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Bureau of Land Management**

**Environmental Assessment
DOI-BLM-UT-C020-2014-036-EA**

(December 17, 2014 Draft)

May 2015 Oil and Gas Lease Sale

Location: Color Country District, Richfield Field Office
Sanpete and Sevier Counties, Utah

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TABLE OF CONTENTS

1.0	PURPOSE & NEED.....	1
1.1	Introduction.....	1
1.2	Background.....	1
1.3	Purpose and Need for the Proposed Action.....	3
1.4	Conformance with BLM Land Use Plan	4
1.5	Relationship to Statutes, Regulations, or Other Plans	5
1.6	Identification of Issues.....	6
1.7	Summary.....	7
2.0	DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION.....	8
2.1	Introduction.....	8
2.2	Alternative A – Proposed Action	8
2.2.1	Well Pad and Road Construction	9
2.2.2	Production Operations	9
2.2.3	Produced Water Handling	10
2.2.4	Maintenance Operations.....	10
2.2.5	Plugging and Abandonment	10
2.3	Alternative B – No Action	10
2.4	Alternatives Considered but Eliminated from Further Analysis.....	10
3.0	AFFECTED ENVIRONMENT	11
3.1	Introduction.....	11
3.2	General Setting.....	11
3.3	Resources/Issues Brought Forward for Analysis	11
3.3.1	Air Quality	11
3.3.2	Socio-Economics	18
4.0	ENVIRONMENTAL IMPACTS.....	19
4.1	Introduction.....	19
4.2	Direct and Indirect Impacts	19
4.2.1	Alternative A – Proposed Action	19
4.2.1.1	Air Quality	19
4.2.1.2	Socio-Economics	24
4.2.1.3	Design Features.....	25
4.2.2	Alternative B – No Action	25
4.2.2.1	Air Quality	25
4.2.2.2	Socio-Economics	25
4.3	Cumulative Impacts Analysis	25
5.0	CONSULTATION AND COORDINATION	27
5.1	Introduction.....	27
5.2	Persons, Groups, and Agencies Consulted	27
5.3	Summary of Public Participation	29
5.3.1	Modifications Based on Public Comment and Internal Review	29

- 5.3.2 Response to Public Comment..... 29
- 5.4 List of Preparers..... 30
- 6.0 REFERENCES, ACRONYMS AND APPENDICES 31
 - 6.1 References Cited..... 31
 - 6.2 List of Acronyms 31
 - 6.3 List of Appendices..... 32
 - APPENDIX A, OIL AND GAS LEASE SALE LIST 33
 - APPENDIX B, PARCEL MAPS 45
 - APPENDIX C, INTERDISCIPLINARY TEAM CHECKLIST 50
 - APPENDIX D, DEFFERRED PARCEL LIST 63
 - APPENDIX E, RESPONSE TO COMMENTS..... 66

**May 2015 Oil and Gas Lease Sale
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1.0 PURPOSE & NEED

1.1 Introduction

The Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to disclose and analyze the environmental consequences of offering for lease at a May 19, 2015, oil and gas lease sale and the subsequent issuance of oil and gas leases for ten parcels (proposed action), which collectively encompass approximately 11,941 acres of land administered by the BLM Richfield Field Office (Office) in Sanpete and Sevier Counties, Utah. This EA is a site-specific analysis of reasonably foreseeable impacts that could result from the implementation of the proposed action or alternatives to the proposed action. This EA will assist the BLM in project planning, in ensuring compliance with the National Environmental Policy Act (NEPA) and in making a determination as to whether any significant impacts could result from the analyzed actions. Significance under NEPA is defined in the Council on Environmental Quality (CEQ) regulations implementing NEPA at 40 Code of Federal Regulations (CFR) 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impacts (FONSI). A FONSI statement based upon this EA would document the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the Richfield Field Office Record of Decision and Approved Resource Management Plan (2008, as maintained) (RFO ROD/RMP). Based upon this EA and an associated FONSI, a Decision Record may be signed authorizing an action, which could be an alternative or a modified version of an alternative addressed by this EA and described in the FONSI, for which it has been determined that significant environmental impacts are not likely to result. However, if it is determined that an alternative analyzed by this EA would likely result in a significant environmental impact, if such an alternative is to be further considered for potential approval, the potential impacts of that alternative would be addressed in an EIS.

1.2 Background

The BLM policy is to make mineral resources available for use and to encourage their orderly development to meet national, regional, and local needs. This policy is based in various laws, including the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Sec. 5102(a)(b)(1)(A)) directs the BLM to conduct quarterly oil and gas lease sales in each state whenever eligible lands are available for leasing. Leases would be issued pursuant to the regulations contained in 43 CFR Subpart 3100.

Expressions of Interest (EOIs) are submitted by the public in order to identify (“nominate”) specific public lands that the individuals and entities submitting the EOIs want BLM to offer oil and gas leasing and development. In general, the BLM USO conducts quarterly competitive oil and gas lease sales in order to respond to requests from the public that it offer certain nominated public lands in Utah for oil and gas lease. The BLM divides the lands nominated in EOIs into logical lease parcels, which will be considered for potential offering at a competitive oil and gas lease sale. The individuals and entities that submit EOIs which includes split estate lands – private surface/Federal minerals – must provide, with the EOI, the name and address of the current private surface owners(s). When a split estate parcel is under consideration, the BLM sends an initial letter to the surface owners(s). This letter informs the landowner that an EOI has been received which involves their surface ownership. The initial notification letter also provides notice of the scheduled lease auction and it invites the surface owner to participate in an on-site visit to the parcel. After a parcel has gone through an interdisciplinary review, if it is recommended for

leasing, a second letter is sent to the private surface owners for parcels containing split estate lands. This second letter to private surface owners provides additional information regarding BLM's regulations and procedures for Federal oil and gas leasing and development on split estate lands.

In the process of preparing a lease sale, the BLM USO compiles a list of lands nominated and legally available for leasing, and sends a preliminary parcel list to the appropriate District Office where the parcels are located. Field Office staff then review and verify that the parcels are in areas available for leasing and determine if any new information has become available, or any circumstances have changed in the time since the subject lands were identified as open to leasing in the applicable resource management plan (RMP). The parcels are then assessed to determine what level of analysis is required and the appropriate stipulations and notices to be applied to each parcel. Appropriate consultations are conducted, when necessary, and any special resource conditions are identified for potential bidders. In most instances, the Field Office where the parcels are located will prepare an EA in order to identify and analyze the potential impacts of leasing the parcels in accordance with the requirements of Washington Office (WO) Instruction Memorandum (IM) 2010-117, NEPA and other applicable laws, regulations and policies.

After a draft of the EA is complete, it and an unsigned FONSI (if appropriate) are made available to the public for a 30 day public comment period by posting the documents on the BLM Utah Environmental Notification Bulletin Board (ENBB) website¹. The draft EA, which includes a proposed parcel list and the lease stipulations and notices applicable to each proposed parcel, the unsigned FONSI, as well as other information and instructions for the subject oil and gas lease sale, are also made available through the BLM Utah's Oil and Gas Leasing website². The BLM also typically issues press releases to publicly announce the public comment period for the draft EA and unsigned FONSI.

Following the conclusion of the public comment period for the draft EA, the BLM analyzes, responds to and incorporates (where appropriate) all substantive comments received during the public comment period and changes to the document and/or proposed lease parcel list are made, if necessary. The EA, with any revisions determined appropriate following the public comment period, and, if still considered appropriate, an unsigned FONSI are again made available to the public through the concurrent posting of those documents and a Notice of Competitive Lease Sale (NCLS) at least 90 days in advance of the scheduled lease sale. The posting of the NCLS, EA and FONSI initiates a (30 day) public protest period for the proposed lease sale offering that will end 60 days before the scheduled lease sale. The stipulations and notices applicable to each parcel proposed for lease will be specified in attachments to the NCLS. If any changes are needed to the parcels or stipulations and notices identified through the NCLS, an erratum is posted to the BLM Utah's Oil and Gas Leasing website, and in the public room for the BLM USO, in order to notify the public of any such changes. The lease parcels, as identified by the NCLS and any errata to the NCLS, would be offered for sale at a competitive oral auction tentatively scheduled to be held at the BLM USO on May 19, 2015. If a parcel of land is not purchased at the lease sale through competitive bidding, it may still be leased noncompetitively during the two year period that follows the offering of the parcel at the competitive lease auction. Any leased issued would be issued for a ten year primary term, after which the lease expires unless oil or gas is produced in paying quantities. The term for a producing lease can continue indefinitely while oil or gas is being economically produced.

¹ <https://www.blm.gov/ut/enbb/index.php>

² http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html³ The ENBB is a BLM environmental information internet site and can be accessed online at: <https://www.blm.gov/ut/enbb/index.php>

Before any surface disturbances related to oil and gas development may occur on a lease, the lessee or operator for the lease must submit an Application for Permit to Drill (APD) (Form 3160-3) to the BLM for approval and an approved APD must be obtained. The standard lease terms contained in the standard lease form (Form 3100-11) along with any stipulations attached to the lease must be complied with before an APD may be approved. Following BLM approval of an APD, a lessee may produce oil and gas from a lease well in a manner approved by BLM in the applicable APD or in subsequent sundry notices to the APD. The operator must notify the appropriate authorized officer for BLM, 48 hours before starting any surface disturbing activity approved in an APD.

The BLM received nominations (EOIs) for thirteen parcels of land within the Richfield Field Office to be leased for oil and gas development (see Appendix A, May 2015 Preliminary Oil and Gas Lease Sale List; Appendix B, Maps of Parcels). After an initial review of the nominated parcels, three parcels (UT0515-029, UT0515-031, and UT0515-032) were recommended to be deferred from the May 2015 lease sale (see rationale in Appendix D – Deferred Parcel List). This EA has been prepared to disclose and analyze the potential environmental consequences of offering for sale at the May 2015 oil and gas lease sale, and the subsequent issuance of oil and gas lease for, ten oil and gas lease parcels. The mineral rights (either entirely or a portion) for these parcels are owned by the federal government and administered by the RFO (see Appendix B). Parcel UT0515-030 has split estates where all or part of these parcels have federal minerals and private surface ownership (see Appendix B for maps of the parcels). This EA is being used to determine the necessary administrative actions, stipulations, lease notices, special conditions, or restrictions that would be made a part of an actual lease at the time of issuance. Under all alternatives, continued interdisciplinary support and consideration would be required to ensure on the ground implementation of planning objectives, including the proper implementation of stipulations, lease notices and Best Management Practices (BMPs) through the APD process.

1.3 Purpose and Need for the Proposed Action

Oil and gas leasing is a principal use of the public lands, as identified in sections 102(a)(12) and 103(e)(1) of the Federal Land Policy and Management Act of 1976 (FLPMA), and it is conducted to meet requirements of the Mineral Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act).

Pursuant to the Mineral Leasing Act of 1920, as amended, BLM Utah must hold competitive oil and gas lease sales, at least quarterly, when lands that are available for oil and gas leasing have been nominated. Moreover, BLM is required by law to review areas that have been nominated for potential inclusion at a competitive oil and gas lease sale.

The parcels proposed for offering for lease at the May 2015 oil and gas lease sale were nominated by the public. In addition, there has been ongoing interest in oil and gas exploration in the RFO area in recent years. Thus, the proposed action and the May 2015 oil and gas lease sale are needed to respond to the public's oil and gas leasing nomination requests and, in doing so, ensure that BLM upholds the various statutorily imposed responsibilities it has been entrusted with.

The purpose of the proposed action is to provide parcels for inclusion at a competitive oil and gas lease sale to be held by the BLM USO on May 19, 2015. Utah is a major source of natural gas for heating and electrical energy production in the lower 48 states. The sale of oil and gas leases in Utah is needed to meet the energy needs of the United States public. The continued offering for sale and issuance of lease parcels maintains options for production as oil and gas companies seek new areas for production or attempt to develop previously inaccessible or uneconomical reserves.

Offering parcels for competitive oil and gas leasing provides for the orderly development of fluid mineral resources under BLM's jurisdiction in a manner consistent with multiple use management and

environmental consideration for the resources that may be present. The May 2015 oil and gas lease sale review process and the consideration of the proposed action within that process will ensure that adequate provisions are included in the standard lease terms, lease stipulations and leases notices to protect public health and safety and assure full compliance with the objectives of NEPA and other federal environmental laws and regulations designed to protect the environment and mandating multiple use management of the public lands.

1.4 Conformance with BLM Land Use Plan

The alternatives described below are in conformance with the RFO RMP, as maintained (BLM 2008) because they are specifically provided for in the planning decision. They conform to the following Land Use Plan (LUP) decisions (RMP Table 19 pages 132-133):

MIN-1. Issue oil and gas leases and allow for oil and gas exploration and development.

MIN-6. Lease split-estate lands according to BLM RMP stipulations for adjacent or nearby public lands or plans of other surface management agencies as consistent with federal laws, 43 CFR 3101, and the surface owner's rights.

MIN-9. In accordance with an UDEQ-DAQ letter dated June 6, 2008, (see Appendix 13) requesting implementation of interim nitrogen oxide control measures for compressor engines; BLM will require the following as a Lease Stipulation and a Condition of Approval for Applications for Permit to Drill:

- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 gms of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gms of NO_x per horsepower-hour.

MIN-10. Area closed to leasing: 447,300 acres

MIN-11. Manage fluid mineral leases as shown on Map 23:

- Areas open to leasing with standard lease terms: 608,700 acres
- Areas open to leasing subject to Controlled Surface Use (CSU) and/or timing limitations: 917,500 acres
- Areas open to leasing subject to No Surface Occupancy (NSO): 154,500 acres

It is also consistent with RMP decisions and their corresponding goals and objectives related to the management of, including but not limited to, air quality, BLM natural areas, cultural resources, recreation, riparian, soils, water, vegetation, fish & wildlife, and Areas of Critical Environmental Concern (ACEC) as well as the Surface Stipulations Applicable to Oil and Gas Leasing and Other Surface Disturbing Activities (Appendix 11 of the RMP/ROD).

Standard lease terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, or users (Standard Lease Terms are contained in Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, October 2008). 43 CFR 3101.1-2 states: "A lessee shall have the right to use as much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resources in leasehold subject to: Stipulations attached to the lease; restrictions deriving from specific, non-discretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations." Compliance with valid,

nondiscretionary statutes (laws) is included in the standard lease terms and would apply to all lands and operations that are part of all of the alternatives.

Nondiscretionary actions include the BLM's requirements under federal environmental protection laws, such as the Clean Water Act, Clean Air Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and FLPMA, which are applicable to all actions on federal lands even though they are not reflected in the oil and gas stipulations in the RMP and would be applied to all potential leases regardless of their category. Also included in all leases are the two mandatory stipulations for the statutory protection of cultural resources (BLM WO IM 2005-03, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing) and threatened or endangered species (BLM WO IM-2002-174, Endangered Species Act Section 7 Consultation).

1.5 Relationship to Statutes, Regulations, or Other Plans

The proposed action is consistent with federal environmental laws and regulations, Executive Orders, and Department of Interior and BLM policies and is in compliance, to the maximum extent possible, with state laws and local and county ordinances and plans, including the following:

- Federal Land Policy and Management Act (1976) as amended and the associated regulations at 43 CFR Part 1600
- Mineral Leasing Act (1920) as amended and the associated regulations at 43 CFR Part 3100
- National Environmental Policy Act (1969) and the associated CEQ regulations at 40 CFR Parts 1500 through 1508
- Taylor Grazing Act (1934) as amended
- Utah Standards and Guidelines for Rangeland Health (1997)
- National Historic Preservation Act (1966) as amended and the associated regulations at 36 CFR Part 800
- Endangered Species Act (1973) as amended
- BLM Manual 6840- Special Status Species Management
- Bald and Golden Eagle Protection Act (1962)
- Migratory Bird Treaty Act (1918)
- Utah Partners in Flight Avian Conservation Strategy Version 2.0 (Parrish et al., 2002)
- Birds of Conservation Concern 2002 (USFWS 2008)
- 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 (4/2010)
- National Sage-grouse Habitat Conservation Strategy (BLM 2004)
- Strategic Management Plan for Sage-grouse 2002 (UDWR 2002)
- Western Association of Fish and Wildlife Agencies, Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004)
- BLM Greater Sage-Grouse Interim Management Policies and Procedures (BLM WO IM 2012-043)
- BLM National Greater Sage-Grouse Land Use Planning Strategy (BLM WO IM 2012-044)
- Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM USO IM 2006-096)
- Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (BLM WO IM 2010-117)
- Oil and Gas Leasing Program NEPA Procedures Pursuant to Leasing Reform (BLM USO IM 2014-006)
- BLM Manual 6310 - Conducting Wilderness Characteristics Inventory of BLM Lands

- BLM Manual 6320 - Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process
- Determining Conformity of Federal Actions to State or Federal Implementation Plans (40 CFR Part 93 Subpart E)
- MOU Among the USDA, USDI and EPA Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions Through the NEPA Process (2011)
- Richfield Field Office Visual Resource Inventory (2011)
- Sanpete County Master Plan as revised
- Richfield Field Office Draft Environmental Impact Statement and Draft Resource Management Plan (2007)
- Richfield Field Office Final Environmental Impact Statement and Proposed Resource Management Plan (2008)
- Richfield Field Office Record of Decision and Approved Resource Management Plan (2008)

These documents, and their associated analysis or information, are hereby incorporated by reference, based on their use and consideration by various authors of this document. The BLM is also utilizing the analysis contained in the Draft and Final Environmental Impact Statements prepared for the applicable land use plan as it relates to the selected alternative in the ROD. The attached Interdisciplinary Team Checklist, Appendix C, was also developed after consideration of these documents and their contents. Each of these documents is available for review upon request to the RFO. Utah's Standards for Rangeland Health address upland soils, riparian/wetlands, desired and native species and water quality. These resources are either analyzed later in this document or, if not impacted, are also listed in Appendix C.

