and gas drilling. I do not understand how you can auction mineral rights that may exist below my land without any consideration of the impacts of that action on these legally contracted uses and qualities. It seems to me that any attempt to drill on the conservation easement would be a legal violation of that agreement and that the oil and gas company would be legally liable for destroying those uses and qualities of the land.	**Response** This conservation easement by a private property owner does not include conservation of the mineral estate. The mineral estate is the dominant estate, and therefore leasing and development can continue despite the conservation easement. There are opportunities for the surface owner to work with BLM or directly with the company to influence the development and mitigations. More information can be found at BLM's split-estate website: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html
Commenter Western Environmental Law	**Comment** Based on the current approach, BLM can grant a waiver, variance, or exception to many applicable stipulations, thus rendering the protective measure inoperable. Use of such waivers has occurred in other areas – including in the gas fields south of Jackson, Wyoming – where, for example, timing stipulations were attached to leases to restrict surface disturbing activities aimed to protect pronghorn winter range, and those stipulations were rendered useless when the	**Response** It is not appropriate to remove the options for waiver, variance or exception to the stipulations in this EA. The exceptions to the stipulations in Appendix D detail situations in which the stipulations are not needed to protect resources, and allows the flexibility to remove the constraints in that case. Similarly, waivers and variances are only granted after BLM resource specialists determine there would be no undue effect to the resource. A blanket removal of any option for waiver, variance or exception on

	lessee applied for a variance, which was granted by BLM. Accordingly, we request that option for waiver, variance, or exception is removed from stipulations Exhibit CO-01, Exhibit CO-03, Exhibit CO-04, Exhibit CO-08, Exhibit CO-09, Exhibit CO-10, Exhibit CO-23, and Exhibit CO-28, all to ensure that resource values are protected. At a minimum, the foregoing amendments to stipulations and lease sale notices must be made to ensure that necessary resource values are protected.	any lease at this time could unnecessarily disrupt mineral extraction without providing any further protection to other resource values.
Commenter Western Environmental Law	**Comment** In short, the BLM has both failed to analyze impacts and to identify known impacts including such obvious ones as oil and gas spills. For instance, a recent Report has identified that there were 516 spills related to oil and gas development in 2011 in Colorado, and of those, the Colorado Oil and Gas Conservation Commission ("COGCC") only assessed 5 fines.	**Response** Please see section 4.3.1.3.1 Soil & Water Resources - Surface Geology/Soils paragraphs 2 and 3 and section 4.3.1.3.4 Soil & Water Resources - Ground Water Quality paragraphs 1 and 2. These sections discuss the possibility and potential effects of oil and gas spills.
Transportation –Detailed Analysis and Mitigations		
Comments Topic Summary		
Development of these leases would lead to increases in vehicle traffic, more heavy vehicles, traffic stops and delays, increased traffic safety hazards, and increased need for road maintenance. This is not adequately described in the EA, and these effects should be mitigated before the parcels are put forward for lease.		
BLM Summary Response		
Section 4.3.1.5 explains possible effects on the transportation. Leasing opens the possibility of exploration and development of lease parcels, but does not guarantee that a parcel will be developed. The BLM addressed effects from leasing and development to the extent possible given available information and assumptions. Due to the nearly infinite combinations of possible access routes, vehicle types and volumes and times of year, detailed analysis of transportation effects is beyond the scope of analysis at the leasing stage. Additional analysis will be done when more site-specific information, such as the target formation, type of completion activities that will be used, and well pad, road and pipeline locations, is available at the Application for Permit to Drill (APD) stage. Explanatory text of possible transportation effect mitigations has been added to Section 4.3.1.5. Specific mitigation measures can only be identified at the APD stage when exact road locations and issues are known, and site-specific analysis has been completed. On		

private land, the private landowner can negotiate for mitigation measures. Mitigations to county and state roads are the jurisdiction of the county or state governments.

Comments	
Commenter La Plata County	**Comment** Section 4.3.1.5 Transportation, page 55, How will road impacts be mitigated? Please provide an explanation within this Section.
Commenter Tamsen Wiltshire	**Comment** We live here because we enjoy the clean environment in this area. If the leases go forward there could be significant increases in heavy truck traffic on the Hesperus/Red Mesa Highway (Route 140), Hay Gulch, and other roads in the area.
Commenter Scott Jack	**Comment** 4.3.1.5 Transportation While the act of leasing oil and gas parcels has no effects, subsequent exploration and development activities that might be proposed as a result of a lease could alter traffic or the transportation system. The double speak and conflicting statements are tiresome in this ea. The above is an example of many. The act of leasing does have an effect. Otherwise the resulting activities would never occur. The Leasing is the cause and the issues have to be addressed in the nepa process before the time of leasing… the ea fails to address the safety and health issues of equipment movement, rig movement, water hauling trucks, fracking caravans of vehicles along substandard and poorly designed roads (which covers most county and private roads in the hesperus lease area. It also fails to address road deterioration and road upgrades and who pays for it.
Commenter CDOT	**Comment** The EA fails to describe specific impacts to the highway system from the proposed action and other alternatives… CDOT has identified several intersections under the proposed action that could potentially require access or safety improvements 10 handle the increase in traffic created by the proposal. This EA must specifically disclose the numbers of trucks or other vehicles that will be directly or indirectly accessing highways under the proposed action, and help specifically identify the access routes so that CDOT can determine impacts and required mitigation for these areas… The environmental impacts from any required highway and access

	improvements to state highway system are direct impacts that should be disclosed in the Final EA and mitigated. Highway and safety improvements required from the traffic impact study and potential access permit may result in direct environmental impacts as a result of this action.
Commenter Nan Burroughs	**Comment** (Hesperus area)The parcels are in areas with dirt roads used by private owners. The terrain of parcels in question is 50% at a slope of 25 degrees or greater. Heavy machinery moving along both Highway 140 and Highway 160 WILL have serious impact, particularly around the settlement of Hesperus and south into the agricultural and ranching areas along the La Plata River. The noise and congestion that WILL result from development activities WILL continue past development. It is disingenuous at best to state otherwise.
Commenter Western Environmental Law	**Comment** Yet BLM could have, consistent with its estimates of the number of wells to be developed on the parcels, made some reasonable attempt to quantify impacts. It could have made an effort to quantify baseline conditions. It did neither. So its analysis ignores obtainable facts, such as that Archuleta County does not presently have the resources necessary to maintain its existing roads in adequate condition. County Road 382 is already degrading from lack of maintenance and generally severely wash-boarded. Additional traffic from oil and gas development and production activity will cause hardship to residents and other users by accelerating the deterioration of the road surface. BLM's failure to establish baseline conditions and to consider impacts to transportation other than its generic recognition that an impact will occur violates NEPA.