1.6 Identification of Issues

The proposed action was reviewed by an interdisciplinary parcel review (IDPR) team composed of resource specialists from the RFO. This team identified resources in the parcel areas which might be affected and considered potential impacts using personal knowledge, the most current office records and applicable technical or scientific data for a particular resource or area, geographic information system (GIS) data, and site visits to the proposed lease parcels. The BLM USO specialists for air quality, wildlife, cultural resources, special designations, visual resources and solid minerals also reviewed this proposal.

On August 18, 2014, the USO sent letters (or memoranda) to the National Park Service (NPS), United States Fish and Wildlife Service (USFWS), United States Forest Service (USFS) and the State of Utah's Public Lands Policy Coordination Office (PLPCO), Utah Division of Wildlife Resources (UDWR) and the State Institutional Trust Lands Administration (SITLA) to notify them of the pending lease sale, solicit comments and concerns on the preliminary parcel list and invite them to participate in site visits to the proposed parcels. In addition, GIS data depicting the May 2015 oil and gas lease sale preliminary parcels was sent to UDWR and NPS on August 8 and August 18, 2014, respectively, via electronic mail in order to further facilitate the reviews by those organizations.

On August 27, 2014, the IDPR team conducted site visits to the proposed parcels, including the split estate parcels, to validate existing knowledge and data and gather new information (if present) in order to make an informed leasing recommendation for the May 2015 oil and gas lease sale. None of the other agencies or private landowners participated in the site visits with the RFO IDPR team. The results of the IDPR team review are contained in the Interdisciplinary Team Checklist, Appendix C.

Public notification was initiated by entering the project information on the ENBB³ on November 3, 2014. The EA and unsigned FONSI were posted for public review and comment from December 19, 2014 through January 23, 2015. Additional information for the public is maintained on the Utah BLM Oil and Gas Leasing Webpage.⁴ Additional information on public participation is available in Section 5.3.

1.7 Summary

This chapter has presented the purpose and need of the proposed project, as well as the process for identifying issues and resources that could be affected by the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves the issues, the BLM has considered and/or developed a range of alternatives. These alternatives are presented in Chapter 2. The potentially affected environment will be described in Chapter 3. The potential environmental impacts or consequences that could result from the implementation of each alternative are analyzed in Chapter 4 and Appendix C.

³ The ENBB is a BLM environmental information internet site and can be accessed online at: <https://www.blm.gov/ut/enbb/index.php>

⁴ Accessed online at: http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

This environmental assessment focuses on the Proposed Action and No Action alternatives. Other alternatives were considered, but ultimately not analyzed in detail because the issues identified during scoping did not indicate a need for additional alternatives or mitigation beyond those contained in the Proposed Action and No Action alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

2.2 Alternative A – Proposed Action

Ten parcels within the jurisdiction of the RFO have been proposed for sale in the May 2015 oil and gas lease sale to be held at the BLM USO. The proposed parcels would be offered for lease with additional resource protection measures consistent with the RFO RMP (BLM, 2008). Legal descriptions of each parcel can be found in Appendix A, and maps of the nominated parcels can be found in Appendix B. All of the acreage proposed to be leased has been identified as being either open to leasing subject to standard lease terms, open to leasing subject to minor constraints, such as seasonal restrictions, or open to leasing with no surface occupancy (NSO) in the RFO RMP (RMP; see Map 23).

Leasing is an administrative action that affects economic conditions but does not directly cause environmental consequences. However, leasing is considered to be an irretrievable commitment of resources because the BLM generally cannot deny all surface use of a lease unless the lease is issued with a NSO stipulation. Potential oil and gas exploration and production activities, committed to in a lease sale, could impact other resources and uses in the planning area. Direct, indirect, or cumulative effects to resources and uses could result from as yet undetermined and uncertain future levels of lease exploration or development.

Although at this time it is unknown when, where, or if future well sites or roads might be proposed on any leased parcel, should a lease be issued, site specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD). For the purposes of this analysis, the BLM assumed that one well pad with access road would be constructed on each lease parcel subject to the terms, conditions, and stipulations of the lease. This would imply that over the next 10 years (the life of a lease that is not held by production) 10 locations could be drilled, with the potential surface disturbance of approximately 132 acres (assuming approximately 12 acres per drill pad and access road). These figures are estimated in the Reasonably Foreseeable Development Scenario (Appendix 12 of the RFO RMP/ROD). In general, activities are anticipated to take place as described in the following sections.

Standard lease terms would be attached to all issued leases. These terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, or users (the standard lease terms are contained in Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, October 2008). Once the lease has been issued, the lessee has the right to use as much of the leased land as necessary to explore for, drill for, extract, remove, and dispose of oil and gas deposits located under the leased lands subject to the standard lease terms and the lease stipulations attached to the lease; however, operations must be conducted in a manner that avoids unnecessary or undue degradation of the environment and minimizes adverse impacts to the land, air, water, cultural, biological, and visual elements of the environment, as well as other land uses or users.

Compliance with valid, nondiscretionary statutes (laws) is included in the standard lease terms and would apply to all lands and operations that are part of all of the alternatives. Nondiscretionary actions include the BLM's requirements under federal environmental protection laws, such as the Clean Water Act, Clean Air Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and Federal

Land Policy and Management Act (FLPMA), which are applicable to all actions on federal lands even though they are not reflected in the oil and gas stipulations in the RMP and would be applied to all potential leases regardless of their category. Also included in all leases are the two mandatory stipulations for the statutory protection of cultural resources (BLM WO IM-2005-03, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing) and threatened or endangered species (BLM WO IM-2002-174, Endangered Species Act Section 7 Consultation).

2.2.1 Well Pad and Road Construction

Equipment for well pad construction would consist of dozers, trackhoes, and graders. All well pads would be reclaimed. Topsoil from each well pad would be stripped to a minimum depth of six inches and stockpiled for future reclamation. Interim reclamation of the pad would occur if the well produces commercial quantities of oil or gas. Interim reclamation involves a reduction of the drill pad to a size that accommodates the functions of a producing well. The topsoil would be spread over the interim reclamation area, seeded, left in place for the life of the well, and then used during the final reclamation process. If the well is not productive final reclamation of the pad and constructed road would begin. Disturbance for each well pad would be estimated at an area of approximately 4 acres of land, including topsoil piles. Disturbed land would be seeded with a mixture (certified weed free) and rate as recommended or required by the BLM.

Depending on the locations of the proposed wells, it is anticipated that some new or upgraded access roads would be required to access well pads and maintain production facilities. Any new roads constructed for the purposes of oil and gas development would be utilized year-round for maintenance of the proposed wells and other facilities, and for the transportation of fluids and/or equipment, and would remain open to other land users. Construction of new roads or upgrades to existing roads would require a 12-24 foot travelway width and would be constructed of native material. It is not possible to determine the distance of road that would be required because the location of the wells would not be known until the APD stage. However, for purposes of analyses it is assumed that disturbance from access roads would be approximately 8 acres (2 miles of road at 4 acres per mile) per well site.

2.2.2 Production Operations

If wells were to go into production, facilities would be located at the well pad and typically include a well head, a dehydrator/separator unit, and storage tanks for produced fluids. The production facility would typically consist of two storage tanks, a truck load-out, separator, and dehydrator facilities. Construction of the production facility would be located on the well pad and not result in any additional surface disturbance.

All permanent surface structures would be painted a flat, non-reflective color specified by the BLM in order to blend with the colors of the surrounding natural environment. Facilities that are required to comply with the Occupational Safety and Health Act (OSHA) would be excluded from painting color requirements. All surface facilities would be painted immediately after installation and under the direction and approval of the BLM.

All operations would be conducted following the "Gold Book", *Surface Operating Standards for Oil and Gas Exploration and Development*. The Gold Book was developed to assist operators by providing information on the requirements for conducting environmentally responsible oil and gas operations on federal lands. The Gold Book provides operators with a combination of guidance and standards for ensuring compliance with agency policies and operating requirements, such as those found at 43 CFR 3000 and 36 CFR 228 Subpart E; Onshore Oil and Gas Orders (Onshore Orders); and Notices to Lessees. Included in the Gold Book are environmental BMPs; these measures are designed to provide for safe and efficient operations while minimizing undesirable impacts to the environment.

If oil is produced, the oil would be stored on location in tanks and transported by truck to a refinery. The volume of tanker truck traffic for oil production would be dependent upon production of the wells.

2.2.3 Produced Water Handling

Water is often associated with either produced oil or natural gas. Water is separated out of the production stream and can be temporarily stored in the reserve pit for 90 days. Permanent disposal options include discharge to evaporation pits or underground injection. Handling of produced water is addressed in Onshore Oil and Gas Order No. 7.

2.2.4 Maintenance Operations

Traffic volumes during production would be dependent upon whether the wells produced natural gas and/or oil, and for the latter, the volume of oil produced. Well maintenance operations may include periodic use of work-over rigs and heavy trucks for hauling equipment to the producing well, and would include inspections of the well by a pumper on a regular basis or by remote sensing. The road and the well pad would be maintained for reasonable access and working conditions. Portions of the well pad not needed for production of the proposed well, including the reserve pit, would be re-contoured and reclaimed, as an interim reclamation of the site.

2.2.5 Plugging and Abandonment

If the wells do not produce economic quantities of oil or gas, or when it is no longer commercially productive, the well would be plugged and abandoned. The wells would be plugged and abandoned following procedures approved by a BLM Petroleum Engineer, which would include requiring cement plugs at strategic positions in the well bore. All fluids in the reserve pit would be allowed to dry prior to reclamation work. After fluids have evaporated from the reserve pit, sub-soil would be backfilled and compacted within 90 days. If the fluids within the reserve pit have not evaporated within 90 days (weather permitting or within one evaporation cycle, i.e. one summer), the fluid would be pumped from the pit and disposed of in accordance with applicable regulations. The well pad would be re-contoured, and topsoil would be replaced, scarified, and seeded within 180 days of the plugging the well.

2.3 Alternative B – No Action

Under the No Action alternative none of the nominated parcels would be offered for sale.

2.4 Alternatives Considered but Eliminated from Further Analysis

A total of thirteen parcels were nominated and forwarded to the Richfield Field Office for review in the May 2015 Oil and Gas Lease Sale. An alternative was considered that included leasing of all these parcels. As introduced in Section 1.2 Background, three parcels (UT0515-029, UT0515-031, and UT0515-032) were recommended to be deferred from the lease sale (see rationale in Appendix D – Deferred Parcel List).

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area as identified in the Interdisciplinary Team Checklist found in Appendix C. This chapter provides the baseline for comparison of impacts/consequences described in Chapter 4. Only those aspects of the affected environment that are potentially impacted are described in detail in Chapters 3 and 4 (see also Appendix C). Resources that are either not present or present, but not affected to a degree where detailed analysis in Chapters 3 and 4 is needed are addressed in Appendix C, Interdisciplinary Team Checklist, of this EA.

3.2 General Setting

The proposed action would result in the leasing for oil and gas development of ten parcels within the RFO. See Appendix A for legal descriptions and Appendix B for maps of the parcels. Additional information is also contained in the Interdisciplinary Team Checklist (Appendix C).

These parcels range in size from 11.08 to 2,198.84 acres for a total of 11,940.8 acres. The parcels are located throughout Sevier and Sanpete Counties, Utah (Appendix B – Parcel Maps). The landscape, topography, plant and animal species throughout the proposed parcels to be leased is varied. The area is covered in a mixture of grass and shrubs. Some of the dominant vegetation species are: Wyoming sagebrush, pinyon pine, juniper, Gambel's oak, shadscale, needle and thread grass, Indian ricegrass and greasewood. Areas that have been disturbed or burned from a wildfire are predominantly cheatgrass or seeded desirable plant species. High densities of Class B roads crisscross the area. The BLM administered areas are utilized by grazing cattle for a portion of the year.

3.3 Resources/Issues Brought Forward for Analysis

3.3.1 Air Quality, Climate Change, and Greenhouse Gases

Air quality is affected by various natural and anthropogenic factors. Industrial sources such as power plants, mines, and oil and gas extraction activities within Utah contribute to local and regional air pollution. Urbanization and tourism create emissions that affect air quality over a wide area. Air pollutants generated by motor vehicles include tailpipe emissions and dust from travel over dry, unpaved road surfaces. Strong winds can generate substantial amounts of windblown dust. Air pollution emissions are characterized as point, area, or mobile. Point sources are large, stationary facilities such as power plants and manufacturing facilities and are accounted for on a facility by facility basis. Area sources are smaller stationary sources and, due to their greater number, are accounted for by classes. Production emissions from an oil and gas well and dust from construction of a well pad would be considered area source emissions. Mobile sources consist of non-stationary sources such as cars and trucks. Mobile emissions are further divided into on-road and off-road sources. Engine exhaust from truck traffic to and from oil and gas locations would be considered on-road mobile emissions. Engine exhaust from drilling operations would be considered off road mobile emissions.

The Clean Air Act required the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Utah Division of Air Quality (UDAQ) is responsible to ensure compliance with the NAAQS within the state of Utah. Table 1 shows NAAQS for the EPA designated criteria pollutants (EPA 2008).

Table 1. National Ambient Air Quality Standards (NAAQS) for the EPA designated criteria pollutants (EPA 2008).

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Pollution [71 FR 61144, Oct 17, 2006]	PM _{2.5}	primary and secondary	Annual	15 µg/m ³	annual mean, averaged over 3 years
			24-hour	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

as of October 2011

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

National Ambient Air Quality Standards Criteria Pollutants

Particulate Matter (PM₁₀ AND PM_{2.5})

Airborne particulate matter consists of tiny coarse-mode (PM₁₀) or fine-mode (PM_{2.5}) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM_{2.5} is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols. PM₁₀ is derived primarily from crushing, grinding, or abrasion of surfaces. Sources of particulate matter include industrial processes, power plants, mobile sources (vehicle exhaust and road dust), construction activities, home heating, and fires. Particulate matter causes a variety of health and environmental impacts. Many scientific studies have linked breathing particulate matter to serious health problems, including aggravated asthma, increased respiratory symptoms (e.g., coughing), difficult or painful breathing, chronic bronchitis, decreased lung function, and

premature death. Particulate matter is the major cause of reduced visibility. It can stain and damage stone and other materials, including culturally important objects, such as monuments and statues.

Ozone

Ground-level ozone is a secondary pollutant. It is formed by a chemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight (photochemical oxidation). Precursor sources of NO_x and VOCs include motor vehicle exhaust, industrial emissions, gasoline vapors, vegetation emissions (i.e., terpenes), wood burning, and chemical solvents. The abundant sunlight during the summer months drives the photochemical process and creates ground-level ozone; therefore, ozone is generally considered a summertime air pollutant.

Ozone is a regional air quality issue because, along with its precursors, it can transport hundreds of miles from its origins, and maximum ozone levels can occur at locations many miles downwind from the sources. Primary health effects from ozone exposure range from breathing difficulty to permanent lung damage. Significant ground-level ozone also contributes to plant and ecosystem damage.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas emitted from combustion processes. Nationally and, particularly in urban areas, the majority of CO emissions to ambient air come from mobile sources. CO can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues.