Transportation-Other

Commenter	**Comment**	**Response**
La Plata County	Section 3.3.5 Transportation, Page 34, It is stated that there is industrial traffic near parcels 6448 and 6451 due to extraction at the King Coal II coal mine. It should also be noted that GCC Energy is currently negotiating road improvement fees with La Plata County to offset the impacts to CR 120 from heavy truck traffic.	As this is a current negotiation, and nothing has been finalized, it would be inappropriate to put this in the EA.
CDOT	CDOT formally requests that a Traffic Impact Study (TIS) be conducted (see letter for context). The (TIS) should encompass the more than 8,806 acre area discussed within the document, and will provide CDOT with the information required to determine whether State Access Permits and	Section 4.3.1.5 discusses transportation effects. Detailed analysis is beyond the scope of this EA as it is not possible until specific access routes and vehicle types and volumes are proposed at the APD stage. APDs are processed in accordance with NEPA. Once the area is leased, if that does occur, it

	access improvements are warranted. Under the State Highway Access Code, changing land-use requires study and permitting, and any change of proposed vehicle volume to a site by 20 percent or more constitutes a major modification. Several locations addressed within the EA could create an increase of greater than 20 percent traffic volumes. Additionally, according to the State Highway Access Code, one haul truck is equivalent to three passenger vehicles, and traffic volume increases analyzed within the document need to reflect this ratio… If highway improvements are deemed necessary for any part of this project, these improvements are a "connected action" under the Council on Environmental Quality (CEQ) regulations and therefore need to be included in the scope of this EA.	is expected that initially, minimal wildcat drilling will occur on an occasional scattered basis. NEPA analysis will be completed for the transportation effects of this. If viable oil and gas reserves were found and full-field developed were to occur, a Master Development Plan could be initiated to provide more cumulative analysis of transportation effects on the state highways.
Scott Jack	Operators must make a good faith effort to notify the surface owner before entry and obtain a surface use agreement with the surface owner. This gives surface owners the opportunity to negotiate an agreement with preferred access routes and road construction and maintenance agreements, if desired. WHAT HAPPENS IF THE AGREEMENT CANNOT BE NEGOTIATED OR THE OWNERS ARE NOT NOTIFIED? PLEASE ADDRESS THIS ISSUE. IF ACCESS IS REQUIRED THROUGH LANDS NOT COVERED IN THESE LEASES, WHAT IS THE PROCESS FOR ACQUIRING THE RIGHT TO CROSS THESE LANDS.	Section 1.1.1 has been edited to discuss options when a surface use agreement is not reached, and access to adjacent private lands.

San Miguel County Commissioners	Section 3.3.8 Recreation and Visual Resources … The majority of the BLM surface parcels are isolated parcels surrounded by private land through which no formalized legal access exists. I assume this circumstance also applies to the portion of the parcel in San Miguel County for which the surface is owned by the State of Colorado. This section of the EA goes on to state that access to Parcel 6471 is accessible via the McKenna Peak WSA, also requiring a substantial and difficult hike. In considering the relatively remote location of this parcel adjacent to the McKenna Peak WSA and knowing that this area south of North Mountain is comprised of rough topography with significant relief we are very concerned with the potential environmental and visual impacts associated with building a road suitable for large trucks and heavy equipment to access this isolated parcel. We would also ask the BLM to assess how building a new road into this remote area which is now difficult to access might affect the undisturbed natural setting which is likely an important element of the big game hunting experience in the area.	Recreation access to Parcel 6471 is possible via a hike through the McKenna Peak WSA, however a road would not be approved in a WSA or Wilderness Area. An access road is more likely through the private land to the north, but that would have to be negotiated through the private land owners. Detailed analysis of transportation effects is not possible until the APD stage.

Recreation - Other		
Commenter	**Comment**	**Response**
Western Environmental Law Center	Another economic consideration, as well as recreational, is the potential impact to the hunting and fishing economy of the Chromo valley and Archuleta County. The Chromo area is home to major deer and elk populations. Significant hunting activity takes place on both public and private lands surrounding the proposed leases. Oil and gas will make the area less attractive to hunters, fishermen and	Explanation of the possible short-term duration of socio-economic effects, including those related to hunting and fishing, added to Section 4.3.1.7 Socio-Economics and Environmental Justice of EA.

	eco-tourists, injuring the local economy. Ranchers in the area are heavily dependent on hunting revenues to stay in business and oil and gas development will likely have an adverse impact on the attractiveness of the area to potential hunting clients.	
Commenter Douglas Tooley	**Comment** I believe noise and visual impacts should be treated equally between recreational and residential issues, whether it be a sub-surface residential impact or an adjacent one. I assume that by now all residential users are at least aware of this process and I hope my comments support their rights. Besides viewsheds, I believe the only recreational impact is parcel 6450 in the Hesperus/McKenna Peak area. I would hope that this development process **creates** better access to this area. (I'd also like to learn what the existing hunter access point is!).	**Response** Recreational effects were identified in Section 3.3.8, Section 4.3.1.8, Section 4.3.2.8 and Section 4.4.8. The majority of the parcels are surrounded by private lands through which no formal access to public lands exists (in the form of easements allowing for public access). Only 2 parcels (6450 and 6471) represent publicly managed surface acres adjacent to other public lands through which access is possible. Effects associated with recreation on these two parcels, as well as the means of access, were addressed on the above referenced pages. Possible access routes would only be analyzed at the APD stage. Any hunting access on private surface is not administered through BLM, but is at the discretion of the private landowner.
Socio-Economic- Other		
Commenter Western Environmental Law Center	**Comment** BLM's assessment of the impact of its lease sale on visual, recreation and socioeconomic resources is a generic statement of speculative possibilities combined with its refusal to do any analysis of impacts at this stage. EA at 57.	**Response** Explanation regarding the possible effects on property values as well as the short-term duration of possible effects made in EA - Section 4.3.1.7: Socio-Economics and

	Drilling and subsequent production will drive existing homeowners away and deter new homebuyers, thereby undermining the economic welfare of the community. The few jobs that may be created through oil and gas production in Chromo will be far outweighed by the losses associated with the drilling. Further, declining real-estate values will adversely impact property tax revenues. Additional services required of the county as a result of drilling and production, including road maintenance and emergency response, will also offset economic gains.	Environmental Justice.
Commenter Chama Peak Land Alliance	**Comment** The EA concludes that the only socio-economic impacts from the development would be increased employment, personal income and tax revenue (p. 20). In fact, two of the most significant economic drivers in our community are tourism (including eco-tourism, hunting and fishing) and second homes, both of which are likely to be impacted by oil and gas development. Agriculture plays a major economic and cultural role in the Chromo valley as well. Local ranches are largely dependent on hunting revenues to remain in agriculture. Many homeowners in our area are retirees who have moved here specifically for the wildlife, scenery and quality of life. Oil and gas development may have a negative impact on those values, which, in turn, could drive away existing and potential homeowners along with the service jobs they support. While those landowners who own mineral rights may see an increase in personal income as a result of oil and gas development, some landowners could see a decrease in property value. We request the BLM provide a more thorough and comprehensive assessment of the potential	**Response** Explanation of the possible short-term duration of effects added to Section 4.3.1.7 Socio-Economics and Environmental Justice of EA.

	economic impacts.	
Visual Resource Management - Other		
Commenter San Miguel County Commissioners	**Comment** This section of the RMP indicates that the SJ/SM RMP did not assign Visual Resource management classes to the lands under consideration for lease and at this time there are no visual management objectives upon which to base management decisions. It seems to us that having visual management objectives in place for this area and specifically Parcel 6471, which is adjacent to the McKenna Peak WSA would be extremely important and invaluable for assessing and determining the appropriateness of constructing a new road on and over what might be four or more miles of extremely rough terrain.	**Response** Parcel 6471 is located on State owned land. BLM policy only requires VRM classes apply to public land.
Commenter Western Environmental Law Center	**Comment** Contrary to the BLM's assertion that there will be no direct visual effects of these leases, the Chromo area parcels are located within areas of high scenic value to Archuleta County. Thousands of acres of land along highway 84, including the surface area directly over a proposed lease parcel, have been protected by conservation easements designed specifically to protect scenic values. The State of Colorado has participated in funding the easements for this purpose through the Great Outdoors Colorado fund. Drilling and subsequent production on this parcel will have direct adverse impacts on these scenic values.	**Response** There are no direct visual effects of this action. There are indirect effects that would occur in the event that an APD is filed and the lease parcel becomes subject to potential development. These indirect effects relating to visual resources are disclosed in Section 4.3.1.8 of the EA, as much as is possible absent an APD. If and when an APD is filed, further analysis will be possible. A conservation easement by a private property owner does not include conservation of the mineral estate unless the mineral owner signs a conservation easement. Leasing and development can continue despite the conservation

		easement.

Air Quality – Process	
Comments Topic Summary	
The BLM has failed to sufficiently analyze effects related to air quality. BLM fails to discuss the reasonably foreseeable effects to visibility and air quality degradation. As a result, none of these recognized effects are actually analyzed to determine what effect they might have on the human environment. This lack of actual analysis fails to meet the requirements of NEPA. Moreover, research indicates a strong correlation between oil and gas development and increased ozone concentrations – particularly in the summer when warm, stagnant conditions yield an increase in O3 from oil and gas emissions. BLM has estimated the number of wells that could be drilled, and certainly could use available information to quantify GHG emissions, yet it chooses not to engage in that hard look at the effects of its activity. In short, BLM must analyze both the short and long-term effect of methane pollution to the climate.	
BLM Summary Response	
Future lease development is not a proposal before the agency for review. Actions related to any future development are not reasonably foreseeable absent such proposals. Further, an appropriate analysis can only occur when the actual location (proximity to receptors), project specific elements that generate emissions, and the timing are known. An accurate analysis can be made at the Application for Permit to Drill (APD) stage of the leasing life cycle through the National Environmental Policy Act (NEPA) process where a proposal for development has been initiated by a project proponent. Once an APD is received, BLM has the authority under 43 CFR 3162.3-1(d) (4) to request any all information necessary to conduct or require an appropriate air analysis. Further, while leasing does convey a right to develop the resource, it does not imply or permit an operator to do so in a manner that does not conform to Federal Land Policy Management Act (FLPMA), CAA, or other applicable requirements. Conditions of Approval (COA(s)) will be added to APD approvals to reduce air resource effects. Additionally, ozone will be addressed in a subsequent analysis as appropriate (e.g. in accordance with the provisions and triggers outlined within the SJPLC SDEIS). While the BLM has made assumptions on the number of wells that could be drilled in the proposed lease parcels to aid in conducting effects analysis, it is not possible at this time to make assumptions on the type of development that would occur for each parcel. In order to estimate potential emissions for well development, a number of additional factors need to be addressed including but not limited to well depth, compressor horsepower, completion activities and transportation needs. All of these factor into the estimated emissions and will be further addressed at the APD stage.	
Comments	
Commenter	**Comment**
Western Environmental Law Center	The BLM has failed to sufficiently analyze impacts related to air quality. In the EA, BLM provides: “the decision to offer the identified parcels would not result in any direct emissions of air pollutants…the act of leasing the parcels would produce no significant air quality effects...” EA at 55. BLM admits however that future lease development

	will result in some un-quantified level of criteria, HAP and GHG pollutants as well as an increase in area and regional emissions. Id. Once again, by putting off actual analysis until some future date, BLM fails to analyze impacts at the earliest possible time, as mandated by NEPA.
Commenter Western Environmental Law Center	**Comment** Indeed, many impacts to air quality are not only reasonably foreseeable, but also openly acknowledged in BLM's EA. Rather than take a hard look at these impacts, BLM admits that it will have to address these impacts "in a subsequent analysis" at the APD stage. EA at 55. Yet BLM tacitly admits that while it can talk about applying BMPs and conditions of approval at the ADP stage, it acknowledges that these conditions are of limited effectiveness because "COAs cannot take away lease rights or prevent development." Id. at 56. As a result, none of these recognized impacts are actually analyzed to determine what affect they might have on the human environment. Nor does BLM account for or consider the other reasonably foreseeable impacts that would occur once the leases were developed. This lack of actual analysis fails to meet the requirements of NEPA.
Commenter Western Environmental Law Center	**Comment** In addition, BLM fails to discuss the reasonably foreseeable impacts to visibility and air quality degradation that will result from oil and gas activities. Section 169A of the Clean Air Act ("CAA"), 42, U.S.C. § 7401 et seq. (1970), sets forth a national goal for visibility, which is the "prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution." In the instant case, there is a substantial number of Classes I air quality areas that may be directly impacted by any development. These areas include national treasures like Mesa Verde National Park. EA at 70. Moreover, research indicates a strong correlation between oil and gas development and increased ozone concentrations – particularly in the summer when warm, stagnant conditions yield an increase in O3 from oil and gas emissions. Marco A Rodriguez, et al., Regional Impacts of Oil and Gas Development on Ozone Formation in the Western United States, JOURNAL OF AIR &WASTE MANAGEMENT ASSOCIATION (Sept. 2009) (attached as Exhibit 9). Particularly in areas of significant existing oil and gas development, such as the San Juan Basin in the Four Corners region, "peak incremental O3 concentration of 10 ppb" has been simulated. Id. at 1118. This study indicates a "clear potential for oil and gas development to negatively affect regional O3 concentrations in the western United States, including several treasured national parks and wilderness areas in the Four Corners region. It is likely that accelerated energy development in this part of the country will worsen the existing problem." Id.
Commenter Western Environmental	**Comment** In the EA, BLM provides: "The assessment of the relationship between GHG emissions and climate change is in a formative phase. While it is not possible to accurately quantify potential GHG emissions in the affected areas as a