Nitrogen Oxides

Nitrogen dioxide (NO₂) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NO_x)." Other nitrogen oxides include nitrous acid and nitric acid. While EPA's National Ambient Air Quality Standard covers this entire group of NO_x, NO₂ is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO₂ forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO₂ is linked with a number of adverse effects on the respiratory system.

Lead

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been from fuels in on-road motor vehicles (such as cars and trucks) and industrial sources. As a result of EPA's regulatory efforts to remove lead from on-road motor vehicle gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline.

Sulfur Dioxide

Sulfur dioxide (SO₂) is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO₂ emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of SO₂ emissions include industrial processes such as

extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO₂ is linked with a number of adverse effects on the respiratory system.

Prevention of Significant Deterioration

Under the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act (CAA), incremental increases of specific pollutant concentrations are limited above a legally defined baseline level. Many national parks and wilderness areas are designated as PSD Class I. The PSD program protects air quality within Class I areas by allowing only slight incremental increases in pollutant concentrations. Areas of Utah not designated as PSD Class I are classified as Class II. For Class II areas, greater incremental increases in ambient pollutant concentrations are allowed as a result of controlled growth.

Air Quality Related values

Air Quality Related Values (AQRVs) are resources applied to all PSD Class I and sensitive Class II areas that may be affected by changes in air quality. AQRVs include visibility, dark night skies, vegetation, wildlife, and soils. Visibility is the most sensitive AQRV in the parks. Visibility is impaired by haze caused by tiny particles that scatter and absorb light. Sulfates, crustal materials, organic carbon, elemental carbon, and nitrates, in order of decreasing contributions, comprise particles that result in the formation of haze in the western U.S. Sulfates and crustal materials are responsible for over 50 percent of the causes of visibility impairment. Sulfate particles are formed from sulfur dioxide gas released from coal-burning power plants and other industrial sources. Crustal materials are windborne dust particles from dirt roads and other open spaces. The EPA's Regional Haze regulations required states to establish goals for each Class I air quality area to improve visibility on the haziest days and ensure no degradation occurs on the clearest days. The 2008 Government Performance and Results Act (GPRA) set goals for air quality for parks on the northern Colorado Plateau, including Canyonlands and Arches NPs. While an AQRV reflects a land management agency's policy and is not a legally enforceable standard, federal regulations such as the EPA's Regional Haze rule and GPRA ensure the protection of some AQRVs. Some aspects of air quality are monitored for Canyonlands and Arches NPs. Long-term visibility monitoring in Canyonlands NP determined that on the clearest and haziest days, this park exhibited a statistically significant improving trend (National Park Service [NPS], 2010a). During the 20 percent clearest days at Canyonlands NP, or when visibility is very good, atmospheric sulfates were identified as the largest contributor to impaired visibility; however, during the 20 percent haziest days, or when visibility is impaired, coarse particulate matter is the largest contributor to haze (Perkins, 2010). Increasing ozone concentrations also correspond to decreasing visibility (Aneja et al., 2004). Monitored ozone concentrations in Canyonlands NP were assessed as "moderate," but trend data are not available. Between 1993 and 2008, ozone levels in Canyonlands NP have generally remained under, but close to, the standard. In 2012, one ozone exceedance was measured in May and one in June. The 4th highest maximum 8-hour measurement to-date in 2012 was 72 parts per billion (NPS, 2012). Visibility at Arches NP was assessed as moderate, showing no trend. Ozone levels are not monitored at Arches NP. The National Park Service Air Resources Division expects air quality in both parks to improve as regulations that reduce tailpipe emissions from motor vehicles and pollution from electric-generating facilities take full effect over the next few years (NPS, 2010).

Soils and vegetation in the parks may be sensitive to nutrient enrichment from deposition of atmospheric nitrates and sulfates, which contribute to soil and water acidification. Fertilizer use, motor vehicles, and agricultural activities produce ammonia, which contribute to nitrogen deposition. Ammonia can be emitted from light duty vehicles, depending on fuel types and operational condition. Ammonium results primarily from crop and livestock production (NPS, 2006a). Increased nitrogen

loading levels from deposition of ammonium has been observed at Canyonlands NP (NPS, 2010a); however, surface waters and soils in Canyonlands and Arches NPs, with the exception of potholes, are generally well-buffered and are not likely to be acidified by atmospheric deposition (NPS, 2006).

Table 2: Air Quality and AQRV Trends in Nearby National Parks

National Park	Visibility	Nitrogen Deposition	Sulfur Deposition	Ozone
Arches NP	Moderate condition, no trend.	No data.	No data.	No data.
Canyonlands NP	Moderate condition, no trend.	Good; no trend.	Good; no trend.	Moderate condition, no trend.

Source: NPS, 2010a

Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethylbenzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane).

The CAA requires the EPA to regulate emissions of toxic air pollutants from a published list of industrial sources referred to as “source categories.” The EPA has developed a list of source categories that must meet control technology requirements for these toxic air pollutants. Under Section 112(d) of the CAA, the EPA is required to develop regulations establishing national emission standards for hazardous air pollutants (NESHAP) for all industries that emit one or more of the pollutants in major source quantities. These standards are established to reflect the maximum degree of reduction in HAP emissions through application of maximum achievable control technology (MACT). Source categories for which MACT standards have been implemented include oil and natural gas production and natural gas transmission and storage.

There are no applicable federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health, and monitored background concentrations are rarely available. Therefore, reference concentrations (RfC) for chronic inhalation exposures and reference exposure levels (REL) for acute inhalation exposures are applied as significance criteria. The table below provides the RfCs and RELs. RfCs represent an estimate of the continuous (i.e., annual average) inhalation exposure rate to the human population (including sensitive subgroups such as children and the elderly) without an appreciable risk of harmful effects. The RELs represent the acute (i.e., 1-hour average) concentration at or below which no adverse health effects are expected. Both the RfC and REL guideline values are for non-cancer effects.

Table 3. Hazardous Air Pollutant (HAP) Reference Exposure Levels and Reference Concentrations (RfCs).

HAP	Reference Exposure Level (REL 1-hour Average) ($\mu\text{g}/\text{m}^3$)	Reference Concentration ^a (RfC Annual Average) ($\mu\text{g}/\text{m}^3$)
Benzene	1,300 ^{b, c}	30
	160,000 ^d	-
Toluene	37,000 ^b	5,000
Ethylbenzene	350,000 ^d	1,000
Xylenes	22,000 ^b	100
n-Hexane	390,000 ^d	700
Formaldehyde	94 ^b	9.8

^a EPA Air Toxics Database, Table 1 (EPA 2007a)

^b EPA Air Toxics Database, Table 2 (EPA 2007a) REL from California EPA (most conservative level in Table 2)

^c REL for benzene is for a 6-hour average.

^d Immediately Dangerous to Life or Health/10, EPA Air Toxics Database, Table 2 (EPA 2007a) because no REL is available.

Greenhouse Gases (GHGs)

The Council on Environmental Quality (CEQ) has released new (2010) draft guidance on how the National Environmental Policy Act (NEPA) should consider and evaluate greenhouse gas (GHG) emissions and climate change. The draft guidance outlines how federal agencies should consider climate change issues under NEPA. Under this draft guidance, where a proposed federal action would be reasonably anticipated to emit greenhouse gases into the atmosphere in quantities that the agency preparing the NEPA document finds may be “meaningful,” the agency should quantify and disclose its estimate of the expected, annual direct and indirect greenhouse gas emissions. Specifically, where a proposed action is anticipated to cause direct, annual emissions of 25,000 metric tons or more of carbon dioxide (CO₂)-equivalent greenhouse gas emissions, a quantitative and qualitative assessment is required together with the consideration of mitigation measures and reasonable alternatives to reduce greenhouse gas emissions.

Several factors affect climate change, including but not limited to GHGs, land use management practices, and the albedo effect. GHGs are produced and emitted by various sources during phases of oil and gas exploration, well development, and production. The primary sources of GHGs associated with oil and gas exploration and production are CO₂, nitrous oxide (N₂O), and methane (CH₄). In addition, VOCs are a typical source of emissions associated with oil and gas exploration and production. Under specific environmental conditions, N₂O and VOCs form ozone, which also is considered a GHG.

On October 30, 2009, the EPA issued the final mandatory reporting rule for major sources of GHG emissions. The rule requires a wide range of sources and source groups to record and report selected GHG emissions, including CO₂, CH₄, N₂O, and some halogenated compounds.

The EPA delayed a comparable rule for GHG emissions for various natural gas industry groups. On December 31, 2010, a rule (Subpart W) became effective that addressed natural gas systems and natural gas transmission source groups, among other things.

The final rule (Subpart W) for natural gas systems specifically identified monitoring and reporting requirements for oil and natural gas systems. The oil and natural gas source category includes on-shore natural gas processing facilities and on-shore natural gas transmission compression facilities, which are

applicable components of the proposed project. Combustion units associated with these processes also are included as part of the separate final rule. The EPA final rule concerning mandatory reporting of GHGs do not require any controls or establish any standards related to GHG emissions or impacts. Additionally, in June of 2010, the EPA finalized the Greenhouse Gas Tailoring Rule. The rule outlines the time frame and the applicability criteria that determine which stationary sources and modification projects become subject to permitting requirements for GHG emissions under the CAA's PSD and Title V programs.

Global mean surface temperatures increased nearly 1.8°F from 1890 to 2006. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24°N) have exhibited temperature increases of nearly 2.1°F since 1900, with a nearly 1.8°F increase since 1970. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

Ongoing scientific research has identified the potential impacts of anthropogenic (manmade) GHG emissions and changes in biological carbon sequestration due to land management activities for a global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused CO₂(e) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes.

The IPCC (Intergovernmental Panel on Climate Change) recently concluded that warming of the climate system is unequivocal, and most of the observed increase in globally average temperatures since the mid twentieth century is very likely due to the observed increase in anthropogenic GHG concentrations (IPCC 2007).

In 2001, the IPCC projected that by the year 2100, global average surface temperatures could increase by 2.5°F to 10.4°F above 1990 levels. The National Academy of Sciences (2010) has confirmed these projections, but also has indicated that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature would not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures. Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict.

Written in the IPCC Fourth Assessment Report: Climate Change 2007, an expert assessment based on the combination of available constraints from observations and the strength of known feedbacks simulated in the models used to produce the climate change projections indicates that the equilibrium global mean surface air temperature (SAT) warming for a doubling of atmospheric carbon dioxide (CO₂), or 'equilibrium climate sensitivity', is *likely* to lie in the range 2°C to 4.5°C, with a most likely value of about 3°C. Equilibrium climate sensitivity is *very likely* larger than 1.5°C. For fundamental physical reasons, as well as data limitations, values substantially higher than 4.5°C still cannot be excluded, but agreement with observations and proxy data is generally worse for those high values than for values in the 2°C to 4.5°C range. The 'transient climate response' (TCR, defined as the globally averaged SAT change at the time of CO₂ doubling in the 1% yr⁻¹ transient CO₂ increase experiment) is better constrained than equilibrium climate sensitivity. The TCR is *very likely* larger than 1°C and *very*

unlikely greater than 3°C based on climate models, in agreement with constraints from the observed surface warming. (http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch10s10-es-1-mean-temperature.html)

The analysis of the Regional Climate Impacts prepared by the United States Global Change Research Program (USGCRP) (2009) suggests that recent warming in the region was among the most rapid nationally. They conclude that this warming is causing decline in spring snowpack and reducing flow in the Colorado River. Their projections of future climate change indicate that further strong warming will reduce precipitation, which in turn will strain regional water supplies, increase the risk of wildfires and invasive species, and degrade recreational opportunities.

Past records and future projections predict an overall increase in regional temperatures, which would cover the development area. As has been observed at many sites to date, the observed increase is largely the result of the warmer nights, and effectively higher average daily minimum temperatures at many of the sites in the region. The USGCRP (2009) projects a region-wide decrease in precipitation, although with substantial variability in inter-annual conditions. For eastern Utah, the projections range from an approximately 5% decrease in annual precipitation to decreases as high as 40% of annual precipitation.

As with any field of scientific study, there are uncertainties associated with the science of climate change; however, this does not imply that scientists do not have confidence in many aspects of climate change science. Some aspects of the science are known with virtual certainty because they are based on well-known physical laws and documented trends.

The Color County District has existing sources of atmospheric pollution that vary mainly from regional ozone to particulate matter. Regional ozone is typical in the western states as forest fires, transport from shipping lanes, electric power generation and a conglomerate of other sources combine under certain meteorological conditions. Particulate matter is mobilized during dust storms and other activities in this dry region. Emissions of GHGs are also anticipated to be relatively minor and result in no discernible impact on global or local climate patterns

3.3.2 Socio-Economics

Sanpete County has a rural, agricultural-based economy. The US Census Bureau shows Sanpete County's population is 27,822 (based on the 2010 census). The population is mostly dispersed into small communities. Manti, the county seat, has a population of approximately 3,276 (2010 census), and Ephraim is the largest town in the county with a population of 6,135 people. The county's economy is currently based on livestock, manufacturing, and trade.

Sevier County has a rural, agricultural-based economy. The Richfield Area Chamber of Commerce shows Sevier County's population is 20,802 (based on the 2010 census). The population is mostly dispersed into small communities. Richfield, the county seat, has a population of 7,551 (2010 census) and is the largest town in the county. The county's economy is currently based on livestock, coal production, oil production, manufacturing, and trade.

4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

This chapter discusses the environmental consequences of implementing the alternatives described in Chapter 2. Under NEPA, actions with the potential to affect the quality of the human environment must be disclosed and analyzed in terms of direct and indirect effects—whether beneficial or adverse and short or long term—as well as cumulative effects. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by an action but occur later or farther away from the resource. Beneficial effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resource toward a desired condition. Adverse effects involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. Cumulative effects are the effects on the environment that result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions.

The No Action alternative (offer none of the nominated parcels for sale), serves as a baseline against which to evaluate the environmental consequences of the Proposed Action alternative (offer ten of the parcels for sale with additional resource protective measures). For each alternative, the environmental effects are analyzed for the resources that were carried forward for analysis in Chapter 3.

4.2 Direct and Indirect Impacts

4.2.1 Alternative A – Proposed Action

This section analyzes the impacts of the proposed action to those potentially impacted resources described in the Affected Environment (Chapter 3).

4.2.1.1 Air Quality, Climate Change, and Greenhouse Gases Air Quality

Existing Sources of Pollution

The Color County District has existing sources of pollution that vary mainly from regional ozone to particulate matter. Regional ozone is typical in the western states as forest fires, transport from shipping lanes, electric power generation and a conglomerate of other sources combine under certain meteorological conditions. Particulate matter is another issue during dust storms or kicked up from other activities in this dry region.

Table 4. Division of Air Quality – 2011 Annual Report Triennial Inventory (tons/year)

County	CO	NO _x	PM10	PM2.5	SO _x	VOC
Beaver	12,406.83	2,192.19	1,354.23	274.28	102.42	31,624.33
Sanpete	10,593.21	853.47	1,360.66	301.44	98.17	19,415.89
Sevier	14,528.92	1,892.59	1,926.47	428.14	118.78	19,678.44

The following meteorological data are taken from sites with an average and current length of history from the Western Regional Climate Center. These sites may be used in a planning process but should not solely be limited to these depending on the applicant.