Law Center, San Juan Citizens Alliance	result of making the proposed tracks available for leasing, some general assumptions can be made … subsequent development of any leases sold would result in an incremental increase in overall emissions of pollutants, including GHGs." EA at 55. Yet, BLM has estimated the number of wells that could be drilled, and certainly could use available information to quantify GHG emissions, yet it chooses not to engage in that hard look at the impacts of its activity. Rather it states that it "will continue to evaluate the effects of oil and gas exploration and development on the global climate, and apply appropriate management techniques and BMPs to address changing conditions." EA at pg. 56.In the EA, BLM provides: "The assessment of the relationship between GHG emissions
Commenter Western Environmental Law Center	**Comment** In evaluating GHG emissions, BLM must account for methane's warming potency over both 100 and 20-year time horizons, on the basis of the most recent global warming potentials for methane provided by peer-reviewed science. In short, BLM must analyze both the short and long-term impact of methane pollution to the climate. Id. This is precisely the kind of analysis that must be considered and accounted for before BLM proceeds with the sale of 12,175 acres of the region. See Ctr. for Biological Diversity, 538 F.3d at 1217. *(see letter for complete supporting documentation*).
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Aside from a general recognition of some broad greenhouse gas ("GHG") statistics and projections within BLM's overall climate discussion, the EA provides no analysis of GHG emissions. To this end, BLM does not provide any consideration of the relationship between GHG emissions and the decision made, and fails to address or identify any alternatives or mitigation of GHG emissions from development of the 12,175 acres of land and mineral leases BLM proposes to sell to the oil and gas industry. This failure is in direct conflict with Secretarial Order 3226 and BLM's NEPA mandate.
Air Quality – Climate Change	
Comments Topic Summary	
The Bureau of Land Management (BLM) is negligent for not preparing a full Environmental Impact Statement (EIS) to address potential effects from leasing and for not fully analyzing effects to air quality including any cumulative effects resulting from listed current and foreseeable activities. Oil and gas drilling will affect resources that are affected by climate change. BLM's oil and gas leasing decisions are contemplated by and subject to section 3 of the Sec. Or. 3226, § 1. Order, and accordingly must be considered in BLM's NEPA analysis.	
BLM Summary Response	

Lease sales are not an explicit part of Secretary Order 3226 in and of themselves. Secretary Order 3226 directs that the resource must be considered as part of the broader planning initiatives, such as a RMP. This EA addresses the potential emission of GHGs as they relate to potential development of the proposed leases and their connection to Anthropogenic Climate Change in section 4.3.1.6. The air section describes the emissions, relevance to significance factors that exist (if any), and broad implications any increase in global GHGs have to the climate system. 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 effects 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 effects based on potential GHG emissions from any specific project's (including the listed current and foreseeable activities in the cumulative effects area) incremental contributions to the global GHG burden. See section 4.4.6 for a general discussion on the effects from climate change in the region.	
Comments	
Commenter Western Environmental Law Center	**Comment** Moreover, and as noted above, BLM fails to provide any discussion related to climate change or farmlands. These are fatal omissions related to BLM's resource analysis in general, and are equally incurable with respect to the UFO's cumulative impacts analysis. A true NEPA hard look analysis is required before BLM can proceed, and must include the preparation of a comprehensive EIS incorporating all past, present, and reasonably foreseeable future resource impacts from this and other area actions.
Commenter Western Environmental Law Center	**Comment** While BLM's EA catalogues some of potential impacts from climate change – identifying impacts such as increased drought, and wild fire potential, it fails to actually apply and analyze those impacts respective the decision made. See, e.g., EA at 36-37. In other words, and as provided above, BLM must analyze these climate impacts relative to the specific resources at stake. For example, how will drought conditions impact vegetation and wildlife resources, as well as farming and ranching in lease area? How will insect infestations impact farmlands? How will species migration impact recreation and socio-economic conditions, as well as biological diversity and resilience?
Commenter Western Environmental Law Center	**Comment** Moreover, BLM's contention is a red herring; while the act of leasing may not have direct impacts on climate change, oil and gas drilling will impact resources that are impacted by climate change. Thus, it's not only the impact to climate change, but also the combined impact of oil and gas drilling and climate change to specific resources; e.g., water resources, vegetation, farmlands, wildlife and endangered species, etc. Here, as before, BLM's approach falls short of NEPA's mandate to examine these impacts at the earliest possible time – which in the oil and gas development context is at the lease sale stage?

Commenter	Comment
Western Environmental Law Center, San Juan Citizens Alliance	Sec. Or. 3226, § 1. The Order also "ensures that climate change impacts are taken into account in connection with Department planning and decision making." Id. The Order obligates BLM to "consider and analyze potential climate change impacts" in four situations: (1) "when undertaking long-range planning exercises"; (2) "when setting priorities for scientific research and investigations"; (3) "when developing multi-year management plans, and/or" (4) "when making major decisions regarding the potential utilization of resources under the Department's purview." Id. § 3. The Order specifically provides that "Departmental activities covered by this Order" include "management plans and activities developed for public lands" and "planning and management activities associated with oil, gas and mineral development on public lands." Id. (emphasis added). BLM's oil and gas leasing decisions are thus contemplated by and subject to section 3 of the Order, and accordingly must be considered in BLM's NEPA analysis.
Commenter Western Environmental Law Center	**Comment** BLM's characterization of climate change effects as "speculative" is not consistent with what NEPA requires. "Reasonable forecasting and speculation is … implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" Save Our Ecosystems v. Clark, 747 F.2d 1240, 1246 n.9 (9th Cir. 1984 (quoting Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm., 481 F.2d 1079, 1092 (D.C. Cir. 1973)).

Air Quality–Other

Commenter	Comment	Response
La Plata County	3.3.6 AQ & Climate, page 36-37, The very last sentence states that "climate change may lead to changes in the Mountain West, such as increased drought and wild land fire potential." Please clarify the source of this information or if this is from BLM staff.	Section 3.3.6. of EA updated to include source data is brief summation of EPA Region 8 Data (http://www.epa.gov/Region8/climatechange/pdf/ClimateChange101FINAL.pdf).
Commenter La Plata County	**Comment** Section 4.3.1.6 Air Quality, page 56, In paragraph 4, there is discussion of flaring and venting wells. It may be helpful to also add that if pipeline infrastructure is in place, that "green completions" could be used to reduce flaring and	**Response** Section 4.3.1.6. of EA updated to include possibility of "green completions."

	venting.	
Commenter La Plata County	**Comment** Section 4.3.1.6 Air Quality, page 55-57, Potential for Ozone standards to be lowered in 2013 was not addressed. Please address this potential within this Section.	**Response** Beyond the potential broad implications a lower standard might have on the region such as limiting future development, requiring project specific emissions offsets, reductions, or additional mitigation requirements, and general conformity determinations (BLM) and/or potential SIP revisions (State of CO) if the area went Non-Attainment, a lower standard would have no specific effects to the lease sale at this point in the O&G development cycle. Emissions generating activities are not authorized at or by the lease sale. Further, it is not reasonably foreseeable to determine when, if, or at what level a lower ozone standard would be set, and therefore any specific discussion regarding a highly speculative lower standard would provide little benefit to the analysis. However, language has been added to generally address BLMs approach to air resources management (ARMP) as well as a study being undertaken to adequately address potential ozone issues on a regional basis (West-CARMMS study). Section to be updated.
Commenter National Park Service	**Comment** The various sections of the draft EA provide no substantive assessment of potential air quality impacts to National Park Service lands. We are particularly concerned about Mesa Verde National Park (NP) which is located near a number of the proposed parcels. The EA does not provide enough information to determine what the incremental potential air quality impact of the 12 leases may be to Mesa Verde NP. Toward	**Response** The BLM has modified the text to explicitly state that the air analysis used to support the decision was accomplished as part of the SJPLC RMP SDEIS NEPA process. The Bureau has disclosed the potential effects to the Mesa Verde NP that were modeled at full RFD development, provide more context for the current O&G development situation, and compare and contrast the current and future scenarios along with the model parameters and parcel location contexts to thoroughly disclose this data. However, the

	NPS being able to make more informed comments on potential impacts on our lands, it would be most desirable for the soon-to-be final San Juan Public Lands Center Resource Management Plan revision (SJPLC RMP) to be the basis for this EA and the decisions made as to leasing. This would provide a much firmer and defensible basis for these decisions. If BLM still proposes to move forward with the leases-under the proposed EA, we recommend that the agency provide additional air quality information to support the FONSI, including the information on the incremental impact of these parcels relative to the SJPLC RMP assessment. We also question whether some should be deferred (i.e., the Hesperus area) until better information can be brought to bear in the decision.	leasing decision does not itself result in or authorize any drilling, development, or other on-the-ground activity (i.e. emissions generating activities) to occur on public lands. Moreover, the oil and gas lease, by itself, does not cause a change in the physical environment. There will be no incremental effects from the leasing of parcels on the Mesa Verde NP and no development proposal is before the agency for review to determine what any actual future development effects might be. Once an APD for development is received, the Bureau has the authority under 43 CFR 3162.3-1(d)(4) to request any information necessary to conduct an appropriate air analysis. The BLM can then develop an actual emission scenario and determine project incremental effects that would approximate reality. Additionally, as time constraints are often a challenge for the Bureau, we can compel the proponent to provide this analysis to the Bureau for review. As stated earlier if the results of such analysis are significant the BLM will consult with the NPS on appropriate COA to mitigate the effects.
Commenter National Park Service	**Comment** In support of these NPS recommendations, we note that a variety of recent analyses, including that done for the San Juan Resource Management Plan, has shown that there are air quality issues in the Four Corners area. Of particular concern at Mesa Verde NP is nitrogen deposition from emissions of oxides of nitrogen. At a minimum there should be rigorous nitrogen mitigation required for all wells that might be	**Response** The BLM agrees with your assessment that rigorous NOX controls should be required for all subsequent approved emissions generating activities for these leases and any future leases where major effects have been predicted by an appropriate analysis. Although no lease stipulations from the Draft SJPLC RMP could be added to the leases due to the pre-decisional nature of such actions, the BLM could consider potentially setting Conditions of Approval (COA) for drill permits.

	drilled and produced in this lease area through stipulations included in BLM leases with requirements associated with the subsequent permit to drill.	
Commenter Western Environmental Law Center	**Comment** This problem is, as noted above, compounded by the agency's failure to take a hard look at baseline air quality to determine whether the oil and gas leases offered for sale are reasonable and whether enhanced air quality protections need to be imposed at the lease stage to constrain air quality emissions and impacts within acceptable levels.	**Response** Baseline air quality is addressed by the current air monitoring data contained within the EA. Rigorous controls for air emissions can be required by an appropriate analysis executed at the APD stage for any proposed exploration and development emissions generating activities. All Conditions of Approval would be based on contained in the RMP for leasing area, such as the strategies identification of significant effects and the thresholds identified in the air analysis performed for the SJPLC SDEIS, which did look at area wide leasing alternatives from existing and potential future oil and gas development. The air resources study is final, timely, defensible, enjoyed multi-agency support, and serves as a reasonable basis from which BLM can base leasing decisions.
Commenter Western Environmental Law Center	**Comment** While acknowledging that the cumulative impact of the leases could contribute to the deterioration of air quality in the region, the BLM makes no effort to quantify that impact. EA at 70. Rather, and incredulously, BLM points to a regional air quality analysis conducted as part of the draft EIS for the SJ/SM RMP, a draft analysis that was deemed insufficient and now being supplemented. BLM's rationale underscores the hazards of proceeding with these leases under an	**Response** The supplemental analysis was performed in consultation with several agencies and is available for review online. The text in the EA was referring to the SDEIS. Section to be updated.

	outdated and inadequate RMP. Until that plan is released, and the SEIS completed, BLM's analysis of these leases must be rejected for failing to comply with NEPA.	
Commenter National Park Service	**Comment** We believe that the current proposed Tres Rios Leasing decision does not adhere to the Leasing Reform policy given the lack of an air quality assessment for Mesa Verde NP.	**Response** The BLM has modified the text to explicitly state that the air analysis used to support the decision was accomplished as part of the SJPLC RMP SDEIS NEPA process. The Bureau has disclosed the potential effects to the Mesa Verde NP that were modeled at full RFD development, provide more context for the current O&G development situation, and compare and contrast the current and future scenarios along with the model parameters and parcel location contexts to thoroughly disclose this data.
Commenter Western Environmental Law Center, San Juan Citizens Alliance	**Comment** Before opening up 12,175 acres of this region to the oil and gas industry – which is one of the largest sources of VOCs, ozone, and sulfur dioxide emissions in the United States – air quality, human health, and compliance or interference with the EPA's Regional Haze rules must be analyzed before the February 2013 Lease Sale can proceed.	**Response** No emissions are generated or authorized by lease sales. Lease sales are not subject to EPA's regional haze rules. Non-major sources including oil and gas area sources are not subject to the Regional Haze rules. Colorado has yet to finalize their Regional Haze SIP, although it has been approved by EPA. Compliance with the Colorado SIP by any applicable source will be determined by the Colorado Air Pollution Control Division. Colorado already has numerous regulations on the books that are designed to make reasonable progress toward their visibility goals, for which they enforce and determine source applicability for.
Commenter Western Environmental Law Center, San Juan Citizens	**Comment** BLM also explained to GAO "that [BLM] thought the industry would use venting and flaring technologies if they made economic sense," a naïve perspective belied by the lack of	**Response** Actions related to any future development are not reasonably foreseeable absent such proposals. Further, an appropriate analysis can only occur when the actual location (proximity to receptors), project specific elements