CEDAR CITY FAA AIRPORT, UTAH (421267)
Period of Record Monthly Climate Summary
Period of Record : 7/ 1/1948 to 9/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	42.0	46.5	53.7	62.0	72.3	83.6	90.2	87.7	79.9	67.2	52.8	43.0	65.1
Average Min. Temperature (F)	17.2	21.5	26.7	32.9	40.8	49.3	57.7	56.3	46.8	35.6	25.1	17.7	35.6
Average Total Precipitation (in.)	0.76	0.90	1.20	1.01	0.84	0.48	0.99	1.11	0.77	1.04	0.88	0.76	10.74
Average Total SnowFall (in.)	8.5	8.0	8.4	5.1	1.2	0.1	0.0	0.0	0.1	1.7	5.1	7.0	45.1
Average Snow Depth (in.)	2	1	0	0	0	0	0	0	0	0	0	1	0

ANGLE, UTAH (420168)
Period of Record Monthly Climate Summary
Period of Record : 7/ 1/1981 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	41.5	45.6	53.0	60.3	70.1	79.9	86.5	83.9	76.6	65.5	51.3	42.7	63.1
Average Min. Temperature (F)	6.9	13.4	20.5	25.7	33.4	39.3	45.6	45.4	36.0	25.5	16.2	8.1	26.3
Average Total Precipitation (in.)	0.43	0.36	0.71	0.71	0.80	0.71	0.90	1.52	1.14	1.00	0.44	0.28	8.99
Average Total SnowFall (in.)	5.0	3.7	3.7	1.9	0.4	0.0	0.0	0.0	0.0	0.4	2.1	2.9	20.2
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	0	0

LYTLE RANCH, UTAH (425252)
Period of Record Monthly Climate Summary
Period of Record : 7/ 1/1988 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	57.9	61.0	68.6	77.0	86.9	95.1	101.8	100.1	93.2	80.3	65.8	57.2	78.7
Average Min. Temperature (F)	28.2	31.8	36.1	41.4	48.9	55.4	61.0	59.7	52.0	41.6	31.4	25.7	42.8
Average Total Precipitation (in.)	1.63	2.08	1.59	0.76	0.40	0.30	0.55	0.69	0.59	0.87	0.70	0.55	10.72
Average Total SnowFall (in.)	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

ZION NATIONAL PARK, UTAH (429717)
Period of Record Monthly Climate Summary
Period of Record : 1/ 2/1928 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	51.9	56.9	63.9	72.8	83.0	93.8	99.6	97.0	90.1	78.0	62.8	53.1	75.2
Average Min. Temperature (F)	29.0	32.6	37.0	43.6	52.2	61.3	68.6	67.2	60.3	49.3	36.9	30.0	47.3
Average Total Precipitation (in.)	1.67	1.84	1.91	1.17	0.79	0.47	0.99	1.42	1.06	1.07	1.23	1.34	14.97
Average Total SnowFall (in.)	3.4	1.7	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6	2.0	8.9
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BRYCE CANYON AP ASOS	KBCE	2000-2006	8.0	8.5	9.0	10.4	9.6	9.8	8.2	8.0	8.7	8.2	7.9	7.5	8.6
CEDAR CITY AIRPORT ASOS	KCDC	1996-2006	6.1	6.5	7.3	8.7	8.3	8.6	7.5	7.4	7.0	6.4	5.9	6.1	7.1
MILFORD AIRPORT ASOS	KMLF	1996-2006	9.9	9.7	11.0	12.2	11.5	12.1	11.4	11.1	10.1	10.0	9.5	9.9	10.7
ST GEORGE AIRPORT ANOS	KSGU	1996-2006	3.4	4.6	5.8	7.7	8.3	8.5	7.8	7.3	6.2	4.7	3.4	3.2	5.9

Table 5. Prevailing Wind Direction.

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
CEDAR CITY AP, UT (KCDC)	SSW	SW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SW	N	SSW	SSW
MILFORD AIRPORT, UT (KMLF)	S	SSW	S	SSW	S	SSW	SSW	S	S	S	S	S	S
ST. GEORGE MUNI AP, UT (KSGU)	E	ENE	ENE	W	W	W	W	ENE	ENE	ENE	E	E	ENE
BRYCE CANYON AP, UT (KBCE)	W	W	W	W	W	W	W	W	W	W	W	W	W

The act of leasing would not result in changes to air quality. However, should the leases be issued, development of those leases could impact air quality conditions. It is not possible to accurately estimate potential air quality impacts by computer modeling from the project due to the variation in emission control technologies as well as construction, drilling, and production technologies applicable to oil versus gas production and utilized by various operators, so this discussion remains qualitative. Prior to authorizing specific proposed projects on the subject lease parcels quantitative computer modeling using project specific emission factors and planned development parameters (including specific emission source locations) may be conducted to adequately analyze direct and indirect potential

air quality impacts. In conducting subsequent project specific analysis BLM will follow the policy and procedures of the National Interagency MOU Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through NEPA, and the FLAG 2010 air quality guidance document. Air quality dispersion modeling which may be required includes impact analysis for demonstrating compliance with the NAAQS, plus analysis of impacts to Air Quality Related Values (i.e. deposition, visibility), particularly as they might affect regional Class 1 areas (national parks and wilderness areas).

An oil or gas well, including the act of drilling, is considered to be a minor source under the Clean Air Act. Minor sources are not controlled by regulatory agencies responsible for implementing the Clean Air Act. In addition, control technology is not required by regulatory agencies at this point, since the majority of the parcels occur in NAAQS attainment areas. Different emission sources would result from the two site specific lease development phases: well development and well production. The BLM does look to mitigate pollutants via lease stipulations and further NEPA actions throughout the lease process. Well development includes emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO_x , SO_2 , and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. Drill rig and fracturing engine operations would result mainly in NO_x and CO emissions, with lesser amounts of SO_2 . These temporary emissions would be short-term during the drilling and completion times.

During well production there are continuous emissions from separators, condensate storage tanks, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of the Proposed Action, NO_x , CO, VOC, and HAP emissions would result from the long-term operation of condensate storage tank vents, and well pad separators. Additionally, road dust (PM_{10} and $\text{PM}_{2.5}$) would be produced by vehicles servicing the wells.

Project emissions of ozone precursors, whether generated by construction and drilling operations, or by production operations, would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background or cumulative conditions. The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. However, these emissions are estimated to be less than 1 ton per year. Based on the negligible amount of project-specific emissions, the Proposed Action is not likely to violate, or otherwise contribute to any violation of any applicable air quality standard, and may only contribute a small amount to any projected future potential exceedance of any applicable air quality standards.

The construction, drilling, completion, testing, and production of an oil and gas well could result in various emissions that affect air quality. Construction activities result in emissions of particulate matter. Well drilling activities result in engine exhaust emissions of NO_x , CO, and VOC. Completion and testing of the well result in emissions of VOC, NO_x , and CO. Ongoing production results in the emission of NO_x , CO, VOC, and particulate matter.

Due to the very small level of anticipated development, an emissions inventory (EI) has not been conducted for this lease sale. A typical oil and gas well EI is estimated for the purpose of this analysis and is based on the following assumptions:

- Each oil and gas well would cause approximately 12 acres of surface disturbance. This acreage includes access.
- Construction activity for each well is assumed to be 10 days. It is further assumed that, based on the acreage disturbed, 4.5 days would be spent in well pad construction and 5.5 days would be spent in road and pipeline construction.

- Control efficiency of 25% for dust suppression would be achieved as a result of compliance with Utah Air Quality regulation R307-205.
- Post construction particulate matter (dust) emissions are likely to occur on a short term basis due to loss of vegetation within the construction and staging areas. Assuming appropriate interim reclamation, these emissions are likely to be minimal to negligible and will not be considered in this EA.
- Drilling operations would require 20-60 days.
- Completions and testing operations would require 3 days.
- Off road mobile exhaust emissions from heavy equipment during construction activities and on road mobile emissions would not be considered as they are dispersed, sporadic, temporary, and not likely to cause or contribute to exceedence of the NAAQS.

If exploration occurs, short-term impacts would be stabilized or managed rapidly (within two to five years), and long-term impacts are those that would substantially remain for more than five years. An air quality best management practice (BMP) which discusses the amounts of NO_x emission per horse-power hour based on internal combustion engine size, would be attached to all parcels. Stipulation UT-S-01, Air Quality, would consist of the following provisions:

- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour.

Emission factors for activities of the proposed action were based on information contained in the EPA's Emission Factors & AP 42, Volume I, Fifth Edition (EPA.1995), available at: <http://www.epa.gov/ttn/chief/ap42/index.html>.

The production emissions from oil storage tanks was estimated based on the emission factor contained in the Colorado Department of Public Health and Environment PS Memo 05-01, Oil & Gas Atmospheric Condensate Storage Tank Batteries Regulatory Definitions and Permitting Guidance (CDPHE 2009), available at: <http://www.cdphe.state.co.us/ap/down/ps05-01.pdf>.

Table 6. Emissions Estimate

	Construction Emissions (Tons)	Drilling Emissions (Tons)			Completions Emissions (Tons)				Ongoing Production Emissions (Tons/year)			
	PM ₁₀	NO _x	CO	VOC	VOC	NO _x	CO	PM ₁₀	NO _x	CO	VOC	PM ₁₀
Typical Well	0.34	13.31	1.83	0.23	0.85	0.07	0.07	0.00	0.01	0.01	6.44	0.00000
Sub Total	0.34	13.31	1.83	0.23	0.85	0.07	0.07	0.00	0.01	0.01	6.44	0.00000
					PM ₁₀	NO _x	CO	VOC				
Activity Emissions (Total emissions for drilling and completion the well)					0.34	13.37	1.89	1.08	Tons			
Production Emissions (Ongoing annual emissions for the well)					0.00000	0.01	0.01	6.44	tpy			

Based on the emissions estimates contained in Table 6, and considering the location of the proposed leasing relative to population centers and Class 1 areas, substantial air resource impacts are not anticipated as a result of this leasing action, and no further analysis or modeling is warranted. Emissions resulting from the lease sale are not likely to result in major impacts to air quality nor are they likely to cause a violation of the NAAQS.

Additional air quality control measures may be warranted and imposed at the APD stage. These control measures are dependent on future regional modeling studies, other analysis or changes in regulatory standards. As such, a lease notice would be appropriate to inform an operator or the general public that additional air quality control measures would be pursued. Lease notices UT-LN-99 (Regional Ozone Formation Controls) and UT-LN-102 (Air Quality Analysis) would be attached to all lease parcels.

To address oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required through a lease notice (UT-LN-99, Regional Ozone Formation Controls) for any development projects related to this lease sale:

- Tier II or better drilling rig engines
- Stationary internal combustion engine standard of 2g NO_x/bhp-hr for engines <300HP and 1g NO_x/bhp-hr for engines >300HP
- Low bleed or no bleed pneumatic pump valves
- Dehydrator VOC emission controls to +95% efficiency
- Tank VOC emission controls to +95% efficiency

4.2.1.2 Socio-Economics

The social and economic environments of Sanpete and Sevier Counties would be positively affected by the proposed project. Exploratory drilling of oil and gas in the project area would contribute to the local economy by providing several benefits: short-term employment opportunities for construction, drilling and completion; monies to local contractors; and revenues recycled into the area's local economy. Additional revenues would be generated in the form of sales taxes and income taxes. Local workers would potentially be used in much of the project work, and they would likely spend much of their income in local economies, thus producing a "multiplier effect" that could be at least 1.5 times the revenues generated from the proposed project.

The Proposed Action would add to the short-term opportunities for employment in Sanpete and Sevier Counties, especially for workers associated with the support of the oil and gas industry. The average cost to construct, drill and complete an individual well is approximately \$5,000,000, if ten wells were drilled the economic impact would be approximately \$50,000,000.

If the proposed well is productive, long-term employment opportunities would likely be generated for at least one pumper and three tanker truck drivers. If the well is productive, income to the federal government, State of Utah and Sanpete and Sevier Counties would be generated in the form of royalties, sales taxes, income taxes, and property taxes for the producing well. Furthermore, if the well is productive, field development would likely be pursued by the applicant, thereby potentially resulting in additional short-term and long-term employment opportunities, royalties, sales taxes, income taxes, and property taxes.

If production is established from a well and/or additional wells, the development of oil and gas could lead to long-term impacts to the social structure of the communities, changes in the economic base, and an increased demand for local government services. These impacts could include increased revenues in the local economy, an increase in the tax base, change in the social structure of the local community,

and increased demand for community services and strain on the infrastructure (schools, hospitals, law enforcement, fire protection, and other community needs). These possible social and economic changes are beyond the scope of this document and to make those projections would be speculative at best.

Negative socioeconomic impacts may also stem from oil and gas exploration and development activities. These impacts are difficult to quantify accurately due to complex interactions, feedback loops, changing and unknown parameters. Adverse social and economic consequences for areas adjacent to rapid oil and gas development might include, for example, higher costs of living and decreases in recreational tourism revenue. While such impacts may occur, accurate valuation is not currently possible in a predictive capacity and, given the scale of the Proposed Actions, negative impacts of even a moderate degree should not be anticipated.

4.2.1.3 Design Features

Application of stipulations and lease notices (including those identified in Appendix A and C) to each of the parcels would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon receipt of a site specific APD.

4.2.2 Alternative B – No Action

This alternative (not to offer any of the nominated parcels for sale) may not meet the need for the proposed action.

4.2.2.1 Air Quality

The No Action alternative would prevent future potential impacts relating to lease operations. Although drilling and production activities on federal land surfaces are restricted to leased parcels, oil and gas exploration may also be authorized on unleased public lands, on a case-by-case basis, pursuant to 43 CFR 3150.0-1. Accordingly, this alternative would not prevent direct, indirect or cumulative environmental impacts relating to oil and gas exploration activities through denial of the proposed action. Additionally, this alternative would not prevent indirect impacts relating to rights of way authorizations to support oil and gas operations on adjacent leased parcels.

4.2.2.2 Socio-Economics

Under the No Action alternative, potential short-term beneficial impacts of increased employment and income and revenues generated from construction, drilling and completion of the wells would not be realized, nor would there be a demand for other oil and gas related services since wells would not be drilled. Not drilling the wells would reduce the likelihood of finding oil and gas resources. Local economies would not realize any added incomes.

4.3 Cumulative Impacts Analysis

A cumulative impact is defined in 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 (federal or non-federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor but collectively major actions taking place over a period of time. Past and present actions and reasonably foreseeable future actions with the potential to contribute to cumulative effects are discussed below followed by an analysis of cumulative effects. All resource values addressed in Chapter 3 have been evaluated for cumulative effects. If, through the implementation of mitigation measures or project design features, no net effect to a particular resource results from an action, then no cumulative effects result.

Reasonably Foreseeable Action Scenario (RFAS)

The Cumulative Impact Analysis Area (CIAA) for air quality is Sanpete, Sevier and Beaver Counties. Based on the relatively minor levels of emissions associated with this proposed development, and the application of BMPs and lease notices, it is unlikely emissions from any subsequent development of the proposed leases would contribute to regional ozone formation in the project area, nor is it likely to contribute or cause exceedences of any NAAQS or major impacts to greenhouse gases or climate change.

A variety of activities, such as sightseeing, biking, camping, and hunting, have occurred and are likely to continue to occur near or within some or all of the nominated parcels; these activities likely result in positive impacts to the socio-economics of Sanpete and Sevier Counties. Other activities, such as farming, livestock grazing, vegetation projects, and wildland fire, have also occurred within some or all of the nominated parcels and are likely to occur in the future. These types of activities are likely to have a greater impact on resources in the project area because of their more concentrated nature. Because these activities are occurring within the nominated parcel boundaries, they have the potential to contribute to cumulative effects.

The cumulative impacts as described in the Richfield RMP/FEIS are incorporated by reference to Chapter 4. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) or the continuation of agricultural & recreational activities.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

Public and agency involvement has occurred as described in sections 5.2 and 5.3 below.

5.2 Persons, Groups, and Agencies Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Fish & Wildlife Service	Section 7 ESA	<p>A letter was sent to the USFWS on August 18, 2014 which provided the preliminary list and notified them of the May 2015 lease sale. Coordination with USFWS for the May 2015 lease sale is ongoing.</p> <p>Formal consultation was completed as part of the RFO RMP/ROD in the form of the Biological Opinion. Threatened and endangered species are not present on the subject parcels.</p>
Utah State Historic Preservation Office	Section 106 NHPA	A consultation request letter was sent on December 16, 2014 with a determination of no adverse effect. Consultation ongoing.
State of Utah's Public Lands Policy Coordination Office	Coordinated with as leasing program partner.	<p>A letter was sent on August 18, 2014 which provided the preliminary list and notified them of the May 2015 lease sale.</p> <p>A letter was received on November 3, 2014 primarily detailing specific concerns raised by the Utah Division of Wildlife Resources.</p>
Utah Division of Wildlife Resources	Agency with expertise.	<p>A letter was sent on August 18, 2014 which provided the preliminary list and notified them of the May 2015 lease sale.</p> <p>In addition, on August 8, 2014, GIS data depicting the May 2015 oil and gas lease sale preliminary parcels was sent to UDWR via electronic mail in order to further facilitate the reviews by that organization.</p> <p>Information was received in a letter from State of Utah's Public Lands Policy Coordination Office, on behalf of UDWR, on November 3, 2014.</p>
National Park Service, Salt Lake City Office	Coordinated with as leasing program partner.	<p>A letter was sent on August 18, 2014 which provided the preliminary list and notified them of the May 2015 lease sale.</p> <p>In addition, on August 18, 2014, GIS data</p>

May 2015 Oil and Gas Lease Sale

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
		<p>depicting the May 2015 oil and gas lease sale preliminary parcels was sent to the NPS via electronic mail in order to further facilitate the reviews by that agency.</p> <p>On September 2 and September 5, 2014, electronic mail was received from the NPS providing information regarding two parcels in proximity to or touching the Old Spanish National Historic Trail.</p>
U.S. Forest Service, Intermountain Region	Coordinated with as leasing program partner.	A letter was sent on August 18, 2014 which provided the preliminary list and notified them of the May 2015 lease sale.
Utah School and Institutional Trust Lands Administration	Coordinated with as leasing program partner.	A letter was sent on August 18, 2018 which provided the preliminary list and notified them of the May 2015 lease sale.
Paiute Indian Tribe of Utah Ute Indian Tribe Hopi Tribe Navajo Nation Utah Navajo Commission Southern Ute Tribe Ute Mountain Ute Kaibab Paiute Tribe Moapa Band of Paiute Indians Zuni Tribe	American Indian Religious Freedom Act (1978) NHPA	Visits were made to the Navajo Nation, Paiute, and the Hopi Tribes in October 2014. A letter was sent to each of these tribes on December 16, 2016 informing them of the proposed action.
Sevier County Commissioners, and Sanpete County Public Lands Council	Coordination	Proposed project was discussed at a Sevier County Commissioners meeting on August 26, 2014 and with the Sanpete County Public Lands Council which includes the County Commissioners on December 1, 2014. Both counties are in favor of leasing parcels and oil and gas development as proposed.
Split Estate Owner	Coordination	A letter was sent to the surface land owner of parcel UT0515-030 on November 7, 2014 notifying them of the May 2015 sale and inviting them to participate in the parcel site visit. To date this party has not responded back to the notification.

5.3 Summary of Public Participation

In order to meet the intent of the CEQ regulations that require an “early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a Proposed Action” (40 CFR 1501.7) several actions were taken to involve the public.

On November 3, 2014, the public was notified of the proposed action by posting on the Utah BLM ENBB (<https://www.blm.gov/ut/enbb>). The process used to involve the public also includes a 30-day public review and comment period for the EA and unsigned FONSI offered from December 19, 2014 to January 23, 2015.

The BLM also refers to the public involvement processes utilized in developing the RFO ROD/RMP.

All the information related to this EA is maintained on the identified websites (ENBB and Oil and Gas Leasing).

BLM utilized and coordinated the NEPA public participation requirements to assist the agency in satisfying the public involvement requirements under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470(f) pursuant to 36 CFR 800.2(d)(3). The information about historic and cultural resources within the area potentially affected by the proposed project/action/approval will assist the BLM in identifying and evaluating impacts to such resources in the context of both NEPA and Section 106 of the NHPA. BLM consulted with Indian tribes on a government-to-government basis in accordance with Executive Order 13175 and other policies. Tribal concerns, including impacts on Indian trust assets and potential impacts to cultural resources, were given due consideration. Federal, State, and local agencies, along with tribes and other stakeholders that may be interested in or affected by the proposed project/action/approval were invited to participate in the scoping process.

5.3.1 Modifications Based on Public Comment and Internal Review

An internal review identified necessary corrections or clarifications to this EA. These modifications include:

1. Corrections to grammar, sentence structure, and formatting were made throughout the EA. In general, these changes were made without further clarification. Examples include: updates to the Table of Contents, changes in font size, changes in verb tense and style or insertion of footnotes.

5.3.2 Response to Public Comment

A 30-day public review and comment period for the EA and unsigned FONSI was offered from December 19, 2014 to January 23, 2015.

5.4 List of Preparers

Name⁵	Title	Responsible for the Following Section(s) of this Document
Stan Andersen	Supervisory Natural Resource Specialist	Team Lead, Environmental Justice, Wastes (Hazardous or Solid), and Socio-Economics
Leonard Herr	Physical Scientist	Air Quality, and Greenhouse Gas Emissions/Climate Change
Jennifer Evans	Outdoor Recreation Specialist	ACEC's, BLM Natural Areas, Recreation, Visual Resources, Wild and Scenic Rivers, and Wilderness/WSA
Jared Lundell	Archeologist	Cultural Resources and Native American Religious Concerns
Brant Hallows	Soil Scientist	Invasive Species/Non-Native Species (Noxious Weeds), Floodplains, Farmlands (Prime or Unique), and Soils/Watershed
Larry Greenwood	Wildlife Biologist	Fish and Wildlife, Migratory Birds, Utah Sensitive Plant and Animal Species other than FWS Candidate or Listed Species, Vegetation, Wetlands/Riparian Zones, and Threatened, Endangered, or Candidate Animal Species, and Threatened, Endangered, or Candidate Plant Species
Bob Bate	Fuels Specialist	Fuels/Fire Management and Woodland/Forestry
Joe Manning	Geologist	Geology/Mineral Resources/Energy Production, Water Resources/Water Quality/Water Rights, and Paleontology
Mike Utley	Realty Specialist	Lands/Access
Brandon Jolley	Range Specialist	Livestock Grazing/Range, Rangeland Health Standards and Guidelines
Sue Fivecoat	Assistant Field Office Manager	Wild Horse and Burros

⁵ Refer also to the Interdisciplinary Team Checklist (Appendix C).

6.0 REFERENCES, ACRONYMS AND APPENDICES

6.1 References Cited

BLM. 2008. Richfield Field Office Record of Decision and Approved Resource Management Plan. Richfield Field Office, Utah, October 2008.

Logan Simpson Design Inc. (2011), Richfield Field Office Visual Resource Inventory, Department of the Interior, Bureau of Land Management, Utah State Office, Salt Lake City, Utah.

Parrish, J. R., F. P. Howe, and R. Norvell. 2002. The Utah avian conservation strategy, version 2.0. Salt Lake City, UT: Utah Partners in Flight Program, Utah Division of Wildlife Resources.

Utah Division of Air Quality, 2011, Annual Report for the Year 2011, Salt Lake City, Utah, 38 pp.

US Department of Interior and US Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. 84 pp.

6.2 List of Acronyms

ACEC	Areas of Critical Environmental Concern
APD	Application for Permit to Drill
BLM	Bureau of Land Management
BMP	Best Management Practice
BCR	Bird Conservation Region
CFR	Code of Federal Regulations
CIA	Cumulative Impact Area
CSU	Controlled Surface Use
CWCS	Comprehensive Wildlife Conservation Strategy
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENBB	Environmental Notification Bulletin Board
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
IDPR	Interdisciplinary Parcel Review
IM	Instruction Memorandum
LN	Lease Notice
LUP	Land Use Plan
NCLS	Notice of Competitive Lease Sale
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
OSHA	Occupational Safety and Health Act
RFAS	Reasonably Foreseeable Action Scenario

RFD	Reasonably Foreseeable Development
RFO	Richfield Field Office
ROD	Record of Decision
ROW	Right-of-Way
SHPO	State Historic Preservation Office
UDWR	Utah Division of Wildlife Resources
USFWS	United States Fish & Wildlife Service
USC	United States Code
USO	Utah State Office
WO	Washington Office

6.3 List of Appendices

- A. Oil and Gas Lease Sale List with Stipulations and Lease Notices
- B. Parcel Maps
- C. Interdisciplinary Team Checklist
- D. Deferred Parcel List
- E. Response to Comments

APPENDIX A, OIL AND GAS LEASE SALE LIST

OIL AND GAS LEASE SALE LIST

In addition to the Stipulations listed below, the direction provided in Washington Office Memorandums WO-IM-2005-003 (Cultural Resources Stipulation) and WO-IM-2002-174 (Endangered Species Act Stipulation) should be applied to all parcels.

UT0515 - 001

T. 22 S., R. 1 W., Salt Lake

Sec. 11: Lots 1-6;

Sec. 12: W2NENE, S2NWNE, SENE, SESE;

Sec. 13: Lots 1-4, E2, S2N2NW, S2NW.

947.12 Acres

Sevier County, Utah

Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-121: NSO – Riparian and Wetland Areas
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 002

T. 22 S., R. 1 W., Salt Lake

Sec. 11: Lots 7-10;

Sec. 14: All;

Sec. 15: E2;

Sec. 22: Lots 1-9, 14-17, E2SW, SE;

Sec. 23: Lots 13-20.

2,046.35 Acres

Sevier County, Utah

Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-121: NSO – Riparian and Wetland Areas
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-65: Old Spanish Trail
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 003

T. 22 S., R. 1 W., Salt Lake
Sec. 26: Lots 1-12;
Sec. 34: E2;
Sec. 35: Lots 1-5, SW.

1,217.28 Acres

Sevier County, Utah
Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-65: Old Spanish Trail
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 005

T. 24 S., R. 2 W., Salt Lake
Secs. 3 and 10: All;
Sec. 11: Lots 1, 3-14, E2NW.

1,921.745 Acres

Sevier County, Utah
Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-121: NSO – Riparian and Wetland Areas
- UT-S-171: NSO – Cultural Resources

UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

UT-LN-40: Golden Eagle Habitat
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-52: Noxious Weeds
UT-LN-91: Water and Watershed Protection
UT-LN-99: Regional Ozone Formation Controls
UT-LN-102: Air Quality Analysis

UT0515 - 006

T. 24 S., R. 2 W., Salt Lake
Sec. 4: Lots 1, 2, 5, S2NE, SE;
Sec. 9: All.

1,021.59 Acres
Sevier County, Utah
Richfield Field Office

STIPULATIONS

UT-S-01: Air Quality
UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
UT-S-171: NSO – Cultural Resources
UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

UT-LN-40: Golden Eagle Habitat
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-52: Noxious Weeds
UT-LN-91: Water and Watershed Protection
UT-LN-99: Regional Ozone Formation Controls
UT-LN-102: Air Quality Analysis

UT0515 - 007

T. 24 S., R. 2 W., Salt Lake
Sec. 14: Lots 1-4, NENE, S2NE, W2NW, SW;
Sec. 15: All.

1,172.53 Acres
Sevier County, Utah
Richfield Field Office

STIPULATIONS

UT-S-01: Air Quality
UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
UT-S-121: NSO – Riparian and Wetland Areas
UT-S-171: NSO – Cultural Resources
UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 026

- T. 20 S., R. 1 E., Salt Lake
 - Sec. 14: NENW, S2NW, SW;
 - Sec. 23: W2;
 - Sec. 25: S2NW, SW, SWSE;
 - Sec. 26: S2, S2N2, NWNW;
 - Sec. 27: S2SE;
 - Sec. 34: Lots 3-6, S2NE, SE;
 - Sec. 35: Lots 1, 2, 4, 5, 7, 8, S2NE, SWNW, SE.

2,198.84 Acres

Sanpete County, Utah

Sevier County, Utah

Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-121: NSO – Riparian and Wetland Areas
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-56: Drinking Water Source Protection
- UT-LN-58: Drinking water Protection Zone
- UT-LN-72: High Potential Paleontological Resources
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 027

- T. 21 S., R. 1 E., Salt Lake
 - Sec. 1: SWNW, W2SW;
 - Sec. 3: All.

764.29 Acres

Sevier County, Utah

Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-121: NSO – Riparian and Wetland Areas
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-72: High Potential Paleontological Resources
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

UT0515 - 028

T. 21 S., R. 1 E., Salt Lake
Sec. 21: All.

640.00 Acres
Sevier County, Utah
Richfield Field Office

STIPULATIONS

- UT-S-01: Air Quality
- UT-S-102: CSU – Fragile Soils/Slopes 30 Percent or Greater
- UT-S-233: TL – Crucial Mule Deer and Elk Winter Habitat

NOTICES

- UT-LN-40: Golden Eagle Habitat
- UT-LN-45: Migratory Bird
- UT-LN-49: Utah Sensitive Species
- UT-LN-52: Noxious Weeds
- UT-LN-91: Water and Watershed Protection
- UT-LN-99: Regional Ozone Formation Controls
- UT-LN-102: Air Quality Analysis

ACQUIRED LANDS

UT0515 - 030

U.S. Interest 50%

T. 15 S., R. 3 E., Salt Lake
Sec. 24:

Beginning at a point 5.65 chains West and 14.25 chains North of the Southeast corner of the Southwest quarter of Section 24, Township 15 South, Range 3 East, Salt Lake Base and Meridian; thence North 89° West 15.18 chains; thence South 6° East 9.70 chains; thence

North 54° 30' East 0.85 of a chain; thence North 0.75 of a chain; thence South 77° East 3.12 chains; thence North 83° East 2 chains; thence North 57° 30' East 8.50 chains; thence North 14° 15' East 5.31 chains to the place of beginning.

11.08 Acres
Sanpete County, Utah
Richfield Field Office

STIPULATIONS

UT-S-01: Air Quality
UT-S-121: NSO – Riparian and Wetland Areas

NOTICES

UT-LN-40: Golden Eagle Habitat
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-52: Noxious Weeds
UT-LN-91: Water and Watershed Protection
UT-LN-99: Regional Ozone Formation Controls
UT-LN-102: Air Quality Analysis

LEASE STIPULATIONS SUMMARY

<p>UT-S-01</p>	<p style="text-align: center;">AIR QUALITY</p> <p>All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. Exception: This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. Modification: None Waiver: None AND All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour. Exception: None Modification: None Waiver: None</p>
<p>UT-S-102</p>	<p style="text-align: center;">CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES 30 PERCENT OR GREATER</p> <p>No surface disturbing proposed projects involving construction on slopes greater than 30. If the action cannot be avoided, rerouted, or relocated than a proposed project will include an erosion control strategy, reclamation and a site plan with a detailed survey and design completed by a certified engineer. This proposed project must be approved by the BLM prior to construction and maintenance. Exception: None Modification: None Waiver: None</p>
<p>UT-S-121</p>	<p style="text-align: center;">NO SURFACE OCCUPANCY – RIPARIAN AND WETLAND AREAS</p> <p>No surface disturbance and/or occupancy within buffer zones around natural springs. Base the size of the buffer on hydrological, riparian, and other factors necessary to protect the water quality of the springs. If these factors cannot be determined, maintain a 330-foot buffer zone from outer edge. Exception: Consider exceptions if it can be shown that (1) there are no practical alternatives to the disturbance, (2) all long-term impacts can be fully mitigated, and (3) the activity will benefit and enhance the riparian area. Consider compensatory mitigation where surface disturbance cannot be avoided within riparian wetland habitats on a site-specific basis. Modification: None Waiver: None</p>

<p>UT-S-171</p>	<p style="text-align: center;">NO SURFACE OCCUPANCY – CULTURAL RESOURCES</p> <p>No Surface Occupancy within ¼ mile or within the visual horizon, whichever is closer, of cultural sites where the landscape features are important in understanding the property or sites where setting directly contributes to the significance of the property.</p> <p>Exception: An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or will provide suitable opportunities for public enjoyment of these resources.</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>UT-S-233</p>	<p style="text-align: center;">TIMING LIMITATION - CRUCIAL MULE DEER AND ELK WINTER HABITAT</p> <p>No surface disturbing activities within crucial mule deer and elk habitats from December 15 through April 15 to protect winter habitats.</p> <p>Exception: This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being used during the winter period for any given year.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if (1) a portion of the area is not being used as crucial winter range by deer/elk, (2) habitat outside of stipulation boundaries is being used as crucial winter range and needs to be protected, or (3) the migration patterns have changed causing a difference in the season of use.</p> <p>Waiver: A waiver may be granted if the winter range habitat is unsuitable or unoccupied during winter months by deer/elk and there is no reasonable likelihood of future winter range use.</p>

LEASE NOTICES SUMMARY

<p>UT-LN-40</p>	<p style="text-align: center;">GOLDEN EAGLE HABITAT</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing Golden Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Golden Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p>
<p>UT-LN-45</p>	<p style="text-align: center;">MIGRATORY BIRD</p> <p>The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations. This notice may be waived, excepted, or modified by the authorized officer if either the resource values change or the lessee/operator demonstrates that adverse impacts can be mitigated.</p>
<p>UT-LN-49</p>	<p style="text-align: center;">UTAH SENSITIVE SPECIES</p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.</p>
<p>UT-LN-52</p>	<p style="text-align: center;">NOXIOUS WEEDS</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.</p>