Alliance	information about the magnitude of methane waste and the documented barriers to the deployment of GHG reduction technologies and practices. Id. at 20- 33. Indeed, a recent Report released by the Natural Resources Defense Council identified that "[c]apturing currently wasted methane for sale could reduce pollution, enhance air quality, improve human health, conserve energy resources, and bring in more than $2 billion of additional revenue each year." Susan Harvey, et al., Leaking Profits: The U.S. Oil and Gas Industry Can Reduce Pollution, Conserve Resources, and Make Money by Preventing Methane Waste (March 2012) (attached as Exhibit 72). Moreover, the Report further identified ten technically proven, commercially available, and profitable methane emission control technologies together can capture more than 80 percent of the methane currently going to waste. Id. Such technologies must also be considered in BLM's alternatives analysis, discussed infra.	that generate emissions, and the timing are known. An accurate analysis can be made at the Application for Permit to Drill (APD) stage of the leasing life cycle through the National Environmental Policy Act (NEPA) process where a proposal for development has been initiated by a project proponent. Once an APD is received, BLM has the authority under 43 CFR 3162.3-1(d) (4) to request any all information necessary to conduct or require an appropriate air analysis. Further, while leasing does convey a right to develop the resource, it does not imply or permit an operator to do so in a manner that does not conform to Federal Land Policy Management Act (FLPMA), CAA, or other applicable requirements. The effects from methane emission and appropriate mitigation measures will be analyzed at the APD stage.
Commenter Western Environmental Law Center	**Comment** Even putting aside climate change, every ton of methane emitted to the atmosphere from oil and gas development is a ton of natural gas lost. Every ton of methane lost to the atmosphere is therefore a ton of natural gas that cannot be used by consumers. Methane lost from federal leases may also not pay royalties otherwise shared between federal, state, and local	**Response** This comment assumes that a significant amount of methane will be lost through the development of these lease parcels. Such an effect is speculative at this point - methane emissions depend on the target drilling formation, the type of product, and the completion technology used, among other things. These details are not available until the APD is submitted for particular wells, so this effect cannot be analyzed until then.

	governments. This lost gas reflects serious inefficiencies in how BLM oil and gas leases are developed. Energy lost from oil and gas production – whether avoidable or unavoidable – reduces the ability of a lease to supply energy, increasing the pressure to drill other lands to supply energy to satisfy demand. 40 C.F.R. §§ 1502.16(e)-(f). In so doing, inefficiencies create indirect and cumulative environmental impacts by increasing the pressure to satisfy demand with new drilling. 40 C.F.R. §§ 1508.7, 1508.8(b).	
Commenter National Park Service	**Comment** Page 55 of EA chapter 4 states: "Since it is unknown if the parcels would be developed, or the extent of development, it is not possible to reasonably quantify potential air quality effects through dispersion modeling or another applicable method at this time." This conclusion contradicts the analysis approach and conclusions presented in the SJPLC SDEIS. Page 4.43 of the air analysis section for the SJPLC SDEIS states: "The air quality impact analysis indicated that some potentially significant environmental effects could occur. Mitigation options have been developed to reduce the impacts to air quality and to reduce the project emissions of greenhouse gasses."	**Response** Further, from an air quality standpoint the Conditions Of Approval (COAs) is the BLM's adaptive management strategy for protecting air resources within any of our decision spaces. COA are based on NEPA analysis relevant to the actual "proposed project" (i.e. emissions causing activity) and would consider contemporaneous development within the area of influence and "current air quality conditions" at the time of the proposed action, and therefore could be more restrictive than stipulations if circumstances warranted such measures. Alternatively, they may be less restrictive than the proposed "baseline stipulations" in the draft SJPLC RMP (absent the final RMP decisions and ROD) if the analysis cannot substantiate such measures. However, an appropriate NEPA analysis would occur prior to issuing federal drill permits, the analysis will consider the above relevant criteria to assess potential air quality effects, and effects would be mitigated through appropriate COA. If a subsequent NEPA analysis of a development action were to project effects on the Mesa

		Verde NP, the BLM commits to coordinating with the NPS to develop appropriate COAs together.
Soils – Prime and Unique Farmlands		
Comments Topic Summary		
The Environmental Assessment doesn't address the effects to prime and unique farmlands. As defined by Department of Agriculture the parcels contain agriculture lands.		
BLM Summary Response		
The Environmental Analysis document considered Prime and unique farmlands as defined by 7 CFR 657.5. Id. § 4202; 7 C.F.R. § 658.4(a) allows the agency to determine whether or not a site is farmland as defined in 658.2(a) or the agency may request that NRCS make such a determination. Seeing as the NRCS determines prime or unique farmland in their soil surveys, the BLM has chosen to use this existing data. Prime and/or Unique farmlands are designated by the Natural Resource Conservation Service (NRCS) as land that "has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding" [SSM, USDA Handbook No. 18, October 1993]. NRCS identifies prime and/or unique farmlands in their soil surveys. No such areas were identified within the analysis area.		
Comments		
Commenter San Juan Citizens Alliance	**Comment** BLM claims that farmlands are "not present in the area impacted by the proposed or alternative actions," providing the rationale that no farmlands were "identified by NRCS soil survey." … BLM's failure is not only insufficient pursuant to NEPA, but is also in conflict with and unsupported by 7 C.F.R. 657.5. Department of Agriculture regulations define prime and unique farmlands.	
Commenter Western Environmental Law Center	**Comment** Given the amount of farmland in the project area, it is wrong that BLM TRO concluded "[t]here are no Farmlands (Prime or Unique) within the proposed action area." EA at 24. To reach such a conclusion, BLM has either rejected DOI policy to include farmlands as an integral part of their NEPA process, or BLM has defined the "action area" so narrowly that it only includes the actual parcels that are for sale.	
Commenter Western	**Comment** NEPA, for example, requires BLM to take a hard look at the cumulative impacts on the affected geographic area	

Environmental Law Center	Accordingly, BLM TRO produced a fundamentally flawed EA when it declined to include any analysis of the prime and unique farmlands of the lease areas including but not limited to the Chromo Valley.
Commenter Chama Peak Land Alliance	**Comment** The EA states there are no agricultural lands present in the vicinity of the proposed leases (p.20). In fact, the leases are completely surrounded by actively managed agricultural lands. We request the BLM include an assessment of any potential impacts to agricultural operations, land and water at each phase of exploration, drilling and production.
Commenter Western Environmental Law Center	**Comment** The BLM has violated NEPA by specifically refusing to include any analysis of impacts to farmland. BLM asserts that there are no Farmlands identified by the NRCS soil survey and as a result failed to analyze the impacts of its action on farmlands. EA at 20-21. BLM is incorrect as a factual matter, and as a result it's EA, and FONSI is inadequate.
Soils- Steep Slopes	
Comments Topic Summary	
Please add the Lease Notice stipulation LN-101 to all Hesperus Area Parcels, or provide a detailed analysis and explanation of why the BLM has decided to not impose Lease Notice stipulation LN-101 on all Hesperus Area Parcels. Section 3.3.3.1 discusses the Hesperus SMU and the high potential for erosion. The last line in the Water Resources - paragraph states, "Hazard of erosion on roads and trails for both SMUs is severe and thus poorly suited for natural surface roads. Surface runoff for both SMUs is very high." Based on this statement, all of the Hesperus Area Parcels should be stipulated with LN-101.	
BLM Summary Response	
LN-101 will be applied to all lease parcels with slopes 25-40%. For slopes >40% CO-27 will be applied, which reads the same as LN-101. LN-101 is not applied to all parcels because generally slopes less than 25% are less likely to experience surface runoff and offsite erosion. The last line of the Water Resources paragraph is referring to the predominant SMUs in the Hesperus parcel area; not all of the soils within the parcel. The Archuleta-Sanchez complex and the Lazear-Rock outcrop complex both have slopes ranging from 12-65%. Where slopes >25%, LN-101 will be applied.	
Comments	
Commenter La Plata County	**Comment** Section 3.3.3.1 Soil and Water Resources - Surface Geology Minerals, page 26, Paragraph 7 discusses the Hesperus SMU and the high potential for erosion. The last line in the Water Resources - paragraph states, "Hazard of erosion on roads and trails for both SMUs is severe and thus poorly suited for natural surface roads. Surface runoff for both SMUs is very high." Based on this statement, all of the Hesperus Area Parcels should be

	stipulated with LN-101.
Commenter La Plata County	**Comment** Section 3.3.3.1 Soil and Water Resources - Surface Geology Minerals, page 26, During the initial scoping period, all of the Hesperus Area Parcels were stipulated with a Lease Notice stating, "Parcel contains some slopes over 40%. It is highly unlikely an engineering/reclamation plan will be approved that contains disturbance on slopes over 40%. "The Lease Notice was changed in the Draft EA to state, "Prior to surface disturbance on Slopes between 25-40%, and engineering/reclamation plan must be approved by the Authorized Officer." Although the Lease Notice was changed to take into consideration slopes ranging from 25-40% (rather than >40%), the Lease Notices was removed from several Hesperus Area Parcels, which are 6433, 6448, 6449,6451, and 6452. Please add the Lease Notice stipulation LN-101 to all Hesperus Area Parcels, or provide a detailed analysis and explanation of why the BLM has decided to not impose Lease Notice stipulation LN-101 on all Hesperus Area Parcels.
Water Resources –Inadequate Analysis	
Comments Topic Summary	
There are concerns regarding hydrologic fracturing and what effects would result to numerous resources including water resources and potential ground water contamination. Effects from fracking to the health of downstream populations in not disclosed. The Tres Rios Field Office must ensure that gas leasing upstream from the project will not be in conflict with restoration efforts. Potential effects to aquatic species and riparian habitat in tributaries to the Dolores River must be carefully assessed, and downstream effects must be considered.	
BLM Summary Response	
The type of development is not yet known for these parcels. If development includes completion activities such as hydrologic fracturing, the effect of that proposal will be assessed at the Application for Permit to Drill (APD) stage. The Colorado Oil and Gas Conservation Commission Rules require design standards for hydraulic fracturing to prevent contamination, including protective casing programs and design standards to ensure well integrity. The BLM may also require operators to move up to 200 meters to prevent effects to any resources. Setback distances would be required near any public water supply infrastructure or irrigation systems to prevent effects to those resources. A complete site-specific analysis of effects would be completed at the APD stage. A lessee must submit an APD (Form 3160-3) to the BLM for approval and must possess an approved APD (i.e. a drilling permit) prior to any surface disturbance in preparation for drilling. A NEPA analysis will be done for each APD and any stipulations attached to the standard lease form must be complied with before an APD may be approved.	
Comments	

Commenter Betty Shahan	**Comment** (Navajo River Valley) In the 1960's, the Bureau of Reclamation came in here and dug out 2 tunnels for the Navajo River. One to the North known as the Oso and one to the South known as the Azatia. We are also very concerned about fracking the underground. We have springs, water wells, gas wells, wild life, fish, irrigation, and the 2 tunnels that the fracking is sure to affect.
Commenter Western Environmental Law Center	**Comment** The EA's discussion of water resources is similarly devoid of cumulative analysis. Respective to surface water and ground water, the EA simply provides: "that there is an elevated potential for deterioration of water quality, yet does nothing to further evaluate that obvious general conclusion. EA at 69.
Commenter Nan Burroughs	**Comment** (Hesperus area) The report does not acknowledge the uncertainties of ground water contamination from hydro fracking that in fact are known and are documented. In Chapter 4, some potential impacts on water are mentioned, but nowhere is it mentioned that energy companies do not fully disclose the amount and composition of chemicals used in the extraction process. Therefore, the health impacts on the downstream populations are unknown. The BLM has not proven that health impacts would not be of considerable consequence.
Commenter Dolores River Coalition	**Comment** Parcel number 6471 drains into Disappointment Creek, which is a tributary of the Dolores River. The tributaries and side canyons of the Dolores River are currently being considered in the above mentioned public land processes and collaborative efforts (Dolores River Dialogue and the Lower Dolores Working Group, the San Juan Public Lands SEIS and Land Use Plan, the Gothic Shale Master Leasing Plan, the BLM's Grand Junction and Uncompahgre Field Offices' Resource management Plan Revisions, the DOI's Lands with Wilderness Character Inventory, and the Wild and Scenic Rivers Analysis). Additionally, the Dolores River Restoration Partnership (DRRP) which is a collaborative effort involving stakeholders and agencies throughout the Dolores River watershed is currently involved in a multi-year riparian restoration project on Disappointment Creek in conjunction with the Tres Rios Field Office. The Tres Rios Field Office must ensure that gas leasing upstream from the project will not be in conflict with restoration efforts. Potential impacts to aquatic species and riparian habitat in tributaries to the Dolores River must be carefully assessed, and downstream impacts must be considered.
Commenter Scott Jack	**Comment** The use of best management practices and mitigation is the primary mechanism for complying with the Clean Water Act,

	while maintaining and protecting water quality. During the site specific analysis at the APD stage, site specific conditions may warrant protective measures moving disturbance away from landslide areas and control of surface runoff. Section 3.3.3.3. Soil and Water Resources – Surface Water Quality, discusses the existing water quality concerns in the lease sale area. Mitigation measures requiring additional baseline water quality monitoring could be a proposed if prior to oil and gas development, during a site-specific analysis.
Commenter Chama Peak Land Alliance	**Comment** Both lease parcels are in very close proximity to the Navajo River and the water table is very close to the surface. Spills or contamination of the surface or subsurface waters are of great concern as these waters support domestic wells, springs, livestock ponds, recreation and wildlife. Contamination as a result of fracking is possible through active and abandoned wells (water, oil and gas), of which there are many in the nearby vicinity. We request the BLM address the potential risks to water resources. Area residents who depend on this water also wish to know what contingency plans are in place should such contamination occur, either through fracking or accidental spills. We also request that prior to any oil and gas development, baseline data be collected on water resources, including domestic wells, and that such information be made available to residents.
Commenter Western Environmental Law Center	**Comment** The BLM has failed to sufficiently analyze and protect groundwater and surface water resources. BLM acknowledges, "ground water is the primary source for seventy-five percent of the public water supply systems in Colorado, being principally used for public water supply and agriculture. EA at 32. BLM further acknowledges that all lease parcels occur within areas protected by Colorado state water quality standards that provide that groundwater shall be free from pollutants that may be toxic or otherwise dangerous to the public health, safety or welfare. Id. Despite the importance of this natural resource, BLM has failed to establish baseline conditions for water quality such that the impact of these leases can be evaluated: "at the present time, the groundwater quality of the aquifers in the vicinity of the lease parcels is unknown." Id. (emphasis added).
Commenter Chama Peak Alliance	**Comment** Agricultural producers in the area are particularly concerned with the question of whether fracking poses a risk to their water supply, including natural springs, wells and irrigation sources.
Commenter Scott Jack	**Comment** The mitigation part of this 4.3.1.3.4 is missing. What if contamination occurs? Will the lease holder be required to install a rural water system to service those people who have had their water supplies destroyed? This has happened in other parts of the country. And from where will this source of this new water supply come? Is bonding required by BLM to handle such a situation? Screw-ups happen! What if groundwater contamination

	happens?