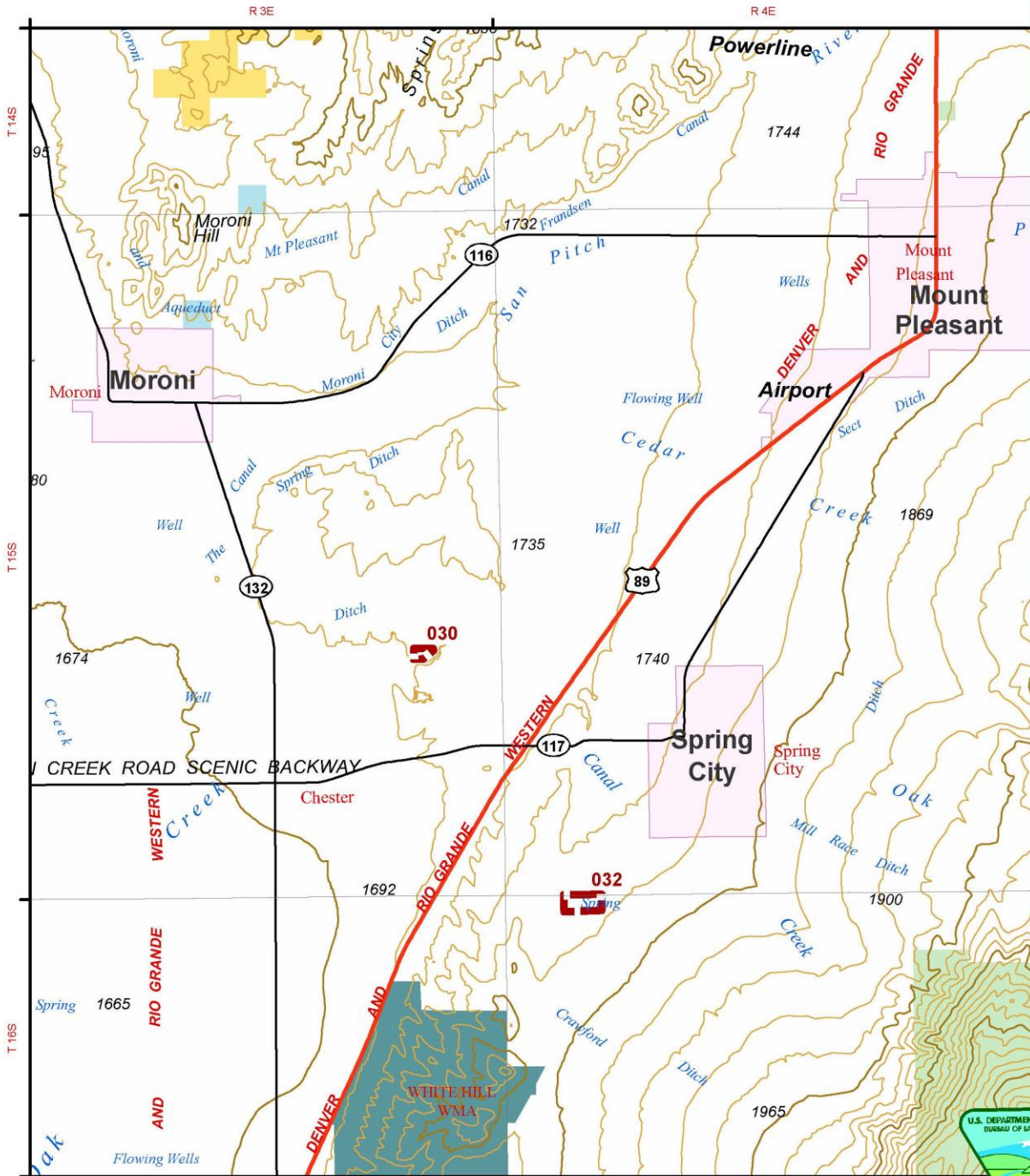
<p>UT-LN-56</p>	<p style="text-align: center;">DRINKING WATER SOURCE PROTECTION</p> <p>This lease (or a portion thereof) is within a public Drinking Water Source Protection zone. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the public water system manager to determine any zoning ordinances, best management or pollution prevention measures, or physical controls that may be required within the protection zones. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-600. Drinking Water Source Protection for Ground-Water Sources. (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code.</p> <p>Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. This part of the Code gives cities and towns the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds.</p> <p>Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling, and production activities within Source Protection zone 3 could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other State rules to protect surface and ground water: the Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649.</p> <p>At the time of development, drilling operators will additionally conform to the operational regulations in Onshore Oil & Gas Order No. 2 (which requires the protection and isolation of all usable quality waters, ≤ 10,000 mg/L Total Dissolved Solids (TDS)) and Onshore Oil and Gas Order No. 7 (which prescribes measures required for the handling of produced water to insure the protection of surface and ground water sources).</p>
<p>UT-LN-58</p>	<p style="text-align: center;">DRINKING WATER PROTECTION ZONE</p> <p>The lessee/operator is given notice that this lease parcel overlaps a drinking water protection zone for public water sources in Utah. At the time of development, drilling operators will conform to the provisions of the operational regulations and Onshore Oil & Gas Order Number 2, which requires the protection and isolation of all useable quality waters.</p>
<p>UT-LN-65</p>	<p style="text-align: center;">OLD SPANISH TRAIL</p> <p>The lessee/operator is given notice that lands in this lease are crossed by the Old Spanish Trail National Historic Trail [Old Spanish Trail Recognition Act of 2002, (Old Spanish Trail PLO 107-325)]. Modifications to the Surface Use Plan of Operations may be required in order to protect the historic integrity of the trail. Coordination with the National Park Service may be necessary.</p>

<p>UT-LN-72</p>	<p style="text-align: center;">HIGH POTENTIAL PALEONTOLOGICAL RESOURCES</p> <p>The lessee/operator is given notice that lands in this lease have been identified as having high potential for paleontological resources. Planned projects should be consistent with BLM Manual and Handbook H8270-1, Chapter III (A) and III (B) to avoid areas where significant fossils are known or predicted to occur or to provide for other mitigation of possible adverse effects (RX, NF, ESR). Modifications to the Surface Use Plan of Operations may be required in order to protect paleontological resources from surface disturbing activities in accordance with Section 6 of the lease terms and 43 CFR 3101.1-2.</p>
<p>UT-LN-91</p>	<p style="text-align: center;">WATER AND WATERSHED PROTECTION</p> <p>The lessee/operator is given notice that this lease may need modifications to the Surface Use Plan of Operations in order to prevent water pollution and protect municipal and non-municipal watershed areas. No surface use or otherwise disruptive activity allowed within 500 feet of a supply well in order to prevent water quality degradation in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
<p>UT-LN-99</p>	<p style="text-align: center;">REGIONAL OZONE FORMATION CONTROLS</p> <p>To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects:</p> <ul style="list-style-type: none"> • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency • Tank VOC emission controls to +95% efficiency
<p>UT-LN-102</p>	<p style="text-align: center;">AIR QUALITY ANALYSIS</p> <p>The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.</p>

APPENDIX B, PARCEL MAPS

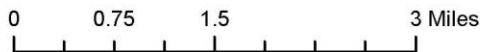
Map 1 of 4

May 2015 Lease Sale



County Boundary
Field Office Boundary

May 2015 Lease Sale



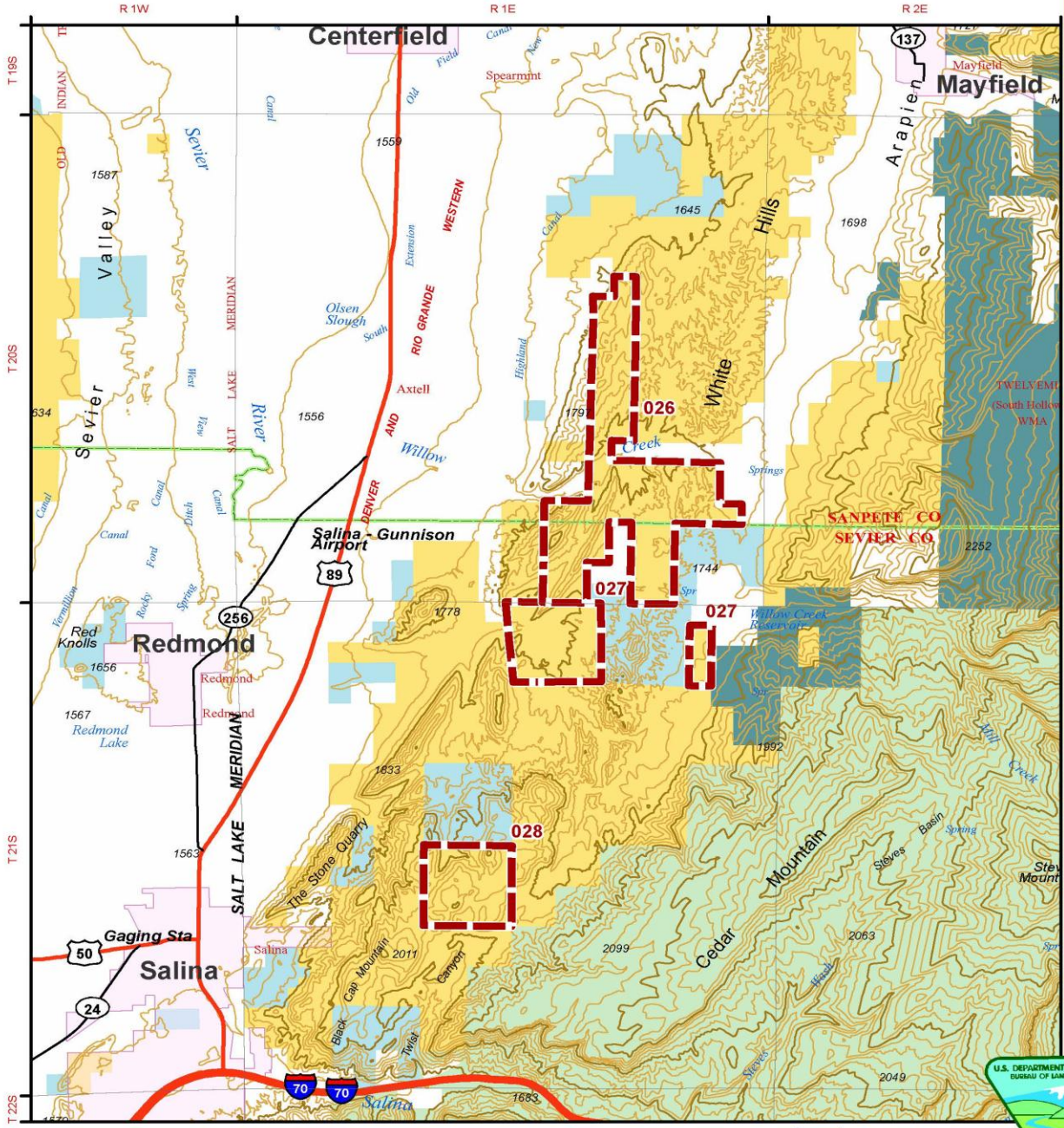
- Public Land
- National Forest
- National Park Service (NPS)
- State Land
- State DWR
- Indian Reservation (IR)
- Private Land
- Private Land



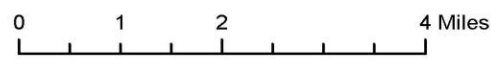
BLM









May 2015 Lease Sale

Map 2 of 4



 May 2015 Lease Sale



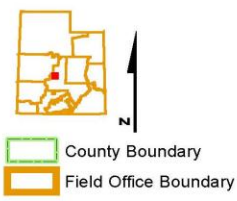
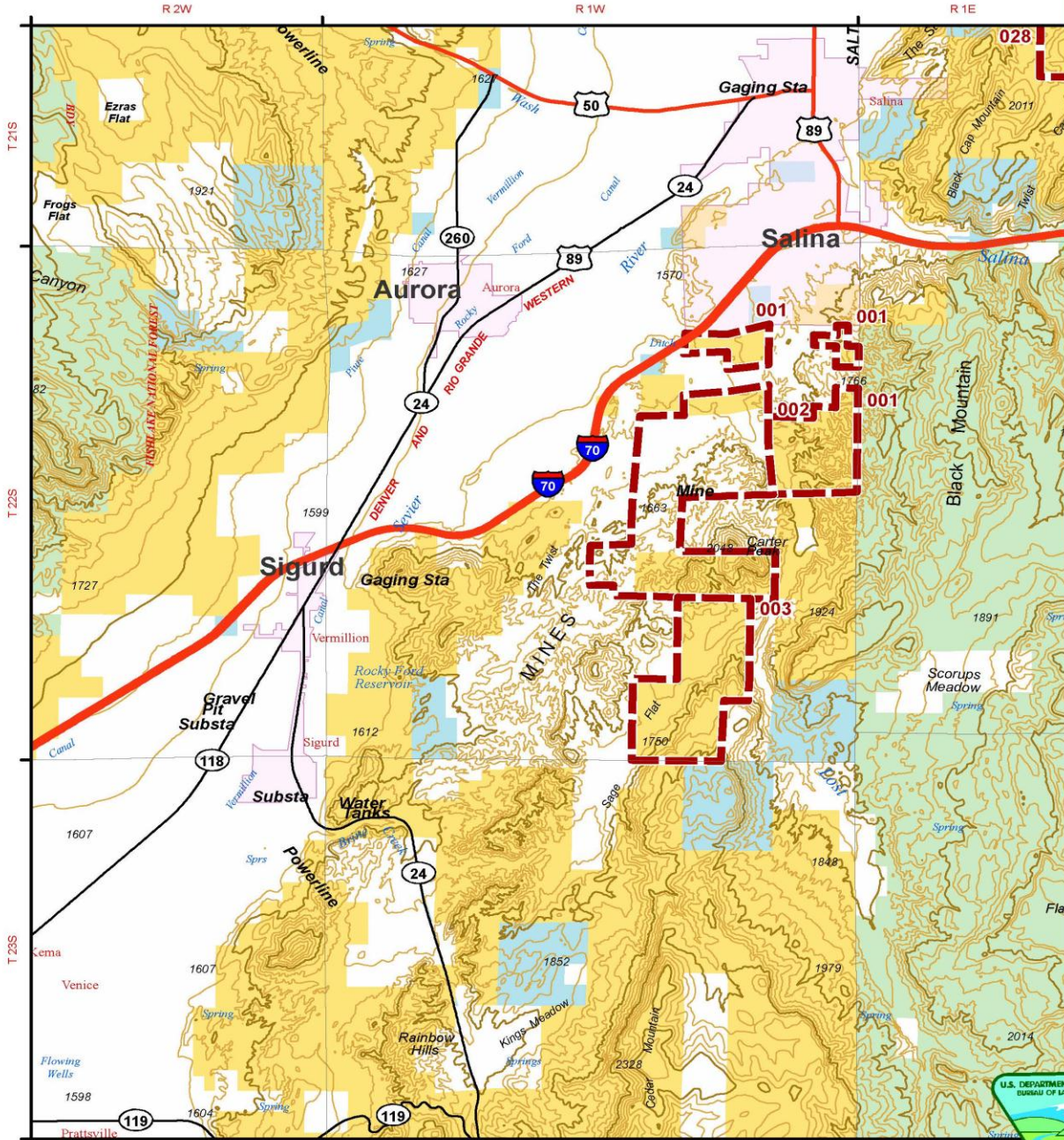
-  Public Land
-  National Forest
-  National Park Service (NPS)
-  State Land
-  State DWR
-  Indian Reservation (IR)
-  Private Land
-  Private Land