Soils and Water Resources - Other		
Commenter San Juan Citizens Alliance	**Comment** (d) Additional farmland of local importance. In some local areas there is concern for certain additional farmlands for the production of food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned. In places, additional farmlands of local importance may include tracts of land that have been designated for agriculture by local ordinance. Please refer to the map from the La Plata County GIS Department, which is overlays the proposed lease area with those lands, and includes an 'agricultural lands' designation from the County Assessor's office. Attached as Exhibit E.	**Response** Sections 3.3.3.1 and 4.3.1.3.1 of EA revised to discuss Farmland of local importance.
Commenter Western Environmental Law Center	**Comment** While the FPPA does not create a private cause of action, agencies still have the duty under NEPA to evaluate the environmental impact of actions on agricultural lands. See Town of Norfolk v. U.S. EPA, 761 F.Supp. 867, 890 (D.Mass. 1991). Notably, this duty extends to all farmlands. Thus, even if BLM somehow finds that all of this area's farmlands are not prime or unique, a criterion of significance, this does not absolve the agency of its duty to evaluate impacts to non-prime or unique farmlands, or, even, to prepare an EIS if the impacts to these non-prime or unique farmlands are, in context or because of cumulative impacts, significant. BLM's express refusal to conduct an analysis of farmlands violates the intent and spirit of NEPA, as well as the FPPA.	**Response** Soils not considered prime or unique farmlands were evaluated in section 4.3.1.3 Soil & Water Resources of the EA.

Commenter	Comment	Response
Western Environmental Law Center	Analysis of the cumulative impacts to soil and vegetation is similarly missing from BLM's EA. Regarding soils, the EA states that there will be no cumulative effects to soil and water conditions within the Navajo Rover, Disappointment and Cross Canyon watersheds (despite the parcel development that BLM proposes). Characteristically, the list of sources of cumulative impacts is accompanied by no analysis, nor any explanation of why these impacts are insignificant. As CPLA has repetitiously reminded BLM, "general statements about 'possible' effects and 'some risk' do not constitute a 'hard look'. The cumulative impact analysis must be more than perfunctory; it must provide a 'useful analysis of the cumulative impacts of past, present, and future projects.' " …Quite simply, BLM's approach does not comport with what NEPA demands.	The BLM considers effects to resources in context with their extent both on public and private lands. Effects identified are considered in relation to their broader context both geographically and temporally. The effects to private surface are considered in BLM NEPA analysis. At this time, it is speculative to assume the exact location of development activities. At the APD stage, when additional information is available, the BLM will address the effects of development. On a broader scale, the BLM has addressed the cumulative effects of leasing and development across the Field Office in the RMP/EIS and Amendments (to which the EA tiers) as well as in this EA.
Commenter	**Comment**	**Response**
Western Environmental Law Center	Moreover, while the EA gives some focus to groundwater quality (without actually performing any analysis), there is no mention whatsoever of groundwater quantity. While the amount of water used during oil and gas activity can vary, analysis provided in another BLM proposed lease, the Bull Mountain EA, provides a hint of the magnitude of this impact. In that EA the BLM calculates that for 146 wells, "[t]otal annual water us for construction and drilling operations is estimated to be 675 ac-ft," which is approximately 1.3 billon-gallons of water. Bull Mountain EA at 126. Here, BLM fails to quantify the effect that groundwater depletions could have on the lease parcel	Bull Mountain Unit APD is a site-specific NEPA analysis at the APD stage where well data has been received and is being processed. This EA analyzes the potential effects from leasing and potential development, when more detailed information is available, site-specific NEPA analysis will be developed.

	areas and the foreseeable impacts that could result.	
Commenter Western Environmental Law Center	**Comment** Surface water quality impacts is devoted one paragraph in the EA, despite the fact that parcels, are surrounded by creeks and rivers used for agriculture, recreation and to support aquatic life. EA at 30. BLM goes on to identify generic impacts from the construction and operation of oil and gas facilities, EA at 52, essentially noting that there will be increased runoff. BLM does not identify well known impacts, identified in other EAs, such as the one recently released for Bull Mountain, where the following were identified: see Bull Mountain EA pg. 87.	**Response** Bull Mountain Unit APD is a site-specific NEPA analysis at the APD stage where well data has been received and is being processed. This EA analyzes the potential effects from leasing and potential development, when more detailed information is available, site-specific NEPA analysis will be developed.
Commenter Judy Rust-Huerta, David Huerta	**Comment** I am writing to request that the oil and gas leases numbers 6401 and 6402, scheduled for auction on February 13, 2013, be removed from the proposed auction. Although I am a not a surface owner, oil and gas drilling on these parcels would have a substantial impact on me and my property…. At present those living people with property in Navajo River Ranch near Chromo are dependent upon an 18ft. well which is fed by surface water from the Navajo River. Both parcels proposed to be auctioned are located in the watershed for that river and are within 100 yards of the river. In 2008, there was an incident where an oil and gas company drilling site simply dug a ditch to the river and allowed their chemical waste to be drained into the river. The evidence of this incident is on file at the Archuleta County Courthouse. My understanding is that the number of inspectors to serve our area for oversight of oil and gas drilling practices is insufficient to adequately	**Response** The EA has been revised to include Stipulation CO-28 applied to these parcels which will restrict activities associated with exploration and development to an area beyond the riparian vegetation zone. In addition, best management practices will be used to protect surface water quality during the analysis associated with the application for permit to drill (APD) stage.

	oversee such operations in order to prevent a reoccurrence of this sort of environmental damage. I fear that my water supply could be detrimentally affected.	
Commenter Nan Burroughs	**Comment** (Hesperus area) The report concludes that the impact on both surface and ground water can be satisfactorily mitigated. Yet, nowhere in the report is it mentioned that the La Plata River drainage is a completely over appropriated water area. Hydrofracking requires vast quantities of water, sometimes fresh water and there in no mention of where the water would come from, other than a brief mention that in terms of impact on fish, that the BLM would be obligated to augment portions of water necessary to maintain the health of the species	**Response** The scope and extent of the effects would be analyzed in accordance with NEPA at the time of exploration and development and would be proposed in an Application for Permit to Drill (APD). Potential effects associated with hydrologic fracturing (if proposed) would be identified and proposed mitigation included at the site-specific analysis stage. In addition, the company would secure the water necessary for this activity through private means or in cooperation with the Colorado Division of Water Resources.