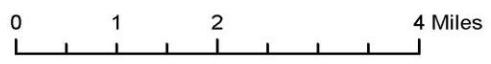
BLM









Map 3 of 4

May 2015 Lease Sale



 May 2015 Lease Sale



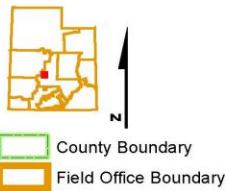
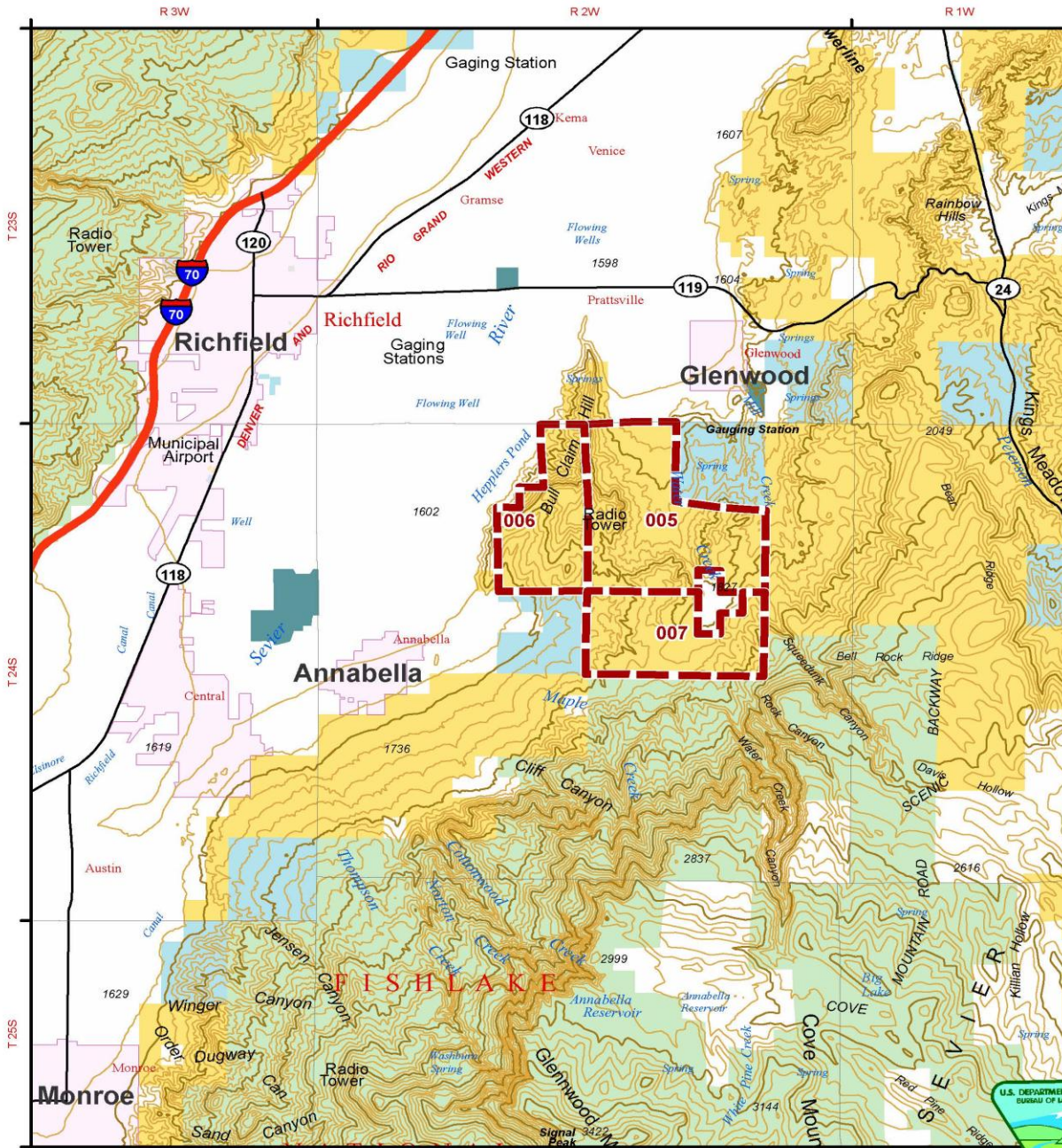
-  Public Land
-  National Forest
-  National Park Service (NPS)
-  State Land
-  State DWR
-  Indian Reservation (IR)
-  Private Land
-  Private Land



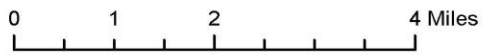
Map 4 of 4





May 2015 Lease Sale

BLM



 May 2015 Lease Sale



-  Public Land
-  National Forest
-  National Park Service (NPS)
-  State Land
-  State DWR
-  Indian Reservation (IR)
-  Private Land
-  Private Land



APPENDIX C, INTERDISCIPLINARY TEAM CHECKLIST

INTERDISCIPLINARY TEAM CHECKLIST

DETERMINATION OF STAFF

NP = not present in the area impacted 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 impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determi- nation	Resource	Rationale for Determination*	Signature	Date
RESOURCES AND ISSUES CONSIDERED (Includes Supplemental Authorities Appendix 1 H-1790-1)				
PI	Air Quality	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality.	Leonard Herr	9.15.2014
NP	Areas of Critical Environmental Concern	The 2008 Richfield Field Office RMP lists no Areas of Critical Environmental Concern within the proposed action area.	Jennifer Evans	10.10.2014
NP	Non-WSA Lands with Wilderness Characteristics (BLM Natural Areas)	None of the ten RFO lease parcels proposed for inclusion at the May 2015 oil and gas lease sale contain BLM Natural Areas designated by the RFO RMP to be managed for their wilderness characteristics while allowing other uses, as appropriate (parcels proposed for lease are identified in Appendix A). Inventories conducted by BLM identified lands possessing wilderness characteristics but not selected for management of those characteristics in the Approved RMP within parcel 029, but this parcel has been deferred, in its entirety, from offering at the May 2015 lease sale.	Jennifer Evans	10.10.2014
NI	Cultural Resources	BLM completed a cultural resource records search and analysis for the 13 proposed oil and gas lease parcels. The analysis indicated that site densities in the 13 parcels are low, ranging from 0 sites per acre to .0034 sites per acre. No cultural resource inventory has been conducted in 3 of the parcels in Sanpete County that are split estate. Despite lack of survey in the individual parcels, a 15,295 acre inventory in the valley identified 66 sites, 16 of which were eligible. The inventory further demonstrates the low density of sites in the region. Based on the low site density across the parcels, potential lessees could likely place oil and gas facilities within most of the parcels without impacting cultural resources. UT515-029 is along North Fork Canyon directly north of Quitchupah Creek Canyon. The primary access to UT515-029 would likely be through Quitchupah Creek. Any O&G developer leasing UT515-029 would likely need to improve the current road in Quitchupah to reach Parcel 029. A previous EIS (USDI 2006), cultural inventories, and ethnographic study (Stoffle et al. 2004) identified the Quitchupah area as archaeologically significant and culturally significant to Native American tribes. As a result	M. Jared Lundell	11.17.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>of these findings and other resource concerns the previous FEIS and ROD selected an alternative outside Quitcupah canyon. In following the previous EIS and comments from Native American tribes on the current oil and gas lease, BLM will defer parcel UT515-029 for the May 2015 lease sale.</p> <p>Based on consultation and analysis, stipulation UT-S-171 will be added to parcels UT515-005, UT515-006, and UT515-007 to provide a buffer around important cultural resources.</p> <p>UT-S-171: "No Surface Occupancy within ¼ mile or within the visual horizon, whichever is closer, of cultural sites where the landscape features are important in understanding the property or sites where setting directly contributes to the significance of the property."</p> <p>In addition, WO-IM-2005-003 stipulation on cultural resources will be added to all parcels. This stipulation provides the following: "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."</p> <p>The deferral of parcel UT515-029, the addition of stipulation UT-S-171 to parcels UT515-005, UT515-006, and UT515-007 and the addition of WO-IM-2005-003 cultural resources stipulation to all parcels, when combined with BLM's authority under the standard lease terms to impose reasonable measures restricting surface operations in order to avoid or minimize adverse impacts, should alter the proposed action such that cultural resources should not be impacted by the leasing of the 10 parcels.</p> <p>As summarized in the consultation table at Chapter 5.2, BLM consulted with Native American tribes and the SHPO regarding its determination of "No Adverse Effect" [36 CFR 800.5 (b)] for the May 20, 2015 oil and gas lease sale. Consultation is ongoing.</p> <p>BLM also consulted with the Central Utah Archaeological Society on September 11, 2014 and September 22, 2014. BLM consulted with the Utah Rock Art Research Association on October 12, 2014.</p> <p>If oil and gas development results from any lease, site</p>		

Determination	Resource	Rationale for Determination*	Signature	Date
		specific Class III cultural resource inventories will be conducted. The BLM will also complete an additional EA or EIS and conduct additional consultation with Native American tribes, the State Historic Preservation Officer, and other interested consulting parties in association with any permits to drill.		
PI	Greenhouse Gas Emissions	It is currently not feasible to know with certainty the net impacts from leasing and any potential exploration on climate. While BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. Leasing the subject parcels would have no direct impacts on climate as a result of GHG emissions. There is an assumption; however that leasing the parcels would lead to some type of exploration that would have indirect effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined. It is unknown whether the petroleum resources specific to these parcels are gas or oil or a combination thereof. Since these types of data as well as other data are unavailable at this time, it is also unreasonable to quantify GHG emission levels.	Leonard Herr	9.15.2014
NI	Environmental Justice	As defined in EO 12898, minority, low income populations and disadvantaged groups may be present within the counties involved in this lease sale. The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing would not adversely or disproportionately affect minority, low income or disadvantaged groups.	Stan Andersen	10.6.2014
NI	Farmlands (Prime or Unique)	None of the identified parcels qualify as prime or unique farmlands according to the NRCS Soil Surveys of the Sanpete Valley Area and the Sevier County Areas. There are parcels that are categorized as 'prime if irrigated'. However, to be classified as 'prime' they require a dependable moisture supply that comes from either precipitation or irrigation. Because all water is already allocated throughout the water basins, there is no dependable water source for those lands classified as 'prime if irrigated' and therefore do not warrant special protective measures.	Brant Hallows	10.23.2014
NI	Fish and Wildlife Excluding USFWS Designated Species	Detailed information on the inclusion of the appropriate lease notices and stipulations are contained in the RFO RMP. A particular species habitat and corresponding criteria were identified from GIS data layers developed by the BLM, Utah Division of Wildlife Resources/Utah Natural Heritage Program data and field office records. These habitats are addressed in the LUP and provided needed protections through stipulations or notices. Crucial deer and/or elk winter/spring range occurs on the following parcels: 001,002,003, 005, 006, 007, 026, 027, and 028. The application of stipulation UT-S-233 is warranted on these parcels. In light of existing knowledge and data regarding wildlife for the subject parcels, the verification of this data and	Larry Greenwood	9.11.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		knowledge during parcel site-visits, and the protective measure that would be applied to the parcels if leased, significant impacts beyond those addressed by the RFO ROD/RMP are not anticipated to occur as a result of leasing the proposed parcels.		
NI	Floodplains	Floodplains, as defined by EO 11988, FEMA, HUD, Corps of Engineers and the RMP, are present. The lease sale and application of stipulations/notices would not affect a county's ability to obtain and/or maintain Federal flood insurance. Through design features, BLM would avoid occupancy and modification of floodplain development. The hazard degree is low. Impacts to floodplains are not expected to reach a level that would require adding a lease notice to any of the parcels. Refer also to the riparian zones and wetland areas discussion. Also, the proposed action will not increase the risk of flooding or damage to human life and property and it will not be contrary to Executive Order 11988 – Floodplain Management.	Brant Hallows	10.23.2014
NI	Fuels/Fire Management	The proposed action would have no impact on Fuels/Fire Management. The implementation of appropriate reclamation standards at the APD stage would prevent an increase of hazardous fuels.	Bob Bate	10.6.2014
NI	Geology / Mineral Resources/Energy Production	Parcels located between Mayfield and Salina are within the approximate boundaries of the Providence oil and gas field. Salt has historically been surface mined from the Arapien Shale in this area. A Free Use Permit granted to Sevier County is located on parcel 006. Currently, there are no authorized or pending locatable exploration or mining operations on any of the parcels. Any conflicts between fluid mineral operations and other mineral operations would be resolved at the time of any application related to fluid mineral exploration and development.	Joe Manning	9.15.2014
NI	Hydrology	Parcel 026 is located within the Michaelson Spring Drinking Water Source Protection Zone (DWSPZ). This parcel will have lease notices UT-LN-56 and UT-LN-58 attached.	Joe Manning	9.18.2014
NI	Invasive Species/Noxious Weeds (EO 13112)	Noxious/invasive weed species may be present on the subject parcels. The BLM coordinates with County and local governments to conduct an active program for control of invasive species. The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying along with site specific mitigation applied as conditions of approval (COA) at the APD stage should be sufficient to prevent the spread or introduction of Invasive, Non-native species. All disturbed areas and piles of top soil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds. Other constraints, including the use of certified weed free seed and vehicle/equipment wash stations, would be applied as necessary at the APD stage as documented in	Brant Hallows	10.17.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>filing plans and conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, BMPs, SOPs and site specific mitigation applied at the APD stage as COAs. Negligible impacts would be expected as a result of leasing and exploration. All disturbed areas and piles of top soil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds.</p> <p>These expectations are required for all parcels in the lease. Application of UT-LN-52 is warranted on all parcels.</p>		
NI	Lands/Access	<p>As described, the proposed action would not substantially affect access to public land on a permanent basis. No roads providing access to public land would be closed for any extended period of time. The proposal would be subject to valid prior existing rights including county-maintained roads (See BLM internal/public Master Title Plat web site as there are various rights-of-way in the proposed areas). Any operations would be coordinated with right-of-way (ROW) holders and adjacent non-federal landowners. Off-lease ancillary facilities that cross public land, if any, may require a separate authorization (Generally Access Roads and utility ROW). It is anticipated that existing ROWs in proposed operation areas would not be affected because site-specific mitigation applied at the APD stage, including the ability to move operations up to 200 meters. These measures would ensure that existing ROWs would be avoided, restored, or replaced if damaged. Seasonal route restrictions should also be dealt with through site-specific mitigation on an as-needed basis. Surface disturbance within and outside described project areas would need to be rehabilitated and reseeded. Plans should be made for removal of any generated trash/debris from public land and discarded at an authorized facility.</p>	Michael B. Utley	9.3.2014
NI	Livestock Grazing/Range	<p>Lease of the parcels will not impact livestock grazing within the identified grazing allotments. However, there is an inherent expectation that there may be oil or gas activities on each leased parcel. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including revegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography) and road reclamation would be completed if a well were authorized. Range improvement project replacement/restoration (fences, cattle guards, etc.), noxious weed controls, would be identified in future NEPA/Decision documents on a case-by-case basis. In addition, if any range improvement projects could be impacted by wells or associated infrastructure, wells would be moved 200 meters to avoid these impacts 43 CFR 3101.1-2. The issues identified above</p>	Brandon Jolley	10.20.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		would be addressed further on a project site specific level if an APD is filed.		
NI	Migratory Birds	<p>Habitat for priority migratory birds occurs on all 10 parcels. The application of lease notice UT-LN-45 is warranted on all parcels.</p> <p>The following documents are incorporated: Utah Comprehensive Wildlife Conservation Strategy (CWCS), Utah Partners in Flight Avian Conservation Strategy Version 2.0. (Parrish, et.al. 2002), Birds of Conservation Concern (2002), 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 (4/2010), and Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM UTSO IM 2006-096)</p> <p>In light of existing knowledge and data regarding migratory for the subject parcels and the protective measure that would be applied to the parcels if leased, significant impacts beyond those addressed by the RFO ROD/RMP are not anticipated to occur as a result of leasing the proposed parcels.</p>	Larry Greenwood	9.11.2014
NI	National Historic Trails	<p>Parcels UT0515-002 and UT0515-003 lay within a .5 mile buffer of the designated Old Spanish National Historic Trail corridor. The corridor passes through parcel 003. It is possible that any oil and gas development in these parcels will impact the viewshed of the Old Spanish Trail (OST) in this region where the historical landscape is relatively pristine. Any oil and gas development in these parcels, along the OST, will likely need to mitigate impacts to the historic viewshed.</p> <p>The BLM sent an email notifying and requesting input from the National Park Service National Trails Intermountain Region of the oil and gas lease sale on September 17, 2014. BLM also sent an email to the local Old Spanish Trail Association Fishlake Cutoff Chapter and the Utah director for the Old Spanish Trail Association on September 11, 2014. The BLM met with OSTA FLCO members on September 22, 2014 to consult on the oil and gas lease sale.</p> <p>Based upon BLM analysis and external coordination regarding the OST, BLM will attach lease notice UT-LN-65 to parcels 002 and 003 to inform lessees that the parcels are near the designated corridor of the OST and that BLM may modify future oil and gas development operations so as not affect the integrity of the National Historic trail.</p> <p>UT-LN-65: "The lessee/operator is given notice that lands in this lease are crossed by the Old Spanish Trail National Historic Trail (Old Spanish Trail Recognition Act of 2002, (Old Spanish Trail PLO 107-325)). Modifications to the Surface Use Plan of Operations may be required in order to</p>	M. Jared Lundell	10.15.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>protect the historic integrity of the trail. Coordination with the National Park Service may be necessary.”</p> <p>The addition of lease notice UT-LN-65 to parcels UT515-002 and UT515-003 when combined with BLM’s authority under the standard lease terms to impose reasonable measures restricting surface operations in order to avoid or minimize adverse impacts will mitigate impacts to the OST.</p>		
NI	Native American Religious Concerns	<p>BLM has sent letters containing notification of this lease sale and the results of our cultural resources records search to the following Tribes: Paiute Indian Tribe of Utah, Ute Indian Tribe, Hopi Tribe, Navajo Nation, Utah Navajo Commission, Southern Ute Tribe, Ute Mountain Ute, White Mesa Ute, Kaibab Paiute Tribe, and Zuni Pueblo. In addition BLM met with the Paiute Indian Tribe of Utah (PITU) on 10/21/2014 and the Navajo Nation on 10/23/2014. PITU and the Hopi identified cultural and religious concerns with the parcel near Quitcupah Creek mentioned and addressed in the Cultural Resources section of this checklist. BLM has deferred the leasing of this parcel as a result of consultation, analysis, and a previous EIS. BLM will consult with PITU on the alterations. Correspondence is summarized in the Chapter 5 consultation table. This correspondence is part of the record. Additional consultation would be initiated at the APD stage.</p>	M. Jared Lundell	11.17.2014
NI	Paleontology	<p>Lease Parcels 026, and 027 occur in Potential Fossil Yield Classification IV and V. These parcels should all have Lease Stipulations UT-LN-72 attached.</p> <p>Any future analysis required for an authorization to conduct exploratory or operational activities would include a review of findings to date, and would incorporate appropriate mitigation measures to protect valuable paleontological resources.</p>	Joe Manning	9.15.2014
NI	Rangeland Health Standards & Guidelines	<p>Leasing of these parcels would not impact Rangeland Health Standards. However, there is an inherent expectation that oil or gas activity could occur on any or all of the leased parcels. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a new project through future NEPA analysis, on a case-by-case basis. It would be expected that reclamation procedures would be required to ensure impacts to Rangeland Health Standards are minimized. The Gold Book standards also provide mechanisms to achieve Rangeland Health. These include weed control, siting considerations (e.g. well pad, contouring, road alignment), and re-vegetation.</p> <p>Design features necessary for the protection of water quality, soils, vegetation, threatened & endangered species habitat and other ecological features (rangeland health components) are incorporated. Refer also to the corresponding discussion in this checklist. Given the degree of anticipated exploration and application of SOPs, BMPs</p>	Brandon Jolley	10.20.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		and design features applied at the APD stage as conditions of approval it is concluded that rangeland health standards would be met.		
NI	Recreation	There are no Special Recreation Management Areas (SRMAs) within the proposed action area. Recreation in the area is primarily dispersed recreation as part of the Extended Recreation Management Area (ERMA). There are recreation concentrations and developed recreation activities that do take place within the proposed action area. The Paiute Trail and other OHV opportunities are within several proposed parcels. The Sauls Meadow staging area for the Paiute Trail and for equestrian users is within parcel 007 as well as the trails (motorized and non-motorized) departing from the staging area. The White Hills are also within and near parcel 026, these attract mountain bikers to the area. Other dispersed recreation that may take place within the proposed parcels include hiking, equestrian use, wildlife viewing, OHV use on designated roads and trails, biking, photography, etc. Impacts to recreation by oil and gas leasing, exploration, and development would vary and need to be evaluated on a case by case basis in additional NEPA when an APD is filed.	Jennifer Evans	10.10.2014
PI	Socio-Economics	Drilling and exploration wells could impact the local social structure and economy. For the short-term, land surveyors, landmen, construction crews, and drilling crews would be involved during the drilling phase. Construction could take 10 to 20 days and drilling operations are expected to take about 20 to 60 days. This activity would lead to work crews lodging in local facilities with subsequent of expenditures in local markets. If the well is producible in paying quantities, the local social structure and economy could experience long-term impacts. These impacts could result in beneficial economic development, a need for additional infrastructure to provide goods and services to work forces, and possible changes to the economic and social base of the local community. Production could lead to additional exploration and development, increased oil and gas activities, additional employment, and royalties. Long term impacts could be in the range of 10-40 years.	Stan Andersen	10.6.2014
NI	Soils / Watersheds	Leasing would not have an impact on these resources; however there is a possibility that exploration/development could occur in the future. If exploration/development is proposed, these actions could have impacts to soils and watersheds and these actions would be analyzed in separate NEPA documents at the time of the proposal. SOPs, BMPs and site specific design features including reclamation would be applied at the APD stage as COAs to mitigate soil disturbing actions on soils and watersheds. The application of stipulation UT-S-102 is warranted on all parcels besides parcel 030. UT-S-102: "No surface disturbing proposed projects involving construction on slopes greater than 30. If the	Brant Hallows	10.17.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>action cannot be avoided, rerouted, or relocated than a proposed project will include an erosion control strategy, reclamation and a site plan with a detailed survey and design completed by a certified engineer. This proposed project must be approved by the BLM prior to construction and maintenance."</p> <p>In light of existing knowledge and data regarding soils/watersheds for the subject parcels and the protective measure that would be applied to development on the parcels, significant impacts are not anticipated to occur as a result of leasing the proposed parcels.</p>		
NI	Utah Sensitive Plant and Animal Species other than FWS candidate or listed species	<p>Habitat for 2 sensitive plant species (Jones Townsendia and Wards Penstemon) is found within parcels 001, 002, 003, 026, 027, and 028. Application of Lease Notice UT-LN-49 is warranted on these parcels.</p> <p>Habitat for the sensitive Ferruginous Hawk is found within all 10 parcels. Application of lease notice UT-LN-49 is warranted on all parcels.</p> <p>Golden Eagle habitat occurs on all 10 parcels and lease notice UT-LN-40 is warranted on all parcels. Washington Office BLM lease stipulation as directed by WO IM No. 2002-174 would apply to all parcels.</p> <p>In light of existing knowledge and data regarding plant and animal species for the subject parcels and the protective measure that would be applied to development on the parcels, significant impacts are not anticipated to occur as a result of leasing the proposed parcels.</p>	Larry Greenwood	9.11.2014
NP	Threatened, Endangered or Candidate Plant Species	<p>No threatened, endangered or candidate plant species or habitat is present on any of the parcels proposed to be leased in this EA.</p> <p>The BLM and the United States Fish and Wildlife Service (FWS) engaged in programmatic section 7 consultation for statewide oil and gas lease sales in conjunction with the analysis and subsequent issuance in 2008 of the Approved Resource Management Plans (RMPs) for the Moab, Monticello, Price, Richfield and Vernal Field Offices. Through this consultation, a Biological Opinion from FWS was made a part of the Richfield Field Office RMP. This programmatic consultation included the development, by BLM and FWS, of a set of specific lease notices for certain plant and animal species that are to be attached to oil and gas leases offered by BLM in Utah. The notices contain current avoidance and minimization measures that if followed could reduce the scope of Section 7 consultation at the permit stage. FWS responded with a memorandum which basically stated the following: "We concur that the sale of oil and gas lease parcels, with the species-specific lease notices, results in a "not likely to adversely affect" determination."</p> <p>In addition, FWS is consulted regarding the May 2015 lease</p>	Larry Greenwood	9.11.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>sale specifically, which will include BLM providing FWS with BLM's determinations as to any threatened or endangered, proposed or candidate species found or potentially found on the parcels as well as the applicable lease stipulations and notices. If FWS concurs with BLM's determinations for the May 2014 oil and gas lease sale, informal consultation with FWS will be concluded for the lease sale.</p>		
NP	Threatened, Endangered or Candidate Animal Species	<p>No Threatened, Endangered or Candidate animal species or their habitat occur on any of the parcels.</p> <p>The BLM and the United States Fish and Wildlife Service (FWS) engaged in programmatic section 7 consultation for statewide oil and gas lease sales in conjunction with the analysis and subsequent issuance in 2008 of the Approved Resource Management Plans (RMPs) for the Moab, Monticello, Price, Richfield and Vernal Field Offices. Through this consultation, a Biological Opinion from FWS was made a part of the Richfield Field Office RMP. This programmatic consultation included the development, by BLM and FWS, of a set of specific lease notices for certain plant and animal species that are to be attached to oil and gas leases offered by BLM in Utah. The notices contain current avoidance and minimization measures that if followed could reduce the scope of Section 7 consultation at the permit stage. FWS responded with a memorandum which basically stated the following: "We concur that the sale of oil and gas lease parcels, with the species-specific lease notices, results in a "not likely to adversely affect" determination."</p> <p>In addition, FWS is consulted regarding the May 2015 lease sale specifically, which will include BLM providing FWS with BLM's determinations as to any threatened or endangered, proposed or candidate species found or potentially found on the parcels as well as the applicable lease stipulations and notices. If FWS concurs with BLM's determinations for the May 2014 oil and gas lease sale, informal consultation with FWS will be concluded for the lease sale.</p>	Larry Greenwood	9.11.2014
NI	Vegetation	<p>Leasing fluid minerals would have little or no impact on the vegetative resource of these parcels. The impact would happen if and when actual drilling etc. occurs on the parcel. If drilling is proposed, then the appropriate NEPA and its associated checklist will address impacts. SOPs, BMPs and site specific design features applied at the APD stage including reclamation, as COA would address soil resource issues not already analyzed in the FEIS/PRMP. If an Application to Drill Permit (APD) is received Best Management Practices (BMPs) and site specific design features to minimize disturbance to vegetation would be applied as Conditions of Approval.</p>	Larry Greenwood	9.11.2014
NI	Visual Resources	<p>The identified parcels on BLM lands in the proposed action fall into VRM classes III and IV.</p> <p>Objectives for VRM Class III are to partially retain the existing character of the landscape. The level of change to</p>	Jennifer Evans	10.10.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>the landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the landscape.</p> <p>Objectives for VRM Class IV are to provide for management activities that require major modification of the existing character of the landscape. The level of change to landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, nominal disturbance, and repetition of the basic elements.</p> <p>Visual impacts will be evaluated on a case by case basis in additional NEPA if an APD is filed and mitigation measures to reduce impacts to visual resources will be implemented.</p>		
NI	Wastes (hazardous or solid)	<p>There are currently no known waste issues associated with the proposed lease areas. If development of roads or well pads occur, potential release from equipment could be possible. State and Federal regulations would govern the use, storage and disposal of any products that could potentially impact persons or environment. Reporting and mitigation efforts would be required should such an event occur.</p>	Stan Andersen	10.6.2014
NI	Water Resources/Quality (drinking/surface/ground)	<p>The lease parcels with split estate ownership may have water wells that supply dwellings with drinking water. Modifications to a surface use plan of operations may be required at the APD stage in order to prevent water quality degradation.</p> <p>SOPs required by regulation and design features contained in an approved APD would be sufficient to isolate and protect all usable ground or surface water sources. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (OOGO) No. 7 and the requirements for drilling operations contained in OOGO No. 2. Potential fresh water aquifers would be cased and cemented. The casing would be pressure tested to ensure integrity prior to drilling out the surface casing shoe plug.</p> <p>Potential impacts would be addressed and a design feature would be included prior to APD approval. Standard protocols would minimize possibility of releases (cased drill holes, no surface disturbance or occupancy would be maintained within 330 feet of any natural springs, new disturbance will be not be allowed in areas equal to the 100-year floodplain or 100 meters on either side of the center line of any stream, stream reach, or riparian area).</p> <p>Parcel 026 is located within the Michaelson Spring DWSPZ. This parcel should have Lease Stipulations UT-LN-56 and</p>	Joseph Manning	11.13.2014

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>UT-LN-58 attached.</p> <p>UT-LN-91 exists to protect municipal and non-municipal watersheds and is designed to restrict disruptive activity within 500 feet of a water supply well. Comprehensive locations for all supply wells in Sevier and Sanpete Counties are unavailable therefore UT-LN-91 should be applied to all parcels.</p>		
NI	Wetlands/Riparian Zones	<p>Parcels 001, 002, 005, 007, 026, 027, and 030 have riparian zones within them.</p> <p>The no surface occupancy (NSO) lease stipulation UT-S-121 will be applied to parcels 001, 002, 005, 007, 026, 027, and 030. UT-S-121 provides: "No surface disturbance and/or occupancy within buffer zones around natural springs. Base the size of the buffer on hydrological, riparian, and other factors necessary to protect the water quality of the springs. If these factors cannot be determined, maintain a 330-foot buffer zone from outer edge."</p> <p>The application of lease stipulation UT-S-121, along with protections available through the standard lease terms, will ensure that there is adequate protection for riparian/wetland resources within the above referenced lease parcels.</p>	Larry Greenwood	9.11.2014
NP	Wild and Scenic Rivers	There are no designated Wild and Scenic Rivers in the proposed action area according to the 2008 Richfield Field Office RMP.	Jennifer Evans	10.10.2014
NP	Wilderness/WSA	There are no Wilderness or wilderness study areas within the proposed action area according to the 2008 Richfield Field Office RMP.	Jennifer Evans	10.10.2014
NP	Wild Horses and Burros	The RFO RMP was reviewed and there are not any wild horses, burros, or Herd Management Areas present in the lease areas.	Sue Fivecoat	10.6.2014
NI	Woodland / Forestry	Leasing fluid minerals would have little or no impact on the Woodland/Forestry products. The impact would happen if and when actual drilling etc. occurs on the parcel. If drilling is proposed, then the appropriate NEPA and its associated checklist will address impacts. If an Application to Drill Permit (APD) is received Best Management Practices (BMPs) and site specific design features to minimize disturbance to vegetation would be applied as Conditions of Approval.	Robert Bate	10.8.2014

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			

APPENDIX D, DEFERRED PARCEL LIST

DEFERRED PARCEL LIST

Date Nominated	Parcel Number	Legal Description	Acres	Reason Tract Postponed	Land Use Plan
July 1, 2014	UT0515 – 029 PRESALE OFFER UTU67936 Sevier County, Utah Richfield Field Office	T. 22 S., R. 5 E., Salt Lake Secs. 4 and 9: All.	1,284.0	Cultural resources and Native American concerns.	Richfield RMP
July 1, 2014	UT0515 - 031 U.S. Interest 50% Sanpete County, Utah Richfield Field Office	T. 13 S., R. 4 E., Salt Lake Sec. 36: <u>Parcel 1:</u> That portion of Lots 3 and 4 of Section 36, Township 13 South, Range 4 East, Salt Lake Base and Meridian described as follows: Beginning at the Northeast corner of the Northwest quarter of said Section 36; thence South 10 chains; thence West 6.25 chains; thence North 4.91 chains; thence West 9.50 chains; to the Southwest corner of the land conveyed to Wilford W. Rasmussen by deed dated June 17, 1919, recorded in Book 67 of Deeds, at page 509; thence North 4.87 chains to the North line of said Section 36; thence East 15.75 chains to the place of beginning. <u>Parcel 2:</u> That portion of Lot 2 of Section 36, Township 13 South, Range 4 East, Salt Lake Base and Meridian described as follows: Beginning at a point 10 chains South and 5.17 chains East of the Northwest corner of said Section 36: thence East 34.83 chains; thence North 10 chains; thence East 18 chains; thence South 20 chains; thence West 11.40 chains; thence	110.72	Proximity to the town of Fairview and associated private residences.	Richfield RMP

		<p>South 9.25 chains; thence North 89° West 26.60 chains; thence North 9 chains; thence West 20 chains; thence North 0.36 of a chain; thence East 5.17 chains; thence North 8.82 chains to place of beginning.</p> <p><u>Parcel 3:</u> That portion of Lot 2 in Section 36, Township 13 South, Range 4 East, Salt Lake Base and Meridian described as follows: Beginning at a point on the East line of the right-of-way of the D&RG Railway 10 chains South and 0.80 of a chain East of the Northwest corner of said Section 36; thence East 4.37 chains; thence South 8.82 chains; thence West 5.17 chains; thence North 7.22 chains; thence North 25° East along the East line of the right-of-way of the D&RG Railway 1.70 chains to the place of beginning.</p>			
July 1, 2014	<p>UT0515 - 032 U.S. Interest 50% Sanpete County, Utah Richfield Field Office</p>	<p>T. 16 S., R. 4 E., Salt Lake Sec. 6: That portion of the North half of the Northeast quarter of Section 6, Township 16 South, Range 4 East, Salt Lake Base and Meridian described as follows: Beginning at a point 30 chains North from the Southwest corner of the Northeast quarter of said Section 6, and running thence East 25.90 chains; thence North 10 chains; thence West 25.90 chains; thence South 10 chains to the place of beginning.</p>	25.90 Acres	Proximity to the town of Spring City and associated private residences.	Richfield RMP

APPENDIX E, RESPONSE TO COMMENTS